

A photograph of the Clifton Suspension Bridge in Bristol, UK, taken from a low angle looking towards the tower. The bridge's white suspension cables and dark roadway are visible against a clear blue sky. A thin layer of mist or fog hangs over the river below. In the background, the city skyline and houses are visible across the water.

**Barclays PLC**  
Pillar 3 Report 2022

# Prepared for the road ahead

 **BARCLAYS**

# Fulfilling our Purpose...

## Our Purpose...

We deploy finance responsibly to support people and businesses, acting with empathy and integrity, championing innovation and sustainability, for the common good and the long term.

## and our Values...

Respect

Service

Stewardship

Integrity

Excellence

## influence our strategy...

Our diversification,  
built to deliver  
double-digit returns

Strategic priorities  
to sustain and grow



## delivered through Group synergies...

We work as one organisation to create synergies and deliver greater value.

## creating positive outcomes for our stakeholders.

**Customers  
and clients**

**Colleagues**

**Society**

**Investors**

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 For an index of all risk disclosures in the Pillar 3 and Annual Reports [page 199](#)

 A glossary of terms can be found at [home.barclays/investor-relations/reports- and-events/latest-financial-](http://home.barclays/investor-relations/reports-and-events/latest-financial-)

## Barclays PLC Pillar 3 report

Our annual disclosures contain extensive information on risk as well as capital management. The Pillar 3 report provides a detailed breakdown of Barclays' regulatory capital adequacy and how this relates to Barclays' risk management.

# Capital position and risk management in 2022

**Anna Cross**

Group Finance Director

**Taalib Shaah**

Group Chief Risk Officer

The Common Equity Tier 1 (CET1) ratio decreased to 13.9% (December 2021: 15.1%) as RWAs increased by £22.4bn to £336.5bn and CET1 capital decreased by £0.4bn to £46.9bn

The UK leverage ratio increased to 5.3% (December 2021: 5.2%) primarily due to a decrease in the leverage exposure and an increase in Tier 1 capital. The average UK leverage ratio decreased to 4.8% (December 2021: 4.9%).

# Summary of risk profile

This section presents a high-level summary of Barclays' risk profile and its interaction with the Group's risk appetite. Please see page 199 for a comprehensive index of all risk disclosures.

The Board makes use of the Risk Appetite Framework to set appetite, and continuously monitors existing and emerging risks. The Group sets its risk appetite in terms of performance metrics as well as a set of mandate and scale limits to monitor risks. The following risk metrics reflect the Group's risk profile:

## Common Equity Tier 1 ratio

**13.9%**

**2021: 15.1%**  
(see page 20)

## Common Equity Tier 1 capital

**£46.9bn**

**2021: £47.3bn**  
(see page 20)

## Risk weighted assets

**£336.5bn**

**2021: £314.1bn**  
(see page 26)

## UK leverage ratio

**5.3%**

**2021: 5.2%**  
(see page 21)

## Average UK leverage ratio

**4.8%**

**2021: 4.9%**  
(see page 21)

## Own funds and eligible liabilities ratio

**33.5%**

**2021: 34.9%**  
(see page 33)

## Liquidity coverage ratio (period end)

**165%**

**2021: 168%**  
(see page 37)

## Net stable funding ratio

**137%**

(see page 39)

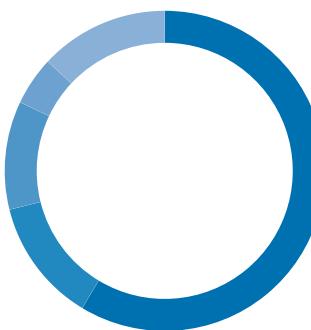
## Summary of risk profile (continued)

- The reported CET1 ratio decreased by c.120bps to 13.9% (December 2021: 15.1%) as RWAs increased by £22.4bn to £336.5bn and CET1 capital decreased by £0.4bn to £46.9bn
- RWAs increased £22.4bn to £336.5bn primarily resulting from the impact of the appreciation of USD against GBP, increased CIB client activity, regulatory changes and higher CC&P balances including the Gap portfolio acquisition. This was partially offset by a decrease due to the disposal of Barclays' equity stake in Absa
- The UK leverage ratio increased to 5.3% (December 2021: 5.2%) primarily due to a decrease in the leverage exposure of £7.9bn to £1,130.0bn and an increase in Tier 1 Capital of £0.6bn to £60.1bn
- Credit impairment net release of £1,220m(2021: £653m net release). The increase in charges reflect macroeconomic deterioration and a gradual increase in delinquencies, partially offset by the utilisation of macroeconomic uncertainty PMAs and the release of COVID-19 related adjustments informed by refreshed scenarios. Total coverage ratio decreased to 1.4% (December 2021: 1.6%) driven by changes in portfolio mix and write-offs. Coverage levels remain strong

 Please see [page 94](#) for a discussion of risk appetite, and [page 269](#) of the annual report for a discussion of material and emerging risks.

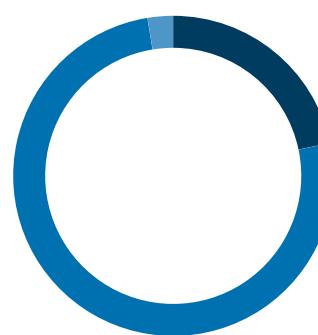
### RWAs increased £22.4bn to £336.5bn

(December 2021: £314.1bn):



	2022 £bn	2021 £bn
Credit risk	<b>197.3</b>	177.9
Counterparty credit risk	<b>42.0</b>	37.6
Market risk	<b>36.8</b>	44.8
Securitisation	<b>16.6</b>	12.1
Operational risk	<b>43.8</b>	41.7

- The liquidity pool was £318bn (December 2021: £291bn) and the liquidity coverage ratio (LCR) remained significantly above the 100% regulatory requirement at 165% (December 2021: 168%), equivalent to a surplus of £117bn (December 2021: £116bn). The increase in the liquidity pool over the year was driven by continued deposit growth and an increase in wholesale funding, partly offset by an increase in business funding consumption. An increase in net stress outflows and trapped liquidity within Barclays' subsidiaries led to a modest reduction in the LCR ratio. The Net Stable Funding Ratio (NSFR) (average of last four quarter ends) was 137%, which represents a £155bn surplus above the 100% regulatory requirement



	2022 £bn	2021 £bn
Barclays UK	<b>73.1</b>	72.3
Barclays International	<b>254.8</b>	230.9
Head Office	<b>8.6</b>	11.0

- Credit risk RWAs increased £19.4bn to £197.3bn primarily due to an increase in lending across CIB and CC&P including the Gap portfolio acquisition, FX and regulatory changes primarily relating to IRB roadmap changes, partially offset by the disposal of Barclays' equity stake in Absa
- Counterparty credit risk RWAs increased £4.4bn to £42.0bn primarily due to FX and regulatory changes relating to the introduction of Standardised Approach for Counterparty Credit Risk (SA-CCR), partially offset by derivative mark-to-market movements
- Market risk RWAs decreased £7.9bn to £36.8bn primarily driven by a decrease in Stressed Value at Risk (SVaR) model adjustment as a result of changes in portfolio composition, decrease due to client and trading activities and structural FX, partially offset by an increase due to FX
- Securitisation RWAs increased £4.5bn to £16.6bn primarily driven by an increase in origination of synthetic securitisation and increased investments in traditional securitisation
- Operational risk RWAs increased £2.1bn to £43.8bn primarily driven by the inclusion of higher 2022 CIB income compared to 2019

- Barclays UK RWAs remained stable at £73.1bn
- Barclays International RWAs increased £23.9bn to £254.8bn mainly resulting from the impact of the appreciation of USD against GBP, regulatory changes and higher CC&P balances including the Gap portfolio acquisition
- Barclays Head Office RWAs decreased £2.4bn to £8.6bn reflecting the disposals of Barclays' equity stake in Absa in April 2022 and September 2022

RWAs for credit (page 44), counterparty credit (page 72), market (page 79), and operational (page 89) risks.

# Notes on basis of preparation

## Disclosure Background

Barclays Pillar 3 disclosures complement the Barclays PLC 2022 Annual Report and provide additional information about Barclays' risk profile, including its regulatory capital, minimum requirements for own funds and eligible liabilities (MREL), RWAs, liquidity and leverage exposures for Barclays Group.

The Pillar 3 report is prepared in accordance with the Capital Requirements Regulation and Capital Requirements Directive ('CRR' and 'CRD V'). In particular, articles 431 to 455 of CRR specify the requirements of the Pillar 3 framework. The regulations came into force on 1 January 2022, and were implemented by the PRA via the PRA Rulebook. The Pillar 3 disclosures have also been prepared in accordance with the updated PRA Rulebook.

References to CRR, as amended by CRR II, mean the capital regulatory requirements, as they form part of domestic law by virtue of the European Union (Withdrawal) Act 2018, as amended.

The disclosures included in this report reflects the Bank's interpretation of the current rules and guidance.



See 'Application of the Basel framework' on [page 9](#) for a more detailed description

## Key changes in the 2022 Pillar 3 Report

### Capital and RWAs

On 19 July 2019, the EBA published a report on the implementation of Internal Ratings-Based approach (IRB) roadmap changes. These have subsequently been implemented by the PRA via several Policy Statements (PS), from 1 January 2022. Key changes include revisions to the criteria for definition of default, PD and LGD estimation to ensure supervisory consistency and increase transparency of IRB models.

On 14 October 2021, the PRA implemented changes to Basel standards through PS 22/21 and were implemented from 1 January 2022. The requirements included the introduction of the SA-CCR which replaces the Current Exposure Method (CEM) for Standardised derivative exposures as a more risk sensitive approach. The PRA also confirmed the intention to revert to the previous treatment of 100% CET1 capital deduction for qualifying software assets.

On 13 December 2021, the Financial Policy Committee (FPC) announced that a Countercyclical Capital Buffer (CCyB) rate of 1% for UK exposures has been re-introduced and was applicable from 13 December 2022.

### UK Leverage Ratio Framework

From 1 January 2022, UK banks became subject to a single UK leverage ratio requirement meaning that the CRR leverage ratio no longer applies. Under the revised UK leverage ratio framework (UKLRF), central bank claims have been excluded from the UK leverage exposure measure where they are matched by qualifying liabilities (rather than deposits).

### MREL requirements

On 3 December 2021 the Bank of England (BoE) set new MREL requirements via an updated Statement of Policy removing the requirements under CRR, meaning that from 1 January 2022 the Group is required to meet the higher of i) 2 times the sum of 8% Pillar 1 and 4.3% Pillar 2A equating to 24.5% RWAs; and ii) 6.75% of UK leverage exposure. The Statement of Policy also confirmed that own funds instruments issued by subsidiaries cannot count towards the Group's MREL from 1 January 2022.

### Pillar 3 disclosures

As part of the introduction of PS 22/21 changes effective from 1 January 2022, a number of new Pillar 3 disclosures have been introduced in line with the updated PRA rulebook (Disclosure (CRR) - Pillar 3 Templates and Instructions). New disclosures are noted and any new data points will not have comparatives. Comparatives are not provided where there has been a change in the guidelines for disclosures that were reportable for 31 December 2021. The terms RWA and RWEA are used interchangeably throughout the document. Leverage related tables do not have comparatives due to prior period numbers being disclosed on a CRR basis, which no longer applies to UK banks.

### Global Systemically Important Institutions (G-SII) disclosure

PS 22/21 also allows G-SIIs to disclose the information required under CRR article 441 within four months of their financial year-end and separately from Pillar 3. To align with the timing of the Basel exercise. Barclays PLC G-SII Disclosure 2022 will be published on 30 April 2023 at <https://home.barclays/investor-relations/reports-and-events/annual-reports/>.

## Future regulatory changes

### Capital and RWAs

On 5 July 2022, the FPC announced a further increase in the CCyB rate to 2% applicable from 5 July 2023.

On 23 May 2022, the FPC amended the assessment methodology of the Other-Systemically Important Institutions (O-SII) buffer to be based on average UK leverage exposure, rather than total assets, from 31 December 2022. This will be in effect from the 2023 assessment and buffer applicable from 1 January 2025.

On 30 November, the PRA published its consultation paper 'Implementation of the Basel 3.1 standards', which covers the remaining parts of the Basel III standards to be implemented in the UK. Changes are expected to come into force from 1 January 2025, other than those areas subject to transitional provisions.

## Presentation of risk data in the Pillar 3 disclosures versus the Annual Report and Accounts

This document discloses Barclays' assets in terms of exposures and capital requirements. For the purposes of this document:

### Credit losses

Where credit impairment or losses are disclosed within this document, Barclays has followed the IFRS definitions used in the Annual Report.

## Notes on basis of preparation (continued)

### Scope of application

Where this document discloses credit exposures or capital requirements, Barclays has followed the scope and application of its Pillar 1 capital adequacy calculations (unless noted otherwise).

### Definition of credit exposures

- Credit exposure, or 'Exposure at Default' (EAD) is defined as the estimate of the amount at risk in the event of a default (before any recoveries) or through the decline in value of an asset. This estimate takes account of contractual commitments related to undrawn amounts
- In contrast, an asset on the Group's balance sheet is reported as a drawn balance only. This is one of the reasons why exposure values in the Pillar 3 report differ from asset values as reported in the Annual Report

Table 4 provides a reconciliation between IFRS balances and EAD for credit risk, counterparty credit risk and securitisations.

### Policy, validation and sign-off

Throughout the year ended 31 December 2022, and to date, Barclays has operated a framework of disclosure controls and procedures to ensure the completeness and accuracy of the Group's Pillar 3 disclosure.



See Appendix D for the reference to Barclays' compliance with the Pillar 3 disclosure requirements.

Barclays is committed to operating within a strong system of internal controls. A framework of disclosure controls and procedures are in place to support the approval of the Group's external financial disclosures. Specific governance committees are responsible for examining the Group's external reports and disclosures so that they have been subject to adequate verification and comply with applicable standards and legislation. These committees report their conclusions to the Board Audit Committee (BAC).

This governance process is in place to provide both management and the Board with sufficient opportunity to debate and challenge the Group's disclosures before they are made public.

"We confirm that Barclays' Pillar 3 disclosures,  
to the best of our knowledge, comply with updated Pillar 3 framework  
within PRA Rulebook and have been prepared in compliance  
with Barclays' internal control framework".

Anna Cross  
Group Finance Director

Taalib Shaah  
Chief Risk Officer

# Scope and application of Basel framework

This section explains the scope of application of Basel framework in relation to capital adequacy.

## Tables 1 and 2

Show the scope of permission of calculation approaches that summarises the various approaches to calculate risk weighted assets, and Barclays' permission to use them.

## Table 3 and 4

Shows the mapping of financial statement categories to the regulatory risk types and a reconciliation of financial statement carrying values against regulatory exposures.

## Table 5

Shows the entities which have a different method of consolidation between accounting and regulatory balance sheets.

## Table 8

Shows how IFRS balances contribute to the regulatory scope of consolidation on a line-by-line basis.

# Application of the Basel framework

## Overview

Barclays has applied the Basel framework since its implementation. This is currently implemented in accordance with CRR and CRD requirements and the PRA rulebook.

### Pillar 1:

covers the regulatory capital requirements including the calculation of risk weighted assets for credit risk, counterparty credit risk, market risk and operational risk

### Pillar 2:

covers the consideration of whether additional capital is required over and above the Pillar 1 risk calculations. A firm's own internal models and assessments support this process

### Pillar 3:

covers external communication of risk and capital information by banks as specified in the Basel framework to promote transparency and good risk management

Pillar 3 requires the disclosure of exposures and associated risk weighted assets for each risk type and approach to calculating capital requirements for Pillar 1.

Distinct regulatory capital approaches are followed for each of the following risk and exposure types:

- credit risk (including certain non-traded equity exposures)
- counterparty credit risk (CCR)
- credit valuation adjustment (CVA)
- market risk
- securitisations
- operational risk

## Approaches to calculate capital requirements under CRD and CRR

### Calculation of capital for credit risk

The credit risk RWA calculation is based on an estimate of the EAD. In addition, where Barclays has the necessary regulatory permissions, it estimates PD and LGD (see the glossary for definitions):

- Standardised approach: assesses capital requirements using standard industry-wide risk weightings based on a detailed classification of asset types, external credit ratings and maturity
- Internal Ratings-Based approach (IRB): assesses capital requirements using the Group's specific data and internal models to calculate risk weightings. As such, internal calculations of PD, LGD and credit conversion factors are used to model risk exposures

 See page 44 for more details on capital requirements for credit risk. Also, the Internal Ratings-Based approach to credit risk section on pages 52-61 discusses credit risk modelling in detail.

### Calculation of capital for counterparty credit risk

CCR applies to derivative and SFT exposures. It differs from credit risk, above, in how the EAD is calculated. CCR arises where a counterparty default may lead to losses of an uncertain nature as the values of any resulting claims are market driven. This uncertainty is factored into the valuation of the Group's credit exposure arising from such transactions. The Group uses three methods under the regulatory framework to calculate CCR exposures:

- The Internal Model Method (IMM), subject to regulatory approval, which allows the use of internal models to calculate an effective expected positive exposure (EEPE), multiplied by a factor stipulated by the regulator called alpha. Barclays uses this approach for certain derivative and SFT exposures and its alpha is currently set at 1.4
- The Standardised approach for counterparty credit risk (SA-CCR) used for derivatives, which is the sum of replacement cost at a netting set level plus an add-on (dependent on potential future exposure (PFE)) calculated for each asset class within a netting set, multiplied by a factor stipulated by the regulator called alpha, currently set at 1.4
- The Financial Collateral Comprehensive Method (FCCM), which is the net position of SFT exposures after the application of volatility adjustments prescribed by the CRR

 See page 72 for more details on capital requirements for counterparty credit risk exposures.

### Calculation of credit valuation adjustment capital charge

The CVA is the capital charge accounting for potential MTM losses due to credit quality deterioration of a counterparty (that does not necessarily default). Two approaches can be used to calculate the adjustment:

- Standardised approach: this approach takes account of the external credit rating of each counterparty, EAD from the calculation of the CCR and the effective maturity
- Advanced approach: this approach requires the calculation of the charge as (a) a 10-day 99% VaR measure for the most recent one-year period and (b) the same measure for a one year stressed period. The sum of the two VaR measures is multiplied with the relevant multiplication factor, based on the number of market risk back-testing exceptions for the most recent 250 business days, to yield the capital charge

 See page 78 for more details on CVA

# Application of the Basel framework (continued)

## Calculation of capital for market risk

RWA calculations for market risk assess the losses from market driven movements in the prices of financial assets and liabilities. Two approaches can be used:

- Standardised approach: a calculation is prescribed that depends on the type of contract, the net position at portfolio level, and other inputs that are relevant to the position. For instance, for equity positions a general market risk component captures changes in the market (systematic risk) while specific market risk is calculated based on features of the specific security (idiosyncratic risk)
- Model-based approach: subject to regulatory permission, the Group can use proprietary VaR models to calculate capital requirements. Under the CRR and CRD framework, stressed VaR, incremental risk charge and all-price risk models must also be used to ensure that sufficient levels of capital are maintained

 See page 79 for more details on capital requirements for market risk.

## Calculation of capital for securitisation exposures

A separate regulatory framework exists for the calculation of securitisations risk weighted assets as per Regulation (EU) 2017/2402 (the Securitisation Regulation) and Regulation (EU) 2017/2401 (amendments to CRR). The following approaches are used for the calculation:

- Internal ratings based approach (Sec IRBA)
- Standardised approach (Sec SA)
- External ratings based approach/internal assessment approach (Sec ERBA/Sec IAA)
- 1250% if the above approaches are not applicable

 See page 83 for more details on capital requirements for securitisation exposures.

## Calculation of capital for operational risk

Capital set aside for operational risk is deemed to cover the losses or costs resulting from human factors, inadequate or failed internal processes and systems or external events.

To assess capital requirements for operational risk, the standardised approach (TSA) is applied. Under TSA, banks are required to hold regulatory capital for operational risk equal to the annual average, calculated over a rolling three-year period, of the relevant income indicator (across all business lines), multiplied by a percentage factor by business lines as per the regulatory requirement.

 See page 89 for more details on capital requirements for operational risk.

## Calculation of capital for large exposures

As at 31 December 2022, Barclays had not exceeded the large exposure limit set in CRR, and as such no capital charge applied.

## Prudential regulation on minimum requirements

Beyond the minimum standards required by CRR, the PRA expects the Group, in common with other major UK banks and building societies, to meet a 7% CET1 ratio at the level of the consolidated group since 1 January 2016.

G-SIIs, such as the Group, are subject to a number of additional prudential requirements, including the requirement to hold additional loss-absorbing capacity and additional capital buffers above the level required by Basel III standards. The level of the G-SII buffer is set by the Financial Stability Board (FSB) according to a bank's systemic importance and can range from 1% to 3.5% of risk-weighted assets (RWAs). The G-SII buffer must be met with CET1. In November 2021, the FSB published an update to its list of G-SIIs, maintaining the 1.5% G-SII buffer that applies to the Group.

The Group is also subject to a 'combined buffer requirement' consisting of (i) a capital conservation buffer, and (ii) a countercyclical capital buffer (CCyB). The CCyB is based on rates determined by the regulatory authorities in each jurisdiction in which the Group maintains exposures.

The PRA requires UK firms to hold additional capital to cover risks which the PRA assesses are not fully captured by the Pillar 1 capital requirement. The PRA sets this additional capital requirement (Pillar 2A) at least annually, derived from each firm's individual capital guidance.

Under current PRA rules, the Pillar 2A must be met with at least 56.25% CET1 capital and no more than 25% Tier 2 capital. In addition, the capital that firms use to meet their minimum requirements (Pillar 1 and Pillar 2A) cannot be counted towards meeting the combined buffer requirement.

As part of its approach to ring-fencing, the FPC established a framework to apply a firm-specific systemic risk buffer (O-SII) which can be set between 0% and 3% of RWAs and which must be met solely with CET1 capital. The O-SII replaced the previous systemic rate buffer (SRB) used to address the risk posed by systemically important institutions. The purpose of the SRB was to increase the capacity of ring-fenced bodies, such as Barclays Bank UK PLC, to absorb stress. The SRB buffer rate applicable to the Group's ring-fenced sub-group was set at 1% with effect from August 2019. In response to the economic shock from COVID-19, the PRA and FPC have held firms' SRB rates at their existing levels until reassessment in December 2023, with any future adjustment to the O-SII buffer applicable from January 2025.

The PRA may also impose a 'PRA buffer' to cover risks over a forward looking planning horizon, including with regard to firm-specific stresses or management and governance weaknesses. If the PRA buffer is imposed on a specific firm, it must be met separately to the combined buffer requirement, and must be met fully with CET1 capital.

 Please see page 371 of the Annual Report for a more complete discussion of prudential developments.

# Application of the Basel framework (continued)

## Regulatory capital, leverage and MREL requirements

### Minimum capital requirements

As at 31 December 2022, the Group's Overall Capital Requirement for CET1 was 11.3% comprising a 4.5% Pillar 1 minimum, a 2.5% Capital Conservation Buffer (CCB), a 1.5% Global Systemically Important Institution (G-SII) buffer, a 2.4% Pillar 2A requirement and a 0.4% Countercyclical Capital Buffer (CCyB).

The Group's updated Pillar 2A requirement as per the PRA's Individual Capital requirement is 4.3% of which at least 56.25% needs to be met with CET1 capital, equating to 2.4% of RWAs. The Pillar 2A requirement, based on a point in time assessment, has been set as a proportion of RWAs and is subject to at least annual review.

The Group's CET1 target ratio of 13-14% takes into account headroom above requirements which includes a confidential institution specific PRA buffer. The Group remains above its minimum capital regulatory requirements including the PRA buffer.

### Minimum leverage requirements

The Group is subject to a UK leverage ratio requirement of 4.0%. This comprises the 3.25% minimum requirement, a G-SII additional leverage ratio buffer (G-SII ALRB) of 0.53% and a countercyclical leverage ratio buffer (CCLB) of 0.2%. Although the leverage ratio is expressed in terms of Tier 1 (T1) capital, 75% of the minimum requirement, equating to 2.4375%, needs to be met with CET1 capital. In addition, the G-SII ALRB and CCLB must be covered solely with CET1 capital. The CET1 capital held against the 0.53% G-SII ALRB was £5.9bn and against the 0.2% CCLB was £2.3bn.

The Group is also required to disclose an average UK leverage ratio which is based on capital on the last day of each month in the quarter and an exposure measure for each day in the quarter.

### Minimum requirements for own funds and eligible liabilities (MREL)

As at 31 December 2022, the Group was required to meet the higher of: (i) two times the sum of 8% Pillar 1 and 4.3% Pillar 2A equating to 24.5% of RWAs; and (ii) 6.75% of leverage exposures. In addition, the higher of regulatory capital and leverage buffers apply. CET1 capital cannot be counted towards both MREL and the buffers, meaning that the buffers, including the above mentioned confidential institution-specific PRA buffer, will effectively be applied above MREL requirements.

As at 31 December 2022, Barclays PLC (the Parent company) held £112.8bn of own funds and eligible liabilities equating to 33.5% of RWAs. This was in excess of the Group's MREL requirement, excluding the PRA buffer, to hold £97.4bn of own funds and eligible liabilities equating to 28.9% of RWAs. The Group remains above its MREL regulatory requirement including the PRA buffer.

# Application of the Basel framework (continued)

## Scope of consolidation

In this report, Barclays PLC is presented on a consolidated basis. All disclosures are published for Barclays PLC for the year ended 31 December 2022. The consolidation basis used is the same as that used for reporting regulatory capital adequacy to the PRA. This scope of consolidation is similar to that used for the reporting of statutory accounts for most of the Group's activities, except for:

- subsidiaries engaged in non-financial activities such as insurance and securitisation vehicles that are fully consolidated for statutory purposes but are not consolidated for regulatory purposes (exposures to securitisation vehicles are subject to a specific capital treatment).

 see page 148  
for further details

- associates, joint ventures and participations, that are financial in nature and accounted for on an equity basis in the statutory accounts, are consolidated in proportion to Barclays PLC's participation for regulatory purposes
- entities that are not financial in nature, as well as private equity investments treated as associates, are accounted for on an equity basis in the statutory accounts, but are deducted from capital for regulatory purposes

## Significant subsidiaries

The Group's significant subsidiaries as at 31 December 2022 are Barclays Bank PLC, Barclays Bank UK Group, Barclays Bank Ireland PLC and Barclays Capital Securities Limited. Pillar 3 disclosures are published in standalone documents for above entities as "Barclays Bank PLC Pillar 3 Report", "Barclays Bank UK PLC Pillar 3 Report", "Barclays Bank Ireland PLC Pillar 3 report" and "Barclays Capital Securities Limited Pillar 3 report" respectively.

### Barclays Bank PLC

Barclays Bank PLC is a wholly-owned subsidiary of Barclays PLC and consists of Corporate and Investment Bank (CIB), Consumer, Cards and Payments (CC&P) and Head Office.

Barclays Bank PLC is currently regulated by the PRA on a solo-consolidated basis and comprises Barclays Bank PLC plus certain additional subsidiaries, subject to PRA approval. The disclosures provided in this document for Barclays Bank PLC are based on this regulatory scope of consolidation. This differs from the accounting disclosures, where Barclays Bank PLC Group relates to Barclays Bank PLC and all its subsidiaries. Refer to the "Barclays Bank PLC Pillar 3" report for further information.

### Barclays Bank UK PLC

Barclays Bank UK PLC is the wholly-owned ring-fenced bank of Barclays PLC. The consolidation of the parent entity, Barclays Bank UK PLC and its subsidiaries, is referred to as Barclays Bank UK Group and consists of Personal Banking, Business Banking and Barclaycard Consumer UK businesses. Refer to the "Barclays Bank UK PLC Pillar 3" report for further information.

### Barclays Bank Ireland PLC

Barclays Bank Ireland PLC is a wholly owned subsidiary of Barclays Bank PLC. Barclays Bank Ireland PLC is licensed as a credit institution by the Central Bank of Ireland (CBI) and is designated as a significant institution, directly supervised via the Single Supervisory Mechanism (SSM) of the European Central Bank (ECB). Refer to the "Barclays Bank Ireland PLC Pillar 3" report for further information.

### Barclays Capital Securities Limited

Barclays Capital Securities Limited is a wholly owned subsidiary of Barclays Bank PLC and is a Private Limited Company domiciled and incorporated in the United Kingdom. It is a PRA designated investment firm. Refer to the "Barclays Capital Securities Limited Pillar 3" report for further information.

## Scope of permission for calculation approaches

Barclays seeks permission from its regulators to use modelled approaches where possible, to enable risk differentiation.

Barclays has regulatory approval to use its internal credit models in the calculation of the majority of its credit risk and counterparty credit risk exposures. The following table summarises the principal portfolios within Barclays that use the standardised and advanced IRB approaches as at 31 December 2022.

**Table 1: The scope of the standardised and AIRB approaches for credit and counterparty credit risk excluding CVA**

Business as at 31 December 2022	Credit risk (see Table 10)		Counterparty credit risk excl. CVA (see Tables 10)	Advanced Internal Ratings Based (AIRB) approach	Standardised approach
	RWA	RWA			
	£m	£m			
<b>Barclays UK</b>	<b>61,588</b>	<b>167</b>		<ul style="list-style-type: none"> <li>▪ UK managed retail and wholesale portfolios</li> <li>▪ UK cards</li> </ul>	<ul style="list-style-type: none"> <li>▪ Minor legacy retail and wholesale portfolios</li> <li>▪ Further Education and Local Authority portfolios</li> <li>▪ High quality liquidity pool assets</li> <li>▪ Barclays Partner Finance</li> <li>▪ UK Wealth Portfolio</li> </ul>
<b>Barclays International</b>	<b>142,806</b>	<b>38,603</b>		<ul style="list-style-type: none"> <li>▪ UK and Ireland Corporate portfolio</li> <li>▪ Non-EEA high quality liquidity pool assets</li> <li>▪ Most Investment Bank portfolios</li> <li>▪ Germany retail credit cards</li> </ul>	<ul style="list-style-type: none"> <li>▪ High quality liquidity pool assets</li> <li>▪ Mainly Non-UK managed retail (including Private Bank) and wholesale portfolios (including legacy)</li> <li>▪ Further Education and Local Authority portfolios</li> <li>▪ US retail credit cards, joint card issuance, partner finance, secure lending, commercial payment and any recent portfolio acquisitions</li> <li>▪ European Corporate Portfolio previously in the Corporate Bank</li> <li>▪ Certain portfolios typically with low or no defaults, or insufficient historical data</li> </ul>
<b>Head Office</b>	<b>9,479</b>	—		<ul style="list-style-type: none"> <li>▪ Small number of portfolios (including Italy Home Loans)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Small number of portfolios (including Equity exposures)</li> </ul>
<b>Group Total</b>	<b>213,873</b>	<b>38,770</b>			

Barclays' AIRB roll-out plans are discussed with regulators and updated based on an agreed schedule.

## Scope of permission for calculation approaches (continued)

**Table 2: Summary of the scope of application of regulatory methodologies for CVA, market and operational risk**

As at 31 December 2022

Risk Type	Risk weighted assets	Scope
<b>Credit value adjustment</b>	<b>3,226</b>	CVA for all contracts in scope as defined by article 382 of the CRR. Barclays has permission to use an internal model for the specific risk of debt instruments and therefore is allowed to use the advanced method for CVA for such instruments where applicable. The standardised method for CVA is used otherwise.
<b>Market risk</b>	<b>36,834</b>	<p>As explained on page 142, the risk of loss from changes in the prices of assets in the trading book are captured by a combined RWA calculation for general and specific market risks. The regulatory permission for Barclays to use models considers risk categories and legal entities; see table 11 on page 27 for capital requirements related to each approach and risk category.</p> <p>Barclays has regulatory approval for VaR modelling for general market risk, which is designed to capture the risk of loss arising from changes in market interest rates, along with the risk of losses arising from changes in foreign exchange, commodities and equity market value.</p> <p>The capital charge for specific market risk is designed to protect against losses from adverse movements in the price of an individual security owing to factors related to the individual issuer. Barclays has permission to model specific market risk, including credit spread, migration, and default risks, for certain legal entities and product types. Where the Group does not have permission to use a model (notably in Barclays Capital Inc), the standardised approach is applied.</p>
<b>Operational risk</b>	<b>43,815</b>	The Group applies TSA for operational risk regulatory capital purposes.

# Linkage between financial statements and regulatory risk

**Table 3: L11—Differences between accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories**

This table outlines the differences in the basis of consolidation for accounting and regulatory purposes. It provides an allocation of the balance sheet line items reported under the scope of regulatory consolidation between the different regulatory risk frameworks. Information regarding the market risk valuation methodologies, independent price verifications process and procedures for valuation adjustments or reserves can be found in the Management of market risk section from page 139.

As at 31 December 2022	Carrying value of items						
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation <sup>a</sup>	Subject to the credit risk framework		Subject to the securitisation framework <sup>b</sup>	Subject to the market risk framework	Not subject to capital requirements or subject to deduction from own funds
			£m	£m			
<b>Assets</b>							
Cash and balances at central banks	256,351	256,288	256,288	—	—	—	—
Cash collateral and settlement balances	112,597	111,961	15,285	48,553	—	—	48,123
Loans and advances at amortised cost	398,779	390,226	343,173	—	47,054	—	—
Reverse repurchase agreements and other similar secured lending	776	776	—	776	—	—	—
Trading portfolio assets	133,813	137,160	7,995	—	—	129,165	—
Financial assets at fair value through the income statement	213,568	211,823	11,255	192,276	727	199,842	—
Derivative financial instruments	302,380	301,931	—	301,782	150	295,046	—
Financial assets at fair value through other comprehensive income	65,062	65,148	64,816	—	331	—	—
Investments in associates and joint ventures	922	37	37	—	—	—	—
Goodwill and intangible assets	8,239	8,266	—	—	—	—	8,266
Property, plant and equipment	3,616	3,618	3,618	—	—	—	—
Current tax assets	385	385	385	—	—	—	—
Deferred tax assets	6,991	6,990	6,990	—	—	—	—
Retirement benefit assets	4,743	4,743	—	—	—	—	4,743
<b>Other assets</b>	<b>5,477</b>	<b>6,069</b>	<b>6,069</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>Total assets</b>	<b>1,513,699</b>	<b>1,505,421</b>	<b>715,910</b>	<b>543,387</b>	<b>48,262</b>	<b>624,052</b>	<b>61,132</b>
<b>Liabilities<sup>c</sup></b>							
Deposits at amortised cost	545,782	545,781	—	—	—	—	545,782
Cash collateral and settlement balances	96,927	96,086	—	73,906	—	—	22,180
Repurchase agreements and other similar	27,052	27,052	—	3,563	—	—	23,489
Debt securities in issue	112,881	102,081	—	—	—	—	102,081
Subordinated liabilities	11,423	11,423	—	—	—	—	11,423
Trading portfolio liabilities	72,924	75,024	—	—	—	74,287	737
Financial liabilities designated at fair value	271,637	270,650	—	217,364	—	264,657	5,993
Derivative financial instruments	289,620	289,327	—	286,373	607	280,543	2,346
Current tax liabilities	580	581	—	—	—	—	581
Deferred tax liabilities	16	16	—	—	—	—	16
Retirement benefit liabilities	264	264	—	—	—	—	264
Other liabilities	13,789	16,362	—	—	—	—	16,362
Provisions	1,544	1,579	—	—	—	—	1,579
<b>Total liabilities</b>	<b>1,444,439</b>	<b>1,436,226</b>	<b>—</b>	<b>581,206</b>	<b>607</b>	<b>619,487</b>	<b>732,834</b>

## Notes

The following points should be considered in conjunction with table L11:

- a The balances shown in column "Carrying values under the scope of regulatory consolidation" do not equal the sum of those in the columns relating to the regulatory framework, as certain assets can be in scope for more than one regulatory framework. As such, assets included in line items for "Financial assets at fair value through the income statement", and "Derivative financial instruments", can be subject to credit risk, counterparty credit risk and market risk.
- b The column "subject to securitisation framework" includes non-trading book drawn positions for traditional and synthetic. Trading book securitisation positions are included in "subject to the market risk framework".
- c For liabilities, balances shown in column "Not subject to capital requirements or subject to deduction from capital" are residual amount so that "Carrying values under the scope of regulatory consolidation" equal to the sum of those in the columns relating to the regulatory framework.

## Linkage between financial statements and regulatory risk (continued)

**Table 4: L12 – Main sources of differences between regulatory exposure amounts and carrying values in financial statements**

This table provides a reconciliation between assets carrying values under the regulatory scope of consolidation as per table 3 and the exposures used for regulatory purposes, split as per the regulatory risk framework.

Off-balance-sheet amounts: Under the credit risk framework, these balances principally consist of undrawn credit facilities before application of credit conversion factors (CCF). Under the counterparty credit risk framework, the off balance sheet items principally consist of the exposure due to collateral posted in SFTs

Difference in netting rules: This reflects the additional benefits allowed per regulatory rules over and above the netting permitted under International Accounting Standards (IAS)

Differences due to consideration of provisions: The carrying value of assets is net of impairment. The regulatory exposure calculated under AIRB approach adds back the impairment

Differences due to credit risk mitigation: Impact of the credit risk mitigation such as guarantees, collaterals to the regulatory exposure values

Differences due to credit conversion factor: Impact of the CCF on the off balance sheet exposure

Differences due to securitisation with risk transfer: This reflects the exposures of synthetic securitisation trades which are derecognised as per accounting standard

Other Differences: This reflects the difference between assets carrying values as defined per IFRS and the values defined per regulatory reporting purposes

Differences due to regulatory add-ons: this reflects regulatory add-ons relevant to the standardised approach to counterparty credit risk (CCR), such as potential future add on (PFE) and Financial Collateral Comprehensive Method (FCCM) haircuts

Difference between input balance and modelled regulatory output: This reflects the modelling of exposures, such as the use of the internal model method (IMM) for CCR

As at 31 December 2022		Items subject to				
		Total	Credit risk framework	Securitisation framework	CCR framework	Market risk framework
1	<b>Assets carrying value amount under the scope of regulatory consolidation (as per template LI1)</b>	<b>1,307,559</b>	<b>715,910</b>	<b>48,262</b>	<b>543,387</b>	<b>624,052</b>
2	<b>Liabilities carrying value amount under the regulatory scope of consolidation (as per template LI1)</b>	<b>(581,813)</b>	—	(607)	(581,206)	(619,487)
3	<b>Total net amount under the regulatory scope of consolidation</b>	<b>725,746</b>	<b>715,910</b>	<b>47,655</b>	<b>(37,819)</b>	<b>4,565</b>
4	<b>Off-balance-sheet amounts</b>	<b>1,233,418</b>	<b>358,266</b>	<b>9,528</b>	<b>865,624</b>	
5	Differences in valuations	—	—	—	—	—
6	Differences due to different netting rules, other than those already included in row 2	(752,934)	—	—	(752,934)	
7	Differences due to consideration of provisions	2,646	2,646	—	—	—
8	Differences due to the use of credit risk mitigation techniques (CRMs)	(21,363)	(21,098)	(265)	—	—
9	Differences due to credit conversion factors	(211,401)	(211,401)	—	—	—
10	Differences due to Securitisation with risk transfer	28,023	—	28,023	—	—
11	Other differences	(2,423)	(2,575)	127	25	
11a	Differences due to Regulatory add-ons	16,022	—	—	16,022	
11b	Differences between input balance and modelled regulatory output	59,660	—	536	59,124	
12	<b>Exposure amounts considered for regulatory purposes</b>	<b>1,077,394</b>	<b>841,748</b>	<b>85,604</b>	<b>150,042</b>	

## Linkage between financial statements and regulatory risk (continued)

**Table 5: L13 Outline of the differences in the scopes of consolidation (entity by entity)**

Name of the entity	Method of accounting consolidation	Method of regulatory consolidation				Description of the entity
		Full consolidation	Proportional consolidation	Equity Method	Neither consolidated nor deducted <sup>a</sup>	
Barclays Insurance Services Company Limited	Fully consolidated				Y	Activities auxiliary to financial services and insurance activities
Barclays Insurance Guernsey PCC Limited	Fully consolidated				Y	Insurance, reinsurance and pension funding, except compulsory social security
Salisbury Receivables Company LLC	Fully consolidated				Y	Financial service activities, except insurance and pension funding
Barclays Insurance US Inc.	Fully consolidated				Y	Insurance, reinsurance and pension funding, except compulsory social security
Sheffield Receivables Company LLC	Fully consolidated				Y	Financial service activities, except insurance and pension funding
Sunderland Receivables Company LLC	Fully consolidated				Y	Financial service activities, except insurance and pension funding
Sunderland Receivables SA	Fully consolidated				Y	Financial service activities, except insurance and pension funding
Crescent Legacy LLC	Fully consolidated				Y	Financial service activities, except insurance and pension funding
Vaultex UK Limited	Proportionally consolidated				Y	Activities auxiliary to financial services and insurance activities
EnterCard Group AB	Equity		Y			Financial service activities, except insurance and pension funding
BGF Group PLC	Equity		Y			Financial service activities, except insurance and pension funding
Palomino Limited	Not consolidated	Y				Financial service activities, except insurance and pension funding

**Note**

a. Column "neither consolidated nor deducted": Exposure to and/or equity investment in these entities are risk weighted or deducted from capital subject to threshold.

# Analysis of treasury and capital risk

This section details Barclays' capital position providing information on capital resources, requirements, leverage and liquidity.

## Key Metrics in 2022

### Common Equity Tier 1 ratio

13.9%

(see page 20)

### Own funds and eligible liabilities ratio as a percentage of RWAs

33.5%

(see page 33)

### UK leverage ratio

5.3%

(see page 21)

### Average UK leverage ratio

4.8%

(see page 21)

### Liquidity Coverage ratio (period end)

165%

(see page 37)

### Net stable funding ratio

137%

(see page 39)

# Analysis of treasury and capital risk

**Table 6: KM1 - Key metrics - Part 1**

This table shows key regulatory metrics and ratios as well as related components such as own funds, RWAs, capital ratios, additional requirements based on Supervisory Review and Evaluation Process (SREP), capital buffer requirements, leverage ratio liquidity coverage ratio and net stable funding ratio.

KM1		Restated <sup>a</sup>				
		As at		As at		As at
		31.12.22	30.09.22	30.06.22	31.03.22	31.12.21
		£m	£m	£m	£m	£m
<b>Available own funds (amounts)</b>						
1 Common Equity Tier 1 (CET1) capital <sup>b</sup>		<b>46,878</b>	48,574	46,691	45,269	47,327
1a Fully loaded common Equity Tier 1 (CET1) capital <sup>c</sup>		<b>46,178</b>	47,815	46,049	44,668	46,098
2 Tier 1 capital <sup>b,d</sup>		<b>60,102</b>	61,784	58,988	56,328	60,143
2a Fully loaded tier 1 capital <sup>c,e</sup>		<b>59,402</b>	61,025	58,346	55,727	58,277
3 Total capital <sup>b,d</sup>		<b>70,072</b>	71,324	68,620	66,140	69,882
3a Fully loaded total capital <sup>c,e</sup>		<b>68,653</b>	69,747	67,142	64,672	67,909
<b>Risk-weighted exposure amounts</b>						
4 Total risk-weighted exposure amount <sup>b</sup>		<b>336,518</b>	350,774	344,516	328,830	314,136
4a Fully loaded total risk-weighted exposure amount <sup>c</sup>		<b>336,345</b>	350,532	344,284	328,646	313,876
<b>Capital ratios (as a percentage of risk-weighted exposure amount)</b>						
5 Common Equity Tier 1 ratio (%) <sup>b</sup>		<b>13.9%</b>	13.8%	13.6%	13.8%	15.1%
5a Fully loaded common Equity Tier 1 ratio (%) <sup>c</sup>		<b>13.7%</b>	13.6%	13.4%	13.6%	14.7%
6 Tier 1 ratio (%) <sup>b,d</sup>		<b>17.9%</b>	17.6%	17.1%	17.1%	19.1%
6a Fully loaded tier 1 ratio (%) <sup>c,e</sup>		<b>17.7%</b>	17.4%	16.9%	17.0%	18.6%
7 Total capital ratio (%) <sup>b,d</sup>		<b>20.8%</b>	20.3%	19.9%	20.1%	22.2%
7a Fully loaded total capital ratio (%) <sup>c,e</sup>		<b>20.4%</b>	19.9%	19.5%	19.7%	21.6%
<b>Additional own funds requirements based on SREP (as a percentage of risk-weighted exposure amount)</b>						
UK 7a Additional CET1 SREP requirements (%)		<b>2.4%</b>	2.4%	2.4%	2.5%	
UK 7b Additional AT1 SREP requirements (%)		<b>0.8%</b>	0.8%	0.8%	0.8%	
UK 7c Additional T2 SREP requirements (%)		<b>1.1%</b>	1.0%	1.1%	1.1%	
UK 7d Total SREP own funds requirements (%)		<b>12.3%</b>	12.2%	12.2%	12.4%	
<b>Combined buffer requirement (as a percentage of risk-weighted exposure amount)</b>						
8 Capital conservation buffer (%)		<b>2.5%</b>	2.5%	2.5%	2.5%	2.5%
9 Institution specific countercyclical capital buffer (%)		<b>0.4%</b>	0.0%	0.0%	0.0%	0.0%
10 Global Systemically Important Institution buffer (%)		<b>1.5%</b>	1.5%	1.5%	1.5%	1.5%
11 Combined buffer requirement (%)		<b>4.4%</b>	4.0%	4.0%	4.0%	4.0%
UK 11a Overall capital requirements (%)		<b>16.7%</b>	16.2%	16.2%	16.4%	
12 CET1 available after meeting the total SREP own funds requirements (%)		<b>7.0%</b>	7.0%	6.7%	6.8%	

**Notes**

- a. Capital metrics as at 31 December 2021 have been restated. More details are available in the Barclays 2022 Results Announcement on page 56.
- b. Transitional capital and RWAs are calculated applying the IFRS 9 transitional arrangements of the CRR as amended by CRR II.
- c. Fully loaded capital and RWAs are calculated without applying the IFRS 9 transitional arrangements of the CRR as amended by CRR II.
- d. Transitional Tier 1 and Total capital are calculated applying the grandfathering of CRR II non-compliant capital instruments. Prior year comparatives include the grandfathering of CRR non-compliant capital instruments.
- e. Fully loaded Tier 1 and Total capital are calculated without applying the grandfathering of CRR II non-compliant capital instruments.

The reported CET1 ratio decreased by c.120bps to 13.9% (December 2021: 15.1%) as RWAs increased by £22.4bn to £336.5bn and CET1 capital decreased by £0.4bn to £46.9bn

- c.150bps increase from 2022 attributable profit
- c.80bps returned to shareholders including the 2.25p half year dividend paid in September 2022, £1.5bn of share buybacks announced with FY21 and H122 results and a FY22 dividend accrual
- c.80bps reduction due to the impact of regulatory change on 1 January 2022 as CET1 capital decreased £1.7bn and RWAs increased £6.6bn
- c.70bps reduction from decreases in the fair value of the bond portfolio through other comprehensive income and other capital deductions
- c.40bps reduction due to pension contributions, including the accelerated cash settlement to the UK Retirement Fund (UKRF) of earlier deficit reduction contributions and deficit reduction payments made in 2022
- A £14.1bn increase in RWAs as a result of foreign exchange movements was broadly offset by a £2bn increase in the currency translation reserve

## Analysis of treasury and capital risk (continued)

**Table 6: KM1 - Key metrics - Part 2**

KM1		Restated <sup>a</sup>				
		As at	As at	As at	As at	As at
		31.12.22	30.09.22	30.06.22	31.03.22	31.12.21
		£m	£m	£m	£m	£m
	<b>Leverage ratio</b>					
13	Total exposure measure excluding claims on central banks <sup>b</sup>	<b>1,129,97</b>	1,232,105	1,151,214	1,123,531	1,137,904
14	Leverage ratio excluding claims on central banks (%) <sup>b</sup>	<b>5.3%</b>	5.0%	5.1%	5.0%	5.2%
	<b>Additional leverage ratio disclosure requirements</b>					
UK 14a	Fully loaded ECL accounting model leverage ratio excluding claims on central banks (%) <sup>c</sup>	<b>5.3%</b>	5.0%	5.1%	5.0%	
UK 14b	Leverage ratio including claims on central banks (%) <sup>b</sup>	<b>4.3%</b>	4.1%	4.1%	4.1%	
UK 14c	Average leverage ratio excluding claims on central banks (%) <sup>a,b,d</sup>	<b>4.8%</b>	4.8%	4.7%	4.8%	4.9%
UK 14d	Average leverage ratio including claims on central banks (%) <sup>b,d</sup>	<b>3.9%</b>	4.0%	3.9%	4.0%	
UK 14e	Countercyclical leverage ratio buffer (%)	<b>0.2%</b>	0.0%	0.0%	0.0%	
	<b>Liquidity Coverage Ratio</b>					
15	Total high-quality liquid assets (HQLA) (Weighted value) <sup>e</sup>	<b>320,450</b>	319,177	308,489	300,538	293,556
UK 16a	Cash outflows - Total weighted value	<b>283,445</b>	278,887	269,331	260,731	256,986
UK 16b	Cash inflows - Total weighted value	<b>77,389</b>	74,794	72,972	72,251	73,330
16	Total net cash outflows (adjusted value) <sup>e</sup>	<b>206,056</b>	204,093	196,359	188,480	183,656
17	Liquidity coverage ratio (%) <sup>f</sup>	<b>156%</b>	156%	157%	159%	160%
17a	Liquidity coverage ratio (%) (Period-end)	<b>165%</b>	151%	156%	159%	168%
	<b>Net Stable Funding Ratio<sup>g</sup></b>					
18	Total available stable funding	<b>576,491</b>				
19	Total required stable funding	<b>420,889</b>				
20	NSFR ratio (%)	<b>137%</b>				

**Notes**

- a. Capital and leverage metrics as at 31 December 2021 have been restated. More details are available in the Barclays 2022 Results Announcement on page 56.
- b. Transitional UK leverage ratios are calculated applying the IFRS 9 transitional arrangements of the CRR as amended by CRR II.
- c. Fully loaded UK leverage ratio is calculated without applying the IFRS 9 transitional arrangements of the CRR as amended by CRR II.
- d. Average UK leverage ratio uses capital based on the last day of each month in the quarter and an exposure measure for each day in the quarter.
- e. Prior period comparatives have been updated to reflect the average measures as amended by CRR II.
- f. Liquidity coverage ratio computed as a trailing average of 12 month-end observations to the reporting date.
- g. Net Stable Funding Ratio is computed as a trailing average of the last four spot quarter end positions. No prior comparative available.

The UK leverage ratio increased to 5.3% (December 2021: 5.2%) primarily due to a £7.9bn decrease in the leverage exposure and a £0.6bn increase in Tier 1 capital. The UK leverage exposure decreased to £1,130.0bn (December 2021: £1,137.9bn) largely due to the following movements:

- £53.1bn decrease in PFE on derivatives largely driven by increased netting eligibility due to the introduction of SA-CCR
- £42.0bn decrease in cash at central banks net of the qualifying central bank claims exemption primarily due to the matching of allowable liabilities rather than deposits introduced under the UK leverage ratio framework and a decrease in Swiss Franc cash assets
- £33.0bn increase in loans and advances and other assets (excluding cash and settlement balances which are subject to regulatory exemptions) primarily due to increased lending
- £29.5bn increase in derivative financial instruments post additional regulatory netting and adjustments for cash collateral primarily driven by market volatility, increased activity in CIB and the application of a 1.4 multiplier introduced under SA-CCR
- £18.4bn increase in SFTs primarily driven by increased reverse repurchase activity in CIB

The average UK leverage ratio decreased to 4.8% (December 2021: 4.9%) due to a £51.9bn increase in average leverage exposure partially offset by a £1.1bn increase in average T1 capital. The average UK leverage exposure increased to £1,281.0bn (December 2021: £1,229.0bn) mainly driven by increased activity during the year that was partially offset by the impact of regulatory changes that came into effect from 1 January 2022 under the UK leverage ratio framework.

The average LCR for the 12 months to 31 December 2022 decreased to 156% (December 2021: 160%), with average HQLA increasing by £27bn and average net cash outflows increasing by £22bn.

## Analysis of treasury and capital risk (continued)

**Table 7: CC1 – Composition of regulatory own funds**

This table shows the components of regulatory capital presented on both a transitional and fully loaded basis as at 31 December 2022.

		Ref†	As at 31.12.22	
			Transitional Position	Fully Loaded Position
			£m	£m
<b>Common Equity Tier 1 (CET1) capital: instruments and reserves</b>				
1	Capital instruments and the related share premium accounts <i>of which called up share capital and share premium</i>	a	<b>4,373</b>	<b>4,373</b>
2	Retained earnings	b	<b>48,179</b>	<b>48,179</b>
3	Accumulated other comprehensive income (and other reserves)	c	(2,164)	(2,164)
UK-5a	Independently reviewed interim profits net of any foreseeable charge or dividend	b	<b>4,200</b>	<b>4,200</b>
6	<b>Common Equity Tier 1 (CET1) capital before regulatory adjustments</b>		<b>54,588</b>	<b>54,588</b>
<b>Common Equity Tier 1 (CET1) capital: regulatory adjustments</b>				
7	Additional value adjustments		(1,726)	(1,726)
8	Intangible assets (net of related tax liability)	d, e, f, g <sup>a</sup>	(8,224)	(8,224)
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38 (3) CRR are met)	h	(1,500)	(1,500)
11	Fair value reserves related to gains or losses on cash flow hedges of financial instruments that are not valued at fair value	i	<b>7,237</b>	<b>7,237</b>
12	Negative amounts resulting from the calculation of expected loss amounts		(119)	(119)
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	j	(620)	(620)
15	Defined-benefit pension fund assets	k, g <sup>a</sup>	(3,430)	(3,430)
16	Direct, indirect and synthetic holdings by an institution of own CET1 instruments		(20)	(20)
27a	Other regulatory adjustments to CET1 capital (including IFRS 9 transitional adjustments when relevant) <sup>b</sup>		692	(8)
28	<b>Total regulatory adjustments to Common Equity Tier 1 (CET1)</b>		<b>(7,710)</b>	<b>(8,410)</b>
29	<b>Common Equity Tier 1 (CET1) capital</b>		<b>46,878</b>	<b>46,178</b>
<b>Additional Tier 1 (AT1) capital: instruments</b>				
30	Capital instruments and the related share premium accounts	l	<b>13,284</b>	<b>13,284</b>
31	<i>of which: classified as equity under applicable accounting standards</i>	l	<b>13,284</b>	<b>13,284</b>
36	Additional Tier 1 (AT1) capital before regulatory adjustments		<b>13,284</b>	<b>13,284</b>
<b>Additional Tier 1 (AT1) capital: regulatory adjustments</b>				
37	Direct, indirect and synthetic holdings by an institution of own AT1 instruments		(60)	(60)
43	<b>Total regulatory adjustments to Additional Tier 1 (AT1) capital</b>		<b>(60)</b>	<b>(60)</b>
44	<b>Additional Tier 1 (AT1) capital</b>		<b>13,224</b>	<b>13,224</b>
45	<b>Tier 1 capital (T1 = CET1 + AT1)</b>		<b>60,102</b>	<b>59,402</b>
<b>Tier 2 (T2) capital: instruments</b>				
46	Capital instruments and the related share premium accounts	m	<b>9,000</b>	<b>9,000</b>
UK-47b	Amount of qualifying items referred to in Article 494b (2) CRR subject to phase out from T2		—	—
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties <sup>c</sup>	m,n	<b>1,095</b>	<b>343</b>
50	Credit risk adjustments		35	68
51	<b>Tier 2 (T2) capital before regulatory adjustments</b>		<b>10,130</b>	<b>9,411</b>

**Notes**

- † The references (a)–(n) identify balance sheet components in Table 8: CC2 – Reconciliation of regulatory capital to balance sheet on page 24 which are used in the calculation of regulatory capital.
- a. Deferred tax liabilities on intangible assets and pension fund assets are included as either a negative component of the deferred tax asset or a deferred tax liability on the balance sheet depending on the net deferred tax position of the bank at the time of reporting.
- b. Other regulatory adjustments to CET1 capital includes IFRS 9 transitional adjustments of which static £319m, of which modified £381m.
- c. Row 48 includes £911m of T2 instruments issued by subsidiaries and subject to phase out from T2 under Article 494b(2). They are not reported in row UK-47b to avoid double counting with row 48.

## Analysis of treasury and capital risk (continued)

**Table 7: CC1 – Composition of regulatory own funds – continued**

		As at 31.12.22	
		Transitional Position	Fully Loaded Position
		Ref†	£m
<b>Tier 2 (T2) capital: regulatory adjustments</b>			
52	Direct, indirect and synthetic holdings by an institution of own T2 instruments and subordinated loans	(160)	(160)
57	<b>Total regulatory adjustments to Tier 2 (T2) capital</b>	(160)	(160)
58	<b>Tier 2 (T2) capital</b>	9,970	9,251
59	<b>Total capital (TC = T1 + T2)</b>	70,072	68,653
60	<b>Total Risk exposure amount</b>	336,518	336,345
<b>Capital ratios and buffers</b>			
61	Common Equity Tier 1 (as a percentage of total risk exposure amount)	13.9%	13.7%
62	Tier 1 (as a percentage of total risk exposure amount)	17.9%	17.7%
63	Total capital (as a percentage of total risk exposure amount)	20.8%	20.4%
64	Institution CET1 overall capital requirement (CET1 requirement in accordance with Article 92 (1) CRR, plus additional CET1 requirement which the institution is required to hold in accordance with point (a) of Article 104(1) CRD, plus combined buffer requirement in accordance with Article 128(6) CRD) expressed as a percentage of risk exposure amount)	11.3%	11.3%
65	of which: <i>capital conservation buffer requirement</i>	2.5%	2.5%
66	of which: <i>countercyclical buffer requirement</i>	0.4%	0.4%
UK-67a	of which: <i>Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer</i>	1.5%	1.5%
68	<b>Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)</b>	7.0%	6.8%
<b>Amounts below the thresholds for deduction (before risk weighting)</b>			
72	Direct and indirect holdings of own funds and eligible liabilities 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)	2,187	2,187
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 17.65% thresholds and net of eligible short positions)	136	136
75	Deferred tax assets arising from temporary differences (amount below 17.65% threshold, net of related tax liability where the conditions in Article 38 (3) CRR are met)	3,835	4,035
<b>Applicable caps on the inclusions of provisions in Tier 2</b>			
78	Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	35	68
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	912	915

## Analysis of treasury and capital risk (continued)

**Table 8: CC2 – Reconciliation of regulatory own funds to balance sheet in the audited financial statements**

These tables show the reconciliation between the balance sheet prepared for statutory and regulatory scope of consolidation. The amount shown under the regulatory scope of consolidation is not a RWA measure; it is based on an accounting measure and cannot be directly reconciled to other tables in this report.

	Ref†	Balance sheet as in published financial statements	Under regulatory scope of consolidation
		£m	£m
<b>As at 31 December 2022</b>			
<b>Assets</b>			
1 Cash and balances at central banks		256,351	256,288
2 Cash collateral and settlement balances		112,597	111,961
3 Loans and advances at amortised cost		398,779	390,227
4 Reverse repurchase agreements and other similar secured lending		776	776
5 Trading portfolio assets		133,813	137,160
6 Financial assets at fair value through the income statement		213,568	211,823
7 Derivative financial instruments		302,380	301,931
8 Financial assets at fair value through other comprehensive income		65,062	65,148
9 Investments in subsidiaries, associates and joint ventures	e	922	37
10 Goodwill and intangible assets		8,239	8,266
11 - Of which: goodwill	d	3,912	3,938
12 - Of which: other intangibles (excluding MSRs)	f	4,327	4,328
13 Property, plant and equipment		3,616	3,618
14 Current tax assets		385	385
15 Deferred tax assets	g, h	6,991	6,990
16 Retirement benefit assets	k	4,743	4,743
17 Other assets		5,477	6,068
<b>18 Total assets</b>		<b>1,513,699</b>	<b>1,505,421</b>
<b>Liabilities</b>			
1 Deposits at amortised cost		545,782	545,782
2 Cash collateral and settlement balances		96,927	96,086
3 Repurchase agreements and other similar secured borrowing		27,052	27,052
4 Debt securities in issue		112,881	102,081
5 Subordinated liabilities	m	11,423	11,423
6 Trading portfolio liabilities		72,924	75,024
7 Financial liabilities designated at fair value		271,637	270,650
8 Derivative financial instruments		289,620	289,327
9 Current tax liabilities		580	581
10 Deferred tax liabilities	g	16	16
11 Retirement benefit liabilities		264	264
12 Other liabilities		13,789	16,361
13 Provisions		1,544	1,579
<b>14 Total liabilities</b>		<b>1,444,439</b>	<b>1,436,226</b>
<b>Equity</b>			
1 Called up share capital and share premium		4,373	4,373
2 - Of which: amount eligible for CET1	a	4,373	4,373
3 Other equity instruments	l	13,284	13,284
4 Other reserves	c, i, j	(2,192)	(2,167)
5 Retained earnings	b	52,827	52,737
6 Total equity excluding non-controlling interests		68,292	68,227
7 Non-controlling interests	n	968	968
<b>8 Total equity</b>		<b>69,260</b>	<b>69,195</b>
<b>9 Total liabilities and equity</b>		<b>1,513,699</b>	<b>1,505,421</b>

**Note**

† The references (a) – (n) identify balance sheet components that are used in the calculation of regulatory capital in Table 7: Composition of regulatory capital on page 22.

## Analysis of treasury and capital risk (continued)

**Table 9: IFRS 9<sup>a</sup>/Article 468-FL – Comparison of institution's own funds and capital and leverage ratios with and without the application of transitional arrangements for IFRS 9 or analogous ECLs, and with and without the application of the temporary treatment in accordance with Article 468 of the CRR<sup>b</sup>**

		Restated <sup>c</sup>				
		As at 31.12.22	As at 30.09.22	As at 30.06.22	As at 31.03.22	As at 31.12.21
<b>Barclays Group</b>		£m	£m	£m	£m	£m
	<b>Available capital (amounts)</b>					
1	CET1 capital <sup>d</sup>	<b>46,878</b>	48,574	46,691	45,269	47,327
2	CET1 capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>46,178</b>	47,815	46,049	44,668	46,098
3	Tier 1 capital <sup>e</sup>	<b>60,102</b>	61,784	58,988	56,328	60,143
4	Tier 1 capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>59,402</b>	61,025	58,346	55,727	58,914
5	Total capital <sup>e</sup>	<b>70,072</b>	71,324	68,620	66,140	69,882
6	Total capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>69,405</b>	70,565	68,011	65,578	68,982
	<b>Risk-weighted assets (amounts)</b>					
7	Total risk-weighted assets <sup>d</sup>	<b>336,518</b>	350,774	344,516	328,830	314,136
8	Total risk-weighted assets as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>336,345</b>	350,532	344,284	328,646	313,876
	<b>Capital ratios</b>					
9	CET1 (as a percentage of risk exposure amount) <sup>d</sup>	<b>13.9%</b>	13.8%	13.6%	13.8%	15.1%
10	CET1 (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>13.7%</b>	13.6%	13.4%	13.6%	14.7%
11	Tier 1 (as a percentage of risk exposure amount) <sup>d,e</sup>	<b>17.9%</b>	17.6%	17.1%	17.1%	19.1%
12	Tier 1 (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>17.7%</b>	17.4%	16.9%	17.0%	18.8%
13	Total capital (as a percentage of risk exposure amount) <sup>d,e</sup>	<b>20.8%</b>	20.3%	19.9%	20.1%	22.2%
14	Total capital (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>20.6%</b>	20.1%	19.8%	20.0%	22.0%
	<b>Leverage ratio</b>					
15	Leverage ratio total exposure measure	<b>1,129,973</b>	1,232,105	1,151,214	1,123,531	
16	Leverage ratio <sup>d</sup>	<b>5.3%</b>	5.0%	5.1%	5.0%	
17	Leverage ratio as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	<b>5.3%</b>	5.0%	5.1%	5.0%	

### Notes

- a. From 1 January 2018, Barclays Group elected to apply the IFRS 9 transitional arrangements of the CRR. The transitional relief on the "day 1" impact on adoption of IFRS 9 and on increases in non-defaulted provisions between "day 1" and 31 December 2019 is phased out over a 5 year period with 25% applicable for 2022 and with no transitional relief from 2023. On 27 June 2020, CRR was amended to extend the transitional period by two years and to introduce a new modified calculation. The transitional relief for increases in non-defaulted provisions between 1 January 2020 and the reporting date is also phased out over a 5 year period with 75% applicable for 2022; 50% for 2023; 25% for 2024 and with no transitional relief from 2025.
- b. As at 31 December 2022, the Group had not elected to apply the temporary treatment specified in Article 468 of the CRR, amended by Regulation EU 2020/873, resulting in the Group's capital and leverage ratios reflecting the full impact of unrealised gains and losses measured at fair value through other comprehensive income.
- c. Capital and leverage metrics as at 31 December 2021 have been restated. More details are available in the Barclays 2022 Results Announcement on page 56.
- d. Transitional CET1 capital, RWAs and leverage ratio are calculated applying the IFRS 9 transitional arrangements of the CRR as amended by CRR II.
- e. Transitional Tier 1 and Total capital are calculated applying the transitional arrangements of the CRR as amended by CRR II. Prior year comparatives include the grandfathering of CRR non-compliant capital instruments.

## Analysis of treasury and capital risk (continued)

**Table 10: RWAs by risk type and business**

This table shows RWAs by business and risk type.

	Credit risk		Counterparty credit risk			Market risk			Operational risk		Total RWAs	
	Std	AIRB	Std	AIRB	Settlement risk		CVA	Std	IMA			
					£m	£m			£m			
<b>As at 31 December 2022</b>												
Barclays UK	<b>6,836</b>	<b>54,752</b>	<b>167</b>	—	—	—	<b>72</b>	<b>233</b>	—	<b>11,023</b>	<b>73,083</b>	
Corporate and Investment Bank	<b>35,738</b>	<b>75,413</b>	<b>16,814</b>	<b>21,449</b>	<b>80</b>	<b>3,093</b>	<b>13,716</b>	<b>22,497</b>	<b>27,064</b>	<b>215,864</b>		
Consumer, Cards and Payments	<b>27,882</b>	<b>3,773</b>	<b>214</b>	<b>46</b>	—	<b>61</b>	—	—	<b>388</b>	<b>6,559</b>	<b>38,923</b>	
Barclays International	<b>63,620</b>	<b>79,186</b>	<b>17,028</b>	<b>21,495</b>	<b>80</b>	<b>3,154</b>	<b>13,716</b>	<b>22,885</b>	<b>33,623</b>	<b>254,787</b>		
Head Office	<b>2,636</b>	<b>6,843</b>	—	—	—	—	—	—	—	(831)	<b>8,648</b>	
<b>Barclays Group</b>	<b>73,092</b>	<b>140,781</b>	<b>17,195</b>	<b>21,495</b>	<b>80</b>	<b>3,226</b>	<b>13,949</b>	<b>22,885</b>	<b>43,815</b>	<b>336,518</b>		
<b>As at 31 December 2021</b>												
Barclays UK	7,195	53,408	426	—	—	—	138	100	—	11,022	72,289	
Corporate and Investment Bank	29,420	64,416	15,223	19,238	105	2,289	17,306	27,308	25,359	200,664		
Consumer, Cards and Payments	20,770	2,749	215	18	—	21	—	—	57	6,391	30,221	
Barclays International	50,190	67,165	15,438	19,256	105	2,310	17,306	27,365	31,750	230,885		
Head Office	4,733	7,254	—	—	—	—	—	—	—	(1,025)	10,962	
<b>Barclays Group</b>	<b>62,118</b>	<b>127,827</b>	<b>15,864</b>	<b>19,256</b>	<b>105</b>	<b>2,448</b>	<b>17,406</b>	<b>27,365</b>	<b>41,747</b>	<b>314,136</b>		

## Analysis of treasury and capital risk (continued)

**Table 11: OV1 – Overview of risk weighted exposure amounts**

The table shows RWAs and minimum capital requirement by risk type and approach.

		Risk weighted exposure amounts (RWEAs)				Total own funds requirements	
		As at		As at		As at	As at
		31.12.2022	30.09.2022	31.12.2021	31.12.2022	30.09.2022	31.12.2021
		£m	£m	£m	£m	£m	£m
1	Credit risk (excluding CCR)	<b>197,316</b>	198,941	177,898	<b>15,786</b>	15,915	14,232
2	Of which the standardised approach	<b>66,796</b>	69,936	58,008	<b>5,344</b>	5,595	4,641
4	Of which: slotting approach	<b>4,945</b>	4,915	4,168	<b>396</b>	393	333
5	Of which the advanced IRB (AIRB) approach	<b>125,575</b>	124,089	115,722	<b>10,046</b>	9,927	9,258
6	Counterparty credit risk - CCR	<b>41,881</b>	48,630	37,491	<b>3,350</b>	3,890	2,999
7	Of which the standardised approach	<b>4,081</b>	5,605	2,674	<b>326</b>	448	214
8	Of which internal model method (IMM)	<b>25,741</b>	29,732	24,196	<b>2,059</b>	2,379	1,936
UK 8a	Of which exposures to a CCP	<b>1,409</b>	1,667	1,601	<b>113</b>	133	128
UK 8b	Of which credit valuation adjustment - CVA	<b>3,226</b>	3,264	2,448	<b>258</b>	261	196
9	Of which other CCR	<b>7,424</b>	8,361	6,572	<b>594</b>	669	526
15	Settlement risk	<b>80</b>	446	105	<b>6</b>	36	8
16	Securitisation exposures in the non-trading book (after the cap)	<b>16,592</b>	18,151	12,124	<b>1,327</b>	1,452	970
17	Of which SEC-IRBA approach	<b>10,261</b>	11,704	7,937	<b>821</b>	936	635
18	Of which SEC-ERBA (including IAA)	<b>1,922</b>	1,883	1,424	<b>154</b>	151	114
19	Of which SEC-SA approach	<b>4,404</b>	4,562	2,755	<b>352</b>	365	220
UK 19a	Of which 1250% deduction	<b>5</b>	2	9	—	—	1
20	Position, foreign exchange and commodities risks (Market risk)	<b>36,834</b>	42,835	44,771	<b>2,947</b>	3,427	3,582
21	Of which the standardised approach	<b>13,949</b>	15,852	17,406	<b>1,116</b>	1,268	1,392
22	Of which IMA	<b>22,885</b>	26,983	27,365	<b>1,831</b>	2,159	2,189
UK 22a	Large exposures	—	—	—	—	—	—
23	Operational risk	<b>43,815</b>	41,771	41,747	<b>3,505</b>	3,342	3,340
UK 23b	Of which standardised approach	<b>43,815</b>	41,771	41,747	<b>3,505</b>	3,342	3,340
24	Amounts below the thresholds for deduction (subject to 250% risk weight) (For information)	<b>9,926</b>	9,322	11,276	<b>794</b>	746	902
29	<b>Total</b>	<b>336,518</b>	350,774	314,136	<b>26,921</b>	28,062	25,131

RWAs decreased over the quarter by €14.3bn to €336.5bn (September 2022: €350.8bn) mainly due to:

- Credit risk RWAs decreased €1.6bn to €197.3bn primarily due to depreciation of USD against GBP offset by an increase in lending activities within CIB
- Counterparty credit risk RWAs decreased €6.7bn to €41.9bn primarily due to a decrease in client and trading activities, mark-to-market movements within derivatives as well as decrease in FX due to depreciation of USD against GBP
- Securitisation RWAs decreased €1.6bn to €16.6bn primarily driven by a decrease in business activities
- Market risk RWAs decreased €6bn to €36.8bn primarily due to decrease in client and trading activities, a decrease in SVaR model adjustment as a result of changes in portfolio composition and depreciation of USD against GBP. This was partially offset by an increase in Structural FX
- Operational risk RWAs increased €2bn to €43.8bn primarily driven by inclusion of higher 2022 CIB income compared to 2019

## Analysis of treasury and capital risk (continued)

Tables 12, 13 and 14 below show a subset of the information included in table 10, focused on positions captured under modelled treatment.

**Table 12: CR8 – RWEA flow statements of credit risk exposures under the advanced IRB approach**

The total in this table shows the contribution of credit risk RWAs under the AIRB approach and will not directly reconcile to the CR AIRB RWAs in table 10.

		Three months ended 31.12.2022	Twelve months ended 31.12.2022 <sup>a</sup>
		£m	£m
<b>1</b>	<b>Risk weighted exposure amount as at the end of the previous reporting period</b>	<b>113,401</b>	<b>104,413</b>
2	Asset size	4,630	5,563
3	Asset quality	871	(2,727)
4	Model updates	—	—
5	Methodology and policy	(1,566)	4,180
6	Acquisitions and disposals	(101)	(449)
7	Foreign exchange movements	(2,754)	3,501
8	Other	—	—
<b>9</b>	<b>Risk weighted exposure amount as at the end of the reporting period</b>	<b>114,481</b>	<b>114,481</b>

**Note**

a. Opening balance has been updated to exclude Securitisation and non-credit obligation assets as per CRR II guidelines.

Three months ended advanced credit risk RWAs increased £1.1bn to £114.5bn primarily driven by:

- A £4.6bn increase in asset size primarily driven by an increase in lending activities mainly within CIB
- A £1.6bn decrease in methodology and policy primarily relating to implementation of IRB roadmap changes
- A £2.8bn decrease in FX primarily due to depreciation of USD against GBP

Twelve months ended advanced credit risk RWAs increased £10.1bn to £114.5bn primarily driven by:

- A £5.6bn increase in book size primarily driven by an increase in lending activities across CIB and growth in mortgages within Barclays UK, partially offset by securitisation of originated assets
- A £2.7bn decrease in RWAs due to asset quality primarily driven by the benefit in mortgages from an increase in the House Price Index (HPI)
- A £4.2bn increase in methodology and policy primarily relating to implementation of IRB roadmap changes
- A £3.5bn increase in FX primarily due to appreciation of USD against GBP

**Table 13: CCR7– RWEA flow statements of CCR exposures under the IMM**

The total in this table shows the contribution of Internal Model Method (IMM) exposures to CCR RWAs (under both standardised and AIRB) table 10.

		Three months ended 31.12.2022	Twelve months ended 31.12.2022 <sup>a</sup>
		£m	£m
<b>1</b>	<b>Risk weighted exposure amount as at the end of the previous reporting period</b>	<b>29,732</b>	<b>24,198</b>
2	Asset size	(3,258)	(710)
3	Credit quality of counterparties	387	355
4	Model updates (IMM only)	—	—
5	Methodology and policy (IMM only)	(392)	291
6	Acquisitions and disposals	—	—
7	Foreign exchange movements	(728)	1,607
8	Other	—	—
<b>9</b>	<b>Risk weighted exposure amount as at the end of the reporting period</b>	<b>25,741</b>	<b>25,741</b>

**Note**

a. Opening balance has been updated to exclude the exposure to central counterparties as per CRR II guidelines.

Three months ended Internal Model Method RWAs decreased by £4.0bn to £25.7bn primarily driven by:

- A £3.3bn decrease in asset size primarily driven by a decrease in client and trading activities and mark-to-market movements within derivatives

Twelve months ended Internal Model Method RWAs decreased by £1.5bn to £25.7bn primarily driven by:

- A £1.6bn increase in FX primarily due to appreciation of USD against GBP

## Analysis of treasury and capital risk (continued)

**Table 14: MR2-B – RWA flow statements of market risk exposures under the IMA**

This table shows the contribution of market risk RWA covered by internal models (i.e. value at risk, stressed value at risk and incremental risk charge).

		Three month ended 31.12.2022					
		VaR	SVaR	IRC	Other	Total RWEAs	Total own funds requirements
		£m	£m	£m	£m	£m	£m
<b>1</b>	<b>RWAs at previous period end</b>	<b>7,517</b>	<b>11,607</b>	<b>3,307</b>	<b>4,552</b>	<b>26,983</b>	<b>2,159</b>
1a	Regulatory adjustment <sup>a</sup>	(4,158)	(4,258)	—	—	(8,416)	(674)
1b	RWAs at the previous quarter-end (end of the day)	3,359	7,349	3,307	4,552	18,567	1,485
2	Movement in risk levels	(499)	(2,704)	(530)	(1,106)	(4,839)	(387)
3	Model updates/changes	—	—	—	—	—	—
4	Methodology and policy	—	—	—	—	—	—
5	Acquisitions and disposals	—	—	—	—	—	—
6	Foreign exchange movements	—	—	—	—	—	—
7	Other	—	—	—	—	—	—
8a	RWAs at the end of the reporting period (end of the day)	2,860	4,645	2,777	3,446	13,728	1,098
8b	Regulatory adjustment <sup>b</sup>	3,907	5,216	34	—	9,157	733
<b>8</b>	<b>RWAs at the end of the disclosure period</b>	<b>6,767</b>	<b>9,861</b>	<b>2,811</b>	<b>3,446</b>	<b>22,885</b>	<b>1,831</b>

**Notes**

- a. Row 1a reflects the difference between reported RWA (row 1) and the relevant spot measure (row 1b) for the previous period.
- b. Row 8b reflects the difference between the relevant spot measure (row 8a) and reported RWA (row 8) for the current period.

Modelled market risk RWAs decreased £4.1bn to £22.9bn primarily driven by changes in portfolio composition from client and trading activity.

		Twelve month ended 31.12.2022					
		VaR	SVaR	IRC	Other	Total RWEAs	Total own funds requirements
		£m	£m	£m	£m	£m	£m
<b>1</b>	<b>RWAs at previous period end</b>	<b>4,476</b>	<b>13,751</b>	<b>4,113</b>	<b>5,026</b>	<b>27,366</b>	<b>2,189</b>
1a	Regulatory adjustment <sup>a</sup>	(2,372)	(3,135)	—	—	(5,507)	(440)
1b	RWAs at the previous quarter-end (end of the day)	2,104	10,616	4,113	5,026	21,859	1,749
2	Movement in risk levels	756	(5,971)	(1,336)	(1,580)	(8,131)	(651)
3	Model updates/changes	—	—	—	—	—	—
4	Methodology and policy	—	—	—	—	—	—
5	Acquisitions and disposals	—	—	—	—	—	—
6	Foreign exchange movements	—	—	—	—	—	—
7	Other	—	—	—	—	—	—
8a	RWAs at the end of the reporting period (end of the day)	2,860	4,645	2,777	3,446	13,728	1,098
8b	Regulatory adjustment <sup>b</sup>	3,907	5,216	34	—	9,157	733
<b>8</b>	<b>RWAs at the end of the disclosure period</b>	<b>6,767</b>	<b>9,861</b>	<b>2,811</b>	<b>3,446</b>	<b>22,885</b>	<b>1,831</b>

**Notes**

- a. Row 1a reflects the difference between reported RWA (row 1) and the relevant spot measure (row 1b) for the previous period.
- b. Row 8b reflects the difference between the relevant spot measure (row 8a) and reported RWA (row 8) for the current period.

Modelled market risk RWAs decreased £4.5bn to £22.9bn primarily driven by changes in portfolio composition which reduced a model adjustment held to capture the incremental risk associated with 10-day SVaR over and above that obtained by scaling 1-day SVaR RWAs by the square root of 10.

## Analysis of treasury and capital risk (continued)

### Leverage ratio and exposures

The following leverage tables show the components of the leverage ratio using the UKLRF definition for leverage exposure and Tier 1 capital as at 31 December 2022<sup>a</sup>.

**Table 15: LR1 - Summary of reconciliation of accounting assets and leverage ratio exposures<sup>b</sup>**

This table is a summary of the total leverage exposures and comprises total IFRS assets used for statutory purposes, regulatory consolidation and other leverage adjustments.

	As at 31st December 2022	£m
1 Total assets as per published financial statements	1,513,699	
2 Adjustment for entities which are consolidated for accounting purposes but are outside the scope of prudential consolidation	(8,278)	
3 Adjustment for securitised exposures that meet the operational requirements for the recognition of risk transference	(473)	
4 Adjustment for exemption of exposures to central banks	(272,321)	
6 Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	(21,386)	
8 Adjustments for derivative financial instruments	(155,951)	
9 Adjustment for securities financing transactions (SFTs)	24,203	
10 Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	124,658	
11 Adjustment for prudent valuation adjustments and specific and general provisions which have reduced Tier 1 capital	(2,215)	
12 Other adjustments	(71,963)	
<b>13 Total exposure measure</b>	<b>1,129,973</b>	

#### Notes

- a. Leverage measures are calculated applying the transitional arrangements of the CRR as amended by CRR II.
- b. No comparatives are provided as this reflects disclosure requirements under the UKLRF from 1 January 2022.

## Analysis of treasury and capital risk (continued)

**Table 16: LR2 - Leverage ratio common disclosure<sup>a,b</sup>**

This table shows the leverage ratio calculation and includes additional breakdowns for the leverage exposure measure.

	As at 31st December 2022
	£m
<b>On-balance sheet exposures (excluding derivatives and SFTs)</b>	
1 On-balance sheet items (excluding derivatives, SFTs, but including collateral)	<b>984,960</b>
3 Deductions of receivables assets for cash variation margin provided in derivatives transactions	(19,519)
6 Asset amounts deducted in determining tier 1 capital (leverage)	(14,388)
<b>7 Total on-balance sheet exposures (excluding derivatives and SFTs)</b>	<b>951,053</b>
<b>Derivative exposures</b>	
8 Replacement cost associated with SA-CCR derivatives transactions (i.e. net of eligible cash variation margin)	65,570
9 Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	99,467
10 Exempted CCP leg of client-cleared trade exposures (SA-CCR)	(67,995)
11 Adjusted effective notional amount of written credit derivatives	797,520
12 Adjusted effective notional offsets and add-on deductions for written credit derivatives	(781,330)
<b>13 Total derivatives exposures</b>	<b>113,232</b>
<b>Securities financing transaction (SFT) exposures</b>	
14 Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	585,959
15 Netted amounts of cash payables and cash receivables of gross SFT assets	(397,637)
16 Counterparty credit risk exposure for SFT assets	25,518
<b>18 Total securities financing transaction exposures</b>	<b>213,840</b>
<b>Other off-balance sheet exposures</b>	
19 Off-balance sheet exposures at gross notional amount	402,916
20 Adjustments for conversion to credit equivalent amounts	(278,258)
21 General provisions deducted in determining tier 1 capital (leverage) and specific provisions associated with off-balance sheet exposures	(489)
<b>22 Off-balance sheet exposures</b>	<b>124,169</b>
<b>Excluded exposures</b>	
<b>Capital and total exposure measure</b>	
<b>23 Tier 1 capital (leverage)</b>	<b>60,102</b>
24 Total exposure measure including claims on central banks	1,402,294
UK-24a (-) Claims on central banks excluded	(272,321)
<b>UK-24b Total exposure measure excluding claims on central banks</b>	<b>1,129,973</b>
<b>Leverage ratio</b>	
25 Leverage ratio excluding claims on central banks (%)	5.3%
UK-25a Fully loaded ECL accounting model leverage ratio excluding claims on central banks (%)	5.3%
UK-25b Leverage ratio excluding central bank reserves as if the temporary treatment of unrealised gains and losses measured at fair value through other comprehensive income had not been applied (%) <sup>c</sup>	5.3%
UK-25c Leverage ratio including claims on central banks (%)	4.3%
26 Regulatory minimum leverage ratio requirement (%)	3.3%
<b>Additional leverage ratio disclosure requirements - leverage ratio buffers</b>	
27 Leverage ratio buffer (%)	0.7%
UK-27a Of which: G-SII or O-SII additional leverage ratio buffer (%)	0.5%
UK-27b Of which: countercyclical leverage ratio buffer (%)	0.2%
<b>Additional leverage ratio disclosure requirements - disclosure of mean values</b>	
28 Mean of daily values of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivable	261,082
29 Quarter-end value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	188,323
UK-31 Average total exposure measure including claims on central banks	1,541,367
UK-32 Average total exposure measure excluding claims on central banks	1,280,972
UK-33 Average leverage ratio including claims on central banks	3.9%
UK-34 Average leverage ratio excluding claims on central banks	4.8%

**Notes**

a. Capital and leverage measures are calculated applying the transitional arrangements of the CRR as amended by CRR II.

b. No comparatives are provided as this reflects disclosure requirements under the UKLRF from 1 January 2022.

c. As at 31 December 2022, the Group had not elected to apply the temporary treatment specified in Article 468 of the CRR, amended by Regulation EU 2020/873, resulting in the Group's capital and leverage ratios reflecting the full impact of unrealised gains and losses measured at fair value through other comprehensive income.

## Analysis of treasury and capital risk (continued)

**Table 17: LR3 - Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)<sup>a</sup>**

The table shows a breakdown of the on-balance sheet exposures excluding derivatives, SFTs and exempted exposures, by regulatory asset class.

	As at 31st December 2022	£m
<b>UK-1 Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:</b>		<b>643,590</b>
UK-2 Trading book exposures		142,005
UK-3 Banking book exposures, of which:		501,585
UK-4 Covered bonds		1,043
UK-5 Exposures treated as sovereigns		84,986
UK-6 Exposures to regional governments, MDB, international organisations and PSE not treated as sovereigns		10,190
UK-7 Institutions		13,465
UK-8 Secured by mortgages of immovable properties		173,726
UK-9 Retail exposures		49,746
UK-10 Corporates		81,056
UK-11 Exposures in default		4,553
UK-12 Other exposures (e.g. equity, securitisations, and other non-credit obligation assets)		82,820

**Note**

a. No comparatives are provided as this reflects disclosure requirements under the UKLRF from 1 January 2022..

## Analysis of treasury and capital risk (continued)

### Minimum requirement for own funds and eligible liabilities (MREL)

The disclosures in this section (tables 18 to 22) have been prepared in accordance with CRR as amended by CRR II, using the uniform format set out in the Basel Committee for Banking Supervision (BCBS) Standard on Pillar 3 disclosure requirements.

**Table 18: KM2 - Key metrics - TLAC requirements (at resolution group level)**

This table shows the key metrics for the Group's own funds and eligible liabilities.

		Restated <sup>c</sup>				
		As at 31.12.22 £m	As at 30.09.22 £m	As at 30.06.22 £m	As at 31.03.22 £m	As at 31.12.21 £m
1	Total Loss Absorbing Capacity (TLAC) available <sup>a,b</sup>	<b>112,828</b>	111,892	106,480	102,486	109,771
1a	Fully loaded ECL accounting model TLAC available	<b>112,161</b>	111,133	105,871	101,923	108,871
2	Total RWA at the level of the resolution group <sup>a</sup>	<b>336,518</b>	350,774	344,516	328,830	314,136
3	TLAC as a percentage of RWA (row 1 / row 2) (%) <sup>a,b</sup>	<b>33.5%</b>	31.9%	30.9%	31.2%	34.9%
3a	Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model RWA (%)	<b>33.3%</b>	31.7%	30.8%	31.0%	34.7%
4	Leverage ratio exposure measure at the level of the resolution group <sup>d</sup>	<b>1,129,973</b>	1,232,105	1,151,214	1,123,531	1,356,191
5	TLAC as a percentage of leverage ratio exposure measure (row 1 / row 4) (%) <sup>b,d</sup>	<b>10.0%</b>	9.1%	9.2%	9.1%	8.1%
5a	Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model Leverage exposure measure (%)	<b>9.9%</b>	9.0%	9.2%	9.1%	8.0%
6a	Does the subordination exemption in the antepenultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	<b>No</b>	No	No	No	No
6b	Does the subordination exemption in the penultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	<b>No</b>	No	No	No	No
6c	If the capped subordination exemption applies, the amount of funding issued that ranks pari passu with Excluded Liabilities and that is recognised as external TLAC, divided by funding issued that ranks pari passu with Excluded Liabilities and that would be recognised as external TLAC if no cap was applied (%)	<b>N/A</b>	NA	N/A	N/A	N/A

**Notes**

- a. Own funds included in TLAC, and RWAs are calculated applying the IFRS9 transitional arrangements of the CRR as amended by CRR II.
- b. Prior year comparatives include subsidiary issuances, which were no longer eligible from 1 January 2022.
- c. Capital and leverage metrics as at 31 December 2021 have been restated. More details are available in the Barclays Q4'22 Results Announcement on page 56.
- d. Prior year comparatives are based on fully loaded CRR leverage exposure which was no longer applicable to UK banks from 1 January 2022.

As at 31 December 2022, Barclays PLC (the Parent company) held £112.8bn of own funds and eligible liabilities equating to 33.5% of RWAs. This was in excess of the Group's MREL requirement, excluding the PRA buffer, to hold £97.4bn of own funds and eligible liabilities equating to 28.9% of RWAs. The Group remains above its MREL regulatory requirement including the PRA buffer.

## Analysis of treasury and capital risk (continued)

**Table 19: TLAC 1 - TLAC composition for G-SIBs (at resolution group level)**

This table shows the composition of the Group's own funds and eligible liabilities and ratios.

		As at 31 December 2022
<b>Barclays Group</b>		<b>£m</b>
<b>Regulatory capital elements of TLAC and adjustments<sup>a</sup></b>		
1	Common Equity Tier 1 capital (CET1)	<b>46,878</b>
2	Additional Tier 1 capital (AT1) before TLAC adjustment	<b>13,224</b>
5	AT1 instruments eligible under the TLAC framework	<b>13,224</b>
6	Tier 2 capital (T2) before TLAC adjustments	<b>9,970</b>
7	Amortised portion of T2 instruments where remaining maturity > 1 year	<b>1,171</b>
8	T2 capital ineligible as TLAC as issued out of subsidiaries to third parties	<b>(1,095)</b>
10	T2 instruments eligible under the TLAC framework	<b>10,046</b>
11	TLAC arising from regulatory capital	<b>70,148</b>
<b>Non-regulatory capital elements of TLAC</b>		
12	External TLAC instruments issued directly by the bank and subordinated to excluded liabilities	<b>42,804</b>
17	TLAC arising from non-regulatory capital instruments before adjustments	<b>42,804</b>
<b>Non-regulatory capital elements of TLAC: adjustments</b>		
18	TLAC before deductions	<b>112,952</b>
20	Deduction of investments in own other TLAC liabilities	<b>(124)</b>
22	TLAC after deductions	<b>112,828</b>
<b>Risk-weighted assets and leverage exposure measure for TLAC purposes</b>		
23	Total risk-weighted assets adjusted as permitted under the TLAC regime <sup>a</sup>	<b>336,518</b>
24	Leverage exposure measure <sup>b</sup>	<b>1,129,973</b>
<b>TLAC ratios and buffers</b>		
25	TLAC (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime)	<b>33.5%</b>
26	TLAC (as a percentage of leverage exposure) <sup>b</sup>	<b>10.0%</b>
	CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum	
27	capital and TLAC requirements	<b>9.4%</b>
	Institution-specific buffer requirement (capital conservation buffer plus countercyclical buffer requirements plus higher	
28	loss absorbency requirement, expressed as a percentage of risk-weighted assets)	<b>4.4%</b>
29	<i>Of which: capital conservation buffer requirement</i>	<b>2.5%</b>
30	<i>Of which: bank specific countercyclical buffer requirement</i>	<b>0.4%</b>
31	<i>Of which: higher loss absorbency requirement</i>	<b>1.5%</b>

### Notes

- a. Own funds included in TLAC, and RWAs are calculated applying the transitional arrangements of the CRR as amended by CRR II. This includes IFRS 9 transitional arrangements and the grandfathering of CRR II non-compliant capital instruments.
- b. Fully loaded CRR leverage exposure is calculated without applying the transitional arrangements of the CRR as amended by CRR II.

## Analysis of treasury and capital risk (continued)

**Table 20: TLAC 3 - Resolution entity - creditor ranking at legal entity level**

This table shows the nominal values of Barclays PLC's (the parent company) capital and liabilities and the position in creditor hierarchy.

### Barclays PLC (the Parent company)

As at 31 December 2022	Creditor ranking					Total £m
	Most junior		3		4	
	£m	£m	£m	£m	£m	
1 Description of creditor ranking	Ordinary Shares	Perpetual Subordinated Contingent Convertible Debt	Dated Subordinated Debt	Unsecured and Unsubordinated Debt, and other pari passu liabilities		
2 Total capital and liabilities net of credit risk mitigation	<b>3,968</b>	<b>13,342</b>	<b>11,151</b>	<b>50,482</b>	<b>78,943</b>	
3 Subset of row 2 that are excluded liabilities	—	—	—	1,519	1,519	
4 Total capital and liabilities less excluded liabilities	<b>3,968</b>	<b>13,342</b>	<b>11,151</b>	<b>48,963</b>	<b>77,424</b>	
5 Subset of row 4 that are potentially eligible as TLAC	<b>3,968</b>	<b>13,342</b>	<b>11,151</b>	<b>46,875</b>	<b>75,336</b>	
6 Subset of row 5 with 1 year ≤ residual maturity < 2 years	—	—	1,039	5,960	6,999	
7 Subset of row 5 with 2 years ≤ residual maturity < 5 years	—	—	1,703	19,082	20,785	
8 Subset of row 5 with 5 years ≤ residual maturity < 10 years	—	—	6,747	12,259	19,006	
9 Subset of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities	—	—	1,662	9,574	11,236	
10 Subset of row 5 that is perpetual securities	<b>3,968</b>	<b>13,342</b>	—	—	<b>17,310</b>	

## Analysis of treasury and capital risk (continued)

**Table 21: TLAC 2 - Material subgroup entity - creditor ranking at legal entity level**

This table shows the nominal values of Barclays Bank PLC's capital and liabilities and the position in creditor hierarchy.

### Barclays Bank PLC

	Creditor ranking				
	1		2		3
	Most junior		Most senior		4
As at 31 December 2022	£m	£m	£m	£m	Total £m
1 Is the resolution entity the creditor/investor?	Yes	Yes	Yes	Yes	
2 Description of creditor ranking	Ordinary Shares	Perpetual Deeply Subordinated Contingent Convertible Debt	Dated Subordinated Debt	Dated secondary non-preferential debt	
3 Total capital and liabilities net of credit risk mitigation	2,343	10,767	12,256	27,898	53,264
4 Subset of row 3 that are excluded liabilities	—	—	—	—	—
5 Total capital and liabilities less excluded liabilities	2,343	10,767	12,256	27,898	53,264
6 Subset of row 5 that are eligible as TLAC	2,343	10,767	12,256	25,808	51,174
7 Subset of row 6 with 1 year ≤ residual maturity < 2 years	—	—	—	4,179	4,179
8 Subset of row 6 with 2 years ≤ residual maturity < 5 years	—	—	1,136	12,679	13,815
9 Subset of row 6 with 5 years ≤ residual maturity < 10 years	—	—	5,417	5,444	10,861
10 Subset of row 6 with residual maturity ≥ 10 years, but excluding perpetual securities	—	—	5,704	3,505	9,209
11 Subset of row 6 that is perpetual securities	2,343	10,767	—	—	13,110

**Table 22: TLAC2 - Material subgroup entity - creditor ranking at legal entity level**

This table shows the nominal values of Barclays Bank UK PLC Group's capital and liabilities and the position in creditor hierarchy.

### Barclays Bank UK PLC Group

	Creditor ranking				
	1		2		3
	Most junior		Most senior		4
As at 31 December 2022	£m	£m	£m	£m	Total £m
1 Is the resolution entity the creditor/investor?	Yes	Yes	Yes	Yes	
2 Description of creditor ranking	Ordinary Shares	Perpetual Deeply Subordinate d Contingent Convertible Debt	Dated Subordinate d Debt	Dated secondary non-preferential debt	
3 Total capital and liabilities net of credit risk mitigation	5	2,575	3,769	5,314	11,663
4 Subset of row 3 that are excluded liabilities	—	—	—	—	—
5 Total capital and liabilities less excluded liabilities	5	2,575	3,769	5,314	11,663
6 Subset of row 5 that are eligible as TLAC	5	2,575	3,769	5,314	11,663
7 Subset of row 6 with 1 year ≤ residual maturity < 2 years	—	—	1,039	561	1,600
8 Subset of row 6 with 2 years ≤ residual maturity < 5 years	—	—	568	2,767	3,335
9 Subset of row 6 with 5 years ≤ residual maturity < 10 years	—	—	1,331	1,662	2,993
10 Subset of row 6 with residual maturity ≥ 10 years, but excluding perpetual securities	—	—	831	324	1,155
11 Subset of row 6 that is perpetual securities	5	2,575	—	—	2,580

## Analysis of treasury and capital risk (continued)

**Table 23: LIQ1 - Liquidity coverage ratio**

This table shows the level and components of the Liquidity Coverage Ratio.

		Liquidity coverage ratio (period end)				Total period end value			
				31.12.22	30.09.22	30.06.22	31.03.22		
Barclays Group		£m	£m	£m	£m	£m	£m		
Total High Quality Liquid Assets (HQLA)		294,529		317,391		331,096		310,291	
Total net cash outflows		178,133		210,612		211,911		194,920	
Liquidity coverage ratio (%) (period end)		165%		151%		156%		159%	
Liquidity coverage ratio (average)									
UK1a		31.12.22	30.09.22	30.06.22	31.03.22	31.12.22	30.09.22	30.06.22	31.03.22
UK1b	Number of data points used in calculation of averages <sup>a</sup>	12	12	12	12	12	12	12	12
High-quality liquid assets		£m	£m	£m	£m	£m	£m	£m	£m
1	Total high-quality liquid assets (HQLA)					320,450	319,177	308,489	300,538
Cash outflows									
2	Retail deposits and deposits from small business customers, of which:	269,038	267,555	264,959	262,267	23,805	23,582	23,085	22,569
3	Stable deposits	139,705	140,312	140,387	140,312	6,985	7,016	7,019	7,016
4	Less stable deposits	124,256	121,985	118,259	114,334	16,755	16,507	16,026	15,519
5	Unsecured wholesale funding, of which:	261,040	258,762	249,032	238,591	135,617	134,238	127,466	119,836
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks	68,657	66,143	63,328	61,133	16,844	16,212	15,507	14,956
7	Non-operational deposits (all counterparties) <sup>b</sup>	179,744	180,426	174,668	167,796	106,134	105,833	100,923	95,217
8	Unsecured debt	12,639	12,193	11,036	9,662	12,639	12,193	11,036	9,662
9	Secured wholesale funding					58,184	57,601	57,555	57,348
10	Additional requirements, of which:	184,022	182,951	182,422	183,697	52,671	51,237	50,313	51,619
11	Outflows related to derivative exposures and other collateral requirements	19,670	19,120	18,968	19,623	16,877	16,427	16,414	17,144
12	Outflows related to loss of funding on debt products	5,410	5,686	6,316	7,883	5,410	5,686	6,316	7,883
13	Credit and liquidity facilities	158,942	158,144	157,137	156,191	30,384	29,124	27,582	26,591
14	Other contractual funding obligations	6,972	6,340	5,226	3,839	6,174	5,663	4,669	3,403
15	Other contingent funding obligations	188,575	169,072	154,562	147,039	6,995	6,568	6,243	5,957
16	Total cash outflows					283,445	278,887	269,331	260,731
Cash inflows									
17	Secured lending (e.g. reverse repos)	602,847	585,325	568,552	548,009	60,783	58,524	56,564	55,097
18	Inflows from fully performing exposures	13,508	13,144	12,070	11,872	9,263	8,659	7,622	7,367
19	Other cash inflows <sup>3</sup>	12,354	12,362	13,100	13,687	7,343	7,611	8,786	9,788
UK-19a	(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)					—	—	—	—
UK-19b	(Excess inflows from a related specialised credit institution)					—	—	—	—
20	Total cash inflows	628,709	610,831	593,722	573,567	77,389	74,794	72,972	72,251
UK-20a	Fully exempt inflows	—	—	—	—	—	—	—	—
UK-20b	Inflows subject to 90% cap	—	—	—	—	—	—	—	—
UK-20c	Inflows subject to 75% cap	513,794	495,130	479,472	461,221	77,389	74,794	72,972	72,251
UK-21	Liquidity buffer					320,450	319,177	308,489	300,538
22	Total net cash outflows					206,056	204,093	196,359	188,480
23	Liquidity coverage ratio (%)					156%	156%	157%	159%

**Notes**

a Trailing average of 12 month-end observations to the reporting date.

b Non-operational deposits in row 7 also includes excess operational deposits as defined in the PRA Rulebook (Liquidity Coverage Ratio - CRR) Article 27(4).

## Analysis of treasury and capital risk (continued)

As at 31 December 2022, the LCR was 165% (September 2022: 151%), equivalent to a surplus of £117bn (September 2022: 107bn) above the 100% regulatory requirement. The decrease in HQLA was driven by lower deposit and wholesale funding balances which were partly offset by a decrease in business funding consumption. Net cash outflows decreased due to lower deposit and wholesale funding stresses which resulted in a higher LCR.

The trailing 12 month-end average LCR to 31 December 2022 remained flat at 156% (September 2022: 156%), with average HQLA increasing by £1bn and average net cash outflows increasing by £2bn.

The composition of the liquidity pool is subject to limits set by the Board and the independent liquidity risk, credit risk and market risk functions. In addition, the investment of the liquidity pool is monitored for concentration risk by issuer, currency and asset type. Given the returns generated by these highly liquid assets, the risk and reward profile is continuously managed.

As at 31 December 2022, 60% (2021: 58%) of the liquidity pool was located in Barclays Bank PLC, 25% (2021: 30%) in Barclays Bank UK PLC and 9% (2021: 7%) in Barclays Bank Ireland PLC. The residual portion of the liquidity pool is held outside of these entities, predominantly in the US subsidiaries, to meet entity-specific stress outflows and local regulatory requirements. To the extent the use of this portion of the liquidity pool is restricted due to local regulatory requirements, it is assumed to be unavailable to the rest of the Group in calculating the LCR.

The strong deposit franchises in Barclays Bank Group and Barclays Bank UK Group are primary funding sources for Barclays Group. The Group expects to continue issuing public wholesale debt from Barclays PLC (the Parent company), in order to maintain compliance with indicative MREL requirements and maintain a stable and diverse funding base by type, currency and market. Barclays Bank PLC continued to issue in the shorter-term markets and maintain active medium-term notes programmes. Barclays Bank UK PLC continued to issue in the shorter-term markets and maintain active secured funding programmes. This funding capacity enables the respective entities to maintain their stable and diversified funding bases.

Barclays Bank Group and Barclays Bank UK Group also support various central bank monetary initiatives, such as the Bank of England's Term Funding Scheme with additional incentives for SMEs (TFSME), and the European Central Bank's Targeted Long-Term Refinancing Operations (TLTRO). These are reported under 'repurchase agreements and other similar secured borrowing' on the balance sheet.

In 2022, Barclays repaid £1.1bn of its TLTRO drawings reducing its outstanding balance to £1.4bn as at 31 December 2022. In addition, Barclays had £22.0bn TFSME balances outstanding at the year-end.

## Analysis of treasury and capital risk (continued)

**Table 24: LIQ2 - Net Stable funding ratio<sup>b</sup>**

This table shows the net stable funding ratio that the bank requires to maintain a stable funding profile in relation to their on- and certain off-balance sheet activities.

31 December 2022		Unweighted value by residual maturity				
	(in currency amount)	No maturity	< 6 months	6 months to < 1yr	≥ 1yr	Weighted value
<b>Available stable funding (ASF) Items</b>						
1	Capital items and instruments	56,291	4,251	5,173	56,524	115,402
2	Own funds	56,291	—	—	—	56,291
3	Other capital instruments		4,251	5,173	56,524	59,111
4	Retail deposits		271,279	4,221	1,715	256,766
5	Stable deposits		140,962	1,050	851	135,763
6	Less stable deposits		130,317	3,171	864	121,003
7	Wholesale funding:		524,392	35,676	87,442	204,273
8	Operational deposits		69,638	—	—	34,819
9	Other wholesale funding		454,754	35,676	87,442	169,454
10	Interdependent liabilities		—	—	—	—
11	Other liabilities:	1,073	94,523	22,498	25	50
12	NSFR derivative liabilities	1,073				
13	All other liabilities and capital instruments not included in the above categories		94,523	22,498	25	50
<b>14</b>	<b>Total available stable funding (ASF)</b>					<b>576,491</b>
<b>Required stable funding (RSF) Items</b>						
15	Total high-quality liquid assets (HQLA)					34,478
UK-15a	Assets encumbered for more than 12m in cover pool	—	41,006	—	—	34,855
	Deposits held at other financial institutions for operational purposes		—	—	—	—
17	Performing loans and securities:		228,380	31,949	298,856	273,802
18	Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0%		168,774	4,705	38,562	47,581
	Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions		11,057	3,735	20,507	23,480
19	Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:		13,999	15,371	165,863	118,557
20	With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		13,999	15,371	165,863	118,557
21	Performing residential mortgages, of which:		34,550	8,138	73,924	84,184
22	With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		34,550	8,138	73,924	84,184
23	Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products		—	—	—	—
24	Interdependent assets		—	—	—	—
25	Other assets:	—	109,191	—	35,270	68,184
27	Physical traded commodities				—	—
28	Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs		28,470	—	—	24,200
29	NSFR derivative assets		4,809	—	—	4,809
30	NSFR derivative liabilities before deduction of variation margin posted		75,362	—	—	3,768
31	All other assets not included in the above categories		550	—	35,270	35,407
32	Off-balance sheet items		184,071	10	39	9,570
<b>33</b>	<b>Total RSF</b>					<b>420,889</b>
<b>34</b>	<b>Net Stable Funding Ratio (%)<sup>a</sup></b>					<b>137%</b>

**Notes**

a. Net Stable Funding Ratio is computed as a trailing average of the last four spot quarter end positions.

b. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

As at 31 December 2022, the trailing average NSFR for the last four spot quarter end positions was 137%, equivalent to a surplus of €155bn above the 100% regulatory requirement.

## Analysis of treasury and capital risk (continued)

### Foreign exchange risk

The Group is exposed to two sources of foreign exchange risk.

#### a) Transactional foreign currency exposure

Transactional foreign currency exposures represent exposure on banking assets and liabilities, denominated in currencies other than the functional currency of the transacting entity.

The Group's risk management policies are designed to prevent the holding of significant open positions in foreign currencies outside the trading portfolio managed by Barclays International which is monitored through VaR.

Banking book transactional foreign exchange risk outside of Barclays International is monitored on a daily basis by the market risk function and minimised by the businesses.

#### b) Translational foreign exchange exposure

The Group's investments in overseas subsidiaries and branches create capital resources denominated in foreign currencies, principally USD and EUR. Changes in the GBP value of the net investments due to foreign currency movements are captured in the currency translation reserve, resulting in a movement in CET1 capital.

The Group's strategy is to minimise the volatility of the capital ratios caused by foreign exchange movements, by matching the CET1 capital movements to the revaluation of the Group's foreign currency RWA exposures.

**Table 25: Functional currency of operations**

	Foreign currency net investments £m	Borrowings which hedge the net investments £m	Derivatives which hedge the net investments £m	Structural currency exposures pre-economic hedges £m		Remaining structural currency exposures £m
		Economic hedges £m	£m	£m	£m	
<b>As at 31 December 2022</b>						
USD	27,441	(7,363)	(2,086)	17,992	(8,688)	9,304
EUR	9,776	(5,461)	(3)	4,312	(283)	4,029
JPY	689	—	(197)	492	—	492
Other currencies	3,330	—	(1,676)	1,654	(279)	1,375
Total	41,236	(12,824)	(3,962)	24,450	(9,250)	15,200
<b>As at 31 December 2021</b>						
USD	25,958	(7,707)	(2,356)	15,895	(7,389)	8,506
EUR	8,453	(3,408)	(3)	5,042	(268)	4,774
JPY	614	(97)	—	517	—	517
Other currencies	2,448	—	(64)	2,384	—	2,384
Total	37,473	(11,212)	(2,423)	23,838	(7,657)	16,181

Economic hedges relate to exposures arising on foreign currency denominated preference share and AT1 instruments. These are accounted for at historical cost under IFRS and do not qualify as hedges for accounting purposes. The gain or loss arising from changes in the GBP value of these instruments is recognised on redemption in retained earnings.

During 2022, total structural currency exposure net of hedging instruments decreased by £1.0bn at £15.2bn (2021: £16.2bn). Foreign currency net investments increased by £3.7bn to £41.2bn (2021: £37.5bn) driven predominantly by a £1.5bn increase in USD, £1.3bn increase in EUR and £0.9bn increase in other currencies. The hedges associated with these investments increased by £3.2bn to £16.8bn (2021: £13.6bn).

## Analysis of treasury and capital risk (continued)

### Pension risk review

The UK Retirement Fund (UKRF) represents approximately 96% (31 December 2021: 97%) of the Group's total retirement benefit obligations globally. As such this section focuses exclusively on the UKRF. The UKRF is closed to new entrants and there is no new final salary benefit being accrued. Existing active members accrue a combination of a cash balance benefit and a defined contribution element. Pension risk arises as the market value of the pension fund assets may decline, investment returns may reduce or the estimated value of the pension liabilities may increase.

Refer to page 159 for more information on how pension risk is managed.

#### Assets

The Trustee Board of the UKRF defines its overall long-term investment strategy with investments across a broad range of asset classes. This results in an appropriate mix of return seeking assets as well as liability matching assets to better match future pension obligations. The two largest market risks within the asset portfolio are credit spread and growth assets. The split of scheme assets is shown within Note 33 on page 494 of the Barclays PLC Annual Report 2022. The fair value of the UKRF assets was £24.7bn as at 31 December 2022 (31 December 2021: £34.7bn).

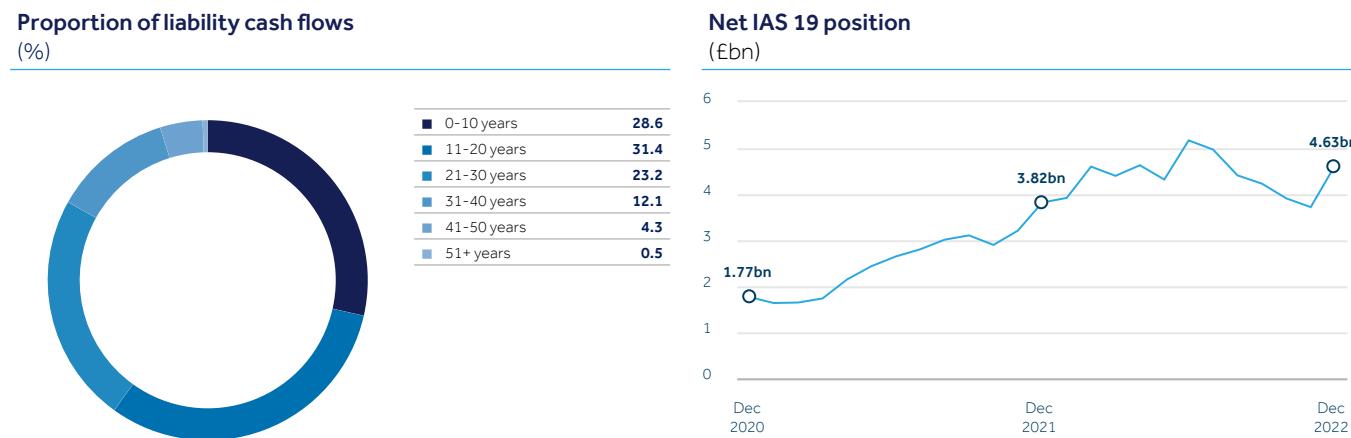
#### Liabilities

The UKRF retirement benefit obligations are a series of future cash flows with relatively long duration. On an IAS 19 basis these cash flows are sensitive to changes in the expected long-term price inflation rate (RPI) and the discount rate (GBP AA corporate bond yield):

- An increase in long-term expected inflation corresponds to an increase in liabilities;
- A decrease in the discount rate corresponds to an increase in liabilities.

Pension risk is generated through the Group's defined benefit schemes and this risk is set to reduce over time as the main defined benefit scheme is closed to new entrants. The chart below outlines the shape of the UKRF's liability cash flow profile as at 31 December 2022 that takes account of the future inflation indexing of payments to beneficiaries. The majority of the cash flows (approximately 95%) fall between 0 and 40 years, peaking between 11 and 20 years and reducing thereafter. The shape may vary depending on changes to inflation and longevity expectations and any members who elect to transfer out. Transfers out will bring forward the liability cash flows.

For more detail on the UKRF's financial and demographic assumptions, see Note 33 on page 494 of the Barclays PLC Annual Report 2022.



The graph above shows the evolution of the UKRF's net IAS 19 position over the last two years. During 2022 the increase in the IAS 19 pension surplus was primarily driven by scheduled deficit reduction contributions, including payments made to unwind Heron transactions. The significant increase in interest rates over 2022 has had a broadly neutral impact on the net funding position. Benefit obligation reductions due to higher discount rates have been broadly offset by the changes in the fair value of scheme assets. Higher realised inflation over the year had a negative impact by increasing the projected liabilities, which was partially offset by updates to the demographic assumptions.

## Analysis of treasury and capital risk (continued)

### Risk measurement

In line with Barclays' risk management framework the assets and liabilities of the UKRF are modelled within a VaR framework to show the volatility of the pension position at a total portfolio level. This enables the risks, diversification and liability matching characteristics of the UKRF obligations and investments to be adequately captured. VaR is measured and monitored on a monthly basis. Risks are reviewed and reported regularly at forums including the Board Risk Committee, the Group Risk Committee, and the Pension Executive Board. The VaR model takes into account the valuation of the liabilities on an IAS 19 basis (see Note 33 on page 494 of the Barclays PLC Annual Report 2022). The Trustee receives quarterly VaR measures on a funding basis.

The pension liability is also sensitive to post-retirement mortality assumptions which are reviewed regularly (See Note 33 on page 494 of the Barclays PLC Annual Report 2022). To mitigate part of this risk the UKRF has entered into longevity swaps hedging approximately three quarters of current pensioner liabilities.

In addition, the impact of pension risk to the Group is taken into account as part of the stress testing process. Stress testing is performed internally on at least an annual basis. The UKRF exposure is also included as part of regulatory stress tests.

Barclays defined benefit pension schemes affects capital in two ways:

- An IAS 19 deficit is treated as a liability on the Group's balance sheet. Movement in a deficit due to remeasurements, including actuarial losses, are recognised immediately through Other Comprehensive Income and as such reduces shareholders' equity and CET1 capital. An IAS 19 surplus is treated as an asset on the balance sheet and increases shareholders' equity; however, it is deducted for the purposes of determining CET1 capital.
- In the Group's statutory balance sheet an IAS 19 surplus or deficit is partially offset by a deferred tax liability or asset respectively. These may or may not be recognised for calculating CET1 capital depending on the overall deferred tax position of the Group at the particular time.

Pension risk is taken into account in the Pillar 2A capital assessment undertaken by the PRA at least annually. The Pillar 2A requirement forms part of the Group's Overall Capital Requirement for CET1 capital, Tier 1 capital and total capital. More detail on minimum regulatory requirements can be found in the Overall capital requirements section.

### Interest rate risk in the banking book

The table below shows the impact on the Bank's economic value of equity (EVE) and net interest income (NII) from the six standardised interest rate shock scenarios defined in the PRA Rulebook.

**Table 26: IRRBB1 - Quantitative information on IRRBB**

	Period	ΔEVE		ΔNII		Tier 1 capital	
		31.12.22	30.06.22	31.12.22	30.06.22	31.12.22	30.06.22
10	Parallel shock up	(3,410)	(3,953)	354	579		
20	Parallel shock down	1,236	1,233	(927)	(1,633)		
30	Steepener shock	(435)	(853)				
40	Flattener shock	(1,267)	(682)				
50	Short rates shock up	(2,500)	(1,975)				
60	Short rates shock down	727	473				
<b>70</b>	<b>Maximum</b>	<b>(3,410)</b>	<b>(3,953)</b>	<b>(927)</b>	<b>(1,633)</b>		
<b>80</b>	<b>Tier 1 capital</b>					<b>60,102</b>	58,988

The maximum EVE loss under the six scenarios was £3,410m under the parallel up scenario as of December 2022.

The material driver of the parallel up scenario is the sensitivity of the Bank's structural hedging of its equity position and the fixed interest rate positions held within the liquidity pool.

The maximum one-year loss in NII was £927m as of December 2022. The material driver of the parallel down scenario is the exposure to margin compression risk and timing of pricing changes to deposits across the Retail, Corporate and Private Bank. The reduction in the Bank's NII sensitivity to a parallel down shock is driven by reduced levels of margin compression risk in customer deposits.

The average repricing maturity assigned to non-maturing deposits is 16 months, with the longest repricing maturity assigned to any portfolio of non-maturing deposits being 120 months. This is calculated using a simple weighted average maturity including all non-maturing deposits, regardless of hedging treatment.

## Analysis of treasury and capital risk (continued)

**Table 27: PV1 - Prudent valuation adjustments (PVA)<sup>d</sup>**

This table below provides a granular breakdown of the Prudent Valuation Adjustment (PVA). PVA is a Common Equity Tier 1 capital deduction. CRR Articles 34 & 105 define regulatory principles that are applied to all fair valued assets and liabilities in order to determine a prudent valuation. PVA is the difference between the financial statement fair valuation and the prudent valuation.

	Risk category					Category level AVA - Valuation uncertainty		Total category level post-diversification <sup>c</sup>			Of which: Total core approach in the trading book <sup>a,b</sup>	Of which: Total core approach in the banking book <sup>a,b</sup>
	Equity	Interest Rates	Foreign exchange	Credit	Commodities	Unearned credit spreads AVA	Investment and funding costs AVA	£m	£m	£m		
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m		
<b>As at 31 December 2022</b>												
1	Market price uncertainty	<b>745</b>	<b>527</b>	<b>74</b>	<b>580</b>	—	<b>129</b>	<b>298</b>	<b>1,176</b>	<b>890</b>	<b>286</b>	
2	Set not applicable in the UK	—	—	—	—	—	—	—	—	—	—	
3	Close-out cost	<b>151</b>	<b>117</b>	<b>16</b>	<b>46</b>	—	<b>8</b>	<b>3</b>	<b>171</b>	<b>167</b>	<b>4</b>	
4	Concentrated positions	<b>20</b>	<b>32</b>	<b>6</b>	<b>13</b>	—	—	—	<b>71</b>	<b>71</b>	—	
5	Early termination	—	—	—	—	—	—	—	—	—	—	
6	Model risk	<b>62</b>	<b>48</b>	<b>1</b>	<b>10</b>	—	<b>19</b>	—	<b>70</b>	<b>65</b>	<b>5</b>	
7	Operational risk	<b>50</b>	<b>42</b>	<b>4</b>	<b>38</b>	—	—	—	<b>134</b>	<b>97</b>	<b>37</b>	
8	Set not applicable in the UK	—	—	—	—	—	—	—	—	—	—	
9	Set not applicable in the UK	—	—	—	—	—	—	—	—	—	—	
10	Future administrative costs	—	<b>89</b>	<b>11</b>	<b>4</b>	—	—	—	<b>104</b>	<b>104</b>	—	
11	Set not applicable in the UK	—	—	—	—	—	—	—	—	—	—	
12	Total Additional Valuation Adjustments (AVAs)	<b>1,028</b>	<b>855</b>	<b>112</b>	<b>691</b>	—	<b>156</b>	<b>301</b>	<b>1,726</b>	<b>1,394</b>	<b>332</b>	

**Notes**

- a. Barclays' implementation of PVA means that amounts cannot be easily classified as banking book or trading book. In the table we have provided the most material contributors to Banking book PVA, including a portfolio of longer dated non-asset backed loans made to Education, Social Housing and Local Authority counterparties and certain Equity investments.
- b. Significant contributors to PVA include trading book derivative portfolios, equity investments and non-asset backed loans held at fair value.
- c. A diversification reduction factor of 50% is applied to uncertainty after all regulatory exclusions and offsets, where permitted by CRR.
- d. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

# Analysis of credit risk

This section details Barclays' credit risk profile, focusing on regulatory measure such as exposure at default and risk weighted assets. The risk profile is analysed by country and industry concentrations, residual maturities, probabilities of default and actual losses.

## Key Metrics

### Total RWAs

£197.3bn

(2021: £177.9bn)

Credit risk RWAs increased £19.4bn to £197.3bn primarily due to an increase in lending across CIB and CC&P including the Gap portfolio acquisition, FX and regulatory changes primarily relating to IRB roadmap changes, partially offset by the disposal of Barclays' equity stake in Absa.

# Analysis of credit risk

## Analysis of capital requirements and exposures for credit risk

**Table 28: CR4 - Standardised approach - Credit risk exposure and CRM effects**

This table shows the impact of CRM and credit conversion factors (CCF) on exposure values, broken down by regulatory exposure class. This table includes exposures subject to the standardised approach only.

The term 'before CCF and CRM' means the original gross exposures before the application of credit conversion factors and before the application of risk mitigation techniques.

	Exposures before CCF and CRM		Exposures post-CCF and CRM		RWA and RWA density	
	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density
	£m	£m	£m	£m	£m	%
<b>As at 31 December 2022</b>						
1 Central governments or central banks	272,764	39,138	286,310	49,616	111	0%
2 Regional governments or local authorities	5,580	248	6,621	25	838	13%
3 Public sector entities	7,206	416	735	94	161	19%
4 Multilateral development banks	5,550	—	5,550	—	—	0%
5 International organisations	295	—	295	—	—	0%
6 Institutions	5,644	1,610	5,558	761	1,860	29%
7 Corporates	32,098	42,827	21,646	10,731	29,435	91%
8 Retail	36,190	114,869	30,634	51	22,915	75%
9 Secured by mortgages on immovable property	10,451	514	10,421	49	3,899	37%
10 Exposures in default	2,744	728	1,736	289	2,486	123%
11 Exposures associated with particularly high risk	1,915	4	1,915	2	2,875	150%
12 Covered bonds	294	—	294	—	29	10%
13 Institutions and corporates with a short-term credit assessment	—	—	—	—	—	—
14 Collective investment undertakings	—	—	—	—	—	—
15 Equity	134	—	134	—	334	250%
16 Other items	4,364	—	4,364	—	1,853	42%
<b>17 Total</b>	<b>385,229</b>	<b>200,354</b>	<b>376,213</b>	<b>61,618</b>	<b>66,796</b>	<b>15%</b>
<b>As at 31 December 2021</b>						
1 Central governments or central banks	217,964	33,971	229,353	42,332	61	0%
2 Regional governments or local authorities	9,151	266	9,006	26	1,501	17%
3 Public sector entities	5,617	257	5,619	130	190	3%
4 Multilateral development banks	5,314	—	5,314	—	—	0%
5 International organisations	558	—	558	—	—	0%
6 Institutions	4,505	1,582	4,280	825	1,526	30%
7 Corporates	27,029	38,927	17,440	10,346	25,446	92%
8 Retail	30,645	76,369	22,545	35	16,855	75%
9 Secured by mortgages on immovable property	9,430	102	9,382	51	3,548	38%
10 Exposures in default	2,329	516	1,104	201	1,515	116%
11 Exposures associated with particularly high risk <sup>a</sup>	1,957	10,170	1,957	2	2,938	150%
12 Covered bonds	1,110	—	1,110	—	115	10%
13 Institutions and corporates with a short-term credit assessment	—	—	—	—	—	—
14 Collective investment undertakings	—	—	—	—	—	—
15 Equity	851	—	851	—	2,127	250%
16 Other items	4,217	—	4,217	—	2,186	51%
<b>17 Total</b>	<b>320,677</b>	<b>162,160</b>	<b>312,736</b>	<b>53,948</b>	<b>58,008</b>	<b>16%</b>

**Note**

a. Prior period number has been updated to reflect the impact of Over-issuance of securities.

Standardised RWAs increased by £8.8bn to £66.8bn primarily driven by:

- Retail RWAs increased by £6.1bn to £22.9bn driven by the higher CC&P balances mainly due to GAP acquisition and an increase in FX primarily due to appreciation of USD against GBP
- Corporate RWAs increased by £4.0bn to £29.4bn primarily due to lending activities within CIB
- Equity RWAs decreased by £1.8bn to £0.3bn primarily driven by the disposal of Barclays' equity stake in Absa.

## Analysis of credit risk (continued)

**Table 29: CR5 – Standardised approach**

This table shows exposure at default post-CCF and CRM, broken down by Credit Exposure Class and risk weight. This table includes exposures subject to the standardised approach only

As at 31 December 2022	Risk weight														Of which unrated		
	0 %	2 %	4 %	10 %	20 %	35 %	50 %	70 %	75 %	100 %	150 %	250 %	370 %	1250 %	Others	Total	
1 Central governments or central banks	335,815	—	—	—	—	—	—	—	—	111	—	—	—	—	—	335,926	292
2 Regional government or local authorities	2,455	—	—	—	4,191	—	—	—	—	—	—	—	—	—	—	6,646	4,067
3 Public sector entities	26	—	—	—	802	—	1	—	—	—	—	—	—	—	—	829	759
4 Multilateral development banks	5,550	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,550	—
5 International organisations	295	—	—	—	—	—	—	—	—	—	—	—	—	—	—	295	—
6 Institutions	—	—	—	—	5,022	—	884	—	—	413	—	—	—	—	—	6,319	459
7 Corporates	—	—	—	—	2,614	—	1,397	—	—	28,048	316	—	—	2	—	32,377	27,130
8 Retail	—	—	—	—	—	—	—	—	30,685	—	—	—	—	—	—	30,685	30,685
9 Secured by mortgages on immovable property	—	—	—	—	—	10,061	—	—	16	393	—	—	—	—	—	10,470	10,470
10 Exposures in default	—	—	—	—	—	—	—	—	—	1,104	921	—	—	—	—	2,025	2,025
11 Exposures associated with particularly high risk	—	—	—	—	—	—	—	—	—	—	1,917	—	—	—	—	1,917	1,917
12 Covered bonds	—	—	—	294	—	—	—	—	—	—	—	—	—	—	—	294	—
13 Institutions and corporates with a short-term credit assessment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14 Unit or shares in collective investment undertakings	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15 Equity	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	134	134
16 Other items	1,351	—	—	—	1,450	—	—	—	—	1,563	—	—	—	—	—	4,364	4,364
17 Total	345,492	—	—	294	14,079	10,061	2,282	—	30,701	31,632	3,154	134	—	2	—	437,831	82,302

## Analysis of credit risk (continued)

**Table 29: CR5 – Standardised approach - continued**

As at 31 December 2021	Risk weight														Total	Of which unrated		
	0 %	2 %	4 %	10 %	20 %	35 %	50 %	70 %	75 %	100 %	150 %	250 %	370 %	1250 %	Others			
1 Central governments or central banks	271,623	—	—	—	—	—	—	—	—	62	—	—	—	—	—	271,685	484	
2 Regional government or local authorities	1,526	—	—	—	7,506	—	—	—	—	—	—	—	—	—	—	9,032	7,200	
3 Public sector entities	4,804	—	—	—	944	—	—	—	—	1	—	—	—	—	—	5,749	920	
4 Multilateral development banks	5,314	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,314	—	
5 International organisations	558	—	—	—	—	—	—	—	—	—	—	—	—	—	—	558	—	
6 Institutions	—	—	—	—	4,117	—	611	—	—	376	—	—	—	2	—	5,105	816	
7 Corporates	—	—	—	—	1,767	—	1,819	—	—	23,782	415	—	—	3	—	27,786	22,639	
8 Retail	—	—	—	—	—	—	—	22,580	—	—	—	—	—	—	—	22,580	22,580	
9 Secured by mortgages on immovable property	—	—	—	—	—	9,020	—	—	20	393	—	—	—	—	—	9,433	9,433	
10 Exposures in default	—	—	—	—	—	—	—	—	—	884	421	—	—	—	—	—	1,305	1,305
11 Exposures associated with particularly high risk	—	—	—	—	—	—	—	—	—	—	1,959	—	—	—	—	—	1,959	1,959
12 Covered bonds	—	—	—	1,071	39	—	—	—	—	—	—	—	—	—	—	—	1,110	—
13 Institutions and corporates with a short-term credit assessment	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
14 Unit or shares in collective investment undertakings	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
15 Equity	—	—	—	—	—	—	—	—	—	—	—	851	—	—	—	851	851	
16 Other items	1,388	—	—	—	824	—	—	—	—	2,005	—	—	—	—	—	4,217	4,217	
17 <b>Total</b>	<b>285,213</b>	—	—	1,071	15,196	9,020	2,430	—	22,600	27,503	2,795	851	—	5	—	366,684	72,404	

Standardised Credit Risk Exposure Post-CCF and CRM increased £71.1bn to £437.8bn primarily driven by:

- Central Government and Central Bank increased due to movements in the Group liquidity pool within the 0% risk weight category
- Retail increased due to higher CC&P balances driven by GAP portfolio acquisition and an increase in FX due to appreciation of USD against GBP within the 75% risk weight category.

## Analysis of credit risk (continued)

**Table 30: CR7 – IRB approach – Effect on the RWEAs of credit derivatives used as CRM techniques**

This table shows the effect of credit derivatives on the AIRB credit risk approach and will not directly reconcile to the CR AIRB RWAs in table 10.

		Pre-credit derivatives risk weighted exposure amount		Actual risk weighted exposure amount	
		As at 31 December		As at 31 December	
		2022	2021	2022	2021
		£m	£m	£m	£m
5	<b>Exposures under AIRB</b>	<b>109,556</b>	100,268	<b>109,536</b>	100,244
6	Central governments and central banks	<b>3,402</b>	4,569	<b>3,402</b>	4,569
7	Institutions	<b>4,477</b>	3,941	<b>4,477</b>	3,941
8	Corporates <sup>a</sup>	<b>53,865</b>	45,867	<b>53,845</b>	45,843
8.1	of Corporates - which SMEs	<b>8,281</b>	8,310	<b>8,281</b>	8,310
8.2	of which Corporates - Specialised lending	—	—	—	—
9	Retail	<b>47,812</b>	45,891	<b>47,812</b>	45,891
9.1	of which Retail – SMEs - Secured by immovable property collateral	—	—	—	—
9.2	of which Retail – non-SMEs - Secured by immovable property collateral	<b>27,669</b>	26,725	<b>27,669</b>	26,725
9.3	of which Retail – Qualifying revolving	<b>13,543</b>	12,353	<b>13,543</b>	12,353
9.4	of which Retail – SMEs - Other	<b>2,892</b>	3,176	<b>2,892</b>	3,176
9.5	of which Retail – Non-SMEs- Other	<b>3,708</b>	3,637	<b>3,708</b>	3,637
10	Total	<b>109,556</b>	100,268	<b>109,536</b>	100,244

**Note**

a. Corporate specialised lending exposures under the slotting approach is excluded from this table and disclosed separately in CR10.

Advanced credit risk RWAs increased by £9.3bn to £109.6bn primarily driven by CIB lending activity, an increase in FX primarily due to appreciation of USD against GBP, growth in mortgages and implementation of IRB roadmap changes. This was partially offset by a benefit in mortgages from an increase in the HPI.

## Analysis of credit risk (continued)

**Table 31: CR7-A – IRB approach – Disclosure of the extent of the use of CRM techniques<sup>a</sup>**

This table shows the extent of the use of CRM techniques broken down by exposure classes under the IRB approach. The exposure classes capture both secured and unsecured balances, resulting in the CRM coverage percentages being calculated on an aggregate basis.

A-IRB	Credit risk Mitigation techniques													Credit risk Mitigation methods in the calculation of RWEAs	
	Total exposures	Funded credit Protection (FCP)						Unfunded credit Protection (UFCP)							
		Part of exposures covered by Financial Collaterals	Part of exposures covered by Other eligible collaterals	Part of exposures covered by Immovable property Collaterals	Part of exposures covered by Receivables	Part of exposures covered by Other physical collateral	Part of exposures covered by Other funded credit protection	Part of exposures covered by Cash on deposit	Part of exposures covered by Life insurance policies	Part of exposures covered by Instruments held by a third party	Part of exposures covered by Guarantees	Part of exposures covered by Credit Derivatives	RWEA post all CRM assigned to the obligor exposure class	RWEA with substitution effects	
As at 31 December 2022	£m	%	%	%	%	%	%	%	%	%	%	%	£m	£m	
1 Central governments and central banks	71,555	0.2%	—	—	—	—	—	—	—	—	—	—	3,402	3,402	
2 Institutions	18,588	0.7%	0.9%	0.3%	—	0.6%	1.5%	1.5%	—	—	3.6%	—	4,477	4,477	
3 Corporates	83,691	5.8%	18.1%	14.2%	0.6%	3.4%	—	—	—	—	1.7%	0.2%	53,845	53,845	
3.1 Of which Corporates – SMEs	11,722	2.9%	61.4%	59.5%	1.6%	0.3%	—	—	—	—	1.4%	—	8,281	8,281	
3.2 Of which Corporates – Specialised lending	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
3.3 Of which Corporates – Other	71,969	6.2%	11.1%	6.8%	0.4%	3.9%	—	—	—	—	1.7%	0.2%	45,564	45,564	
4 Retail	217,660	0.0%	226.6%	226.6%	—	0.0%	—	—	—	—	1.2%	—	47,812	47,812	
4.1 Of which Retail – Immovable property SMEs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
4.2 Of which Retail – Immovable property non-SMEs	173,643	—	281.9%	281.9%	—	—	—	—	—	—	1.5%	—	27,669	27,669	
4.3 Of which Retail – Qualifying revolving	32,739	—	—	—	—	—	—	—	—	—	—	—	13,543	13,543	
4.4 Of which Retail – Other SMEs	7,267	0.0%	50.9%	50.8%	—	0.1%	—	—	—	—	0.4%	—	2,892	2,892	
4.5 Of which Retail – Other non-SMEs	4,011	—	—	—	—	—	—	—	—	—	—	—	3,708	3,708	
<b>5 Total</b>	<b>391,494</b>	<b>1.3%</b>	<b>129.9%</b>	<b>129.0%</b>	<b>0.1%</b>	<b>0.8%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>—</b>	<b>—</b>	<b>1.2%</b>	<b>0.0%</b>	<b>109,536</b>	<b>109,536</b>	

Note

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of credit risk (continued)

### Credit quality analysis of standardised exposures

#### Credit rating agencies

Under the standardised approach, ratings assigned by External Credit Assessment Institutions (ECAs) are used in the calculation of RWAs. Ratings from an ECAI may be used where the ECAI is a rating agency that:

- Has been recognised as an ECAI per the list published by the Financial Conduct Authority (FCA); and
- Has been nominated for use by Barclays.

Barclays uses ratings assigned by the following agencies for credit risk calculations:

- Standard & Poor's
- Moody's
- Fitch
- DBRS
- Kroll Bond Rating Agency

These ratings are used in the calculation of risk weights for the central governments and central banks, institutions, corporate and securitisation exposure classes<sup>a</sup>.

#### Rated and unrated counterparties

The following section summarises the rules governing standardised calculations for non-securitised exposures.

Each exposure must be assigned to one of six credit quality steps if a rating is available, as defined in the table below. After being assigned to a specific quality step, exposure class and maturity are then used to determine the risk weight percentage. The following table is a simplified version of the risk weight allocation process.

**Table 32: Relationship of long-term external credit ratings to credit quality steps under the standardised approach for non-securitised exposures**

Credit Quality Step	Standard and Poor's	Moody's	Fitch
Credit Quality Step 1	AAA+ to AA-	Aaa1 to Aa3	AAA+ to AA-
Credit Quality Step 2	A+ to A-	A1 to A3	A+ to A-
Credit Quality Step 3	BBB+ to BBB-	Baa1 to Baa3	BBB+ to BBB-
Credit Quality Step 4	BB+ to BB-	Ba1 to Ba3	BB+ to BB-
Credit Quality Step 5	B+ to B-	B1 to B3	B+ to B-
Credit Quality Step 6	CCC+ and below	Caa1 and below	CCC+ and below

**Table 33: Credit quality steps and risk weights under the standardised approach**

This table shows the prescribed risk weights associated with credit quality steps.

Credit Quality Step	Institutions (includes banks)				
	Corporates	Sovereign method	Credit assessment method		
		Sovereign method	Maturity > 3 months	Maturity 3 months or less	Central governments or central banks
Credit Quality Step 1	20%	20%	20%	20%	0%
Credit Quality Step 2	50%	50%	50%	20%	20%
Credit Quality Step 3	100%	100%	50%	20%	50%
Credit Quality Step 4	100%	100%	100%	50%	100%
Credit Quality Step 5	150%	100%	100%	50%	100%
Credit Quality Step 6	150%	150%	150%	150%	150%

Exposures to international organisations are assigned a 0% risk weight.

Exposures fully and completely secured by residential property (which considers, among the other criteria, the size of the loan relative to the value of the property) are generally assigned a risk weight of 35%. Other retail exposures are assigned a risk weight of 75%.

The unsecured portion of a past due exposure is assigned a risk weight of either 150% or 100%, depending on the specific credit risk adjustments recognised.

High risk items are assigned a risk weight of 150%.

Other items are generally assigned a risk weight of 100%, unless they relate to cash in hand (0%) or items in the course of collection (20%).

#### Notes

a. DBRS and Kroll Bond Rating Agency are used to calculate risk weights for securitisation exposures only. Please see page 148 for further details.

b. The mapping of external ratings to credit quality steps applicable as at year-end 2022 are found in Commission Implementing Regulation (EU) 2016/1799 as amended (for non-securitisation exposures) and PRA Supervisory Statement SS10/18 (for securitisation positions).

## Analysis of credit risk (continued)

### Credit quality analysis of IRB exposures

The following section provides a breakdown of inputs for the calculation of risk weighted assets. Please note, there may be more volatility in risk weights and risk factors at a granular level of wholesale exposures, especially in minimum exposure categories often due to the addition or removal of relatively large exposures when the risk factor deviates from the category average. This happens in the normal course of business, following new lending, repayments, or syndications. See page 121 for a discussion of IRB models.

**Table 34: Internal default grade probabilities and mapping to external ratings**

The table below illustrates the approximate relationship between external rating agency grades and the PD bands for wholesale exposures. The EBA and internal Default Grade (DG) bands are based on TTC PD. Note that this relationship is dynamic, and therefore, varies over time, region and industry.

EBA PD Range %	Internal DG Band	Default Probability			Financial statements description	Moody's	Standard and Poor's
		>Min	Mid	<=Max			
0.00 to < 0.15	1	0.00%	0.01%	0.02%	Strong	Aaa, Aa1, Aa2	AAA, AA+, AA
	2	0.02%	0.03%	0.03%		Aa3	AA-
	3	0.03%	0.04%	0.05%		A1, A2, A3	A+
	4	0.05%	0.08%	0.10%		A1, A2, A3	A, A-
	5	0.10%	0.13%	0.15%		Baa1	BBB+
0.15 to < 0.25	6	0.15%	0.18%	0.20%	Strong	Baa2	BBB
	7	0.20%	0.23%	0.25%		Baa3	BBB
0.25 to < 0.50	8	0.25%	0.28%	0.30%	Strong	Baa3	BBB-
	9	0.30%	0.35%	0.40%		Baa3	BBB-
	10	0.40%	0.45%	0.50%		Ba1	BB+
0.50 to < 0.75	11	0.50%	0.55%	0.60%	Strong	Ba1	BB+
	12	0.60%	—	—	Satisfactory	Ba2, Ba3	BB, BB-
0.75 to < 2.50	12	—	1.10%	1.20%	Satisfactory	Ba2, Ba3	BB, BB-
	13	1.20%	1.38%	1.55%		Ba3	BB-
	14	1.55%	1.85%	2.15%		Ba3	B+
	15	2.15%	—	—		B1	B+
2.50 to < 10.00	15	—	2.60%	3.05%	Satisfactory	B1	B+
	16	3.05%	3.75%	4.45%		B2	B+
	17	4.45%	5.40%	6.35%		B3, Caa1	B
	18	6.35%	7.50%	8.65%		B3, Caa1	B-
	19	8.65%	10.00%	—		B3, Caa1	CCC+
10.00 to < 100.00	19	—	—	11.35%	Higher risk	B3, Caa1	CCC+
	20	11.35%	15.00%	18.65%		Caa2	CCC
	21	18.65%	30.00%	99.99%		Caa3, Ca, C	CCC-, CC+, CC, C
100.00 (Default)	22	100 %	—	—	Credit Impaired	D	D

## Analysis of credit risk (continued)

**Table 35: CR6-A – Scope of the use of IRB and SA approaches<sup>a</sup>**

The table below shows exposure and percentages covered by the IRB and standardised approaches, as well as exposure subject to the permanent partial use and to a roll out plan

	31 December 2022	Exposure value as defined in Article 166 CRR for exposures subject to IRB approach	Total exposure value for exposures subject to the Standardised approach and to the IRB approach	Percentage of total exposure value subject to the permanent partial use of the SA	Percentage of total exposure value subject to IRB Approach	Percentage of total exposure value subject to a roll-out plan
			£m	£m	%	%
1	Central governments or central banks	<b>71,594</b>	<b>402,821</b>	<b>75.3%</b>	<b>17.8%</b>	<b>6.9%</b>
1.1	Of which Regional governments or local authorities		<b>7,928</b>	<b>58.1%</b>	<b>26.5%</b>	<b>15.4%</b>
1.2	Of which Public sector entities		<b>7,647</b>	<b>91.2%</b>	—	<b>8.8%</b>
2	Institutions	<b>23,906</b>	<b>31,456</b>	—	<b>76.0%</b>	<b>24.0%</b>
3	Corporates	<b>130,362</b>	<b>211,346</b>	—	<b>61.7%</b>	<b>38.3%</b>
3.1	Of which Corporates - Specialised lending, excluding slotting approach		—	—	—	—
3.2	Of which Corporates - Specialised lending under slotting approach		<b>7,893</b>	—	<b>100.0%</b>	—
4	Retail	<b>242,870</b>	<b>405,729</b>	—	<b>59.9%</b>	<b>40.1%</b>
4.1	of which Retail – Secured by real estate SMEs		<b>4</b>	—	—	<b>100.0%</b>
4.2	of which Retail – Secured by real estate non-SMEs		<b>184,734</b>	—	<b>95.6%</b>	<b>4.4%</b>
4.3	of which Retail – Qualifying revolving		<b>199,097</b>	—	<b>27.9%</b>	<b>72.1%</b>
4.4	of which Retail – Other SMEs		<b>12,140</b>	—	<b>55.0%</b>	<b>45.0%</b>
4.5	of which Retail – Other non-SMEs		<b>9,754</b>	—	<b>41.1%</b>	<b>58.9%</b>
5	Equity	—	<b>2,052</b>	—	—	<b>100.0%</b>
6	Other non-credit obligation assets	<b>10,288</b>	<b>14,656</b>	<b>25.2%</b>	<b>70.2%</b>	<b>4.6%</b>
<b>7</b>	<b>Total</b>	<b>479,020</b>	<b>1,068,060</b>	<b>28.8%</b>	<b>44.9%</b>	<b>26.3%</b>

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of credit risk (continued)

### AIRB obligor grade disclosure

The following tables show credit risk exposure at default post-CRM for the advanced IRB approach for portfolios within the banking book. Separate tables are provided for the following credit exposure classes: central governments and central banks (table 37), institutions (table 38), corporates (table 39), corporates SME (table 40), retail SME (table 41), secured retail (table 42), revolving retail (table 43) and other retail (table 44).

Barclays' Model Risk Management group reviews and approves the application of post model adjustments to models that do not fully reflect the risk of the underlying exposures.

**Table 36: CR6 – IRB approach – Total Portfolios**

	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>	Exposure post CCF and post CRM	Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
	£m	£m	%	£m	%			%	£m	%	£m	£m
<b>As at 31 December 2022</b>												
Total (all exposure classes)	<b>315,001</b>	<b>145,838</b>	<b>51.8%</b>	<b>386,459</b>		<b>24,816,027</b>		<b>2</b>	<b>109,534</b>	<b>28.3%</b>	<b>2,861</b>	<b>(2,977)</b>
<b>As at 31 December 2021</b>												
Total (all exposure classes)	335,379	150,754	45.8%	408,256		24,812,706		2	100,244	24.6%	2,732	(3,278)

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF.  
For prior period, the average CCF was calculated at an aggregate level.

Further information on the key drivers for the RWA density are provided in table 37 - table 44

## Analysis of credit risk (continued)

**Table 37: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for central governments and central banks**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
	£m	£m	%	£m	%		£m	%	£m	%	£m	£m
<b>As at 31 December 2022</b>												
0.00 to <0.15	70,836	97	60.0%	70,752	0.0%	26	45.0%	2	2,915	4.1%	2	0
0.00 to <0.10	70,836	97	60.0%	70,752	0.0%	26	45.0%	2	2,915	4.1%	2	0
0.10 to <0.15	—	—	—	—	—	—	—	—	—	—	—	—
0.15 to <0.25	—	—	—	—	—	—	—	—	—	—	—	—
0.25 to <0.50	651	—	—	651	0.4%	3	45.0%	3	479	73.6%	1	(5)
0.50 to <0.75	9	—	—	9	0.6%	1	45.0%	3	8	86.7%	0	0
0.75 to <2.50	—	—	—	—	—	—	—	—	—	—	—	—
0.75 to <1.75	—	—	—	—	—	—	—	—	—	—	—	—
1.75 to <2.5	—	—	—	—	—	—	—	—	—	—	—	—
2.50 to <10.00	—	—	—	—	—	—	—	—	—	—	—	—
2.5 to <5	—	—	—	—	—	—	—	—	—	—	—	—
5 to <10	—	—	—	—	—	—	—	—	—	—	—	—
10.00 to <100.00	—	—	—	—	—	—	—	—	—	—	—	—
10 to <20	—	—	—	—	—	—	—	—	—	—	—	—
20 to <30	—	—	—	—	—	—	—	—	—	—	—	—
30.00 to <100.00	—	—	—	—	—	—	—	—	—	—	—	—
100.00 (Default)	—	—	—	—	—	—	—	—	—	—	—	—
<b>Subtotal (exposure class)</b>	<b>71,496</b>	<b>97</b>	<b>60.0%</b>	<b>71,412</b>	<b>0.0%</b>	<b>30</b>	<b>45.0%</b>	<b>2</b>	<b>3,402</b>	<b>4.8%</b>	<b>3</b>	<b>(5)</b>
<b>As at 31 December 2021</b>												
0.00 to <0.15	94,463	97	18.5%	94,391	0.0%	33	45.0%	2	4,172	4.4%	4	
0.15 to <0.25	4	—	—	4	0.2%	4	48.1%	1	1	35.2%	0	
0.25 to <0.50	592	—	—	592	0.4%	3	45.0%	2	396	66.8%	1	
0.50 to <0.75	—	—	—	—	—	—	—	—	—	—	—	
0.75 to <2.50	—	—	—	—	—	—	—	—	—	—	—	
2.50 to <10.00	—	—	—	—	—	—	—	—	—	—	—	
10.00 to < 100.00	0	—	—	0	12.1%	1	63.0%	1	0	300.8%	0	
100.00 (Default)	—	—	—	—	—	—	—	—	—	—	—	
<b>Subtotal (exposure class)</b>	<b>95,059</b>	<b>97</b>	<b>18.5%</b>	<b>94,987</b>	<b>0.0%</b>	<b>41</b>	<b>45.0%</b>	<b>2</b>	<b>4,569</b>	<b>4.8%</b>	<b>5</b>	<b>(0)</b>

The RWA density associated with central governments and central banks remained stable at 4.8% (December 2021: 4.8%).

## Analysis of credit risk (continued)

**Table 38: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for institutions**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>	Exposure post CCF and post CRM	Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
	£m	£m	%	£m	%		£m	%	£m	£m	£m	£m
<b>As at 31 December 2022</b>												
0.00 to <0.15	10,770	9,487	48.7%	15,401	0.0%	426	41.4%	2	2,899	18.8%	2	(9)
0.00 to <0.10	10,419	9,419	48.6%	15,006	0.0%	398	41.2%	2	2,768	18.4%	2	(9)
0.10 to <0.15	351	68	63.6%	395	0.1%	28	48.7%	1	131	33.3%	0	0
0.15 to <0.25	1,798	487	68.8%	2,133	0.2%	35	33.7%	2	728	34.1%	1	(1)
0.25 to <0.50	64	50	50.1%	90	0.3%	33	55.3%	2	76	85.0%	0	0
0.50 to <0.75	7	24	61.7%	21	0.7%	56	63.9%	1	30	140.0%	0	0
0.75 to <2.50	112	422	34.3%	256	1.5%	251	41.5%	1	275	107.0%	2	(1)
0.75 to <1.75	37	401	33.5%	171	1.1%	186	37.8%	1	141	82.0%	1	(1)
1.75 to <2.5	75	21	49.5%	85	2.3%	65	49.0%	2	134	156.9%	1	0
2.50 to <10.00	405	64	54.1%	439	3.5%	85	21.3%	2	321	73.2%	3	0
2.5 to <5	366	52	53.0%	393	2.9%	58	20.1%	2	253	64.5%	2	0
5 to <10	39	12	58.6%	46	8.5%	27	31.6%	2	68	147.6%	1	0
10.00 to <100.00	24	176	54.1%	120	17.5%	30	18.8%	3	131	109.7%	3	(3)
10 to <20	3	154	48.9%	79	12.6%	20	22.2%	3	98	124.6%	2	(2)
20 to <30	20	22	89.8%	40	26.3%	3	11.8%	2	30	76.1%	1	(1)
30.00 to <100.00	1	0	114.4%	1	43.9%	7	32.3%	2	3	275.0%	0	0
100.00 (Default)	13	1	15.9%	13	100.0%	5	12.1%	2	17	125.9%	0	0
<b>Subtotal (exposure class)</b>	<b>13,193</b>	<b>10,711</b>	<b>50.1%</b>	<b>18,473</b>	<b>0.3%</b>	<b>921</b>	<b>39.9%</b>	<b>2</b>	<b>4,477</b>	<b>24.2%</b>	<b>11</b>	<b>(14)</b>
<b>As at 31 December 2021</b>												
0.00 to <0.15	11,669	7,431	49.6%	15,312	0.0%	484	38.5%	3	2,854	18.6%	3	
0.15 to <0.25	1,141	62	70.1%	1,184	0.2%	54	15.5%	2	208	17.6%	0	
0.25 to <0.50	79	161	55.6%	169	0.3%	62	56.4%	2	149	88.2%	0	
0.50 to <0.75	32	62	83.3%	83	0.6%	63	34.1%	1	50	60.0%	0	
0.75 to <2.50	76	83	51.6%	118	1.7%	275	40.7%	3	131	111.2%	1	
2.50 to <10.00	184	188	52.5%	282	4.0%	139	48.2%	2	469	166.2%	5	
10.00 to < 100.00	18	63	71.1%	63	20.2%	15	19.1%	2	70	110.5%	2	
100.00 (Default)	8	14	0.3%	8	100.0%	12	11.3%	2	10	121.8%	0	
<b>Subtotal (exposure class)</b>	<b>13,207</b>	<b>8,064</b>	<b>50.3%</b>	<b>17,219</b>	<b>0.3%</b>	<b>1,104</b>	<b>37.2%</b>	<b>3</b>	<b>3,941</b>	<b>22.9%</b>	<b>11</b>	<b>(4)</b>

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated at an aggregate level.

The RWA density associated with institutions increased 1.3% to 24.2% primarily due to reduction in credit quality.

## Analysis of credit risk (continued)

**Table 39: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for corporates - other**

PD range	On-balance sheet exposures		Off-balance-sheet exposures pre-CCF		Exposure weighted average CCF <sup>a</sup>		Exposure post CCF and post CRM		Exposure weighted average PD		Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors		Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
	£m	£m	£m	%	£m	%	£m	%	£m	%				£m	%	£m	£m	
<b>As at 31 December 2022</b>																		
0.00 to <0.15	14,885	44,479	48.4%		35,462	0.1%	1,563	40.0%	3	9,201	25.9%			10	(14)			
0.00 to <0.10	13,330	39,156	48.4%		31,534	0.1%	1,213	40.1%	3	7,690	24.4%			7	(10)			
0.10 to <0.15	1,555	5,323	48.4%		3,928	0.1%	350	38.8%	3	1,511	38.5%			3	(4)			
0.15 to <0.25	2,827	6,147	51.0%		4,998	0.2%	537	43.3%	3	2,473	49.5%			5	(11)			
0.25 to <0.50	4,202	6,308	54.7%		7,430	0.3%	814	40.6%	3	4,759	64.0%			11	(28)			
0.50 to <0.75	1,305	2,035	54.7%		2,367	0.6%	1,037	40.3%	3	1,964	83.0%			6	(12)			
0.75 to <2.50	2,736	5,580	44.8%		4,881	1.4%	3,067	29.9%	3	3,918	80.3%			22	(52)			
0.75 to <1.75	1,921	4,022	41.9%		3,447	1.2%	2,225	29.5%	3	2,565	74.4%			13	(30)			
1.75 to <2.5	815	1,558	52.4%		1,434	2.0%	842	30.9%	3	1,353	94.3%			9	(22)			
2.50 to <10.00	3,700	5,661	53.8%		6,020	5.3%	3,337	30.6%	3	7,771	129.1%			102	(162)			
2.5 to <5	1,647	2,735	57.3%		3,065	3.7%	2,451	27.1%	3	3,104	101.3%			30	(55)			
5 to <10	2,053	2,926	50.5%		2,955	7.0%	886	34.4%	3	4,667	157.9%			72	(107)			
10.00 to <100.00	4,542	4,219	49.6%		6,609	16.2%	618	36.4%	4	14,824	224.3%			386	(338)			
10 to <20	4,016	3,860	49.5%		5,916	14.3%	511	36.7%	4	13,214	223.4%			311	(291)			
20 to <30	101	171	46.4%		181	23.8%	41	33.2%	2	387	214.6%			14	(16)			
30.00 to <100.00	425	188	56.0%		512	35.9%	66	34.4%	3	1,223	239.0%			61	(31)			
100.00 (Default)	319	203	55.6%		401	100.0%	192	40.3%	2	653	163.0%			123	(169)			
<b>Subtotal (exposure class)</b>	<b>34,516</b>	<b>74,632</b>	<b>49.7%</b>		<b>68,168</b>	<b>2.8%</b>	<b>11,165</b>	<b>38.4%</b>	<b>3</b>	<b>45,563</b>	<b>66.8%</b>			<b>665</b>	<b>(786)</b>			
<b>As at 31 December 2021</b>																		
0.00 to <0.15	15,977	48,121	49.7%		39,187	0.1%	1,825	38.0%	3	10,333	26.4%			13				
0.15 to <0.25	2,825	5,844	46.8%		5,218	0.2%	600	39.0%	3	2,326	44.6%			4				
0.25 to <0.50	4,086	5,872	54.9%		6,942	0.4%	1,158	39.7%	3	4,410	63.5%			10				
0.50 to <0.75	1,681	2,175	51.4%		2,706	0.6%	1,530	40.3%	2	2,052	75.8%			7				
0.75 to <2.50	2,244	5,927	43.7%		4,653	1.4%	4,188	29.2%	3	3,664	78.8%			19				
2.50 to <10.00	4,330	7,703	50.7%		7,901	5.4%	4,404	30.9%	3	9,702	122.8%			130				
10.00 to < 100.00	954	3,425	51.5%		2,478	17.1%	612	25.7%	3	3,660	147.7%			108				
100.00 (Default)	451	1,424	54.6%		1,221	100.0%	332	31.7%	2	1,386	113.5%			175				
<b>Subtotal (exposure class)</b>	<b>32,549</b>	<b>80,492</b>	<b>49.7%</b>		<b>70,307</b>	<b>3.1%</b>	<b>14,649</b>	<b>36.4%</b>	<b>3</b>	<b>37,533</b>	<b>53.4%</b>			<b>465</b>	<b>(664)</b>			

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated on an aggregate level.

The RWA density associated with corporates other increased 13.4% to 66.8% primarily due to lending activity in higher PD bands and regulatory changes relating to the implementation of IRB roadmap changes.

## Analysis of credit risk (continued)

**Table 40: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for corporates - SME**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>	Exposure post CCF and post CRM	Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
	£m	£m	%	£m	%		£m	%	£m	£m	£m	£m
<b>As at 31 December 2022</b>												
0.00 to <0.15	1,164	916	65.4%	1,739	0.1%	838	26.9%	4	428	24.6%	0	0
0.00 to <0.10	793	820	66.3%	1,338	0.1%	637	23.7%	4	262	19.6%	0	0
0.10 to <0.15	371	96	57.5%	401	0.1%	201	37.6%	5	166	41.4%	0	0
0.15 to <0.25	291	89	65.5%	351	0.2%	199	33.0%	4	149	42.5%	0	(1)
0.25 to <0.50	1,044	439	42.4%	1,181	0.4%	1,755	33.1%	3	473	40.0%	3	(4)
0.50 to <0.75	1,294	362	41.2%	1,357	0.6%	2,864	25.1%	3	487	35.9%	3	(4)
0.75 to <2.50	3,438	734	45.5%	3,555	1.4%	14,689	26.6%	3	2,301	64.7%	42	(53)
0.75 to <1.75	2,544	566	43.7%	2,635	1.2%	11,250	26.7%	3	1,596	60.6%	25	(27)
1.75 to <2.5	894	168	51.4%	920	2.0%	3,439	26.5%	3	705	76.6%	17	(26)
2.50 to <10.00	1,514	417	67.0%	1,567	4.6%	5,769	34.4%	3	2,117	135.1%	118	(98)
2.5 to <5	1,028	199	55.1%	954	3.3%	4,069	33.8%	3	1,200	125.8%	51	(45)
5 to <10	486	218	78.0%	613	6.6%	1,700	35.4%	2	917	149.5%	67	(53)
10.00 to <100.00	406	74	58.7%	406	19.7%	918	35.1%	3	705	173.1%	103	(101)
10 to <20	278	51	52.8%	278	14.1%	591	35.3%	3	429	153.9%	37	(44)
20 to <30	49	2	42.7%	45	23.8%	120	29.4%	2	52	115.3%	3	(51)
30.00 to <100.00	79	21	74.5%	83	35.9%	207	37.7%	2	224	268.4%	63	(6)
100.00 (Default)	964	178	65.0%	1,009	100.0%	571	14.4%	3	1,621	160.6%	126	(75)
<b>Subtotal (exposure class)</b>	<b>10,115</b>	<b>3,209</b>	<b>55.3%</b>	<b>11,165</b>	<b>11.0%</b>	<b>27,603</b>	<b>27.7%</b>	<b>3</b>	<b>8,281</b>	<b>74.2%</b>	<b>395</b>	<b>(336)</b>
<b>As at 31 December 2021</b>												
0.00 to <0.15	1,614	934	63.9%	2,185	0.1%	1104	25.5%	4	582	26.7%	1	
0.15 to <0.25	316	84	62.6%	349	0.2%	330	40.2%	4	135	38.6%	0	
0.25 to <0.50	873	389	58.9%	1,023	0.4%	2027	34.5%	3	441	43.1%	2	
0.50 to <0.75	971	288	49.0%	997	0.6%	3113	29.3%	3	403	40.5%	2	
0.75 to <2.50	3,908	886	41.1%	3,855	1.4%	15208	28.4%	3	2,112	54.8%	19	
2.50 to <10.00	2,564	536	55.8%	2,480	4.5%	7136	32.8%	3	2,161	87.1%	44	
10.00 to < 100.00	514	63	53.3%	489	19.5%	1098	31.0%	3	589	120.2%	35	
100.00 (Default)	1,302	207	54.9%	1,343	100.0%	676	16.2%	3	1,887	140.5%	91	
<b>Subtotal (exposure class)</b>	<b>12,062</b>	<b>3,387</b>	<b>53.9%</b>	<b>12,721</b>	<b>12.7%</b>	<b>30692</b>	<b>28.5%</b>	<b>3</b>	<b>8,310</b>	<b>65.3%</b>	<b>194</b>	<b>(338)</b>

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated on an aggregate level.

The RWA density associated with corporates SME increased 8.9% to 74.2% primarily due to regulatory changes relating to the implementation of IRB roadmap changes and decrease in lending within higher PD bands.

## Analysis of credit risk (continued)

**Table 41: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for retail - SME**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>		Exposure post CCF and post CRM		Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Risk weighted exposure amount after supporting factors		Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
			£m	%	£m	%				£m	%			
<b>As at 31 December 2022</b>														
0.00 to <0.15	21	4	6,425.3%		260	0.1%	155,583	45.3%	22	8.6%	0	0	0	0
0.00 to <0.10	7	1	15,310.1%		188	0.1%	121,628	44.3%	13	7.2%	0	0	0	0
0.10 to <0.15	14	3	2,317.2%		72	0.1%	33,955	47.9%	9	12.4%	0	0	0	0
0.15 to <0.25	44	24	176.8%		85	0.2%	19,700	32.5%	10	11.3%	0	0	0	0
0.25 to <0.50	257	167	84.1%		376	0.4%	56,944	31.2%	65	17.3%	0	0	0	0
0.50 to <0.75	358	206	119.6%		566	0.6%	104,739	35.0%	141	24.8%	1	(1)		
0.75 to <2.50	2,037	771	115.3%		2,713	1.5%	443,601	36.5%	957	35.3%	14	(17)		
0.75 to <1.75	1,314	582	119.1%		1,860	1.2%	335,564	36.9%	630	33.8%	8	(9)		
1.75 to <2.5	723	189	103.8%		853	2.1%	108,037	35.5%	327	38.4%	6	(8)		
2.50 to <10.00	1,657	256	163.9%		1,983	4.6%	216,717	38.5%	939	47.4%	35	(25)		
2.5 to <5	1,140	196	139.6%		1,343	3.5%	141,483	37.9%	608	45.3%	18	(15)		
5 to <10	517	60	243.6%		640	6.9%	75,234	39.6%	331	51.8%	17	(10)		
10.00 to <100.00	373	28	286.6%		443	24.0%	51,998	37.1%	285	64.2%	38	(14)		
10 to <20	199	13	456.7%		253	13.6%	33,919	40.2%	161	63.5%	14	(6)		
20 to <30	53	3	289.1%		62	24.0%	7,357	38.8%	48	76.7%	6	(2)		
30.00 to <100.00	121	12	104.1%		128	44.7%	10,722	30.3%	76	59.6%	18	(6)		
100.00 (Default)	432	35	31.7%		419	100.0%	21,698	17.1%	473	113.0%	34	(150)		
<b>Subtotal (exposure class)</b>	<b>5,179</b>	<b>1,491</b>	<b>138.8%</b>		<b>6,845</b>	<b>9.7%</b>	<b>1,070,980</b>	<b>35.8%</b>	<b>2,892</b>	<b>42.2%</b>	<b>122</b>	<b>(207)</b>		
<b>As at 31 December 2021</b>														
0.00 to < 0.15	16	2	14,526.7%		286	0.1%	166,585	46.2%	25	8.8%	0			
0.15 to < 0.25	40	14	256.1%		74	0.2%	17,454	33.1%	9	11.9%	0			
0.25 to < 0.50	248	88	153.3%		366	0.4%	63,189	30.3%	63	17.2%	0			
0.50 to < 0.75	413	137	190.7%		623	0.6%	109,566	34.9%	158	25.3%	1			
0.75 to < 2.50	2,289	767	112.8%		2,846	1.5%	441,668	37.9%	1,048	36.8%	16			
2.50 to < 10.00	1,649	500	99.8%		2,015	4.7%	249,277	37.5%	942	46.7%	36			
10.00 to < 100.00	388	46	199.3%		467	23.1%	60,987	37.3%	303	65.0%	39			
100.00 (Default)	558	39	36.8%		552	100.0%	34,320	21.1%	628	113.8%	66			
<b>Subtotal (exposure class)</b>	<b>5,601</b>	<b>1,593</b>	<b>136.8%</b>		<b>7,229</b>	<b>11.1%</b>	<b>1,143,046</b>	<b>36.1%</b>	<b>3,176</b>	<b>43.9%</b>	<b>158</b>	<b>(148)</b>		

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated on an aggregate level.

The RWA density associated with retail SMEs decreased 1.7% to 42.2% primarily due to decrease in lending within higher PD bands.

## Analysis of credit risk (continued)

**Table 42: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for secured retail - non SME**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>		Exposure post CCF and post CRM		Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Risk weighted exposure amount after supporting factors		Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
			£m	£m	%	£m				£m	%			
<b>As at 31 December 2022</b>														
0.00 to <0.15	22,446	2,349	78.0%	24,352	0.1%	104,175	11.9%	1,349	5.5%	17	(9)			
0.00 to <0.10	15,207	1,702	78.0%	16,576	0.1%	53,656	10.2%	451	2.7%	4	(2)			
0.10 to <0.15	7,239	647	78.1%	7,776	0.1%	50,519	15.4%	898	11.5%	13	(7)			
0.15 to <0.25	10,484	1,398	64.1%	11,410	0.2%	75,016	13.0%	887	7.8%	9	(4)			
0.25 to <0.50	36,589	2,979	58.9%	38,470	0.4%	224,411	10.2%	2,753	7.2%	18	(5)			
0.50 to <0.75	41,379	1,868	59.6%	42,668	0.6%	254,145	10.5%	4,337	10.2%	30	(3)			
0.75 to <2.50	38,582	2,564	78.1%	40,755	1.3%	235,232	15.1%	9,667	23.7%	86	(23)			
0.75 to <1.75	32,634	2,317	78.0%	34,576	1.1%	197,695	14.8%	7,495	21.7%	64	(17)			
1.75 to <2.5	5,948	247	79.3%	6,179	2.0%	37,537	16.6%	2,172	35.2%	22	(6)			
2.50 to <10.00	8,990	386	80.7%	9,352	4.5%	52,284	15.3%	4,501	48.1%	63	(16)			
2.5 to <5	6,467	301	81.7%	6,749	3.4%	37,468	16.5%	3,178	47.1%	39	(10)			
5 to <10	2,523	85	77.2%	2,603	7.3%	14,816	12.2%	1,323	50.8%	24	(6)			
10.00 to <100.00	4,897	145	76.8%	5,040	29.0%	29,696	9.2%	2,546	50.5%	131	(31)			
10 to <20	2,558	76	68.1%	2,622	14.7%	14,456	9.3%	1,341	51.2%	37	(10)			
20 to <30	758	33	76.6%	788	25.1%	5,130	9.7%	469	59.5%	20	(2)			
30.00 to <100.00	1,581	36	95.2%	1,630	53.9%	10,110	8.8%	736	45.2%	74	(19)			
100.00 (Default)	1,592	3	—	1,597	100.0%	15,701	18.0%	1,629	102.0%	368	(369)			
<b>Subtotal (exposure class)</b>	<b>164,959</b>	<b>11,692</b>	<b>68.6%</b>	<b>173,644</b>	<b>2.6%</b>	<b>990,660</b>	<b>12.1%</b>	<b>27,669</b>	<b>15.9%</b>	<b>722</b>	<b>(460)</b>			
<b>As at 31 December 2021</b>														
0.00 to <0.15	19,877	1,662	97.9%	21,081	0.1%	99,459	12.0%	1,510	7.2%	10				
0.15 to <0.25	10,738	1,282	95.9%	11,528	0.2%	77,376	12.8%	881	7.6%	7				
0.25 to <0.50	28,813	2,452	96.8%	30,276	0.4%	171,350	10.3%	2,075	6.9%	13				
0.50 to <0.75	39,942	2,274	97.6%	41,222	0.6%	259,486	10.1%	4,010	9.7%	27				
0.75 to <2.50	46,326	2,905	98.5%	48,509	1.2%	288,025	13.8%	10,269	21.2%	88				
2.50 to <10.00	9,736	591	98.8%	10,206	4.4%	59,264	14.9%	4,688	45.9%	66				
10.00 to < 100.00	4,296	145	99.5%	4,420	28.4%	27,756	9.3%	2,135	48.3%	134				
100.00 (Default)	1,737	3	100.0%	1,743	100.0%	16,748	17.5%	1,157	66.4%	368				
<b>Subtotal (exposure class)</b>	<b>161,465</b>	<b>11,314</b>	<b>97.8%</b>	<b>168,985</b>	<b>2.6%</b>	<b>999,464</b>	<b>12.0%</b>	<b>26,725</b>	<b>15.8%</b>	<b>713</b>	<b>(424)</b>			

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated on an aggregate level.

The RWA density associated with secured retail non SMEs remained broadly stable at 15.9% primarily due to growth in mortgages, partially offset by a reduction following HPI refresh.

## Analysis of credit risk (continued)

**Table 43: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for revolving retail**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>		Exposure post CCF and post CRM		Number of obligors	Exposure weighted average LGD	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
			£m	%	£m	%					£m	£m
<b>As at 31 December 2022</b>												
0.00 to <0.15	1,140	19,771	56.4%		12,292	0.1%	13,074,096	74.8%	580	4.7%	11	(10)
0.00 to <0.10	713	14,542	61.5%		9,657	0.1%	10,946,980	74.0%	390	4.0%	8	(7)
0.10 to <0.15	427	5,229	42.2%		2,635	0.1%	2,127,116	77.7%	190	7.2%	3	(3)
0.15 to <0.25	805	6,373	41.0%		3,419	0.2%	2,476,903	78.1%	382	11.2%	8	(7)
0.25 to <0.50	1,550	6,902	38.3%		4,191	0.4%	1,983,973	79.4%	815	19.5%	22	(31)
0.50 to <0.75	945	3,032	35.8%		2,030	0.6%	857,175	80.0%	524	25.8%	14	(23)
0.75 to <2.50	3,492	5,775	38.9%		5,735	1.4%	1,989,700	81.9%	3,148	54.9%	109	(177)
0.75 to <1.75	2,601	4,699	37.9%		4,381	1.1%	1,498,047	81.6%	2,178	49.7%	75	(117)
1.75 to <2.5	891	1,076	43.1%		1,354	2.1%	491,653	82.7%	970	71.6%	34	(60)
2.50 to <10.00	2,655	1,858	70.0%		3,956	4.6%	1,250,898	83.6%	4,776	120.7%	205	(318)
2.5 to <5	1,644	1,531	64.0%		2,624	3.4%	856,932	83.2%	2,608	99.3%	101	(158)
5 to <10	1,011	327	98.1%		1,332	6.9%	393,966	84.3%	2,168	162.9%	104	(160)
10.00 to <100.00	607	97	176.9%		780	23.2%	286,676	84.2%	1,937	248.6%	204	(240)
10 to <20	381	66	177.3%		499	13.4%	175,264	84.3%	1,090	218.6%	69	(115)
20 to <30	93	14	188.0%		120	24.0%	47,911	84.2%	310	259.1%	27	(38)
30.00 to <100.00	133	17	165.8%		161	52.9%	63,501	84.2%	537	333.7%	108	(87)
100.00 (Default)	338	199	—		338	100.0%	259,281	74.4%	1,381	409.1%	225	(239)
<b>Subtotal (exposure class)</b>	<b>11,532</b>	<b>44,007</b>	<b>48.2%</b>		<b>32,741</b>	<b>2.5%</b>	<b>22,178,702</b>	<b>78.6%</b>	<b>13,543</b>	<b>41.4%</b>	<b>798</b>	<b>(1,045)</b>
<b>As at 31 December 2021</b>												
0.00 to < 0.15	1,114	22,987	48.0%		13,140	0.1%	13,574,052	73.9%	497	3.8%	10	
0.15 to < 0.25	753	6,305	12.8%		3,179	0.2%	2,121,186	76.9%	306	9.6%	7	
0.25 to < 0.50	1,507	6,833	11.8%		4,048	0.4%	1,897,689	78.4%	699	17.3%	19	
0.50 to < 0.75	958	2,938	8.9%		1,981	0.6%	836,643	79.6%	480	24.2%	13	
0.75 to < 2.50	3,458	5,296	5.9%		5,831	1.4%	2,076,654	81.0%	2,961	50.8%	99	
2.50 to < 10.00	2,454	1,148	5.0%		3,292	4.8%	1,005,917	82.0%	3,923	119.2%	178	
10.00 to < 100.00	538	87	22.1%		683	22.8%	257,374	80.6%	1,797	262.9%	166	
100.00 (Default)	667	212	2.7%		667	100.0%	295,870	78.6%	1,690	253.3%	433	
<b>Subtotal (exposure class)</b>	<b>11,449</b>	<b>45,806</b>	<b>26.9%</b>		<b>32,821</b>	<b>3.4%</b>	<b>22,065,385</b>	<b>77.4%</b>	<b>12,353</b>	<b>37.6%</b>	<b>925</b>	<b>(1,463)</b>

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated on an aggregate level.

The RWA density associated with revolving retail increased 3.8% to 41.4% primarily due to regulatory changes relating to the implementation of IRB roadmap changes.

## Analysis of credit risk (continued)

**Table 44: CR6 – IRB approach – Credit risk exposures by exposure class and PD range for other retail - non SME**

PD range	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF <sup>a</sup>		Exposure post CCF and post CRM		Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Risk weighted exposure amount after supporting factors		Density of risk weighted exposure amount	Expected loss amount	Value adjustments and provisions
			£m	%	£m	%				£m	%			
<b>As at 31 December 2022</b>														
0.00 to <0.15	336	1	2.3%		336	0.1%	65,087	73.6%	71	21.3%		0	0	
0.00 to <0.10	160	1	2.3%		160	0.1%	37,667	72.9%	26	16.4%		0	0	
0.10 to <0.15	176	—	—		176	0.1%	27,420	74.3%	45	25.8%		0	0	
0.15 to <0.25	311	—	—		311	0.2%	50,615	74.2%	115	36.9%		0	0	
0.25 to <0.50	649	—	—		649	0.4%	85,062	75.2%	352	54.3%		2	(2)	
0.50 to <0.75	434	—	—		434	0.6%	53,592	75.7%	387	89.1%		2	(3)	
0.75 to <2.50	1,195	—	—		1,195	1.4%	138,075	76.4%	1,215	101.7%		14	(15)	
0.75 to <1.75	909	—	—		909	1.2%	105,602	76.3%	869	95.7%		9	(9)	
1.75 to <2.5	286	—	—		286	2.1%	32,473	76.8%	346	120.8%		5	(6)	
2.50 to <10.00	736	—	—		736	4.6%	84,674	77.3%	994	135.1%		28	(30)	
2.5 to <5	496	—	—		496	3.5%	56,548	77.2%	653	131.7%		14	(16)	
5 to <10	240	—	—		240	7.0%	28,126	77.6%	341	142.1%		14	(14)	
10.00 to <100.00	291	—	—		291	27.9%	37,314	77.8%	529	181.9%		67	(51)	
10 to <20	172	—	—		172	13.5%	21,197	77.9%	327	190.1%		22	(27)	
20 to <30	43	—	—		43	24.2%	5,624	77.9%	84	197.1%		8	(5)	
30.00 to <100.00	76	—	—		76	62.6%	10,493	77.5%	118	154.9%		37	(19)	
100.00 (Default)	59	—	—		59	100.0%	21,691	76.8%	45	75.0%		23	(23)	
<b>Subtotal (exposure class)</b>	<b>4,011</b>	<b>1</b>	<b>2.5%</b>		<b>4,011</b>	<b>4.9%</b>	<b>536,110</b>	<b>76.0%</b>	<b>3,708</b>	<b>92.5%</b>		<b>136</b>	<b>(124)</b>	
<b>As at 31 December 2021</b>														
0.00 to < 0.15	374	1	99.7%		375	0.1%	66,911	74.2%	73	19.6%		0		
0.15 to < 0.25	317	—	—		317	0.2%	52,575	74.4%	104	32.9%		1		
0.25 to < 0.50	652	—	—		652	0.4%	91,002	75.3%	319	48.9%		3		
0.50 to < 0.75	425	—	—		425	0.6%	57,279	75.7%	305	71.8%		4		
0.75 to < 2.50	1,111	—	—		1,111	1.4%	142,440	76.4%	1,068	96.1%		15		
2.50 to < 10.00	669	—	—		669	4.6%	85,845	77.1%	918	137.2%		33		
10.00 to < 100.00	249	—	—		249	26.4%	35,318	77.3%	648	260.4%		70		
100.00 (Default)	190	—	—		190	100.0%	27,895	77.0%	202	106.3%		136		
<b>Subtotal (exposure class)</b>	<b>3,987</b>	<b>1</b>	<b>97.9%</b>		<b>3,988</b>	<b>7.7%</b>	<b>559,265</b>	<b>76.0%</b>	<b>3,637</b>	<b>91.2%</b>		<b>262</b>	<b>(236)</b>	

**Note**

a. Current period average CCF is calculated on a weighted average basis in line with revised disclosure requirements that took effect from 1 January 2022 and also reflects where the modelled EAD is higher than the on and off balance sheet exposures pre CCF. For prior period, the average CCF was calculated on an aggregate level.

The RWA density associated with other retail non SME remained broadly stable at 92.5% (December 2021: 91.2%).

## Analysis of credit risk (continued)

**Table 45: CR10 – Specialised lending and equity exposures under the simple risk weighted approach<sup>a,b</sup>**

Slotting, also known as specialised lending, is an approach that is applied to financing of individual projects where the repayment is highly dependent on the performance of the underlying pool or collateral. It uses a standard set of rules for the calculation of RWAs, based upon an assessment of factors such as the financial strength of the counterparty. The requirements for the application of the Slotting approach are detailed in CRR article 153.

Specialised lending : Income-producing real estate and high volatility commercial real estate (Slotting approach)						
Regulatory categories	Remaining maturity	On-balance sheet exposure	Off-balance sheet exposure	Risk weight	Exposure value	Risk weighted exposure amount
As at 31 December 2022		£m	£m		£m	£m
Category 1	Less than 2.5 years	1,504	531	50%	1,715	735
	Equal to or more than 2.5 years	1,221	299	70%	1,423	882
Category 2	Less than 2.5 years	1,540	112	70%	1,585	1,048
	Equal to or more than 2.5 years	1,277	40	90%	1,303	1,105
Category 3	Less than 2.5 years	504	373	115%	654	725
	Equal to or more than 2.5 years	309	106	115%	357	404
Category 4	Less than 2.5 years	47	—	250%	47	115
	Equal to or more than 2.5 years	10	—	250%	10	21
Category 5	Less than 2.5 years	79	5	—	79	—
	Equal to or more than 2.5 years	41	2	—	42	—
Total	Less than 2.5 years	3,674	1,021	—	4,080	2,623
	Equal to or more than 2.5 years	2,858	447	—	3,135	2,412

**Notes**

a. The table includes counterparty credit risk exposures.

b. No comparatives are provided as this reflects revised disclosure requirements from 1 January 2022.

## Analysis of credit risk (continued)

**Table 46: CR1 - Performing and non-performing exposures and related provisions<sup>a,b</sup>**

This table provides an overview of the credit quality of on and off balance sheet non-performing exposures and related impairments, provisions and valuation adjustments by portfolio and exposure class.

	Gross carrying amount/nominal								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 – accumulated impairment and provisions			Non-performing exposures – accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions			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 <sup>c</sup>	Of which Stage 1	Of which Stage 2	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			
<b>As at 31 December 2022</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>
<b>005 Cash balances at central banks and other demand deposits</b>	<b>255,548</b>	<b>255,548</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>010 Loans and advances</b>	<b>658,167</b>	<b>413,461</b>	<b>42,782</b>	<b>7,326</b>	<b>40</b>	<b>7,263</b>	<b>(3,362)</b>	<b>(1,071)</b>	<b>(2,291)</b>	<b>(2,337)</b>	<b>(12)</b>	<b>(2,325)</b>	<b>(82)</b>	<b>434,549</b>	<b>3,852</b>		
020 Central banks	31,806	18,050	—	—	—	—	—	—	—	—	—	—	—	—	13,725	—	—
030 General governments	7,987	6,011	15	—	—	—	(4)	(2)	(2)	—	—	—	—	—	5,977	—	—
040 Credit institutions	54,627	23,758	37	40	—	40	(3)	(3)	—	(33)	—	(33)	—	28,793	—	—	—
050 Other financial corporations	252,407	104,253	1,853	131	—	131	(59)	(34)	(25)	(28)	—	(28)	—	163,466	55	—	—
060 Non-financial corporations	84,501	62,016	14,645	2,475	—	2,475	(824)	(422)	(402)	(519)	—	(519)	(82)	44,443	1,421	—	—
070 Of which SMEs	17,327	11,182	6,145	1,655	—	1,655	(336)	(165)	(171)	(268)	—	(268)	—	13,557	553	—	—
080 Households	226,839	199,373	26,232	4,680	40	4,617	(2,472)	(610)	(1,862)	(1,757)	(12)	(1,745)	—	178,145	2,376	—	—
<b>090 Debt securities</b>	<b>113,767</b>	<b>104,955</b>	<b>5,352</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>(54)</b>	<b>(12)</b>	<b>(42)</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>2,058</b>	<b>—</b>	<b>—</b>	<b>—</b>
100 Central banks	1,293	1,293	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
110 General governments	72,622	68,180	3,550	—	—	—	(22)	(3)	(19)	—	—	—	—	—	—	—	—
120 Credit institutions	16,024	14,847	1,177	—	—	—	(3)	(1)	(2)	—	—	—	—	907	—	—	—
130 Other financial corporations	15,971	14,762	465	—	—	—	(11)	(3)	(8)	—	—	—	—	750	—	—	—
140 Non-financial corporations	7,857	5,873	160	—	—	—	(18)	(5)	(13)	—	—	—	—	401	—	—	—
<b>150 Off-balance-sheet exposures</b>	<b>429,653</b>	<b>399,194</b>	<b>30,459</b>	<b>1,180</b>	<b>—</b>	<b>1,180</b>	<b>(560)</b>	<b>(245)</b>	<b>(315)</b>	<b>(23)</b>	<b>—</b>	<b>(23)</b>	<b>—</b>	<b>35,045</b>	<b>70</b>		
160 Central banks	815	815	—	—	—	—	—	—	—	—	—	—	—	150	—	—	—
170 General governments	2,504	2,431	73	—	—	—	(1)	—	(1)	—	—	—	—	—	—	—	—
180 Credit institutions	2,948	2,847	101	—	—	—	(4)	(2)	(2)	—	—	—	—	14	—	—	—
190 Other financial corporations	81,030	76,396	4,634	383	—	383	(33)	(14)	(19)	—	—	—	—	19,454	—	—	—
200 Non-financial corporations	169,910	150,591	19,319	482	—	482	(389)	(180)	(209)	(23)	—	(23)	—	10,752	42	—	—
210 Households	172,446	166,114	6,332	315	—	315	(133)	(49)	(84)	—	—	—	—	4,675	28	—	—
<b>220 Total</b>	<b>1,457,135</b>	<b>1,173,158</b>	<b>78,593</b>	<b>8,506</b>	<b>40</b>	<b>8,443</b>	<b>(3,976)</b>	<b>(1,328)</b>	<b>(2,648)</b>	<b>(2,360)</b>	<b>(12)</b>	<b>(2,348)</b>	<b>(82)</b>	<b>471,652</b>	<b>3,922</b>		

**Notes**

a. No comparatives are provided as this reflects revised disclosure requirements from 1 January 2022.

b. Loans at fair value through profit and loss are included in the total performing and non-performing exposures but no staging analysis is provided as these instruments are not eligible for staging.

## Analysis of credit risk (continued)

**Table 47: CR1-A - Maturity of exposures<sup>a</sup>**

This table shows the on and off balance sheet net credit risk exposures by residual contractual maturity, split by either loans and advances or debt securities. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

		Net Exposure Value					
		On demand	<= 1 year	> 1 year <= 5 years	> 5 years	No stated maturity	Total
As at 31 December 2022		£m	£m	£m	£m	£m	£m
1	Loans and advances	477,982	304,489	99,735	207,838	—	1,090,044
2	Debt securities	11	18,007	62,831	32,864	—	113,713
<b>3</b>	<b>Total</b>	<b>477,993</b>	<b>322,496</b>	<b>162,566</b>	<b>240,702</b>	<b>—</b>	<b>1,203,757</b>

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

**Table 48: CR2 - Changes in the stock of non-performing loans and advances**

This table shows information on changes in the institutions stock of on balance sheet non-performing loans and advances. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

		Gross carrying amount	
		£m	£m
	<b>As at 31 December 2022</b>		
<b>010</b>	<b>Initial stock of non-performing loans and advances</b>		7,569
020	Inflows to non-performing portfolios		5,047
030	Outflows from non-performing portfolios		(916)
040	Outflows due to write-offs		(1,646)
050	Outflow due to other situations <sup>a</sup>		(2,728)
<b>060</b>	<b>Final stock of non-performing loans and advances</b>		7,326

**Note**

a. Other situations include repayments and disposals and other adjustments, partly offset by a net increase in the non-performing exposure on existing loans and debt securities

## Analysis of credit risk (continued)

**Table 49: CR3 – CRM techniques overview: Disclosure of the use of credit risk mitigation techniques<sup>a</sup>**

This table shows a breakdown of on balance sheet unsecured and secured credit risk exposures secured by various methods of collateral for both loans and advances and debt securities. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

	Unsecured carrying amount	Secured carrying amount			
			Of which secured by collateral	Of which secured by financial guarantees	Of which secured by credit derivatives
<b>As at 31 December 2022</b>					
1	Loans and advances	<b>482,640</b>	<b>438,401</b>	<b>425,124</b>	<b>13,277</b>
2	Debt securities	<b>111,709</b>	<b>2,058</b>	<b>1,151</b>	<b>907</b>
<b>3</b>	<b>Total</b>	<b>594,349</b>	<b>440,459</b>	<b>426,275</b>	<b>14,184</b>
4	<i>Of which non-performing exposures</i>	<b>3,474</b>	<b>3,852</b>	<b>3,150</b>	<b>702</b>
5	<i>Of which defaulted</i>	<b>3,457</b>	<b>3,838</b>		

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of credit risk (continued)

**Table 50: CQ1 - Credit quality of forborne exposures**

This table provides an overview of the quality of on and off balance sheet forborne exposures. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

	Gross carrying amount/nominal amount of exposures with forbearance measures				Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions		Collateral received and financial guarantees received on forborne exposures	
	Non-performing forborne							
	Performing forborne	Of which defaulted	Of which impaired	On performing forborne exposures	On non-performing forborne exposures	Of which collateral and financial guarantees received on non-performing exposures with forbearance measures		
As at 31 December 2022	£m	£m	£m	£m	£m	£m	£m	£m
<b>Cash balances at central banks and other demand deposits<sup>a</sup></b>	—	—	—	—	—	—	—	—
<b>5 Loans and Advances</b>	<b>1,727</b>	<b>1,689</b>	<b>1,622</b>	<b>1,525</b>	<b>(154)</b>	<b>(336)</b>	<b>1,686</b>	<b>761</b>
20 Central banks	—	—	—	—	—	—	—	—
30 General governments	—	—	—	—	—	—	—	—
40 Credit institutions	—	—	—	—	—	—	—	—
50 Other financial corporations	15	50	50	50	—	(9)	4	2
60 Non-financial corporations	1,236	795	790	728	(43)	(120)	1,102	359
70 Households	476	844	782	747	(111)	(207)	580	400
<b>80 Debt securities</b>	—	—	—	—	—	—	—	—
<b>90 Loan commitments given</b>	<b>1,015</b>	<b>179</b>	<b>171</b>	<b>169</b>	<b>(5)</b>	<b>—</b>	<b>86</b>	<b>15</b>
<b>100 Total</b>	<b>2,742</b>	<b>1,868</b>	<b>1,793</b>	<b>1,694</b>	<b>(159)</b>	<b>(336)</b>	<b>1,772</b>	<b>776</b>
As at 31 December 2021								
<b>10 Loans and Advances</b>	1,901	2,136	2,002	1,999	(204)	(696)	1,495	655
20 Central banks	—	—	—	—	—	—	—	—
30 General governments	—	—	—	—	—	—	—	—
40 Credit institutions	—	—	—	—	—	—	—	—
50 Other financial corporations	4	18	18	18	—	(9)	1	—
60 Non-financial corporations	1,396	914	891	873	(52)	(320)	854	170
70 Households	501	1,204	1,093	1,108	(152)	(367)	640	485
<b>80 Debt securities</b>	—	—	—	—	—	—	—	—
<b>90 Loan commitments given</b>	1,148	198	176	175	(7)	—	23	10
<b>100 Total</b>	<b>3,049</b>	<b>2,334</b>	<b>2,178</b>	<b>2,174</b>	<b>(211)</b>	<b>(696)</b>	<b>1,518</b>	<b>665</b>

**Note**

a. Cash balances at central banks and other demand deposits included in the current period as this reflects revised disclosure requirements from 1 January 2022.

Forbearance balances decreased by £0.8bn to £4.6bn (December 21 £5.4bn) primarily driven by a reduction in Loans and Advances/ Non-Financial Corporations due to repayments/closures and material write-offs in CIB.

## Analysis of credit risk (continued)

**Table 51: CQ3 - Credit quality of performing and non-performing exposures by past due days**

This table provides an overview of the credit quality of performing and non-performing exposures by past due days. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

		Gross carrying amount/nominal amount															
		Performing exposures				Non-performing exposures											
		Not past due or past due ≤ 30 days		Past due > 30 days ≤ 90 days		Unlikely to pay that are not past due or are past due ≤ 90 days		Past due > 90 days ≤ 180 days		Past due > 180 days ≤ 1 year		Past due > 1 year ≤ 2 years		Past due > 2 year ≤ 5 years		Past due > 5 year ≤ 7 years	
As at 31 December 2022		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m		
005	Cash balances at central banks and other demand deposits <sup>a</sup>	255,548	255,548	—	—	—	—	—	—	—	—	—	—	—	—		
010	Loans and advances	658,167	656,952	1,215	7,326	2,761	1,025	1,500	1,001	468	161	410	7,295				
020	Central banks	31,806	31,806	—	—	—	—	—	—	—	—	—	—				
030	General governments	7,987	7,987	—	—	—	—	—	—	—	—	—	—				
040	Credit institutions	54,627	54,627	—	40	—	—	40	—	—	—	—	40				
050	Other financial corporations	252,407	252,406	1	131	100	5	7	7	12	—	—	131				
060	Non-financial corporations	84,501	84,394	107	2,475	1,031	330	470	368	181	45	50	2,475				
070	Of which SMEs	17,328	17,314	14	1,655	370	297	446	327	139	35	41	1,655				
080	Households	226,839	225,732	1,107	4,680	1,630	690	983	626	275	116	360	4,649				
090	Debt securities	113,767	113,767	—	—	—	—	—	—	—	—	—	—				
100	Central banks	1,293	1,293	—	—	—	—	—	—	—	—	—	—				
110	General governments	72,622	72,622	—	—	—	—	—	—	—	—	—	—				
120	Credit institutions	16,024	16,024	—	—	—	—	—	—	—	—	—	—				
130	Other financial corporations	15,971	15,971	—	—	—	—	—	—	—	—	—	—				
140	Non-financial corporations	7,857	7,857	—	—	—	—	—	—	—	—	—	—				
150	Off-balance-sheet exposures	429,653			1,180								1,180				
160	Central banks	815			—								—				
170	General governments	2,504			—								—				
180	Credit institutions	2,948			—								—				
190	Other financial corporations	81,030			383								383				
200	Non-financial corporations	169,910			482								482				
210	Households	172,446			315								315				
220	Total	1,457,135	1,026,267	1,215	8,506	2,761	1,025	1,500	1,001	468	161	410	8,475				

**Note**

a. Structure of the table updated to include a new disclosure line of Cash balances at central banks and other demand deposits.

## Analysis of credit risk (continued)

**Table 51: CQ3 - Credit quality of performing and non-performing exposures by past due days - continued**

		Gross carrying amount/nominal amount												
		Performing exposures				Non-performing exposures								Of which defaulted
		Not past due or past due ≤ 30 days		Past due > 30 days ≤ 90 days		Unlikely to pay that are not past due or are past due ≤ 90 days		Past due > 90 days ≤ 180 days		Past due > 180 days ≤ 1 year		Past due > 1 year ≤ 2 years		
As at 31 December 2021		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
<b>010 Loans and advances</b>		836,706	835,466	1,240	7,568	2,483	1,469	1,695	620	660	198	443	7,543	
020 Central banks		266,931	266,931	—	—	—	—	—	—	—	—	—	—	
030 General governments		9,967	9,967	—	—	—	—	—	—	—	—	—	—	
040 Credit institutions		49,517	49,517	—	—	—	—	—	—	—	—	—	—	
050 Other financial corporations		208,608	208,458	150	71	22	1	11	23	3	11	—	71	
060 Non-financial corporations		87,513	87,246	267	2,771	1,126	833	285	203	229	55	40	2,771	
070 Of which SMEs		20,446	20,434	12	1,872	550	773	205	148	119	45	32	1,873	
080 Households		214,170	213,347	823	4,726	1,335	635	1,399	394	428	132	403	4,701	
<b>090 Debt securities</b>		95,336	95,336	—	1	—	1	—	—	—	—	—	—	1
100 Central banks		1,336	1,336	—	—	—	—	—	—	—	—	—	—	
110 General governments		60,459	60,459	—	—	—	—	—	—	—	—	—	—	
120 Credit institutions		15,149	15,149	—	—	—	—	—	—	—	—	—	—	
130 Other financial corporations		12,771	12,771	—	—	—	—	—	—	—	—	—	—	
140 Non-financial corporations		5,621	5,621	—	1	—	1	—	—	—	—	—	—	1
<b>150 Off-balance-sheet exposures</b>		371,683			1,298									1,298
160 Central banks		595			—									—
170 General governments		2,450			—									—
180 Credit institutions		2,401			—									—
190 Other financial corporations		64,515			98									98
200 Non-financial corporations		166,752			1,002									1,002
210 Households		134,970			198									198
<b>220 Total</b>		1,303,725	930,802	1,240	8,867	2,483	1,470	1,695	620	660	198	443	8,842	

## Analysis of credit risk (continued)

**Table 52: CQ4 - Quality of non-performing exposures by geography<sup>b</sup>**

This table shows the credit quality of on balance sheet and off balance sheet exposure for loans and advances, debt securities derivatives and equity instruments by geography. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

As at 31 December 2022	Gross carrying/Nominal amount				Accumulated impairment	Provisions on off-balance sheet commitments and financial guarantee given	Accumulated negative changes in fair value due to credit risk on non-performing exposures			
	of which: non-performing		of which: subject to impairment							
	of which: defaulted									
<b>On balance sheet exposures</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>			
UNITED KINGDOM	473,531	3,913	3,913	445,504	(2,163)		—			
UNITED STATES	266,504	1,199	1,199	165,869	(2,333)		—			
FRANCE	77,367	146	146	58,397	(62)		—			
GERMANY	58,400	251	233	51,625	(304)		—			
JAPAN	31,610	0	0	22,514	(1)		—			
CANADA	15,209	0	0	8,709	(4)		—			
Other Countries <sup>a</sup>	119,347	1,817	1,804	76,786	(886)		—			
<b>Off balance sheet exposures</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>			<b>£m</b>				
UNITED STATES	252,644	177	177			(295)				
UNITED KINGDOM	107,322	475	475			(204)				
GERMANY	12,089	44	44			(6)				
FRANCE	7,700	6	6			(6)				
LUXEMBOURG	5,475	11	11			(5)				
Other Countries <sup>a</sup>	45,603	467	467			(67)				
<b>Total</b>	<b>1,472,801</b>	<b>8,506</b>	<b>8,475</b>	<b>829,404</b>	<b>(5,753)</b>	<b>(583)</b>	<b>—</b>			

**Notes**

a. Countries that have more than 1% of the total gross exposure are disclosed in the table and countries with <1% gross exposure are aggregated within "other countries".

b. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of credit risk (continued)

**Table 53: CQ5 - Credit quality of loans and advances to non-financial corporations by industry<sup>a</sup>**

This table shows the credit quality of loans and advances on balance sheet exposure to non-financial corporation by industry types. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

As at 31 December 2022	Gross carrying amount				Accumulated impairment	Accumulated negative changes in fair value due to credit risk on non-performing exposures		
	of which: non-performing		of which: defaulted	of which: loans and advances subject to impairment				
	£m	£m						
010 Agriculture, forestry and fishing	3,914	365	365	3,911	(149)	—		
020 Mining and quarrying	1,629	34	34	1,609	(12)	—		
030 Manufacturing	9,136	159	159	8,469	(196)	—		
040 Electricity, gas, steam and air conditioning	3,486	5	5	3,443	(15)	—		
050 Water supply	837	17	17	837	(11)	—		
060 Construction	3,698	153	153	3,651	(63)	—		
070 Wholesale and retail trade	8,511	267	267	8,171	(148)	—		
080 Transport and storage	2,869	89	89	2,599	(44)	—		
090 Accommodation and food service activities	3,690	174	174	3,551	(62)	—		
100 Information and communication	5,557	149	149	5,481	(132)	—		
110 Financial and insurance activities	—	—	—	—	—	—		
120 Real estate activities	22,813	385	385	19,379	(230)	—		
130 Professional, scientific and technical	3,618	106	106	3,604	(57)	—		
140 Administrative and support service activities	7,923	217	217	6,589	(70)	—		
150 Public administration and defense, compulsory social security	281	0	0	135	(1)	—		
160 Education	3,054	32	32	1,912	(21)	—		
170 Human health services and social work	3,678	160	160	3,541	(75)	—		
180 Arts, entertainment and recreation	1,239	98	98	1,239	(26)	—		
190 Other services	1,041	65	65	1,014	(31)	—		
200 Total	86,974	2,475	2,475	79,135	(1,343)	—		

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of credit risk (continued)

**Table 54: CQ7 - Collateral obtained by taking possession and execution processes**

This table provides an overview of foreclosed assets obtained from non-performing exposures. The amounts shown are based on IFRS accounting values according to the regulatory scope of consolidation.

As at 31 December 2022		Collateral obtained by taking possession	
		Value at initial recognition	Accumulated negative changes
		£m	£m
010	Property, plant and equipment (PP&E)		
020	Other than PP&E	48	17
030	Residential immovable property	30	15
040	Commercial Immovable property	—	—
050	Movable property (auto, shipping, etc.)	—	—
060	Equity and debt instruments	—	—
070	Other collateral	18	2
<b>080</b>	<b>Total</b>	<b>48</b>	<b>17</b>

As at 31 December 2021			
010	Property, plant and equipment (PP&E)	—	—
020	Other than PP&E	35	13
030	Residential immovable property	19	12
040	Commercial Immovable property	—	—
050	Movable property (auto, shipping, etc.)	—	—
060	Equity and debt instruments	—	—
070	Other collateral	16	1
<b>080</b>	<b>Total</b>	<b>35</b>	<b>13</b>

# Analysis of counterparty credit risk

This section details Barclays' counterparty credit risk profile, focusing on regulatory measures such as exposure at default and risk weighted assets. The risk profile is analysed by financial contract type, approach and notional value.

CCR RWAs are primarily generated by the following IFRS account classifications: financial assets designated at fair value; derivative financial instruments; reverse repurchase agreements and other similar secured lending

CVA has been included as part of the CCR RWAs disclosures.

## Key Metrics

### Total RWAs

£42.0bn

(2021: £37.6bn)

**CCR RWAs increased £4.4bn to £42.0bn primarily due to FX and regulatory changes relating to the introduction of SA-CCR, partially offset by derivative mark-to-market movements.**

## Analysis of counterparty credit risk

**Table 55: CCR1 – Analysis of CCR exposure by approach<sup>a</sup>**

This table provides a comprehensive view of the methods used to calculate CCR regulatory requirements and the main parameters used within each method.

	Replacement cost (RC)	Potential future exposure (PFE)	Alpha used for computing regulatory exposure value		Exposure value pre-CRM	Exposure value post-CRM	Exposure value	RWEA
			EEPE	£m				
As at 31 December 2022	£m	£m	£m	£m	£m	£m	£m	£m
1 SA-CCR (for derivatives)	2,278	3,176		1.4	12,368	7,634	7,634	4,081
2 IMM (for derivatives and SFTs)			62,083	1.4	131,803	87,237	86,916	25,741
2a Of which securities financing transactions netting sets			28,242			39,539	39,539	6,170
2b Of which derivatives and long settlement transactions netting			33,841		131,803	47,698	47,377	19,571
4 Financial collateral comprehensive method (for SFTs)					69,839	17,986	17,986	7,424
6 Total					214,010	112,857	112,536	37,246

**Note**

a. No comparatives are provided as this reflects revised disclosure requirements from 1 January 2022.

## Analysis of counterparty credit risk (continued)

**Table 56: CCR3 – Standardised approach – CCR exposures by regulatory exposure class and risk weights**

This table shows exposure at default, broken down by exposure class and risk weight. This table includes exposures subject to the standardised approach only.

	Exposure classes	Risk weight												Total exposure value
		0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	others		
As at 31 December 2022		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
1	Central governments or central banks	2,100	—	—	—	55	5	—	—	16	—	—	—	2,176
2	Regional government or local authorities	388	—	—	—	3	—	—	—	—	—	—	—	391
3	Public sector entities	—	—	—	—	64	—	—	—	175	—	—	—	239
4	Multilateral development banks	851	—	—	—	8	—	—	—	—	—	—	—	859
5	International organisations	234	—	—	—	—	—	—	—	—	—	—	—	234
6	Institutions	—	33,324	—	—	732	1,074	—	—	45	—	—	—	35,175
7	Corporates	—	—	—	—	95	227	—	—	14,657	4	—	—	14,983
8	Retail	—	—	—	—	—	—	—	—	—	—	—	—	—
9	Institutions and corporates with a short-term credit assessment	—	—	—	—	—	—	—	—	—	—	—	—	—
10	Other items	—	—	—	—	—	—	—	—	13	—	—	—	13
11	<b>Total exposure value</b>	<b>3,573</b>	<b>33,324</b>	—	—	<b>957</b>	<b>1,306</b>	—	—	<b>14,893</b>	<b>17</b>	—	—	<b>54,070</b>
As at 31 December 2021														
1	Central governments or central banks	3,490	—	—	—	32	4	—	—	5	—	—	—	3,532
2	Regional government or local authorities	1,410	—	—	—	1	—	—	—	—	—	—	—	1,411
3	Public sector entities	526	—	—	—	522	1	—	—	—	—	—	—	1,049
4	Multilateral development banks	244	—	—	—	6	—	—	—	—	—	—	—	249
5	International organisations	110	—	—	—	—	—	—	—	—	—	—	—	110
6	Institutions	—	23,487	—	—	390	688	—	—	11	—	—	—	24,576
7	Corporates	—	—	—	—	48	234	—	—	13,503	—	—	—	13,785
8	Retail	—	—	—	—	—	—	—	—	—	—	—	—	—
9	Institutions and corporates with a short-term	—	—	—	—	—	—	—	—	—	—	—	—	—
10	Other items	—	—	—	—	—	—	—	—	1	—	—	—	1
11	<b>Total exposure value</b>	<b>5,780</b>	<b>23,487</b>	—	—	<b>999</b>	<b>927</b>	—	—	<b>13,519</b>	<b>1</b>	—	—	<b>44,713</b>

CCR EAD increased by £9.4bn to £54.1bn primarily driven by an increase in trading activities with central clearing counterparties.

## Analysis of counterparty credit risk (continued)

### IRB obligor grade disclosure

The following tables show counterparty credit risk exposure at default post-CRM for the IRB approach for portfolios within both the trading and banking books. Separate tables are provided for the following exposure classes: central governments and central banks (table 57), institutions (table 58), corporates (table 59).

**Table 57: CCR4 – IRB approach – CCR exposures by portfolio and PD range for central governments and central banks**

PD scale	Exposure value	Exposure weighted average PD		Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)		RWEA	Density of risk weighted exposure amount
		£m	%			%	Em		
<b>As at 31 December 2022</b>									
1 0.00 to <0.15	5,286	0.0%		46	58.2%	1	616	11.7%	
2 0.15 to <0.25	152	0.2%		6	52.5%	1	46	30.3%	
3 0.25 to <0.50	164	0.3%		3	45.0%	1	53	32.4%	
4 0.50 to <0.75	1	0.5%		2	45.0%	1	1	58.2%	
5 0.75 to <2.50	277	2.3%		4	46.4%	1	291	105.1%	
6 2.50 to <10.00	2	3.7%		3	47.9%	1	3	144.8%	
7 10.00 to <100.00	4	11.0%		2	58.0%	1	10	270.8%	
8 100.00 (Default)	—	—		—	—	—	—	—	
<b>Total</b>	<b>5,886</b>	<b>0.2%</b>		<b>66</b>	<b>57.2%</b>	<b>1</b>	<b>1,020</b>	<b>17.3%</b>	
<b>As at 31 December 2021</b>									
1 0.00 to <0.15	7,197	0.0%		49	59.5%	0	709	9.8%	
2 0.15 to <0.25	164	0.2%		11	51.8%	1	—	32.2%	
3 0.25 to <0.50	154	0.4%		5	45.2%	1	70	45.4%	
4 0.50 to <0.75	—	—		—	—	—	—	—	
5 0.75 to <2.50	299	2.0%		4	45.1%	0	289	96.6%	
6 2.50 to <10.00	3	7.6%		3	55.2%	1	5	217.3%	
7 10.00 to <100.00	19	12.1%		1	63.0%	1	58	300.8%	
8 100.00 (Default)	—	—		—	—	—	—	—	
<b>Total</b>	<b>7,836</b>	<b>0.2%</b>		<b>73</b>	<b>58.5%</b>	<b>0</b>	<b>1,184</b>	<b>15.1%</b>	

The RWA density associated with central governments and central banks increased 2.2% to 17.3% primarily driven by a decrease in trading activities in lower PD buckets.

**Table 58: CCR4 – IRB approach – CCR exposures by portfolio and PD range for institutions**

PD scale	Exposure value	Exposure weighted average PD		Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)		RWEA	Density of risk weighted exposure amount
		£m	%			%	Em		
<b>As at 31 December 2022</b>									
1 0.00 to <0.15	22,467	0.1%		576	46.3%	1	4,229	18.8%	
2 0.15 to <0.25	1,639	0.2%		57	45.1%	1	507	31.0%	
3 0.25 to <0.50	1,826	0.3%		91	46.4%	1	839	45.9%	
4 0.50 to <0.75	39	0.6%		20	48.4%	1	26	67.2%	
5 0.75 to <2.50	369	1.3%		77	48.5%	1	370	100.2%	
6 2.50 to <10.00	61	5.1%		51	42.2%	2	78	127.3%	
7 10.00 to <100.00	77	14.0%		28	37.6%	1	109	141.8%	
8 100.00 (Default)	—	—		—	—	—	—	—	
<b>Total</b>	<b>26,478</b>	<b>0.1%</b>		<b>900</b>	<b>46.3%</b>	<b>1</b>	<b>6,158</b>	<b>23.3%</b>	
<b>As at 31 December 2021</b>									
1 0.00 to <0.15	17,824	0.0%		551	47.2%	2	3,652	20.5%	
2 0.15 to <0.25	2,102	0.2%		90	45.2%	1	693	33.0%	
3 0.25 to <0.50	194	0.4%		75	51.0%	1	109	56.3%	
4 0.50 to <0.75	169	0.7%		26	45.5%	1	111	66.3%	
5 0.75 to <2.50	132	1.6%		64	45.3%	1	127	95.9%	
6 2.50 to <10.00	204	4.5%		61	49.5%	1	288	141.1%	
7 10.00 to <100.00	12	14.3%		14	27.5%	1	12	100.7%	
8 100.00 (Default)	—	—		—	—	—	—	—	
<b>Total</b>	<b>20,637</b>	<b>0.1%</b>		<b>881</b>	<b>47.0%</b>	<b>2</b>	<b>4,992</b>	<b>24.2%</b>	

The RWA density associated with institutions remained broadly stable at 23.3% (December 2021: 24.2%).

## Analysis of counterparty credit risk (continued)

**Table 59: CCR4 – IRB approach – CCR exposures by portfolio and PD range for corporates**

PD scale	Exposure value	Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity (years)	RWEA		Density of risk weighted exposure amount
						£m	%	
<b>As at 31 December 2022</b>								
1 0.00 to <0.15	<b>48,309</b>	<b>0.1%</b>	<b>5,917</b>	<b>45.9%</b>	<b>1</b>	<b>7,289</b>	<b>15.1%</b>	
2 0.15 to <0.25	<b>4,117</b>	<b>0.2%</b>	<b>553</b>	<b>42.4%</b>	<b>2</b>	<b>1,634</b>	<b>39.7%</b>	
3 0.25 to <0.50	<b>2,950</b>	<b>0.4%</b>	<b>378</b>	<b>39.1%</b>	<b>2</b>	<b>1,653</b>	<b>56.0%</b>	
4 0.50 to <0.75	<b>985</b>	<b>0.6%</b>	<b>167</b>	<b>42.5%</b>	<b>2</b>	<b>730</b>	<b>74.1%</b>	
5 0.75 to <2.50	<b>1,905</b>	<b>1.1%</b>	<b>351</b>	<b>44.3%</b>	<b>1</b>	<b>1,338</b>	<b>70.2%</b>	
6 2.50 to <10.00	<b>818</b>	<b>5.0%</b>	<b>273</b>	<b>41.8%</b>	<b>3</b>	<b>1,123</b>	<b>137.3%</b>	
7 10.00 to <100.00	<b>233</b>	<b>15.1%</b>	<b>165</b>	<b>35.4%</b>	<b>2</b>	<b>425</b>	<b>182.2%</b>	
8 100.00 (Default)	<b>16</b>	<b>100.0%</b>	<b>8</b>	<b>23.3%</b>	<b>1</b>	<b>35</b>	<b>214.3%</b>	
<b>Total</b>	<b>59,333</b>	<b>0.3%</b>	<b>7,812</b>	<b>45.1%</b>	<b>1</b>	<b>14,227</b>	<b>24.0%</b>	
<b>As at 31 December 2021</b>								
1 0.00 to <0.15	43,984	0.0%	5,886	44.9%	1	6,440	14.6%	
2 0.15 to <0.25	4,112	0.2%	632	37.8%	2	1,537	37.4%	
3 0.25 to <0.50	2,346	0.3%	315	19.8%	3	688	29.3%	
4 0.50 to <0.75	663	0.6%	260	27.0%	3	328	49.5%	
5 0.75 to <2.50	3,850	1.1%	286	21.0%	1	1,691	43.9%	
6 2.50 to <10.00	1,573	4.7%	238	40.5%	3	1,785	113.5%	
7 10.00 to <100.00	516	18.0%	66	22.3%	3	486	94.1%	
8 100.00 (Default)	38	100.0%	16	8.4%	4	31	81.5%	
<b>Total</b>	<b>57,082</b>	<b>0.5%</b>	<b>7,699</b>	<b>41.2%</b>	<b>1</b>	<b>12,986</b>	<b>22.7%</b>	

The RWA density associated with corporates increased 1.3% to 24.0% primarily driven by increased trading activities across the PD buckets.

**Table 60: CCR5 – Composition of collateral for CCR exposures<sup>a</sup>**

This table shows the types of collateral posted or received to support or reduce CCR exposures relating to derivative transactions or SFTs, including transactions cleared through a CCP.

As at 31 December 2022	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			
Cash	—	<b>88,969</b>	—	<b>92,911</b>	—	<b>4,046</b>	
Debt	<b>13,220</b>	<b>16,101</b>	<b>2,885</b>	<b>3,468</b>	<b>675,615</b>	<b>676,023</b>	
Equity	<b>3,007</b>	<b>54</b>	<b>19</b>	—	<b>210,390</b>	<b>178,348</b>	
Others	<b>200</b>	<b>982</b>	—	<b>239</b>	<b>19,593</b>	<b>10,782</b>	
<b>Total</b>	<b>16,427</b>	<b>106,106</b>	<b>2,904</b>	<b>96,618</b>	<b>905,598</b>	<b>869,199</b>	

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

**Table 61: CCR6 - Credit derivatives exposures<sup>a</sup>**

This table provides a breakdown of the Barclays' exposures to credit derivatives products.

As at 31 December 2022	Protection bought		Protection sold	
	£m	£m	£m	£m
<b>Notionals</b>				
1 Single-name credit default swaps			<b>187,929</b>	<b>206,415</b>
2 Index credit default swaps			<b>434,467</b>	<b>389,268</b>
3 Total return swaps			<b>10,991</b>	<b>19,926</b>
4 Credit options			<b>50,645</b>	<b>37,077</b>
5 Other credit derivatives			—	—
<b>6 Total notional</b>			<b>684,032</b>	<b>652,686</b>
<b>Fair value</b>				
7 Positive fair value (asset)			<b>3,680</b>	<b>8,504</b>
8 Negative fair value (liability)			<b>(7,175)</b>	<b>(3,701)</b>

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of counterparty credit risk (continued)

**Table 62: CCR8 - Exposures to CCPs**

This table provides a breakdown of Barclays' exposures and RWAs to CCPs.

		As at 31 December 2022		As at 31 December 2021		
		Exposure value		RWEA	Exposure value	
		£m	£m	£m	£m	
<b>1</b>	<b>Exposures to QCCPs (total)</b>		<b>1,397</b>		1,601	
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	<b>13,500</b>	<b>270</b>	11,584	232	
3	(i) OTC derivatives	<b>6,031</b>	<b>121</b>	3,667	73	
4	(ii) Exchange-traded derivatives	<b>3,654</b>	<b>73</b>	2,954	59	
5	(iii) SFTs	<b>3,815</b>	<b>76</b>	4,963	100	
6	(iv) Netting sets where cross-product netting has been approved	—	—	—	—	
7	Segregated initial margin	<b>1,297</b>		1,514		
8	Non-segregated initial margin	<b>19,824</b>	<b>396</b>	11,903	238	
9	Prefunded default fund contributions	<b>4,043</b>	<b>731</b>	2,416	1,131	
10	Unfunded default fund contributions	<b>9,210</b>	—			
<b>11</b>	<b>Exposures to non-QCCPs (total)</b>		<b>12</b>			
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	<b>12</b>	<b>12</b>	—	—	
13	(i) OTC derivatives	—	—	—	—	
14	(ii) Exchange-traded derivatives	—	—	—	—	
15	(iii) SFTs	<b>12</b>	<b>12</b>	—	—	
16	(iv) Netting sets where cross-product netting has been approved	—	—	—	—	

## Analysis of counterparty credit risk (continued)

### Credit valuation adjustments (CVA)

CVA measures the risk from MTM losses due to deterioration in the credit quality of a counterparty to over-the-counter derivative transactions with Barclays. It is a complement to the counterparty credit risk charge, that accounts for the risk of outright default of a counterparty.

**Table 63: CCR2 - Transactions subject to own funds requirements for CVA risk**

Two approaches can be used to calculate the adjustment:

- Standardised approach: this approach takes account of the external credit rating of each counterparty, EAD from the calculation of the CCR and the effective maturity
- Advanced approach: this approach requires the calculation of the charge as (a) a 10-day 99% Value at Risk (VaR) measure for the most recent one-year period and (b) the same measure for a one-year stressed period. The sum of the 60 day averages for the two VaR measures is multiplied with the relevant multiplication factor, based on the number of market risk back-testing exceptions for the most recent 250 business days, to yield the capital charge.

		Credit valuation adjustment (CVA) capital charge	Exposure Value £m	RWEA £m
<b>As at 31 December 2022</b>				
1	Total transactions subject to the Advanced method		<b>18,365</b>	<b>2,514</b>
2	(i) VaR component (including the 3× multiplier)			<b>884</b>
3	(ii) stressed VaR component (including the 3× multiplier)			<b>1,630</b>
4	Transactions subject to the Standardised method		<b>2,243</b>	<b>712</b>
5	<b>Total transactions subject to own funds requirements for CVA risk</b>		<b>20,608</b>	<b>3,226</b>
<b>As at 31 December 2021</b>				
1	Total transactions subject to the Advanced method		15,895	2,128
2	(i) VaR component (including the 3× multiplier)			398
3	(ii) stressed VaR component (including the 3× multiplier)			1,730
4	Transactions subject to the Standardised method		890	320
5	<b>Total transactions subject to own funds requirements for CVA risk</b>		<b>16,785</b>	<b>2,448</b>

The CVA RWA increased to £3.2bn (December 2021: £2.4bn) primarily as a result of regulatory changes which took effect from 1 January 2022, relating to the introduction of SA-CCR.

# Analysis of market risk

This section contains key disclosures describing market risk profile, including regulatory as well as management measures. This includes risk weighted assets by major business lines, as well as Value at Risk measures.

Market risk RWAs are primarily generated by the following IFRS account classifications: Trading portfolio assets and liabilities; and derivative financial instruments.

## Key Metrics

### Total RWAs

£36.8bn

(2021: £44.8bn)

**Market risk RWAs decreased £7.9bn to £36.8bn primarily due to a decrease in Stressed Value at Risk (SVaR) model adjustment as a result of changes in portfolio composition, a decrease due to client and trading activities and structural FX, partially offset by an increase due to FX.**

## Analysis of market risk (continued)

### Business scenario stresses

As part of the Group's risk management framework, on a regular basis the performance of the trading business in hypothetical scenarios characterised by severe macroeconomic conditions is modelled. Up to seven global scenarios are modelled on a regular basis, for example, a sharp deterioration in liquidity, a slowdown in the global economy, global recession, and a sharp increase in economic growth.

In 2022, the scenario analyses showed that the largest market risk related impacts would be due to a severe deterioration in financial liquidity and an associated global recession.

### Review of regulatory measures

The following disclosures provide details of the regulatory measures of market risk. Refer to pages 143 and 144 of this report for more detail on regulatory measures and the differences when compared to management measures.

Barclays Group's market risk capital requirement comprises of two elements:

- the market risk of trading book positions booked to legal entities are measured under a PRA approved internal models approach, including Regulatory VaR, SVaR, IRC and Comprehensive Risk Measure (CRM) as required
- the trading book positions that do not meet the conditions for inclusion within the approved internal models approach are calculated using standardised rules.

The table below summarises the regulatory market risk measures, under the internal models approach. Refer to Table 67 "MR2-A Market risk under the internal Model Approach" on page 82 for a breakdown of capital requirements by approach.

**Table 64: MR3 - IMA values for trading portfolios**

	Period-end		Avg.	Max	Min
	£m	£m	£m	£m	£m
<b>As at 31 December 2022</b>					
Regulatory VaR- 1 day	46	61	107	32	
Regulatory VaR- 10 day <sup>a</sup>	146	194	337	101	
SVaR - 1 day	65	92	158	49	
SVaR - 10 day <sup>a</sup>	206	290	499	156	
IRC	187	186	312	92	
<b>As at 31 December 2021</b>					
Regulatory VaR- 1 day	34	35	64	18	
Regulatory VaR- 10 day <sup>a</sup>	108	111	204	58	
SVaR - 1 day	58	63	116	47	
SVaR - 10 day <sup>a</sup>	184	200	365	149	
IRC	278	329	544	217	

**Note**

a. 10-day VaR results reported above are based on 1-day VaR multiplied by the square root of 10.

Average VaR and SVaR increased and IRC decreased in 2022:

- Regulatory VaR: The increase in Regulatory VaR for 2022 was driven by higher market volatility. The war in Ukraine and elevated inflation increased volatility across all asset classes as central banks increased base rates, equity markets declined, and credit spreads widened during this period. The Global Markets business maintained a generally short and defensive risk profile (i.e. positioned to gain as the market sells off) for most of 2022. Risk taking remained within agreed risk appetite limits at all times in 2022.
- IRC: The reduction in IRC is due to lower default exposure in the FI Credit and Rates business during the period.

## Analysis of market risk (continued)

**Table 65: Breakdown of the major regulatory risk measures by portfolio**

	Macro	Equities	Credit	Securitised Products	Cross Markets	Fixed Income Financing	Banking	Barclays Group Treasury
As at 31 December 2022	£m	£m	£m	£m	£m	£m	£m	£m
Regulatory VaR- 1 day	25	22	10	4	16	4	7	18
Regulatory VaR - 10 day <sup>a</sup>	78	69	32	11	50	12	21	56
SVaR- 1 day	46	36	14	5	17	5	9	30
SVaR- 10 day	145	114	43	15	55	15	29	93
IRC	103	14	217	10	87	1	2	23
As at 31 December 2021								
Regulatory VaR- 1 day	17	19	14	2	14	1	5	2
Regulatory VaR - 10 day <sup>a</sup>	53	61	44	6	44	3	15	6
SVaR- 1 day	35	40	40	7	30	6	5	3
SVaR- 10 day	111	126	126	23	94	18	16	9
IRC	224	72	505	10	17	1	—	—

**Note**

a. 10-day VaR results reported above are based on 1-day VaR multiplied by the square root of 10.

The table above shows the primary portfolios which are driving the trading businesses' modelled capital requirement as at 2022 year-end. The standalone portfolio results diversify at the total level and are not additive. Regulatory VaR, SVaR and IRC in the prior table show the diversified results at a Group level.

## Analysis of market risk (continued)

**Table 66: MR1 – Market risk under the standardised approach**

This table shows the RWAs and capital requirements for standardised market risk split between outright products, options and securitisation. This table includes exposures subject to the standardised approach only.

	As at 31 December 2022		As at 31 December 2021	
	RWEAs		RWEAs	
	£m	£m	£m	£m
<b>Outright products</b>				
1 Interest rate risk (general and specific)		<b>6,057</b>		6,068
2 Equity risk (general and specific)		<b>2,441</b>		3,750
3 Foreign exchange risk		<b>1,894</b>		2,710
4 Commodity risk		—		
Options		—		
5 Simplified approach		—		
6 Delta-plus approach		<b>1,338</b>		1,166
7 Scenario approach		<b>210</b>		194
8 Securitisation (specific risk)		<b>2,009</b>		3,518
<b>9 Total</b>		<b>13,949</b>		17,406

Standardised market risk RWAs decreased £3.5bn to £13.9bn primarily due to decreased trading activity and a reduction in Structural FX.

**Table 67: MR2-A – Market risk under the internal Model Approach (IMA)**

This table shows RWAs and capital requirements under the internal models approach. The table shows the calculation of capital requirements as a function of latest and average values for each component.

	As at 31 December 2022		As at 31 December 2021	
	Own funds requirements		Own funds requirements	
	RWEAs	£m	RWEAs	£m
<b>1 VaR (higher of values a and b)</b>				
(a) Previous day's VaR (VaRt-1)		<b>6,767</b>	<b>541</b>	4,476
(b) Multiplication factor (mc) x average of previous 60 working days (VaRavg)		<b>229</b>	<b>541</b>	168
<b>2 SVaR (higher of values a and b)</b>				
(a) Latest available SVaR (SVaRt-1)		<b>9,862</b>	<b>789</b>	13,750
(b) Multiplication factor (ms) x average of previous 60 working days (sVaRavg)		<b>372</b>	<b>789</b>	849
<b>3 IRC (higher of values a and b)</b>				
(a) Most recent IRC measure		<b>2,811</b>	<b>225</b>	4,113
(b) 12 weeks average IRC measure		<b>222</b>	<b>225</b>	329
4 Comprehensive risk measure (higher of values a, b and c)		—	—	—
(a) Most recent risk measure of comprehensive risk measure		—	—	—
(b) 12 weeks average of comprehensive risk measure		—	—	—
(c) Comprehensive risk measure Floor		—	—	—
5 Other		<b>3,445</b>	<b>276</b>	5,026
<b>6 Total</b>		<b>22,885</b>	<b>1,831</b>	27,365
				2,189

Modelled market risk RWAs decreased £4.5bn to £22.9bn primarily due changes in portfolio composition which reduced a model adjustment held to capture the incremental risk associated with 10-day SVaR over and above that obtained by scaling 1-day SVaR RWAs by the square root of 10.

# Analysis of securitisation exposures

This section shows the credit and counterparty credit risks arising from securitisation positions.

Securitisation positions are subject to a distinct regulatory framework and are therefore disclosed separately.

## Key Metrics

### Total RWAs

£16.6bn

(2021: £12.1bn)

**Securitisation RWAs increased £4.5bn to £16.6bn primarily due to an increase in origination of synthetic securitisation and increased investments in traditional securitisation.**

## Analysis of securitisation exposures

**Table 68: SEC1 - Securitisation exposures in the non-trading book<sup>a</sup>**

This table shows the non-trading book securitisation exposure split by exposure type and associated regulatory capital requirements

	Institution acts as originator								Institution acts as sponsor				Institution acts as investor			
	Traditional				Synthetic				Traditional				Traditional			
	STS		Non-STS		of which SRT		of which SRT		STS		Non-STS		Synthetic		STS	
As at 31 December 2022	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
<b>1 Total exposures</b>	—	—	<b>43,452</b>	<b>4,960</b>	<b>46,969</b>	<b>46,969</b>	<b>90,421</b>	<b>55</b>	<b>8,810</b>	—	<b>8,865</b>	<b>1,352</b>	<b>24,435</b>	—	<b>25,787</b>	
2 Retail (total)	—	—	<b>16,605</b>	<b>4,902</b>	—	—	<b>16,605</b>	<b>55</b>	<b>6,717</b>	—	<b>6,772</b>	<b>1,352</b>	<b>7,537</b>	—	<b>8,889</b>	
3 Residential mortgage	—	—	<b>7,954</b>	<b>4,503</b>	—	—	<b>7,954</b>	—	<b>1,694</b>	—	<b>1,694</b>	<b>1,152</b>	<b>4,705</b>	—	<b>5,857</b>	
4 Credit card	—	—	<b>7,046</b>	—	—	—	<b>7,046</b>	—	<b>962</b>	—	<b>962</b>	—	—	—	—	
5 Other retail exposures	—	—	<b>1,605</b>	<b>399</b>	—	—	<b>1,605</b>	<b>55</b>	<b>4,061</b>	—	<b>4,116</b>	<b>200</b>	<b>2,832</b>	—	<b>3,032</b>	
6 Re-securitisation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
7 Wholesale (total)	—	—	<b>26,847</b>	<b>58</b>	<b>46,969</b>	<b>46,969</b>	<b>73,816</b>	—	<b>2,093</b>	—	<b>2,093</b>	—	<b>16,898</b>	—	<b>16,898</b>	
8 Loans to corporates	—	—	<b>23,289</b>	—	<b>43,040</b>	<b>43,040</b>	<b>66,329</b>	—	<b>70</b>	—	<b>70</b>	—	<b>13,187</b>	—	<b>13,187</b>	
9 Commercial mortgage	—	—	<b>3,558</b>	<b>58</b>	—	—	<b>3,558</b>	—	—	—	—	—	<b>521</b>	—	<b>521</b>	
10 Lease and receivables	—	—	—	—	—	—	—	—	<b>997</b>	—	<b>997</b>	—	<b>1,863</b>	—	<b>1,863</b>	
11 Other wholesale	—	—	—	—	<b>3,929</b>	<b>3,929</b>	<b>3,929</b>	—	<b>1,026</b>	—	<b>1,026</b>	—	<b>1,327</b>	—	<b>1,327</b>	
12 Re-securitisation	—	—	—	—	—	—	—	—	—	—	—	—	<b>0</b>	—	<b>0</b>	

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of securitisation exposures (continued)

**Table 69: SEC2 - Securitisation exposures in the trading book<sup>a</sup>**

This table shows the trading book securitisation exposure split by exposure type and associated regulatory capital requirements

	Institution acts as originator				Institution acts as sponsor				Institution acts as investor			
	Traditional		Synthetic	Sub-total	Traditional		Synthetic	Sub-total	Traditional		Synthetic	Sub-total
	STS	Non-STS	£m	£m	STS	Non-STS	£m	£m	STS	Non-STS	£m	£m
<b>As at 31 December 2022</b>												
<b>1 Total exposures</b>	—	—	—	—	—	—	—	—	—	79	—	79
2 Retail (total)	—	—	—	—	—	—	—	—	—	67	—	67
3 Residential mortgage	—	—	—	—	—	—	—	—	—	34	—	34
4 Credit card	—	—	—	—	—	—	—	—	—	—	—	—
5 Other retail exposures	—	—	—	—	—	—	—	—	—	33	—	33
6 Re-securitisation	—	—	—	—	—	—	—	—	—	—	—	—
7 Wholesale (total)	—	—	—	—	—	—	—	—	—	12	—	12
8 Loans to corporates	—	—	—	—	—	—	—	—	—	—	—	—
9 Commercial mortgage	—	—	—	—	—	—	—	—	—	4	—	4
10 Lease and receivables	—	—	—	—	—	—	—	—	—	2	—	2
11 Other wholesale	—	—	—	—	—	—	—	—	—	6	—	6
12 Re-securitisation	—	—	—	—	—	—	—	—	—	0	—	0

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of securitisation exposures (continued)

**Table 70: SEC3 - Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as originator or as sponsor<sup>a</sup>**

This table shows the non-trading book securitisation exposures, where the institution acts as originator or as sponsor

	Exposure values (by RW bands/deductions)						Exposure values (by regulatory approach)						RWEA (by regulatory approach)				Capital charge after cap										
	≤20% RW		>20% to 50% RW		>50% to 100% RW		>100% to <1250% RW		1250% RW/ deductions		SEC-IRBA		SEC-ERBA (including IAA)		SEC-SA		1250%/ deductions		SEC-IRBA		SEC-ERBA (including IAA)		SEC-SA		1250%/ deductions		
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	
As at 31 December 2022																											
1 Total exposures	49,095	10,031	423	190	0	47,344	7,714	4,680	—	9,488	1,689	706	—	759	135	56	—	—	—	—	—	—	—	—	—	—	
2 Traditional transactions	11,286	1,100	423	45	0	459	7,714	4,680	—	69	1,689	706	—	5	135	56	—	—	—	—	—	—	—	—	—	—	
3 Securitisation	11,286	1,100	423	45	0	459	7,714	4,680	—	69	1,689	706	—	5	135	56	—	—	—	—	—	—	—	—	—	—	
4 Retail underlying	9,763	772	183	43	—	459	5,961	4,340	—	69	1,223	655	—	5	98	52	—	—	—	—	—	—	—	—	—	—	
5 Of which STS	55	—	—	—	—	—	55	—	—	5	—	—	—	—	0	—	—	—	—	—	—	—	—	—	—	—	
6 Wholesale	1,523	328	240	2	0	—	1,753	340	—	—	466	51	—	—	37	4	—	—	—	—	—	—	—	—	—	—	
7 Of which STS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
8 Re-securitisation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
9 Synthetic transactions	37,809	8,931	—	145	0	46,885	—	—	—	9,419	—	—	—	—	754	—	—	—	—	—	—	—	—	—	—	—	
10 Securitisation	37,809	8,931	—	145	—	46,885	—	—	—	9,419	—	—	—	—	754	—	—	—	—	—	—	—	—	—	—	—	
11 Retail underlying	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12 Wholesale	37,809	8,931	—	145	0	46,885	—	—	—	9,419	—	—	—	—	754	—	—	—	—	—	—	—	—	—	—	—	
13 Re-securitisation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Note

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of securitisation exposures (continued)

**Table 71: SEC4 - Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as investor<sup>a</sup>**

This table shows the non-trading book securitisation exposures, where the institution acts as investor

	Exposure values (by RW bands/deductions)						Exposure values (by regulatory approach)						RWEA (by regulatory approach)						Capital charge after cap								
	≤20% RW		>20% to 50% RW		>50% to 100% RW		>100% to <1250% RW		1250% RW/ deductions		SEC-IRBA		SEC-ERBA (including IAA)		SEC-SA		1250%/ deductions		SEC-IRBA		SEC-ERBA (including IAA)		SEC-SA		1250%/ deductions		
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	
<b>As at 31 December 2022</b>																											
1 Total exposures	22,137	3,044	663	19	3	1,978	984	22,903	1	773	233	3,698	5	62	19	296	0										
2 Traditional transactions	22,137	3,044	663	19	3	1,978	984	22,903	1	773	233	3,698	5	62	19	296	0										
3 Securitisation	22,137	3,044	663	19	3	1,978	984	22,903	1	773	233	3,698	5	62	19	296	0										
4 Retail underlying	8,817	125	13	1	0	—	251	8,705	0	—	48	1,260	1	—	4	101	0										
5 Of which STS	1,352	—	—	—	—	—	200	1,152	—	—	20	115	—	—	2	9	—										
6 Wholesale	13,320	2,919	650	18	3	1,978	733	14,198	1	773	185	2,438	4	62	15	195	0										
7 Of which STS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—										
8 Re-securitisation	—	—	—	—	0	—	—	—	0	—	—	—	0	—	—	—	—									0	
9 Synthetic transactions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—										
1 Securitisation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—										
1 Retail underlying	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—										
1 Wholesale	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—										
1 Re-securitisation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—										

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Analysis of securitisation exposures(continued)

**Table 72: SEC5 - Exposures securitised by the institution - Exposures in default and specific credit risk adjustments<sup>a</sup>**

This table shows the outstanding nominal amounts where the institution acts as originator or as sponsor together with those exposures that are deemed as defaulted, where specific credit risk adjustments have been raised

As at 31 December 2022	Exposures securitised by the institution - Institution acts as originator or as sponsor		
	Total outstanding nominal amount		Total amount of specific credit risk adjustments made during the period
	£m	Of which exposures in default	
1 Total exposures	<b>157,914</b>	<b>1,851</b>	—
2 Retail (total)	<b>46,525</b>	<b>966</b>	—
3 residential mortgage	<b>30,340</b>	<b>904</b>	—
4 credit card	<b>7,046</b>	<b>24</b>	—
5 other retail exposures	<b>7,435</b>	<b>34</b>	—
6 re-securitisation	<b>1,704</b>	<b>4</b>	—
7 Wholesale (total)	<b>111,389</b>	<b>885</b>	—
8 loans to corporates	<b>71,683</b>	<b>151</b>	—
9 commercial mortgage	<b>32,808</b>	<b>509</b>	—
10 lease and receivables	—	—	—
11 other wholesale	<b>6,898</b>	<b>225</b>	—
12 re-securitisation	—	—	—

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

# Analysis of operational risk

This section contains details of capital requirements for operational risk, expressed as RWAs, and an analysis of the Group's operational risk profile, including events which have had a significant impact in 2022.

## Barclays PLC applies TSA for operational risk regulatory capital purposes

Total RWAs

£43.8bn

(2021: £41.8bn)

## Summary of performance in the period

During 2022, total operational risk losses remained broadly stable at £159m (2021: £163m) while the number of recorded events for 2022 (2,965) increased from the level for 2021 (2,724). The total operational risk losses for the year were mainly driven by events falling within the Execution, Delivery & Process Management and External Fraud Basel Event Type categories, which tend to be high volume but low impact events.

## Key Metrics in 2022

---

84%

of Barclays Group's net reportable operational risk events had a loss value of £50,000 or less

---

51%

of losses are from events aligned to Execution, Delivery and Process Management

---

86%

of events by number are due to External Fraud

---

46%

of losses are from events aligned to External Fraud

## Analysis of operational risk

**Table 73: OR1 - Operational risk own funds requirements and risk-weighted exposure amounts<sup>a</sup>**

The following table details the Group's operational risk RWAs. Barclays has approval from the PRA to calculate its operational risk capital requirement using TSA.

See pages 164 to 167 for information on operational risk management.

Banking activities	Relevant indicator			Own funds requirements	Risk weighted exposure amount
	Year-3	Year-2	Last year		
	£m	£m	£m	£m	£m
1 Banking activities subject to basic indicator approach (BIA)	—	—	—	—	—
Banking activities subject to standardised (TSA) / alternative standardised (ASA) approaches	<b>22,257</b>	<b>22,353</b>	<b>25,155</b>	<b>3,505</b>	<b>43,815</b>
2 Subject to TSA:	<b>22,257</b>	<b>22,353</b>	<b>25,155</b>		
3 Subject to ASA:	—	—	—		
5 Banking activities subject to advanced measurement approaches AMA	—	—	—	—	—

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

Capital set aside for operational risk is intended to cover the losses resulting from human errors, inadequate or failed internal processes and systems or external events. To assess minimum capital requirements for operational risk, the standardised approach (TSA) is applied. Under TSA, banks are required to hold regulatory capital for operational risk equal to the annual average, calculated over a rolling three-year period, of the relevant income indicator, multiplied by a conversion percentage factor specific to business lines in accordance with the regulatory requirements.

# Analysis of operational risk (continued)

## Operational risk profile

Within operational risk, there are a large number of smaller value risk events. In 2022, 84% (2021: 84%) of the Group's reportable operational risk events by volume had a value of less than £50,000 each. Cumulatively, events under this £50,000 threshold accounted for only 31% (2021: 28%) of the Group's total net operational risk losses. A small proportion of operational risk events have a material impact on the financial results of the Group.

## Operational risk events by BASEL event category<sup>a</sup>

The analysis below presents the Group's operational risk events by Basel event category:



### Note

a The data disclosed includes operational risk losses for reportable events having net impact of > £10,000 and excludes events that are conduct or legal risk, aggregate and boundary events. A boundary event is an operational risk event that results in a credit risk impact. Due to the nature of risk events that keep evolving, prior year losses have been updated.

- External Fraud remains the category with the highest frequency of events at 86% of total events in 2022 (2021: 84%). Impacts from events arising from External Fraud decreased in 2022 to £73m (2021: £82m) and accounted for 46% of total 2022 losses (2021: 51%). In this category, high volume, low value events are driven by transactional fraud often related to debit and credit card usage.
- Execution, Delivery and Process Management impacts increased to £84m (2021: £77m) and accounted for 53% (2021: 47%) of total operational risk losses. The events in this category are typical of the banking industry as a whole where high volumes of transactions are processed on a daily basis, mapping mainly to Barclays Transaction Operations risk type. The overall frequency of events in this category remained stable at 14% of total events by volume (2021: 14%).

Investment continues to be made in improving the control environment across the Group. Particular areas of focus include new and enhanced fraud prevention systems and tools to combat the increasing level of fraud attempts being made whilst minimising disruption to genuine transactions. Fraud remains an industry wide threat and the Group continues to work closely with external partners on various prevention initiatives.

Operational Resilience remains a key area of focus for the Group, having been reinforced in recent years due to potential operational disruption from the COVID-19 pandemic. The Group continues to strengthen its resilience approach across its most important business services to improve recoverability and assurance thereof by reviewing scenarios based on current global climates.

Operational risk associated with cybersecurity remains a top focus for the Group. The sophistication of threat factors continues to grow as noted by multiple external risk events observed throughout the year. Ransomware attacks across the global Barclays supplier base were observed and we worked closely with the affected suppliers to manage potential impacts to the Group and its clients and customers. The Group's cybersecurity events were managed within its risk tolerances and there were no material loss events associated with cybersecurity recorded within the event categories above.

For further information, refer to the operational risk management section.

# Risk management strategy, governance and risk culture

In this section we describe the approaches and strategies for managing risks at Barclays Group. It contains information on how risk management functions are organised, how they maintain their independence and foster a sound risk culture throughout the Barclays Group.

The Enterprise Risk Management Framework (ERMF) sets out the tools, techniques and organisational arrangements to enable material risks to be identified and understood, see pages [93](#) to [94](#)

A discussion of how our risk management strategy is designed to foster a sound risk culture is contained on pages [97](#)

A governance structure, encompassing the organisation of the function as well as executive and Board committees, supports the continued application of the ERMF. This is discussed in pages [95](#) to [96](#)

Pages [98](#) to [103](#) describe group-wide risk management tools that support risk management, the Barclays Group ExCo and the Board in discharging their responsibilities, and how they are applied in the strategic planning cycle.

# Risk management strategy, governance and risk culture

## Barclays Group's risk management strategy

This section introduces Barclays Group's approach to managing and identifying risks, and for fostering a sound risk culture.

### Enterprise Risk Management Framework (ERMF)

The ERMF outlines the highest level principles for risk management by setting out standards, objectives and key responsibilities of different groups of employees of the Group. It is approved by the Barclays PLC Board on recommendation of the Group Board Risk Committee and Group Chief Risk Officer.

The ERMF sets out:

- principal risks faced by the Group, which guides the organisation of risk management processes
- risk appetite requirements. This helps define the level of risk we are willing to undertake in our business
- risk management and segregation of duties: The ERMF clearly defines a Three Lines of Defence model
- roles and responsibilities for key risk management and governance structure: The accountabilities of the Group CEO, Group CRO and other senior managers, as well as overview of Barclays PLC committees.

The ERMF is complemented by frameworks, policies and standards that are mainly aligned to individual principal risks:

- frameworks cover high level principles guiding the management of principal risks, and set out details of which policies are needed, and high level governance arrangements
- policies set out the control objectives and high level requirements to address the key principles articulated in their associated frameworks. Policies state 'what' those within scope are required to do
- standards set out the detail of the control requirements to ensure the control objectives set by the policies are met.

### Segregation of duties - the "Three Lines of Defence" model

The ERMF sets out clear lines of defence model. All colleagues are responsible for understanding and managing risks within the context of their individual roles and responsibilities, as set out below.

- The First line comprises all employees engaged in the revenue generating and client facing areas of the Group and all associated support functions, including Finance, Operations, Treasury, and Human Resources etc. The first line is responsible for identifying and managing the risks in which they are engaged, operating within applicable limits, and escalating risk events or issues as appropriate. Employees in the first line have primary responsibility for their risks and their activities are subject to oversight from the relevant parts of the second and third lines.
- The Second line is comprised of the Risk and Compliance functions. The role of the second line is to establish the limits, rules and constraints, and the frameworks, policies and standards under which all activities shall be performed, consistent with the risk appetite of the Group, and to oversee the performance of the firm against these limits, rules and constraints. Controls for first line activities, will ordinarily be established by the control officers operating within the control framework of the firm. These will remain subject to oversight by the second line.
- The Third line of defence is Internal Audit, who are responsible for providing independent assurance over the effectiveness of governance, risk management and controls over current, systemic and evolving risks.
- The Legal function provides support to all areas of the bank and is not formally part of any of the three lines of defence. The Legal function is responsible for the identification of all Legal and Regulatory Risks. Except in relation to the legal advice it provides or procures, it is subject to second line oversight with respect to its own operational and conduct risks, as well as with respect to the Legal and Regulatory Risks to which the bank is exposed.

### Principal risks

The ERMF identifies nine principal risks (see managing risk in the strategic report section) namely: credit risk, market risk, treasury and capital risk, climate risk, operational risk, model risk, conduct risk, reputation risk and legal risk. Note that climate risk was added in January 2022; see page 98 for more information.

Each of the principal risks is overseen by an accountable executive within the Group who is responsible for overseeing and/or assigning responsibilities for the framework, policies and standards that set out associated responsibilities and expectations, and detail the related requirements around risk management. In addition, certain risks span across more than one principal risk.

The following table summarises the principal risks and their definitions.

## Risk management strategy, governance and risk culture (continued)

### Principal Risks

- **Credit risk:** The risk of loss to the Group from the failure of clients, customers or counterparties, including sovereigns, to fully honour their obligations to the Group, including the whole and timely payment of principal, interest, collateral and other receivables.
- **Market risk:** The risk of loss arising from potential adverse changes in the value of the Group's assets and liabilities from fluctuation in market variables including, but not limited to, interest rates, foreign exchange, equity prices, commodity prices, credit spreads, implied volatilities and asset correlations.
- **Treasury and Capital risk:**
  - **Liquidity risk:** The risk that the Group is unable to meet its contractual or contingent obligations or that it does not have the appropriate amount, tenor and -composition of funding and liquidity to support its assets.
  - **Capital risk:** The risk that the Group has an insufficient level or composition of capital to support its normal business activities and to meet its regulatory capital requirements under normal operating environments or stressed conditions (both actual and as defined for internal planning or regulatory testing purposes). This also includes the risk from the Group's pension plans.
  - **Interest rate risk in the banking book:** The risk that the Group is exposed to capital or income volatility because of a mismatch between the interest rate exposures of its (non-traded) assets and liabilities.
- **Climate Risk:** The impact on Financial and Operational Risks arising from climate change through, physical risks, risks associated with transitioning to a lower carbon economy and connected risks arising as a result of second order impacts of these two drivers on portfolios.
- **Operational risk:** The risk of loss to the Group from inadequate or failed processes or systems, human factors or due to external events where the root cause is not due to Credit or Market risks.
- **Model risk:** The potential for adverse consequences from decisions based on incorrect or misused model outputs and reports.
- **Conduct risk:** The risk of poor outcomes or harm to customers, clients and markets, arising from the delivery of Barclays products and services.
- **Reputation risk:** The risk that an action, transaction, investment, event, decision, or business relationship will reduce trust in the firm's integrity and/or competence.
- **Legal risk:** The risk of loss or imposition of penalties, damages or fines from the failure of the Group to meet its legal obligations including regulatory or contractual requirements.

### Risk appetite

Risk appetite is defined as the level of risk which the Group is prepared to accept in carrying out its activities. It provides a basis for ongoing dialogue between management and Board with respect to the Group's current and evolving risk profile, allowing strategic and financial decisions to be made on an informed basis.

Risk appetite is approved by the Barclays PLC Board in aggregate and disseminated across legal entities and businesses, supported by limits to enable and control specific exposures and activities that have material concentration risk implications.

# Risk management strategy, governance and risk culture (continued)

## Roles and responsibilities in the management of risk

Certain roles within the Group carry specific responsibilities and accountabilities with respect to risk management and the ERMF. These include the following:

- Group Chief Executive Officer (CEO): The Group CEO is accountable for leading the development of the Group's strategy and business plans that align to the Group's Purpose, Values and Mindset within the approved Risk Appetite. The CEO also leads, manages and organises the Executive Management to execute the strategy and business plans, and manages the Group's financial and operational performance within the approved Risk Appetite. Importantly, the Group CEO appoints senior risk owners including the Group Chief Risk Officer, the Group Chief Compliance Officer, the Group General Counsel, and relevant members of Executive Management.
- Group Chief Risk Officer (CRO): The Group CRO leads the Risk Function across Barclays Group. In addition to developing and maintaining the ERMF, the Group CRO:
  - is accountable for the oversight of each of the Credit Risk, Market Risk, Treasury and Capital Risk, Operational Risk, Climate Risk and Model Risk Frameworks
  - manages the risk appetite setting processes including preparing and recommending to the Barclays PLC Board Risk Committee the Group risk appetite
  - is accountable for the reporting on the firm's risk positions for the above Principal Risks, adherence to risk appetite and enterprise-wide risk and control to relevant stakeholders including the Board and its committees, regulators and other stakeholders
  - has the power to identify and assign actions that need to be taken by the firm in order to comply with the ERMF and remain within the risk appetite, suspend or stop decisions as necessary, and escalate unresolved concerns directly to the Group CEO and/or the Chair of appropriate Board Committees
  - is accountable for the final approval of lending or investing decisions either directly or via delegated authority.
- Group Chief Compliance Officer: The Group Chief Compliance Officer is accountable to the Group CEO to lead the Compliance Function. Specific accountabilities include:
  - leadership and oversight of the Compliance function for the Group
  - overseeing that the Group's conduct and reputation risks are effectively managed and escalated to the Board where appropriate
  - monitoring compliance with the conduct and reputation risk frameworks
  - inputting into compensation structures, objectives and performance management of employees who can expose the Group to significant risk
  - oversight of the whistleblowing process within the Group; and
  - using mandate to access any part of the legal entity and any information, bringing to the attention of line and senior management or the Board, as appropriate, any situation that is of concern from a conduct or reputation risk management perspective that could materially violate the approved risk appetite guidelines.
- Group General Counsel: The Group General Counsel receives delegated authority from the Group CEO and is required to:
  - develop and maintain the legal Risk Management Framework, define legal Risk Policies, and develop the Group-wide risk appetite for legal risk.
  - escalate any unresolved Legal Risk concerns directly to the Group CEO, and/or Chair of appropriate Board Committees
- Group Chief Controls Officer: The Chief Controls Office, led by the Group Chief Controls Officer, sits in the First Line of Defence and is responsible for overseeing the practical implementation of operational, conduct and reputation risk controls and methodologies across the Group. To that end the Chief Controls Officer defines a control framework and oversees its execution. The control framework directs businesses to manage risk exposure within approved operational risk appetites, to record risk events and issues, and to complete risk and control self-assessments.

## Senior Managers Regime

A number of members of the Barclays PLC Board, the majority of the Group Executive Committee and a limited number of specified senior individuals are also subject to additional rules included within the Senior Managers Regime (SMR), which clarifies their accountability and responsibilities. Those designated with a Senior Manager Function under the SMR are held to four specific rules of conduct in which they must:

- take reasonable steps to establish that the business of the Group for which they are responsible is controlled effectively
- take reasonable steps to establish that the business of the Group for which they are responsible complies with relevant regulatory requirements and standards of the regulatory system
- take reasonable steps to make certain that any delegation of their responsibilities is to an appropriate individual and that they oversee the discharge of the delegated responsibilities effectively
- disclose appropriately any information to the FCA or PRA, of which they would reasonably expect notice.

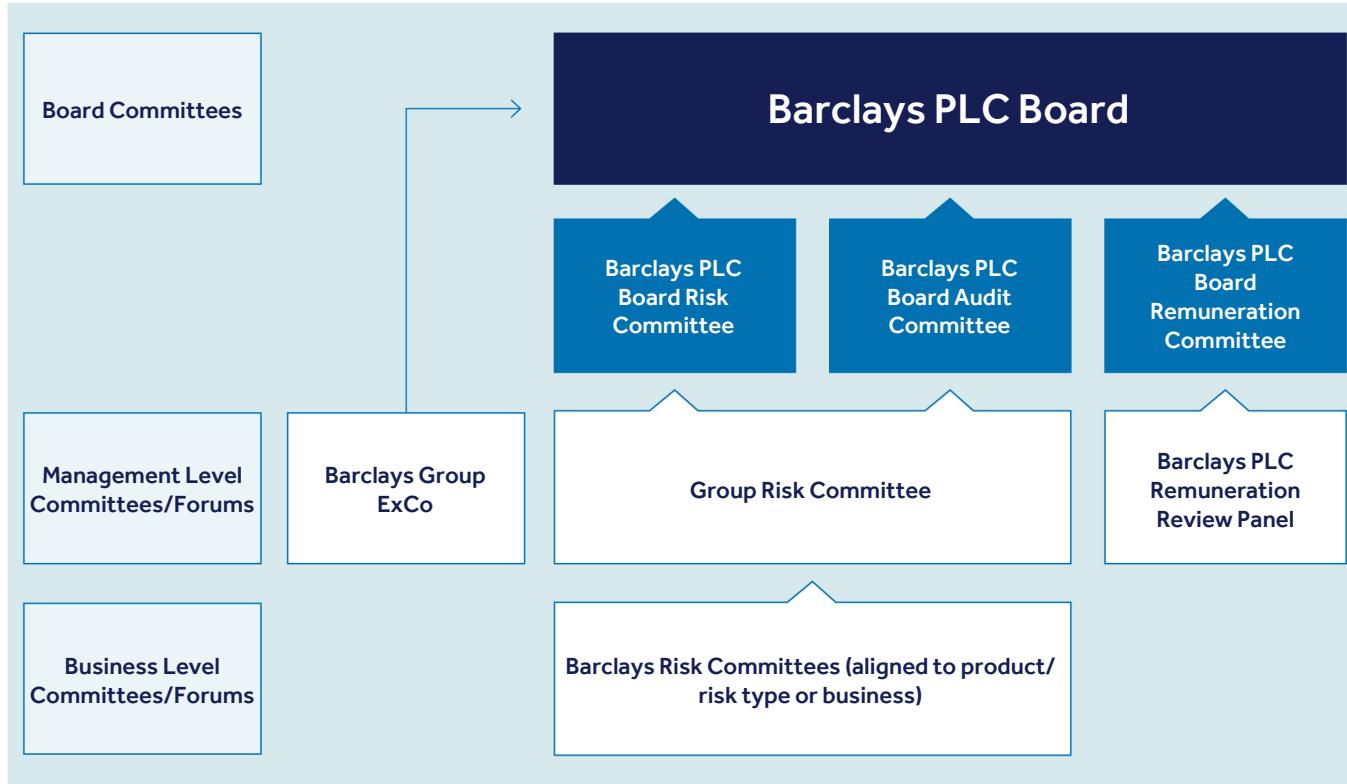
## Risk committees

Various committees also fulfil important roles and responsibilities. Barclays various risk committees consider risk matters relevant to their business, and escalate as required to the Group Risk Committee (GRC), whose Chair, in turn, escalates to the Barclays PLC Board Committees and the Barclays PLC Board.

The Barclays Board receives regular information on the risk profile of the bank, and has ultimate responsibility for risk appetite and capital plans.

In addition to setting the risk appetite of the Group, the Board is responsible for approving the ERMF, and reviewing reputation risk matters.

## Risk management strategy, governance and risk culture (continued)



Further, there are two Board-level committees which oversee the application of the ERMF and implementation of key aspects, the Barclays PLC Board Risk Committee (BRC) and the Barclays PLC Board Audit Committee (BAC). Membership of these committees is comprised solely of non-executive directors providing independent oversight and challenge. Additionally, the Barclays PLC Board Remuneration Committee oversee pay practices focusing on aligning pay to sustainable performance.

- The Barclays PLC Board Risk Committee (BRC): The BRC monitors the Group's risk profile against the agreed appetite. Where actual performance differs from expectations, the actions taken by management are reviewed to ascertain that the BRC is comfortable with them. The BRC also reviews certain key risk methodologies, the effectiveness of risk management, and the Group's risk profile, including the material issues affecting each business portfolio and forward risk trends. The committee also commissions in-depth analyses of significant risk topics, which are presented by the Group CRO or senior risk managers.
- The Barclays PLC Board Audit Committee (BAC): The BAC receives regular reports on the effectiveness of internal control systems, quarterly reports on material control issues of significance, and quarterly papers on accounting judgements (including impairment), and a quarterly review of the adequacy of impairment allowances, relative to the risk inherent in the portfolios, the business environment, and Barclays policies and methodologies.
- The Barclays PLC Board Remuneration Committee (RemCo): The RemCo receives proposals on ex-ante and ex-post risk adjustments to variable remuneration based on risk management performance including events, issues and the wider risk profile. These inputs are considered in the setting of performance incentives.

The terms of reference and additional details on membership and activities for each of the principal Board committees are available from the corporate governance section of the Barclays website at: <https://home.barclays/who-we-are/our-governance/board-committees/>

The GRC is the most senior executive body responsible for reviewing and monitoring the risk profile of the Group. This includes coverage of all principal risks (with the exception of reputation risk matters), and any other material risks, to which the Group is exposed. The GRC reviews and recommends the proposed risk appetite and relative limits to the BRC. The committee covers all business units and legal entities with the Group and incorporates specific coverage of Barclays Bank Group.

### Coverage of risk reports to executive and Board risk committees

Chairs of Risk Committees at executive and Board levels specify the information they require to discharge their duties. Advance committee calendars are agreed with the committee chair. Topics that are regularly covered include:

- risk profile, across types
- risk appetite, results of stress tests and perspective on medium-term plans and strategy
- political and economic developments, and their potential impacts on Barclays and its customers
- impacts of key market developments on the risk profile of the Group
- risk management approaches and their effectiveness

Reports are presented by appropriate members of senior management, including CROs and heads of businesses. Occasionally subject matter experts are delegated to present specific topics of interest. Report presenters are responsible for following processes for creating reports that include appropriate controls and that these controls are operated effectively.

# Risk management strategy, governance and risk culture (continued)

## Frameworks, policies and standards

Frameworks, policies and standards set out the governance around Barclays' activities:

- frameworks cover high level principles guiding the management of principal risks, and set out details of what policies are needed, and high level governance arrangements.
- policies set out the control objectives and high level requirements to address the key principles articulated within their associated frameworks. Policies state 'what' those within scope are required to do.
- standards set out the detail of the control requirements to ensure the control objectives set by the policies are met.

The Barclays Group CRO is accountable for the development and implementation of frameworks, policies and associated standards for credit, market, treasury and capital, climate, operational and model risks. The Group Chief Compliance Officer is likewise accountable for conduct risk and reputation risk, and the Group General Counsel for legal risk in relation to the relevant frameworks, policies and associated standards. The Group CRO and Group Chief Compliance Officer have the right to require amendments to any frameworks, policies or standards in the Group, for any reason.

Frameworks, policies and standards are subject to minimum annual review, and challenge by the relevant functions.

## Assurance

Assurance is undertaken to assess the control environment. The Controls Assurance Standard defines the requirements for controls assurance and controls testing.

The Risk function carries out conformance reviews to assess the implementation of, and adherence to, principal risk framework and component policies. Similar activities are undertaken in the first line by the Chief Controls Office in respect of certain policies, standards, controls, or processes.

Internal Audit is responsible for the independent review of risk management and the control environment. Its objective is to provide reliable, valued and timely assurance to the Board and executive management over the effectiveness of controls, mitigating current and evolving material risks and thus enhancing the control culture within the Group. The Board Audit Committee reviews and approves Internal Audit's plans and resources, and evaluates the effectiveness of Internal Audit. An assessment by independent external advisers is also carried out periodically.

## Effectiveness of risk management arrangements

The ERMF and its component principal risks are subject to control testing assurance reviews to confirm its effectiveness or identify issues to be mitigated. Management and the Board are satisfied that the design of the ERMF and its components are appropriate given the risk profile of the Group.

## Learning from our mistakes

Learning from mistakes is central to Barclays' values and mindset, demonstrating a commitment to excellence and taking accountability for failure as well as success. The Group seeks to learn lessons on a continuous basis to support achievement of strategic objectives, increase operational excellence and to meet commitments to stakeholders, including colleagues, customers, shareholders and regulators.

Barclays has implemented a lessons learned process, setting out requirements for the completion of lessons learned assessments in response to internal and external risk events. The approach is aligned to the Three Lines of Defence model (see page 93), with businesses and functions accountable for undertaking lessons learned assessments; the Second Line providing oversight and challenge; and independent review by Internal Audit.

Core components of the lessons learned approach include:

- defined triggers for when lessons learned assessments must be completed
- requirements and guidance for the completion of root cause analysis to identify the causes of risk events impacting the Group
- standardised templates to report conclusions consistently to relevant management forums and committees
- use of a central system to record completed lessons learned assessments and to facilitate sharing across the Group.

## Barclays' risk culture

Risk culture can be defined as the norms, attitudes and behaviours related to risk awareness, risk taking and risk management. This is reflected in how the Group identifies, escalates and manages risk matters.

Barclays is committed to maintaining a robust risk culture in which:

- management expect, model and reward the right behaviours from a risk and control perspective
- colleagues identify, manage and escalate risk and control matters, and meet their responsibilities around risk management.

The Group CEO works with the Executive Management to embed a sound risk culture within the firm, with particular regard to the identification, escalation and management of risk matters, in accordance with the ERMF. Specifically, all employees regardless of their positions, functions or locations must play their part in the Group's risk management. Employees are required to be familiar with risk management policies which are relevant to their responsibilities, know how to escalate actual or potential risk issues, and have a role-appropriate level of awareness of the risk management process as defined by the ERMF.

## Our Code of Conduct – the Barclays Way

Globally, all colleagues must attest to the "Barclays Way", our Code of Conduct, and comply with all frameworks, policies and standards applicable to their roles. The Code of Conduct outlines the Purpose, Values and Mindset which govern our 'Barclays Way' of working across our business globally. It constitutes a reference point covering all aspects of colleagues' working relationships, and provides guidance on working with other Barclays employees, customers and clients, governments and regulators, business partners, suppliers, competitors and the broader community. See <https://home.barclays/sustainability/esg-resource-hub/statements-and-policy-positions/> for more details.

# Risk management strategy, governance and risk culture (continued)

## Group-wide risk management tools

To support Group-wide management of risks, the Board uses risk appetite, mandate and scale, and stress testing as key inputs in the annual planning cycle, including setting of the Group's strategy. The following describes in further detail Group-wide risk management tools used as part of this process.

### Risk appetite

Risk appetite is defined as the level of risk which the Group is prepared to accept in carrying out its activities.

Risk appetite provides a basis for ongoing dialogue between management and Board with respect to the Group's current and evolving risk profile and enables strategic and financial decisions to be made on an informed basis.

Thus, the risk appetite setting process aims to consider the material risks Barclays is exposed to under its business plans.

The risk appetite aims to:

- specify the level of risk we are willing to take to enable specific risk taking activities
- consider all principal risks individually and, where appropriate, in aggregate
- consistently communicate the acceptable level of risk for different risk types.

Risk appetite is approved by the Board and must be formally reviewed at least annually in conjunction with the Medium Term Planning (MTP) process.

Risk appetite is formally expressed by the Board as the acceptable level of deterioration in a set of key financial parameters under a severe but plausible stress scenario defined as the internal stress test. For 2022, the key financial parameters are listed below.

Measure relevant to strategy and risk	Link between strategy and risk profile
<b>Profit after tax</b>	Fundamental performance of Barclays Group and underpins the Group's capacity to make capital distributions.
<b>Common Equity Tier 1 (CET1)</b>	Monitors capital adequacy in relation to capital plan, targets and regulatory hurdle rates.
<b>Liquidity Risk Appetite</b>	Monitors and protects the liquidity position of the bank and its ability to meet financial obligations under normal conditions and in a stress.

Based on the specified risk appetite, the Group develops both stress loss and mandate & scale limits to control specific activities.

Reflecting the increasing risks associated with climate change and following the Board Risk Committee's decision that climate risk would become a principal risk from 2022, a further risk appetite constraint has been introduced establishing a direct link between our strategic plans and risk appetite supporting Barclays' ambition to reduce emissions to net zero by 2050.

Measure relevant to strategy and risk	Link between strategy and risk profile
<b>Climate Risk</b>	Protects the long term climate ambitions of the bank and its ability to meet disclosed targets.

### Stress loss limits

Stress loss limits are derived from the results of the internal stress test. Limits are a reflection of the losses absorbed by the stressed capital plans within risk appetite and provide a crucial link between the strategic planning process and risk appetite. Stress loss limits are conservatively assumed to be additive but in practice stresses may not happen at the same time. Risk management may over-allocate stress loss limits where they deem it unlikely all businesses will require full limit utilisation at the same time. Aggregate utilisation across all risk types is monitored against both the aggregate of stress loss limits and losses absorbed by the stressed capital plan. It is the role of Risk to manage the over-allocation within capital constraints.

### Mandate and scale

Mandate and scale is a risk management approach that seeks to formally review and control business activities to make sure that they are within mandate (i.e. aligned with expectations), and are of an appropriate scale (relative to the risk and reward of the underlying activities) based on an appropriately detailed system of limits. The use of limits and triggers helps mitigate the risk of concentrations that could be out of line with expectations, and which may lead to unexpected losses of a scale detrimental to the stability of the relevant business line or the Group.

For example, for leveraged finance and commercial property finance portfolios, there are series of limits in place to control exposure within each business and geographic sector. To further align limits to the underlying risk characteristics, the mandate and scale limits differentiate between types of exposure. There are, for example, individual limits for property investment and property development.

The most material stress loss and mandate and scale limits are designated as A-level (Board level) and B-Level (Group level). All B-level and lower limits are set by the Risk function. Business limits are approved by the relevant business risk teams and are reportable to the relevant risk committee. Unapproved excesses of limits may result in performance management and disciplinary consequences. All limits are subject to escalation and governance requirements.

## Risk management strategy, governance and risk culture (continued)

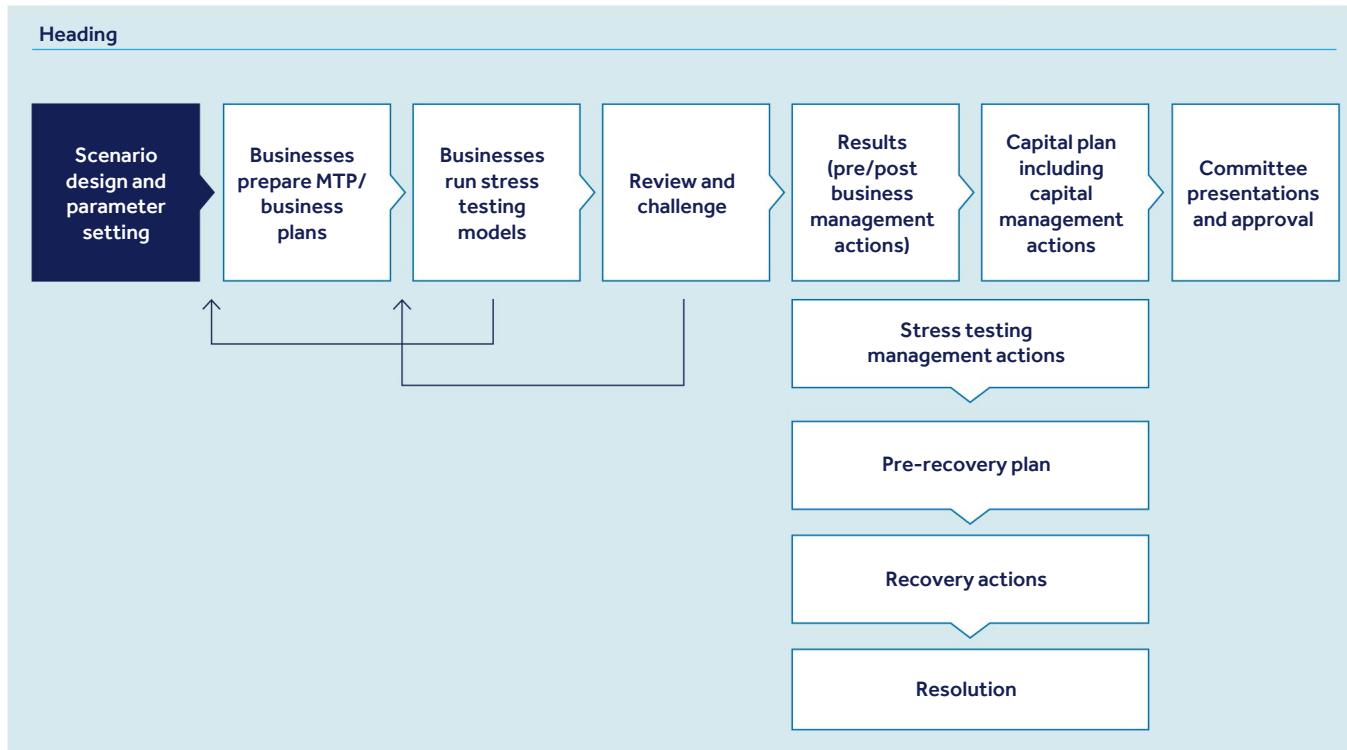
There is explicit identification of the exposures that are captured by limits and any material exclusion must be agreed. Limits are reviewed at least annually. The factors taken into consideration when setting the limit include:

- the Group risk appetite
- current exposure/MTP forecasts
- risk return considerations
- senior risk management judgement.

### Internal stress testing

Group-wide stress tests are integrated within the MTP process and annual review of risk appetite. They aim to check that the Group's financial position and risk profile provide sufficient resilience to withstand the impact of severe economic stress, allowing the Group to make changes to plans as necessary. Group-wide stress testing process is supported by a Capital Stress Testing Standard which sets out the minimum control requirements and defines clear roles and responsibilities across businesses and central functions. The results also feed into the Group's internal capital adequacy assessment process (ICAAP).

The following diagram outlines the key steps in Group-wide stress testing process.



Group-wide stress testing process begins with a detailed scenario setting process, with the GRC and BRC agreeing the scenario themes to be tested. The scenarios are designed to be severe but plausible, and relevant to the business. A wide range of macroeconomic parameters are defined (such as GDP, unemployment, house prices, FX and interest rates), which allows the impact of the scenarios across the wide range of products and portfolios to be assessed across the Group.

Businesses prepare detailed MTP business plans which form the baseline for the stress test assessment. The stress test process aims to support this level of complexity, using bottom-up analysis across all of our businesses including both on- and off-balance sheet positions, and combines running statistical models with expert judgement. An overview of the stress testing approach by Principal Risk is provided in the table below. As part of their stress test assessments, businesses are also required to identify potential management actions that could be taken to mitigate the impact of stress and document these within their results.

The governance process in place includes a detailed review of stress testing methodology, assumptions, judgements, results and management actions within each business (including sign-off by business CROs and CFOs) and by central functions.

The businesses stress test results are consolidated to form a Group view which is used to assess the stress impact on the Group's capital plans. For the latter, capital management actions such as reducing dividends or redeeming certain capital instruments may be considered. The Group also maintains recovery plans which take into consideration actions to facilitate recovery from severe stress or an orderly resolution. These actions are additional to those included in Group-wide stress testing results.

The overall stress testing results are reviewed and signed off by the Board, following review by the Stress Testing Steering Committee, the GRC and the BRC.

Summary of methodologies for Group-wide stress testing by risk type is shown below.

## Risk management strategy, governance and risk culture (continued)

Principal Risk	Stress testing approach
<b>Credit risk</b>	<ul style="list-style-type: none"> <li>▪ Credit risk impairment: For retail portfolios businesses use statistical models to establish a relationship between IFRS 9 impairment loss levels and key macroeconomic parameters such as GDP, inflation and unemployment, incorporating credit quality migration analysis to estimate stressed levels. In addition, house price reductions (for mortgages), increased customer drawdowns (for revolving facilities) and higher interest rates impacting customer affordability lead to higher losses which also contribute to increased impairment levels. For wholesale portfolios the stress shocks on credit risk drivers (PDs, LGDs and EADs) are primarily calibrated using historical and expected relationships with key macro economic parameters</li> <li>▪ Counterparty credit risk losses: The scenarios include market risk shocks that are applied to determine the market value under stress of contracts that give rise to Counterparty Credit Risk (CCR). Counterparty losses, including from changes to the Credit Valuation Adjustment and from defaults, are modelled based on the impact of these shocks as well as using stressed credit risk drivers (PDs and LGDs). The same approach is used to stress the market value of assets held as available for sale or at fair value in the banking book</li> <li>▪ Credit risk weighted assets: The impact of the scenarios is calculated via a combination of business volumes and using similar factors to impairment drivers above, as well as the regulatory calculation and the level of pro-cyclicality of underlying regulatory credit risk models.</li> </ul>
<b>Market risk</b>	<ul style="list-style-type: none"> <li>▪ Trading book losses: Market risk factors on the balance sheet are stressed using specific market risk shocks (same as used for the CCR analysis, above). The severity of the shocks applied are dependent on the liquidity of the market under stress, e.g. illiquid positions are assumed to have a longer holding period than positions in liquid markets.</li> </ul>

## Risk management strategy, governance and risk culture (continued)

Principal Risk	Stress testing approach
<b>Treasury and Capital Risk</b>	<p>The analysis of treasury and capital risk also contributes to the estimate of stressed income and costs:</p> <ul style="list-style-type: none"> <li>▪ Stress impact on non-interest income is primarily driven by lower projected business volumes and hence lower income from fees and commissions</li> <li>▪ Impact on net interest income is driven by stressed margins, which depend on the level of interest rates under stress as well as funding costs, and on stressed balance sheet volumes. This can be partly mitigated by management actions that may include repricing of variable rate products, taking into account interbank lending rates under stress</li> <li>▪ The impact on costs is mainly driven by business volumes, exchange rates, and inflation with management actions to partly offset profit reductions (due to impairment increases and decreases in income) such as headcount reductions and lower performance costs.</li> </ul> <p><b>Capital Risk:</b> Capital risk is assessed by taking all modelled risk impacts as part of the stress test (as listed above) into consideration when assessing Barclays Group's ability to withstand a severe stress. The stressed results are considered against internally agreed risk appetite levels but also regulatory minima and perceived market expectations. The MTP can only be agreed by the Board if this is within the agreed risk appetite levels under stress.</p> <p>The IAS19 position of pension funds is also stressed as part of the capital risk assessment, taking into account key economic drivers impacting future obligations (e.g. long-term inflation and interest rates) and the impact of the scenarios on the value of fund assets.</p> <p><b>Liquidity Risk:</b> Liquidity risk is assessed through internal liquidity stress testing (Liquidity Risk Appetite (LRA)) and regulatory stress testing (Barclays' Liquidity Coverage Ratio ("LCR") and Net Stable Funding Ratio ("NSFR")). The Bank analyses specific liquidity risk drivers such as wholesale funding and contingent funding needs based on the below scenarios:</p> <ul style="list-style-type: none"> <li>▪ Barclays idiosyncratic scenario: Barclays faces a loss of market confidence while the market overall is not impacted</li> <li>▪ market wide scenario: Market-wide stress leading to increased market volatility and loss of confidence</li> <li>▪ combined scenario: A simultaneous Barclays idiosyncratic and Market wide liquidity stress scenario</li> <li>▪ long term LRA scenario: All financial institutions are impacted by a financial market-wide stress based on a prolonged global recession</li> <li>▪ Liquidity Coverage Ratio: Regulatory prescribed 30-day liquidity metric.</li> </ul> <p><b>Interest Rate Risk in the Banking Book (IRRBB):</b> Risk assessment for interest rate risk on the banking books is driven by the economic risk of the underlying positions but also considers the accounting treatment:</p> <ul style="list-style-type: none"> <li>▪ earnings based measures are used to assess risk to net interest income from positions in customer banking books, hedging portfolios (held to mitigate those risks), and Treasury investment and funding activities</li> <li>▪ value based measures are used to assess risk to the fair value of assets held as part of investments in the liquid asset portfolio and associated risk management portfolios.</li> </ul> <p>Risk under stress is assessed by considering:</p> <ul style="list-style-type: none"> <li>▪ the impact on net interest income resulting from stressed product margins and volumes, which are dependent on the level of interest rates and funding costs under stress conditions. This can be partly mitigated by management actions, which may include repricing of variable rate products taking into account interbank lending rates under stress.</li> <li>▪ securities in the liquid asset portfolio are subject to several market risk stresses designed to estimate potential losses in various scenarios. This includes, but is not limited to, an annual internal stress test, regulatory stress tests as well as various ad hoc exploratory exercises.</li> </ul>

## Risk management strategy, governance and risk culture (continued)

Principal Risk	Stress testing approach
<b>Operational risk</b>	<ul style="list-style-type: none"> <li>▪ Operational risk loss projections include the effect of the stressed macroeconomic scenario as well as the impact of forward-looking idiosyncratic risk events under stress. Operational risk is also part of the reverse stress testing framework through scenario assessments of such idiosyncratic events.</li> </ul>
<b>Model risk</b>	<ul style="list-style-type: none"> <li>▪ The Independent Valuation Unit (IVU) reviews and approve models for use in stress tests. IVU may require compensating controls, in the form of overlays to address model deficiencies. IVU may also reject a model that is not conceptually sound, or for which the marginal impact of findings (in aggregate or on a stand-alone basis) on model output is <math>\geq 30\%</math>.</li> </ul>
<b>Conduct risk</b>	<ul style="list-style-type: none"> <li>▪ Redress/Remediation: Businesses review existing provisions and include additional provisions in MTP if required.</li> <li>▪ Litigation: Irrespective of whether a provision had been recognised, stress projections of future losses for conduct risk matters managed by legal are estimated by exercising expert judgment on a case by case basis (material matters) or on a portfolio basis (non-material matters) in accordance with the methodology provided by regulators ( PRA).</li> </ul>
<b>Reputation risk</b>	<ul style="list-style-type: none"> <li>▪ Reputation risk is not quantified or stressed.</li> </ul>
<b>Legal risk</b>	<ul style="list-style-type: none"> <li>▪ Legal risk is not quantified or stressed.</li> </ul>

In 2022, the internal Group-wide stress testing exercise was run as part of the MTP process, assessing Barclays' vulnerabilities under a severe but plausible scenario. The scenario was informed by the Bank of England 2022 regulatory stress test (see below BoE Annual Cyclical Scenario for more details).

The Group-wide stress testing framework also includes reverse stress testing techniques, which aim to identify the circumstances under which the Group's business model would no longer be viable, leading to a significant change in business strategy and to the identification of appropriate mitigating actions. Examples include extreme macroeconomic scenarios, or specific idiosyncratic events, covering both operational risk and capital/liquidity events. Reverse stress testing is used to help support ongoing risk management and is an input to our recovery planning process.

### Business and risk type specific stress tests

Stress testing techniques at portfolio and product level are also used to support risk management. For example, portfolio management in the US Cards business employs stressed assumptions of loss rates to determine profitability hurdles for new accounts. In the UK Mortgage portfolio, affordability thresholds incorporate stressed estimates of interest rates. In the Corporate and Investment Bank, global scenario testing is used to gauge potential losses that could arise in conditions of a severe but plausible market stress. Stress testing is also conducted on positions in particular asset classes, including interest rates, commodities, equities, credit and foreign exchange.

### Regulatory stress testing

In addition to running internal Barclays Group-wide stress tests, Barclays Group also runs regulatory stress tests with the Bank of England (BoE) as its main regulator:

- the BoE announced in Q2 the results of the Climate Stress undertaken in 2021 which considered the impact of three climate scenarios covering both "transition" and "physical" risks. This was an exploratory exercise across the banking industry with a focus on the banking book, the aim was to size financial exposures to climate-related risks, understand the challenges to business models from these risks and enhance management of climate-related financial risks. The learning nature of the exercise was specifically stated, acknowledging climate is in its infancy hence it was not used to set capital requirements.
- due to the Ukraine Crisis, the Annual Cyclical Scenario (ACS) usually scheduled in H1 has been postponed to H2 in order to help lenders focus on managing the financial markets disruption associated with the invasion. The scenario was released at the end of Q3 and features rising global interest rates to fight high and persistent inflation in the context of a global economic recession. Submission to the BoE is due in January 2023 with results announced in Q2 2023.

Barclays Group is also subject to stress testing by non-UK regulators. This includes the European Banking Authority (EBA) for Barclays Bank Ireland (BBI):

- BBI completed its inaugural regulatory stress test in H2'21 as part of the ECB's Comprehensive Assessment & Stress Test (CAST) exercise with the result published in June 2022. In addition, BBI also completed the ECB Climate Risk Stress Test (CRST) this was an exploratory exercise designed to test both the Banks Climate Risk framework as well as its financial resilience to climate risk.

The US Federal Reserve (FRB) annual supervisory stress test (aka CCAR) for Barclays' Intermediate Holding Company (IHC):

- FRB stress results were released in June 2022 demonstrating a strong capital position for IHC under the supervisory severely adverse scenario.

## Risk management strategy, governance and risk culture (continued)

### Risk management in the setting of strategy

The risk appetite and (internal) stress testing processes described above form the basis of the risk review of the MTP, performed annually. The MTP embeds Barclays Group's objectives into detailed business plans taking into account the likely business and macroeconomic environment. The strategy is informed by the risk review process, which includes reviewing Barclays Group's risk profile and setting of risk appetite.

- The risk review process includes a review of business plans under stress which is used to inform the MTP.
- If the business' plans entail too high a level of risk, management can challenge them. This assessment is based on a comparison of the businesses' own risk appetite reflected in their business plans ('bottom-up' risk appetite) with the central risk team's view ('top-down' risk appetite) based on the financial constraints set by the Board for Barclays Group.
- Businesses may be asked to update their business plans until the bottom-up risk appetite is within top-down appetite. There is also a detailed review of the stressed estimates and the methodology used to translate the economic scenario to these stressed estimates, as well as the management actions included in the businesses' results to verify that these are appropriate and realistic in a stressed environment.
- Interim internal capital adequacy assessments inform the capital planning process and are reviewed during the meetings. These assessments are refreshed based on year-end positions and reflected in the ICAAP.

The BRC has overall responsibility for reviewing Barclays Group's risk profile and making appropriate recommendations to the Board. The Board is ultimately responsible for approving the MTP and Barclays Group's risk appetite. The risk appetite process allows senior management and the Board to understand the MTP's sensitivities by risk type, and includes a set of limits to help Barclays Group stay within its risk appetite, as described above.

# Management of climate risk

This section describes the governance structure and processes specific to the management of climate-related risks.

## Definition

The impact on Financial and Operational Risks arising from climate change through, physical risks, risks associated with transitioning to a lower carbon economy and connected risks arising as a result of second order impacts of these two drivers on portfolios.

## Overview

Given the risks associated with climate change, and to support the Group's ambition to be a net zero bank by 2050, climate risk became a Principal Risk in January 2022. To support the embedment of the Principal Risk, in 2022 the Group delivered a Climate Risk Plan with three overarching objectives:

1. Embed Governance Framework: Establish a Climate Risk Committee, a Climate Risk Controls Forum, and enhance the Board Risk Committee reporting
2. Scenario Analysis: Build out the vision and plan for undertaking scenario analysis exercises. This involved developing a climate scenario analysis framework
3. Carbon Modelling: Enhance the BlueTrack model to expand coverage to automobiles and Residential Real Estate

## Organisation, roles and responsibilities

On behalf of the Board, the Board Risk Committee (BRC) reviews and approves the Group's approach to managing the financial and operational risks associated with climate change. Reputation risk is the responsibility of the Board, which directly handles the most material issues facing the Group. Broader sustainability matters and other reputation risk issues associated with climate change are coordinated by the Sustainability Team. The Head of Climate Risk reports directly to the Group Chief Risk Officer.

The Group Risk Committee (GRC) is the most senior executive body responsible for review and challenge of risk practices and risk profile, for climate risk and other principal risk types. To support the oversight of Barclays Group climate risk profile, a Climate Risk Committee (CRC) has been established, as a sub-committee of GRC. The authority of the CRC is delegated by the GRC.

CRC has reviewed and approved a refreshed Climate Risk Vision, updates from each of the financial and operational risks and from the material legal entities of the firm, along with key regulatory, policy and legal themes, the risk register and appetite statement and reviewed the control environment.

The Climate Risk Control Forum (CRCF) was established in July 2022 and escalates to the Group Risk Committee via the Group Controls Committee. The purpose of the CRCF is to oversee the consistent and effective implementation and operation of the Barclays Controls Framework as relating to the Climate Risk. It reviews the control environment relating to Climate Risk, including risk events, policy and issues management.

Barclays entities, namely Barclays Bank UK, Barclays International, Barclays Bank Ireland and the US Intermediate Holding Company, also continued to embed climate risk within their frameworks, where Heads of Climate Risk have been appointed.



## Management of climate risk (continued)

The elevation of climate risk to Principal Risk included establishing the following:

- A Climate Risk Framework that defines climate risk and summarises the approach to identification, measurement, monitoring and reporting of climate risk
- Climate Risk Appetite at Group level established in line with the Group's risk appetite approach and informed by scenario analysis
- Climate Risk Register used to inform risk appetite. This includes a breakdown of key risk drivers for physical and transition risks, and materiality ratings using the 2020 climate IST. The Climate Risk Register continues to align with the Group's Risk Register Taxonomy

Climate risk across Financial and Operational Risks is managed via a Climate Change Financial Risk and Operational Risk Policy (CCFOR), which is embedded in each of the following Principal Risk Frameworks.

Climate risk across Model, Conduct, Reputation and Legal Principal Risks are out of the scope of the CRF and continue to be managed under their respective Principal Risk Frameworks.

The table below sets out how climate risk is integrated across Barclays using the ERM aligned Climate Risk Framework, CCFOR and the Climate Change Standard.

Enterprise Risk Management Framework (ERMF)						
Climate Risk Framework						
	Climate Change Financial Risk and Operational Risk Policy					Climate Change Standard
Responsibilities	Climate Risk	Credit Risk	Market Risk	Treasury and Capital Risk	Operational Risk	Reputation Risk
	Provide climate horizon scanning information and emerging trends to BRC and Principal Risk Leads	Monitor portfolio level exposure to the physical and transition risks of climate change	Identify and Assess climate-related risk factors	Identify exposure to climate risk	Integrate climate change across different risk categories, e.g. Operational Recovery Planning and Premises	Outline minimum requirements and controls for Reputation Risk management relating to client relationships or transactions
	Recommend risk appetite statement, constraints and exclusions to BRC	Review individual obligors' exposure to climate risk via the Climate Lens questionnaire	Apply stress scenarios, assess stress losses and set risk limits	Consider key risk indicators and limits to support risk management	Include in ICAAP and ILAAP	Outline the expected business behaviours in relation to these issues
	Define areas of concern and recommend scenario analysis priorities	Assess climate risk within Sovereign Credit Risk reviews	Oversight by Market Risk Committee and Board Risk Committee	Oversight by Treasury & Capital Risk Committee and Board Risk Committee	Oversight by Treasury & Capital Risk Committee and Board Risk Committee	Outline the approach to enhanced due diligence.
	Lead the development of climate-specific risk methodologies	Include material exposures to climate risk within the Internal Capital Adequacy Assessment Process (ICAAP)				
	Interpret stress test results for relevance as drivers of risk	Oversight by Legal Entity Climate Risk Forums and relevant Risk Management Committees as appropriate, including regular climate risk reporting up to Board Risk Committee level				
	Review and challenge risk type approaches and support consistency across risk types					
Ownership	Aggregate and monitor a central climate risk view across in scope risk types					
	Climate Risk Accountable Officer	Credit Risk Accountable Officer	Market Risk Accountable Officer	Treasury & Capital Risk Accountable Officer	Operational Risk Accountable Officer	Group Head of Sustainability

## Management of climate risk (continued)

Climate-related Risk Management Processes				
	Credit Risk	Market Risk	Treasury and Capital Risk	Operational Risk
<b>Frequency of assessment</b>	Annually	Quarterly	Various (quarterly for pensions, IRRBB and liquidity risk; annually for capital risk)	Annually
<b>Risk identification</b>	Exposure in mortgage portfolio identified through a concentration risk framework.  Exposure in BBPLC Identified as part of sovereign, portfolio and obligor credit annual reviews.	Identified by assessing climate-related risk factors across asset classes, sectors and geographies, and aggregating market risk exposures from climate-related risks.	Identified through risk assessment activity across certain industries and asset classes to analyse and assess exposures which may be impacted by climate-related risks.	Confirmed operational risks associated with climate change are included in the Bank's Operational Risk Taxonomy. Climate risks are included within the Strategic Risk Assessment process.
<b>Risk assessment</b>	Portfolios are monitored through regular reporting of climate metrics and are assessed against mandates and limits where appropriate.  Clients in elevated risk sectors above a threshold exposure will have their credit risk exposure to Climate Risk qualitatively assessed through the Credit Climate Lens questionnaire.  Future exposure to Climate Risk as a driver to Credit Risk is quantified through scenario analysis and stress testing exercises.  In addition to the Credit Climate Lens questionnaire, Sovereign Credit Reviews are also carried out for Sovereigns above a threshold exposure to assess their susceptibility to Climate risks.	Measured by using adverse multi-asset stress scenarios applied to individual risk factors reflecting climate change risks across sectors, countries and regions.	Measured as part of stress testing and key risk indicator monitoring.	Established reporting on internal and external climate-related risk events to the Climate Risk Control Forum. Risk tolerances for premises and resilience risks are reviewed so these adequately capture climate-related risk drivers.

# Management of credit risk and the internal ratings-based approach

This section discusses the management of credit risks and provides details of the calculation of risk weighted assets under the Internal Ratings Based approach of the Basel framework.

Pages 108 to 120 cover the aspects of the Group's risk management framework specific to credit risk, including committees and Barclays Group's reporting structure

As 59% of our regulatory capital is for credit risk, we devote pages 121 to 138 to detailing how we approach the internal ratings models, and how the framework supports risk differentiation and management.

# Management of credit risk and the internal ratings-based approach

## Credit risk

The risk of loss to the Group from the failure of clients, customers or counterparties, including sovereigns, to fully honour their obligations to the Group, including the whole and timely payment of principal, interest, collateral and other receivables.

### Overview

The credit risk that the Group faces arises from wholesale and retail loans and advances together with the counterparty credit risk arising from derivative contracts with clients; trading activities, including: debt securities, settlement balances with market counterparties, fair value through other comprehensive income (FVOCI) assets and reverse repurchase loans.

#### Credit risk management objectives are to:

- maintain a framework of controls to oversee credit risk
- identify, assess and measure credit risk clearly and accurately across the Group and within each separate business, from the level of individual facilities up to the total portfolio
- control and plan credit risk taking in line with external stakeholder expectations and avoiding undesirable concentrations
- monitor credit risk and adherence to agreed controls.

### Organisation and structure

Wholesale and retail portfolios are managed separately to reflect the differing nature of the assets; wholesale balances tend to be larger and are managed on an individual basis, while retail balances are greater in number but lesser in value and are, therefore, managed in aggregated segments.

### Roles and responsibilities

The first line of defence has primary responsibility for managing credit risk within the risk appetite and limits set by the Risk function, supported by a defined set of policies, standards and controls. In the entities, business risk committees (attended by the first line) monitor and review the credit risk profile of each business unit where the most material issues are escalated to the Retail Credit Risk Management Committee, Wholesale Credit Risk Management Committee and Group Risk Committee.

The responsibilities of the credit risk management teams in the businesses, the sanctioning team and other shared services include: sanctioning new credit agreements (principally wholesale); setting strategies for approval of transactions (principally retail); setting risk appetite; monitoring risk against limits and other parameters; setting recession readiness frameworks to protect portfolios in the event of economic stress, maintaining robust processes, data gathering, quality, storage and reporting methods for effective credit risk management; performing effective turnaround and workout scenarios for wholesale portfolios via dedicated restructuring and recoveries teams; maintaining robust collections and recovery processes/units for retail portfolios; and development of credit risk measurement models. The credit risk management teams in each legal entity are accountable to the relevant Legal Entity CRO, who reports to the Group CRO.

### Organisation and structure

#### Barclays PLC Board Risk Committee

- Reviews and recommends Barclays Group's risk appetite for wholesale and retail credit risk to the Barclays PLC Board
- Reviews Barclays Group's risk profile for wholesale and retail credit risk on behalf of the Barclays PLC Board
- Commissions, receives and considers reports on wholesale and retail credit risk issues

#### Barclays Group Risk Committee

- Reviews appetite for wholesale and retail credit risk and makes recommendations on the setting of limits to the Barclays PLC Board
- Monitors the risk profile for wholesale and retail credit risk
- Reviews and monitors the control environment for wholesale and retail credit risk

#### Business Risk Committees

- Oversee activities and manage information relating to business portfolios, and identify actions needed to mitigate current and arising credit risks
- Review and approve business mandate and scale limits and, where relevant, provide recommendations for limits managed by wholesale and retail risk committees
- Review relevant decisions made by, and material issues and topics raised by, other forums and committees

#### Wholesale and Retail Credit Risk Management Committees

- Monitor the wholesale and retail credit risk profile against plan and agree required actions
- Review and approve Group mandate and scale limits and, where relevant, provide recommendations for limits managed by the Barclays PLC Board Risk Committee
- Review key wholesale and retail credit risk issues
- Review credit risk policies and framework
- Monitor risk appetite consumption – key credit portfolio (mandate and scale) limits

# Management of credit risk and the internal ratings-based approach (continued)

For wholesale portfolios, credit risk approval is undertaken by experienced credit risk professionals operating within a clearly defined delegated authority framework, with only the most senior credit officers assigned the higher levels of delegated authority. The largest credit exposures, which are outside the Risk Sanctioning Unit or Risk Distribution Committee authority, require the support of a legal entity Senior Credit Officer. For exposures in excess of the legal entity Senior Credit Officer's authority, approval by Group Senior Credit Officer/Board Risk Committee is also required. The Group Credit Risk Committee, attended by legal entity Senior Credit Officers, provides a formal mechanism for the Group Senior Credit Officer to exercise the highest level of credit authority over the most material Group single name exposures.

In the wholesale portfolios, credit risk managers are organised in sanctioning teams by geography, industry and/or product.

The role of the Enterprise Risk function is to provide Group-wide direction, oversight and challenge of credit risk taking. Enterprise Risk sets the Credit Risk Control Framework, which provides the structure within which credit risk is managed, together with supporting credit risk policies and standards.

## Reporting

The Group dedicates considerable resources to gaining a clear and accurate understanding of credit risk across the business and ensuring that its balance sheet correctly reflects the value of the assets in accordance with applicable accounting principles. This process can be summarised in five broad stages:

- measuring exposures and concentrations
- monitoring performance and asset quality
- monitoring for weaknesses in portfolios
- review and approve the adequacy of allowances for impairment and other credit provisions
- returning assets to a performing status or writing off assets when the whole or part of a debt is considered irrecoverable.

## Measuring exposures and concentrations

Loans and advances to customers provide the principal source of credit risk to the Group, although it is also exposed to other forms of credit risk through, for example, loans and advances to banks, loan commitments and debt securities. Risk management policies and processes are designed to identify and analyse risk, to set appropriate risk appetite, limits and controls, and to monitor the risks and adherence to limits by means of reliable and timely data.

One area of particular review is concentration risk. A concentration of credit risk exists when a number of counterparties or customers are engaged in similar activities or geographies, and have similar economic characteristics that would cause their ability to meet contractual obligations to be similarly affected by changes in economic and other conditions. As a result, the Group constantly reviews its concentration in a number of areas including, for example, geography, maturity and industry.

Mandate and scale limits are used to maintain concentrations at appropriate levels, which are aligned with the businesses' stated risk appetite. Limits are typically based on the nature of the lending and the amount of the portfolio meeting certain standards of underwriting criteria. Diversification, to reduce concentration risk, is achieved through setting maximum exposure limits to individual counterparties' exposures. Material excesses are reported to the BRC.

## Monitoring performance and asset quality

Trends in the quality of the Group's loan portfolio are monitored in a number of ways including tracking loan loss rate and coverage ratios.

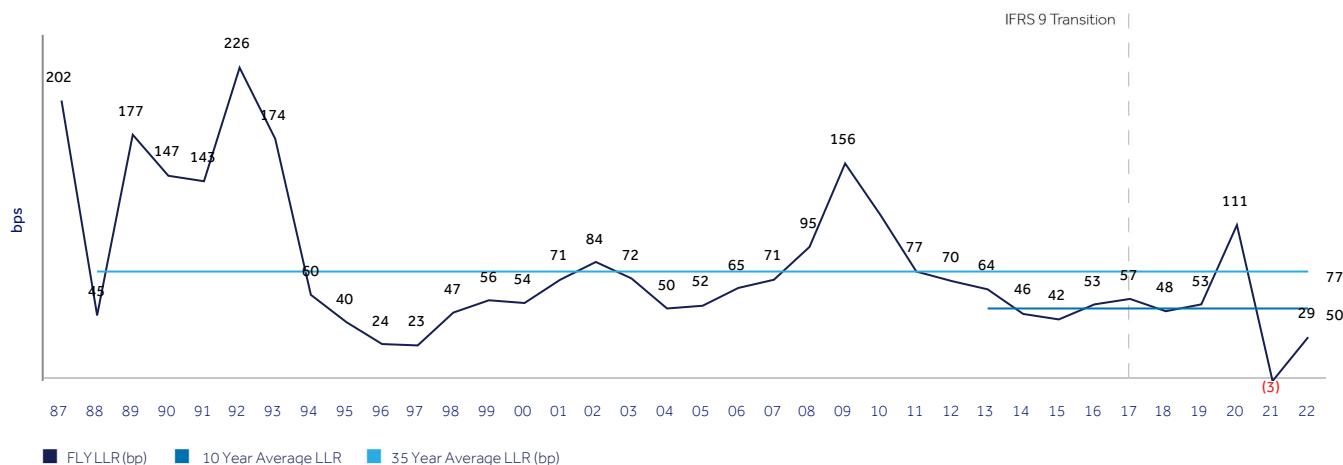
## Loan loss rate

The loan loss rate (LLR) provides a way of consistently monitoring trends in loan portfolio quality at the Group, business and product levels. The LLR represents the annualised impairment charges on loans and advances to customers and banks and other credit provisions as a percentage of the total, period-end loans and advances to customers and banks, gross of impairment allowances. Details of the LLR for the current period may be found in the Credit Risk Performance section on page 301 in the Barclays PLC Annual Report 2022.

## Management of credit risk and the internal ratings-based approach (continued)

### Loan loss rate (bps) – longer-term trends<sup>a, b, c</sup>

bps

**Notes**

a Restated to reflect the impact of IFRS10, which results in some former Exit Quadrant exposures being recorded at fair value from 2012 onwards.

b Figures from 2015 onwards exclude BAGL.

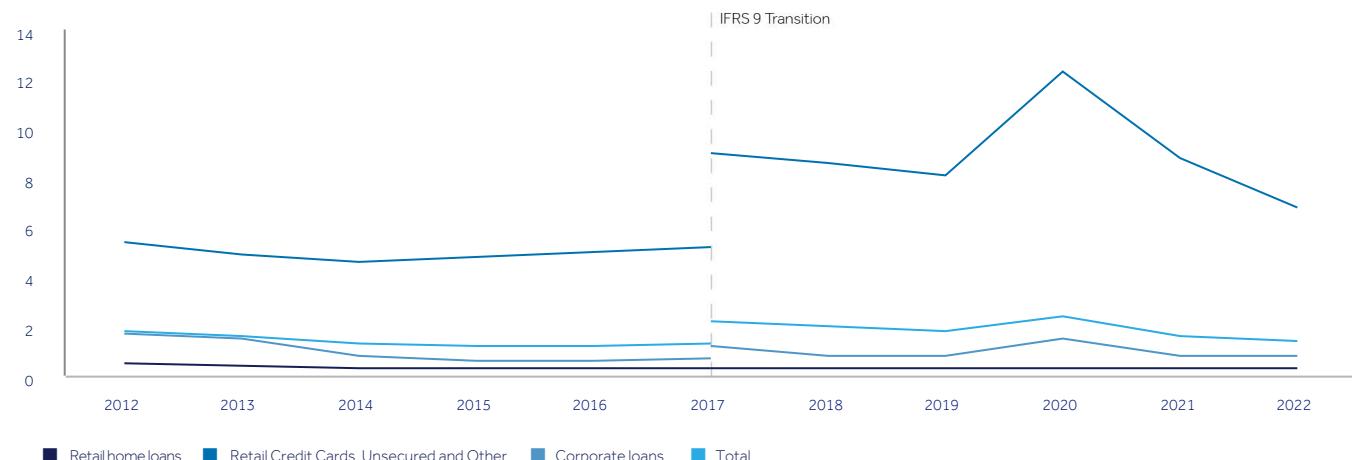
c Impairment calculated under IFRS 9 from 2018 onwards.

**Coverage ratios**

The impairment allowance is the aggregate of the total stock of expected credit loss (ECL).

**Loans and advances total impairment coverage**

%



Total coverage ratios will vary according to the type of product. The increase in 2017 reflects the transition to the new accounting standard IFRS 9. Overall, coverage ratios would therefore be expected to remain fairly steady over a defined period of time but in principle, a number of factors may affect Barclays Group's overall coverage ratios, including:

- The mix of products: coverage ratios will tend to be lower when there is a high proportion of secured retail and corporate balances. This is due to the fact that the recovery outlook on these types of exposures is typically higher than Retail unsecured products, with the result that they will have lower impairment requirements;
- The stage in the economic cycle: coverage ratios will tend to be lower in the earlier stages of deterioration in credit conditions. At this stage, Retail delinquent balances will be predominantly in the early delinquency cycles and corporate names will have only recently shown signs of deterioration;
- Staging: coverage ratios will tend to be higher when there is a high proportion of balances that have met the criteria for significant increase in credit risk with associated expected credit losses (ECL) moving from a 12-month to a lifetime assessment; and
- Write-off policies: the speed with which defaulted assets are written off will affect coverage ratios. The more quickly assets are written off, the lower the ratios will be, since stock with 100% coverage will tend to roll out more quickly.

Details of the coverage ratios for the current period are shown in the above chart and may be found in the analysis of loans and advances and impairment section at page 307 in the Barclays PLC Annual Report 2022.

**Monitoring weaknesses in portfolios**

While the basic principles for monitoring weaknesses in wholesale and retail exposures are broadly similar, they reflect the differing nature of the assets. As a matter of policy, all facilities granted to corporate or other wholesale counterparties are subject to a review on, at least, an annual basis, even when they are performing satisfactorily. Retail exposures are monitored to identify customers

## Management of credit risk and the internal ratings-based approach (continued)

exhibiting signs of potential financial difficulty. Identified customers are included in the High Risk Account Management (HRAM) population. Businesses have a contact strategy for their HRAM populations and they are excluded from credit expansion activities and, where appropriate, also considered for credit reduction activities or other mitigating actions.

### Wholesale portfolios

Within the Wholesale portfolios, the Basel definitions of default are used as default indicators. A default is deemed to have occurred with regard to a particular obligor if one or both of the following applies:

- the obligor is considered unlikely to pay its credit obligations to Barclays in full without recourse to actions such as the realisation of collateral
- the obligor is 90 days or more past due on any material credit obligation to Barclays.

Examples of unlikelihood to pay include:

- the Group puts the credit obligation on a non-accrued status
- the Group makes a charge-off or account specific identified impairment resulting from a significant perceived decline in credit quality
- the Group sells the credit obligation at a material credit-related economic loss
- the Group triggers a petition for obligor's bankruptcy or similar order
- the Group becomes aware of the obligor having sought or having been placed in bankruptcy or similar protection where this would avoid or delay repayment of the credit obligation to the Group
- the Group becomes aware of an acceleration of an obligation by a firm
- where the obligor is a bank – revocation of authorisation
- where the obligor is a sovereign – trigger of default definition of an approved External Credit Assessment Institution (ECAI) such as a rating agency.

**Note**

a Includes certain Business Banking facilities which are recorded as Retail for management purposes.

### Wholesale and retail account status chart

#### Wholesale account status

##### Performing Watchlist 1-2

- Watchlist Committee flags client on the basis of evidence of financial difficulty.
- Business support assists the client to return to an in order position.

#### Retail account status

##### Performing (Current) Arrears Status 0

- Customer misses contractual payment and moves to collections function.
- Customer pays total overdue payments and returns back to an in order position.

##### Business Support Watchlist 3

##### Delinquent (Collections) Arrears Status 1-6<sup>a</sup>

- Customer's financial difficulty requires a decision on the form of future relationship.

- Customer reaches high arrears status and is moved to the recovery function were legal action is taken.

##### Default (Recovery) Watchlist 4

##### Charge-off (Recovery) Arrears Status 6+<sup>b</sup>

- Asset is considered irrecoverable and is written off.

- Asset is impaired or considered to be irrecoverable and is written off.

##### Performing Watchlist 1-2

**Notes**

a. 1-4 for certain portfolios

b. 4+ for certain portfolios

## Management of credit risk and the internal ratings-based approach (continued)

Wholesale accounts that are deemed to contain heightened levels of risk are recorded on Watch Lists (WL) comprising four categories graded in line with the perceived severity of the risk attached to the lending, and its probability of default. Examples of heightened levels of risk may include, for example:

- a material reduction in profits
- a material reduction in the value of collateral held
- a decline in net tangible assets in circumstances which are not satisfactorily explained
- periodic waiver requests or changes to the terms of the credit agreement over an extended period of time.

These lists are updated monthly and circulated to the relevant risk control points. Once an account has been placed on WL, the exposure is monitored and, where appropriate, exposure reductions are effected. While all counterparties, regardless of financial health, are subject to a full review of all facilities on at least an annual basis, more frequent interim reviews may be undertaken should circumstances dictate.

Specialist recovery functions deal with defaulted counterparties in higher levels of WL. Their priority is working intensively with the counterparty to help them to return to financial health or, in the cases of insolvency, obtain the orderly and timely recovery of impaired debts in order to maximise shareholder value. Where a counterparty's financial health gives grounds for concern, it is immediately placed into the appropriate category.

### Retail portfolios

Within the retail portfolios, which tend to comprise homogeneous assets, statistical techniques more readily allow potential credit weaknesses to be monitored on a portfolio basis. Retail accounts can be classified according to specified categories of arrears status (or 30-day cycle), which reflects the level of contractual payments which are overdue. An outstanding balance is deemed to be delinquent when it is one day or "one penny" down.

Once a loan has passed through a prescribed number of cycles, it will be charged-off and enter recovery status. Charge-off refers to the point in time when collections activity changes from the collection of arrears to the recovery of the full balance. In most cases, charge-off will result in the account moving to a legal recovery function or debt sale and on unsecured assets will typically occur between 5 and 7 contractual payments in arrears. This may be accelerated or occur directly from a performing status, such as in the case of insolvency or death. For UK cards and UK unsecured loans portfolios, the point of charge off and write off has been aligned, for accounting purposes, as at December 2022.

Mortgage assets are not subject to charge-off but move through to litigation.

### Returning assets to a performing status

#### Wholesale portfolios

In wholesale portfolios, an account may only be returned to a performing status when it ceases to have any actual or perceived financial stress and no longer meets any of the WL criteria, or once facilities have been fully repaid or cancelled. Unless a facility is fully repaid or cancelled, the decision in Corporate and Investment Bank to return an account to performing status may only be taken by the credit risk team.

#### Retail portfolios

A retail asset, pre-point of charge-off, may only be returned to a performing status in the following circumstances:

- an up-to-date (i.e. not in arrears in relation to the agreed Forbearance programme) Non- Performing Forbearance (NPF) may be reclassified as Performing Forbearance (PF) upon receipt (on-time) of all due payments (at current agreed repayment amount), over a 12-month period
- an up-to-date (i.e. not in arrears in relation to the agreed Forbearance programme) PF may be reclassified to the 'in order' book when the customer completes a minimum probation period of 24 months from the point of entering PF, even if they are no longer on a Forbearance programme. They must also meet the following criteria:
  - 12 consecutive on-time payments have been made during the probation period at the agreed repayment amount (i.e. the forbearance amount while forbearance is continuing or the contractual monthly payment (CMP) once forbearance has concluded)
  - arrears must not have been >30 days past due during the probation period
  - account is not past due at the point of exit.
  - If a performing forborne contract under probation is granted additional forbearance measures or becomes more than 30 days past-due, it is classified as non-performing.
  - For non UK residential mortgages, accounts may also be considered for rehabilitation post charge-off, where customer circumstances have changed. The customer must clear all unpaid capital and interest and confirm their ability to meet full payments going forward.

#### Recovery units

Recovery units are responsible for exposures where deterioration of the counterparty/ customer credit profile is severe, to the extent that timely or full recovery of exposure is considered unlikely and default has occurred or is likely in the short term. Recovery teams set and implement strategies to recover the Group's exposure through realisation of assets and collateral, in co-operation with counterparties/ customers and where this is not possible through insolvency and legal procedures.

In wholesale, for a case to be transferred to a recovery unit, it must be in default and have ceased to actively trade or be in insolvency. In retail, the timings of the charge-off points to recovery units are established based on the type of loan. In most cases, charge-off will result in the account moving to a legal recovery function or debt sale and on unsecured assets will typically occur between 5 and 7 contractual payments in arrears, unless a forbearance programme is agreed. Early points are prescribed for unsecured assets. For example, in case of customer bankruptcy or insolvency, associated accounts are charged off within 60 days of notification.

Mortgage assets are not subject to charge- off but move through to litigation.

See recovery information included in Analysis of Specific Portfolio and Asset Types section on page 333 in the Barclays PLC Annual Report 2022.

## Management of credit risk and the internal ratings-based approach (continued)

### Foreclosures in process and properties in possession

Foreclosure is the process where the Group initiates legal action against a customer, with the intention of terminating the loan agreement whereby the Group may repossess the property subject to local law and recover amounts it is owed. This process can be initiated by the Group independent of the impairment treatment and it is therefore possible that the foreclosure process may be initiated while the account is still in collections (delinquent) or in recoveries (post charge-off) where the customer has not agreed a satisfactory repayment schedule with the Group.

Properties in possession include properties held as 'loans and advances to customers' and properties held as 'other real estate owned'.

Held as 'loans and advances to customers' (UK and Italy) refers to the properties where the customer continues to retain legal title but where the Group has enforced the possession order as part of the foreclosure process to allow for the disposal of the asset, or the court has ordered the auction of the property.

### Writing off assets

Write-off refers to the point where it is determined that the asset is irrecoverable, it is no longer considered economically viable to try and recover the asset, it is deemed immaterial, or full and final settlement is reached and a shortfall remains. In the event of write-off, the customer balance is removed from the balance sheet and the impairment reserve held against the asset is released.

The timing and extent of write-offs may involve some element of subjective judgement. Nevertheless, a write-off will often be prompted by a specific event, such as the inception of insolvency proceedings or other formal recovery action, which makes it possible to establish that some or the entire advance is beyond realistic prospect of recovery. The position of impaired loans is also reviewed at least quarterly to make sure that irrecoverable advances are being written off in a prompt and orderly manner and in compliance with any local regulations.

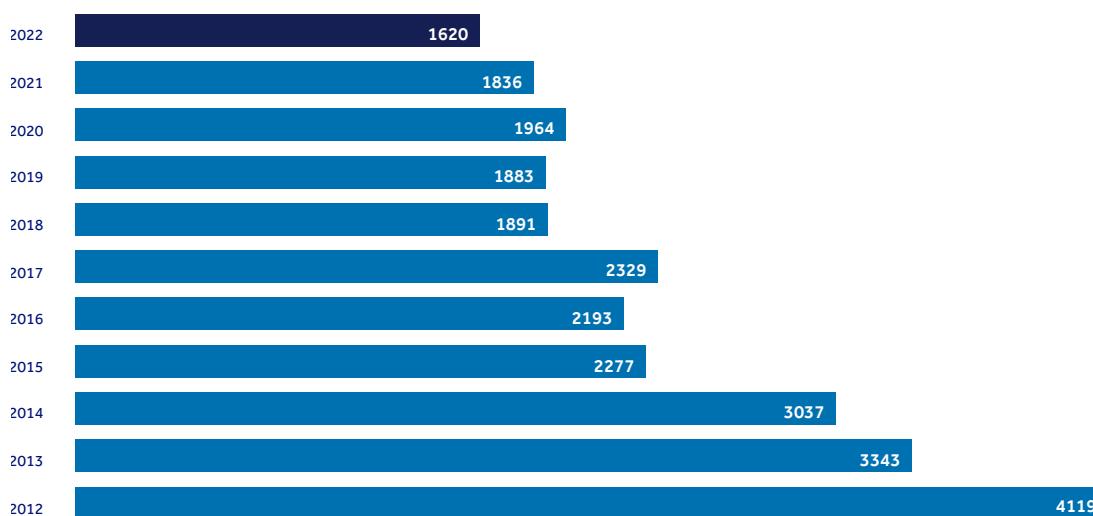
For retail portfolios, the timings of the write-off points are established based on the type of loan. For UK cards and UK loan portfolios, the point of charge off and write off have been aligned, for accounting purposes, as at December 2022. For other unsecured portfolios, assets are written off based on contractual payment criteria or accelerated criteria. Assets in the recovery book will be written-off if the required qualifying repayments are not made within a rolling twelve-month period. In certain circumstances, accounts will be eligible for accelerated write off (e.g. deceased, insolvency, inappropriate to pursue (medical, vulnerable, small balance) or settlement is accepted in lieu of the full balance). For secured loans, any shortfall after the receipt of the proceeds from the disposal of the collateral is written off within three months of that date if a repayment schedule has not been agreed with the borrower/estate. Such assets are only written off once all the necessary procedures have been completed and the amount of the loss has been determined.

Subsequent recoveries of amounts previously written off are written back and hence decrease the amount of the reported loan impairment charge in the income statement.

In 2022, total write-offs of impaired financial assets decreased slightly to £1.6bn (December 2021: £1.8bn).

### Total Write-off of impaired financial assets

£m



### Assessment of Impairment Under IFRS 9

Under the IFRS 9 accounting standard, businesses are required to assess and recognise ECL on financial assets from the point of origination or purchase, and to update said assessment at each reporting date, reflecting changes in the credit risk of the financial asset.

ECL represents a present value measure of the credit losses expected to result from default events that may occur during a specified period of time. ECLs must reflect the present value of cash shortfalls, i.e. the difference between cash flows due under the contract and the cash flows that the business now expects to receive. Given ECLs take into account both the amount and the timing of payments, a credit loss may result if a contractual payment is missed or received late, even if the debt is ultimately paid in full. ECL assessments must reflect an unbiased and probability weighted assessment of a range of possible outcomes, including reasonable and supportable information about future economic conditions.

Exposures must be assessed and assigned to one of the following populations at each reporting point.

## Management of credit risk and the internal ratings-based approach (continued)

### ▪ Stage 1: Performing risk assets.

In scope items classified as Stage 1 exposure for IFRS 9 purposes are those assets performing in line with expectations in place at the point of origination/acquisition. This includes new originations or purchased assets (from the point of initial origination), but excludes exposures deemed credit impaired at point of origination.

Businesses must recognise an impairment allowance equal to 12 months ECL. This allowance must be raised at point of initial reporting of an asset and the assessment updated at each subsequent reporting point.

### ▪ Stage 2: Significant Increase in Credit Risk (SICR) assets.

Assets classified as Stage 2 exposures for IFRS 9 purposes are those where credit risk has significantly increased compared with expectations at point of origination/ acquisition, but which are not yet considered 'Credit Impaired'.

In order to maintain that individual exposures or groups of assets are correctly classified as Stage 2 assets, businesses must undertake regular assessments to identify whether a significant increase in credit risk has occurred since initial recognition. This must take the form of the following:

- Quantitative Test

Where the residual annualised weighted average lifetime PD for an individual exposure at the latest reporting date shows a material deterioration compared with that at the origination/acquisition point, then the assets must be classified under Stage 2 as having significantly increased credit risk.

The assessment of materiality, i.e. at what point the PD increase is deemed 'significant', is based upon analysis of the portfolios risk profile against a common set of defined principles and key performance metrics.

- Qualitative Test

For personal banking assets managed under Retail Portfolios, accounts meeting the portfolios 'high risk' criteria (i.e. within the last 12 months reclassified from forbearance, rehabilitated from charge-off or subject to either re-age or collections arrangement; and external behavioural metric indicate an increased probability of financial difficulty, for example excessive or increasing indebtedness and/or missed or late payments recorded at credit bureau), must be classified under Stage 2 as having significantly increased credit risk. For Wholesale portfolios and Business Banking assets managed under Retail portfolios where accounts are managed under the Watch List framework, then customers on WL 2/3, not breaching the quantitative test must be classified under Stage 2 as having SICR. Obligors on WL1 may be classified as Stage 1 for a maximum period of 6 months. In exceptional circumstances for an obligor on WL2 where it can be proven that a specific exposure is not deteriorated e.g. it is newly originated and therefore cannot have deteriorated, Stage 1 ECL may be applied.

- Backstop Criteria

For Retail portfolios, adverse changes in payment status must be considered within the assessment, and accounts 1 or more contractual payment in arrears at reporting date classified under Stage 2, except where:

a. the missed payment is a result of a bank error or technical issue

b. the arrears can be analytically proven not to represent deterioration from risk performance expectations at point of origination/ acquisition, e.g. where there is a very small period between cycle point and reporting date. Such exceptions must be approved by the Group Credit Risk Director (GCRD) or nominated delegate. Exposures at 30 days or more past contractual payment due date at the reporting date must be classified as Stage 2 assets without exception.

For Wholesale portfolios, adverse changes in payment status must be considered within the assessment, and accounts with contractual payment 30 days or more in arrears at reporting date are included within the entry criteria for Stage 2, except where the missed payment is a result of a proven bank error or administrative issue. Where 30 days is used. it must be proven that this is a backstop, not a lead driver of exposure moving to Stage 2.

Where the assessment of SICR is undertaken on a collective basis, assets must be grouped on the basis of similar risk characteristics, taking into account asset type, industry, geographical location, collateral type, past-due status and other relevant factors.

Businesses must raise an impairment allowance equivalent to the latest assessment of lifetime ECL. This increased allowance must be recognised at the first reporting point following entry to Stage 2 and the assessment updated at each subsequent reporting date.

The assessment of lifetime ECLs for Stage 2 (and Stage 3) assets must consider the maximum contractual period over which the business is exposed to credit risk, including the impact of permitted extensions and pre- payments, i.e. those available at the option of the borrower to which the business must agree.

For loan commitments, the lifetime assessment period is normally the maximum contractual life, i.e. the period from the point the loan commitment is established to closure/full repayment of the exposure. However, where customer use of contractually available pre-payments and/or extension has a material impact on the expected life of the asset, then use of behavioural life may be justified.

For revolving credit facilities, the lifetime assessment period may extend beyond the contractual life to include the period over which the business is expected to be exposed to credit risk, based on historical experience i.e. an assessment of the average time to default, closure or withdrawal of the facility.

Assets may be removed from Stage 2 and re-assigned to Stage 1 once there is objective evidence that the criteria used to indicate a significant increase in credit risk are no longer met.

### ▪ Stage 3: Credit impaired risk assets.

Assets classified as Stage 3 exposures for IFRS 9 purposes are those where credit risk has increased to a point where they are now considered 'Credit Impaired'. For Retail portfolios, this incorporates all defaulted accounts as defined under the Regulatory Definition of Default. For Wholesale portfolios cases of forbearance not captured by Stage 3 (i.e. those not meeting the regulatory definition of default - EBA classification of non-performing) must be classified as Stage 2 until such time as the relevant forbearance probation period has been completed.

Businesses must raise an impairment allowance equivalent to the latest assessment of lifetime ECL, i.e. on the same basis as for Stage 2 assets.

## Management of credit risk and the internal ratings-based approach (continued)

For Single Name Wholesale Assets, a threshold approach is taken with Stage 3 impairment calculated individually. A discounted cash flow is completed establishing a base estimated impairment allowance, derived from the difference between asset carrying values and the recoverable amount.

Where the base allowance is greater than £10m, a bespoke assessment is performed reflecting individual work out strategies. The assessment is clearly and specifically articulated including how general economic scenarios and downside analyses have been applied.

Interest and fee income on Stage 3 assets is recognised based on the net amortised value, i.e. the gross carrying amount adjusted for the loss allowance in line with IFRS principles.

For exposures that are considered credit- impaired on purchase or origination, lifetime ECLs must be taken into account within the estimated cash flows at point of initial recognition, and the asset classified as Stage 3.

In subsequent reporting periods, businesses must recognise cumulative changes in lifetime ECLs since initial recognition as a loss allowance, i.e. the amount of change in lifetime ECLs is treated as an impairment gain or loss. Assets may only exit Stage 3 and be reclassified into Stage 1 or Stage 2 once the original default trigger event no longer applies.

To fully embed this standard into businesses, management requires frequent periodic reviews of ECL performance across the Group both in isolation and, more importantly, in comparison to the underlying performance of portfolios and product types.

Review and challenge is carried out through a hierarchy of committees confirming both the adequacy of provisions under the ECL requirements and that all policies, standards and processes have been adhered to (see below) and that appropriate controls are evidenced.

### Governance and oversight of impairment under IFRS 9

Barclays Group's organisational structure and internal governance processes oversee the estimation of ECL across several areas, including: i) setting requirements in policy, including key assumptions and the application of key judgements; ii) the design and execution of models; and iii) review of ECL results.

- i) Impairment policy requirements are set and reviewed regularly, at a minimum annually, to maintain adherence to accounting standards. Key judgements inherent in policy, including the estimated life of revolving credit facilities and the quantitative criteria for assessing the SICR, are separately supported by analytical study. In particular, the quantitative thresholds used for assessing SICR are subject to a number of internal validation criteria, particularly in retail portfolios where thresholds decrease as the origination PD of each facility increases. Key policy requirements are also typically aligned to Barclays Group's credit risk management strategy and practices, for example, wholesale customers that are risk managed on an individual basis are assessed for ECL on an individual basis upon entering Stage 3; furthermore, key internal risk management indicators of high risk are used to set SICR policy, for example, retail customers identified as High Risk Account Management are automatically deemed to have met the SICR criteria.
- ii) ECL is estimated in line with internal policy requirements using models which are validated by a qualified independent party to the model development area, the Independent Validation Unit (IVU), before first use and at a minimum annually thereafter. Each model is designated an owner who is responsible for:
  - model maintenance: monitoring of model performance including backtesting by comparing predicted ECL versus flow into Stage 3 and coverage ratios; proposing material changes for independent IVU approval; and recalibrating model parameters on more timely data
  - proposing post-model adjustments (PMA) to address model weaknesses or to account for situations where known or expected risk factors and information have not been considered in the modelling process. All PMAs relating to model deficiencies, regardless of value are approved by IVU for a set time period. PMAs representing Expert Judgement are validated by Risk, as the second line of defence and approved for a set time period. The most material PMAs are also approved by the Barclays Group's Chief Risk Officer.

Models must also assess ECL across a range of future economic conditions. These economic scenarios are generated via an independent model and ultimately set by the Senior Scenario Review Committee. Economic scenarios are regenerated at a minimum twice annually but more frequently if deemed appropriate, and also to align with Barclays Group's medium term planning exercise. Each model used in the estimation of ECL, including key inputs, are governed by a series of internal controls, which include the validation of completeness and accuracy of data in golden source systems, documented data transformations and documented lineage of data transfers between systems.

- iii) The Barclays Group's Impairment Committee, formed of members from both Finance and Risk and attended by both the Barclays Group's Finance Director and the Barclays Group's Chief Risk Officer, is responsible for overseeing impairment policy and practice across Barclays Group and will approve impairment results. Reported results and key messages are communicated to the Barclays Group's Board Audit Committee, which has an oversight role and provides challenge of key assumptions, including the basis of the scenarios adopted. Impairment results are then factored into management decision making including but not limited to, business planning, risk appetite setting and portfolio management.

### Forbearance and other concession programmes

#### Forbearance programmes

Forbearance takes place when a concession is made on the contractual terms of a facility in response to an obligor's financial difficulties. Barclays Group offers forbearance programmes to assist customers and clients in financial difficulty through agreements that may include accepting less than contractual amounts due where financial distress would otherwise prevent satisfactory repayment within the original terms and conditions of the contract. These agreements may be initiated by the customer, Barclays Group or a third party.

#### Forbearance programmes for Wholesale portfolios

The majority of Wholesale client relationships are individually managed, with lending decisions made with reference to specific circumstances and on bespoke terms.

## Management of credit risk and the internal ratings-based approach (continued)

Forbearance measures consist of concessions made towards a debtor that is experiencing or about to experience difficulties in meeting their financial commitments.

A concession is a sanctioned action, outside of market terms that is beneficial to the debtor. The concession arises solely due to the financial distress of the debtor and the terms are more favourable than those which would be offered to a new or existing obligor with a similar risk profile. Concessions are represented by:

- a change or alteration to the previous terms and conditions of a contract
- a total or partial refinancing of a troubled debt contract.

The following are some examples of concessions which would be deemed forbearance (where granted to debtors in financial difficulties and outside of market terms):

- a restructuring of the contractual terms of a credit facility (such as a reduction in the interest rate)
- an extension to the maturity date
- change to the collateral structure (typically resulting in a net reduction in collateral)
- favourable adjustment to covenants where repayment profile changes, or non-enforcement of material covenant breach
- repayment in some form other than cash (e.g. equity)
- capitalisation of accrued interest
- any other concession made which is designed to alleviate actual or apparent financial stress e.g. a capital repayment holiday.

Where a concession is granted that is not a result of financial difficulty and/or is within Barclays Group's current market terms, the concession would not amount to forbearance. For example, a commercially balanced restructure within the Barclays Group's current terms which involves the granting of concessions and receiving risk mitigation/ structural enhancement of benefit to Barclays Group would not be indicative of forbearance.

Forbearance is not deemed to have occurred in the following situations:

- there is a pending maturity event anticipated at the onset of lending i.e. the loan was never structured to amortise to zero
- a maturity extension or a temporary covenant waiver (e.g. short term standstill) is granted to support a period of negotiation, subject to Barclays Group being satisfied that:
  - the debtor is actively pursuing refinancing or the sale of an asset enabling full repayment at expiry of the extended term
  - no loss is anticipated
  - payments of interest and capital continues as originally scheduled
  - there is a high probability of a successful outcome within a "reasonable" time scale (6 months for bilateral facilities, 9 months for multi-lender).
- immaterial amendments to lending terms are agreed, including changes to non-financial internal risk triggers that are only used for internal monitoring purposes.

Forbearance is considered evidence of a Significant Increase in Credit Risk and all forborne debtors are impaired as IFRS 9 Stage 2 (Lifetime Expected Credit Loss) regardless of Watch List category as a minimum for the lifetime of the forbearance. Those forbearance cases in regulatory default will attract Stage 3 impairment treatment.

Debtors granted forbearance are classified on watch list (WL) for the duration of the forbearance. Counterparties placed on WL status are subject to increased levels of credit risk oversight.

Forborne debtors are classified for reporting as either Performing or Non-Performing.

Non-Performing debtors are defined as:

- more than 90 days past due at the point concession was granted
- assessed as unlikely to pay credit obligations in full without realisation of collateral, regardless of the existence of any past due amount or of the number of days past due
- credit impaired
- performing forborne debtors granted additional forbearance measures or becoming more than 30 days past-due on a facility obligation.

Performing debtors are classified as debtors that were less than 90 days past due at the point the concession was granted, are less than 30 days past under their revised terms and are without risk of non-payment.

Non-performing status remains in force for a minimum 12 months from the date of classification before the debtor can be considered for performing status. Performing debtors remain forborne for a minimum 24 months before forborne status may be reviewed. The minimum time spent in forbearance for a case that is Non-Performing at the point forbearance is granted is therefore 36 months.

A control framework exists along with regular sampling so that policies for watch list and impairment are enforced as defined and all assets have suitable levels of impairment applied. Portfolios are subject to independent assessment.

Aggregate data for Wholesale forbearance cases is reviewed by the Wholesale Credit Risk Management Committee.

### Forbearance programmes for retail portfolios

Retail forbearance is available to customers experiencing financial difficulties. Forbearance solutions take a number of forms depending on individual customer circumstances. It is imperative that the solution agreed is both appropriate to that customer and sustainable, with a clear demonstration from the customer of both willingness and ability to repay. Affordability assessments are undertaken before any permanent programme of forbearance is granted, to understand the customer duration of financial difficulty and agree an affordable payment amount. Short-term solutions focus on temporary reductions to contractual payments and may suppress interest, or change from capital and interest payments to interest only. Long term solutions focus on full amortisation of the balance, and may also include an interest rate concession.

## Management of credit risk and the internal ratings-based approach (continued)

When an account is placed into a programme of forbearance, the asset will be classified as such until a defined cure period has been successfully completed, incorporating a successful track record of payment in line with the revised terms, upon which it will be returned to the up-to-date book. When Barclays Group agrees a forbearance programme with a customer, impairment allowances recognise the impact on cash flows of the agreement to receive less than the original contractual payments. The Retail Impairment Policy prescribes the methodology for the impairment of forbearance assets, in line with the IFRS 9 methodology adopted in January 2018. Forborne exposures are classified as Stage 3 (credit impaired) assets under IFRS 9, until such time as the prescribed stage 3 cure criteria have been met, resulting in higher impairment than for fully performing assets, reflecting the additional credit risk attached to loans subject to forbearance.

When customers exit forbearance, the accounts are ring-fenced as high risk within the up-to-date book for a period of at least twelve months.

Barclays has continued to assist customers in financial difficulty through the use of forbearance programmes. However, the extent of forbearance offered by Barclays Group to customers and clients remains small in comparison to the overall size of the loan book.

The level of forbearance extended to customers in other Retail portfolios is not material and, typically, does not currently play a significant part in the way customer relationships are managed. However, additional portfolios will be added to this disclosure should the forbearance in respect of such portfolios become material.

A Retail loan is not considered to be renegotiated where the amendment is at the request of the customer, there is no evidence of actual or imminent financial difficulty and the amendment meets with all underwriting criteria. In this case it would be treated as a new loan. In the normal course of business, customers who are not in financial difficulties frequently apply for new loan terms, for example to take advantage of a lower interest rate or to secure a further advance on a mortgage product. Where these applications meet our underwriting criteria and the loan is made at market interest rates, the loan is not classified as being in forbearance. Only in circumstances where a customer has requested a term extension, interest rate reduction or further advance and there is evidence of financial difficulty is the loan classified as forbearance and included in our disclosures on forbearance on page 338 of the Barclays PLC Annual Report 2022.

Please see the credit risk performance section on pages 337 to 339 of the Barclays PLC Annual Report 2022 for details of principal Wholesale and Retail assets currently in forbearance.

### **Other programmes**

#### **Retail re-aging activity**

Re-aging refers to the placing of an account into an up-to-date position without the requisite repayment of arrears. The re-age policy applies to revolving products that have a minimum payment requirement only. No reduction is made to the minimum due payment amounts which are calculated, as a percentage of balance, with any unpaid principal included in the calculation of the following month's minimum due payment.

The changes in timing of cash flows following re-aging do not result in any additional cost to Barclays Group. The following are the conditions required to be met before a re-age may occur:

- The account must not have been previously charged off or written off;
- the borrower cannot be bankrupt, subject to an Individual Voluntary Arrangement (a UK contractual arrangement with creditors for individuals wishing to avoid bankruptcy), or deceased;
- the borrower must show a renewed willingness and ability to repay the debt. This will be achieved by the borrower making at least three consecutive contractual monthly payments or the equivalent cumulative amount. Contractual monthly payment is defined as the contractual minimum due. Funds may not be advanced for any part of this the account cannot exceed cycle 3 arrears at the time of the final qualifying payment no account should be re-aged more than twice within any twelve-month period, or more than four times in a five-year period.

Re-aged assets are included in portfolios High Risk population, and are classified as Stage 2 assets (i.e. as having significantly increases credit risk) for IFRS 9 impairment purposes. This results in an appropriately higher impairment allowance being recognised on the assets.

#### **Retail small arrears capitalisation**

All small arrears capitalisations are now considered a form of Forbearance, based on the European Banking Authority's requirements for Supervisory Reporting on Forbearance and Non-Performing exposures.

### **Refinancing risk**

This is the risk that the borrower or group of correlated borrowers may be unable to repay bullet-repayment loans at expiry, and will therefore need refinancing.

From a large corporates perspective, refinancing risk will typically be associated with loans that have an element of bullet repayment incorporated into the repayment profile.

Refinancing risk is taken into account on a case by case basis as part of the credit review and approval process for each individual loan. The review will consider factors such as the strength of the business model and sustainability of the cash flows; and for bridge loans, the certainty of the sources of repayment and any associated market risk.

Commercial real estate loans will frequently incorporate a bullet repayment element at maturity. Where this is the case, deals are sized and structured to enable the Group to term out the loan if the client were unable to refinance the loan at expiry. Credit review will incorporate an examination of various factors that are central to this consideration, such as tenant quality, tenancy agreement (including break clauses), property quality and interest rate sensitivity. Loans to small and medium enterprises (SMEs) will typically be either revolving credit lines to cover working capital needs or amortising exposures, with periodic refinancing to give the opportunity to review structure, pricing, etc.

# Management of credit risk and the internal ratings-based approach (continued)

## Environmental risk

Environmental risk is recognised as a credit risk driver and Barclays Group has a dedicated Environmental Risk Management team, as part of the Treasury, Enterprise, Credit and Climate Risk Transaction Cycle. Environmental issues are considered in credit risk assessment, and environmental risk standards are included in the Wholesale Credit Risk Control Framework.

Barclays Group's approach to environmental credit risk management addresses risk under two categories, namely direct risk and indirect risk, which are covered below.

**Direct risk** can arise when Barclays Group takes commercial land as collateral. In many jurisdictions, enforcement of a commercial mortgage by Barclays Group, leading to possession, potentially renders Barclays Group liable for the costs of remediating a site under Direct Lender Liability, if deemed by the regulator to be contaminated. In the UK, Barclays Group's approach requires commercial land, if being pledged as collateral, to be subject to a screening mechanism. Where required, a further assessment of the commercial history of a piece of land or an asset and its potential for environmental contamination helps reflect any potential environmental degradation in the value ascribed to that security. It also identifies potential liabilities which may be incurred by Barclays Group, if realisation of the security were to become likely.

**Indirect risk** can arise when environmental issues may impact the creditworthiness of the borrower. For instance, incremental costs may be incurred in upgrading a business' operations to meet emerging environmental regulations or tightening standards, including those associated with managing the impacts of climate change. In other circumstances, failure to meet those standards may lead to fines. Environmental impacts on businesses may also include shifts in the market demand for goods or services generated by our customers, or changing supply chain pressures.

More information on our approach to managing risks associated with climate change can be found on page 282 of the Barclays PLC Annual Report 2022.

## Management of credit risk mitigation techniques and counterparty credit risk

Counterparty credit risk arises from derivatives and similar contracts. This section details the specific aspects of the risk framework related to this type of credit risk. As credit risk mitigation is one of the principal uses of derivative contracts by banks, this is also discussed in this section.

- On page 120 a high level description of the types of counterparty credit exposures incurred in the course of Barclays' activity supplements the analytical tables in pages 72 to 78.
- Mitigation techniques specific to counterparty credit risk are also discussed.
- A more general discussion of credit risk mitigation (covering traditional credit risks) is included below.

## Credit risk mitigation

The Group employs a range of techniques and strategies to actively mitigate credit risks. These techniques and strategies can broadly be divided into three types:

- netting and set-off
- collateral
- risk transfer.

The Group has detailed policies in place to maintain that credit risk mitigation is appropriately recognised and recorded. The recognition of credit risk mitigation is subject to a number of considerations including legal certainty of enforceability and effectiveness, that the valuation and liquidity of the collateral is adequately monitored, and that the value of the collateral is not materially correlated with the credit quality of the counterparty.

All three types of credit risk mitigation may be used by different areas of the Group for exposures with a full range of counterparties. For instance, businesses may take property, cash or other physical assets as collateral for exposures to retailers, property companies or other client types.

### Netting and set-off

In most jurisdictions and within legal entities in which the Group operates, credit risk exposures can be reduced by applying netting and set-off. In exposure terms, this credit risk mitigation technique has the largest overall impact on net exposure to derivative transactions, compared with other risk mitigation techniques.

For derivative transactions, the Group's normal practice is, on a legal entity basis, to enter into standard master agreements with counterparties (e.g. ISDAs). These master agreements typically allow for netting of credit risk exposure to a counterparty resulting from derivative transactions against the obligations to the counterparty in the event of default, and so produce a lower net credit exposure. These agreements may also reduce settlement exposure (e.g. for foreign exchange transactions) by allowing payments on the same day in the same currency to be set-off against one another.

Under IFRS, netting is permitted only if both of the following criteria are satisfied:

- the entity currently has a legally enforceable right to set off the recognised amounts
- the entity intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

Under US GAAP, netting is also permitted, regardless of a currently legally enforceable right of set-off and/or the intention to settle on a net basis, where there is a counterparty master agreement that would be enforceable in the event of bankruptcy.

# Management of credit risk and the internal ratings-based approach (continued)

## Collateral

The Group has the ability to call on collateral in the event of default of the counterparty, comprising:

- home loans: a fixed charge over residential property in the form of houses, flats and other dwellings. The value of collateral is impacted by property market conditions which drive demand and therefore value of the property. Other regulatory interventions on ability to repossess, longer period to repossession and granting of forbearance may also affect the collateral value
- wholesale lending: a fixed charge over commercial property and other physical assets, in various forms
- other retail lending: includes charges over motor vehicle and other physical assets; second lien charges over residential property, which are subordinate to first charges held either by the Group or another party; and finance lease receivables, for which typically the Group retains legal title to the leased asset and has the right to repossess the asset on the default of the borrower
- derivatives: the Group also often seeks to enter into a margin agreement (e.g. Credit Support Annex) with counterparties with which the Group has master netting agreements in place. These annexes to master agreements provide a mechanism for further reducing credit risk, whereby collateral (margin) is posted on a regular basis (typically daily) to collateralise the mark to market exposure of a derivative portfolio measured on a net basis. The Group may additionally negotiate the receipt of an independent amount further mitigating risk by collateralising potential mark to market exposure moves
- reverse repurchase agreements: collateral typically comprises highly liquid securities which have been legally transferred to the Group subject to an agreement to return them for a fixed price
- financial guarantees and similar off- balance sheet commitments: cash collateral may be held against these arrangements.

## Risk transfer

A range of instruments including guarantees, credit insurance, credit derivatives and securitisation can be used to transfer credit risk from one counterparty to another. These mitigate credit risk in two main ways:

- if the risk is transferred to a counterparty which is more creditworthy than the original counterparty, then overall credit risk is reduced
- where recourse to the first counterparty remains, both counterparties must default before a loss materialises. This is less likely than the default of either counterparty individually so credit risk is reduced.

Risk transfer can also be used to reduce risk concentrations within portfolios lowering the impact of stress events.

Risk transfer transactions are undertaken with consideration to whether the collateral provider is correlated with the exposure, the credit worthiness of the collateral provider and legal certainty of enforceability and effectiveness. Where credit risk mitigation is deemed to transfer credit risk, this exposure is appropriately recorded against the credit risk mitigation provider.

In exposure terms, risk transfer is used most extensively as a credit risk mitigation technique for wholesale loans and derivative financial instruments.

## Off-balance sheet risk mitigation

The Group applies fundamentally the same risk management policies for off-balance sheet risks as it does for its on-balance sheet risks. In the case of commitments to lend, counterparties/ customers will be subject to the same credit management policies as for loans and advances. Collateral may be sought depending on the strength of the counterparty and the nature of the transaction.

## Recognition of credit risk mitigation in capital calculations

Credit risk mitigation is used to reduce credit risk associated with an exposure, which may reduce potential losses in the event of obligor default or other specified credit events.

Credit risk mitigation that meets certain regulatory criteria may be used to improve risk parameters and reduce RWA consumption against a given obligor. Collateral that meets these regulatory conditions is referred to as eligible collateral. Eligibility criteria are specified in articles 195 to 204 of the Capital Requirements Regulation (CRR).

The Group's policies and standards set out criteria for the recognition of collateral as eligible credit risk mitigation and are designed to be fully consistent with all applicable local regulations and regulatory permissions.

Where regulatory capital is calculated under AIRB regulations, the benefit of collateral is generally taken by adjusting LGDs. For standardised portfolios, the benefit of collateral is taken using the financial collateral comprehensive method: supervisory volatility adjustments approach.

For instruments that are deemed to transfer credit risk, in AIRB portfolios the protection is generally recognised by using the PD and LGD of the protection provider.

For exposures treated under the standardised approach, the impact of eligible credit risk mitigation is primarily recognised by reducing the EAD associated with the exposure that benefits from the mitigation.

## Managing concentrations within credit risk mitigation

Credit risk mitigation taken by the Group to reduce credit risk may result in credit or market risk concentrations.

Guarantees that are treated as eligible credit risk mitigation are marked as an exposure against the guarantor and aggregated with other credit exposure to the guarantor. Limit monitoring at the counterparty level is then used for monitoring of concentrations in line with the Group policy.

Commercial real estate lending is another potential source of concentration risk arising from the use of credit risk mitigation. The portfolio is regularly reviewed to assess whether a concentration in a particular region, industry or property type exists, and portfolio limits are in place to control the level of exposure to commercial, residential, investment and development activity.

# Management of credit risk and the internal ratings-based approach (continued)

## Counterparty credit risk

### Counterparty credit exposures for derivative and securities financing transactions

The Group enters into financial instruments that are traded or cleared on an exchange, including interest rate swaps, futures and options on futures. Holders of exchange traded instruments provide daily margins with cash or other securities at the exchange, to which the holders look for ultimate settlement.

The Group also enters into financial instruments that are traded over the counter, rather than on a recognised exchange. These instruments range from standardised transactions in derivative markets, to trades where the specific terms are tailored to the requirements of the Group's counterparties. In most cases, industry standard documentation is used, most commonly in the form of a master agreement, with individual transaction confirmations. The existence of a signed master agreement is intended to give the Group protection in situations where the Group's counterparty is in default.

Counterparty credit exposure arises from the risk that parties are unable to meet their payment obligations under certain financial contracts such as derivatives, securities financing transactions (SFTs) (e.g. repurchase agreements), or long settlement transactions.

A Monte Carlo simulation engine is used to estimate the Potential Future Exposure (PFE) to derivative and securities financing counterparties. The exposure simulation model simulates future market states and the MTM of the derivative transactions under those states. Simulated exposures including the effect of credit mitigants such as netting, collateral and mandatory break clauses can then be generated.

Credit limits for CCR are assessed and allocated using the PFE measure. A number of factors are taken into account when setting credit limits for individual counterparties, including but not limited to the credit quality and nature of the counterparty, the rationale for the trading activity entered into and any wrong-way risk considerations.

The expected exposures generated by this engine are also used as an input into both internal and regulatory capital calculations covering CCR.

'Wrong-way risk' in a derivative or SFT exposure arises when there is significant correlation between the underlying asset and the counterparty, which in the event of default would lead to a significant MTM loss to the counterparty. Specific wrong-way risk trades, which are self-referencing or reference to other entities within the same counterparty group, require approval by a senior credit officer. The exposure to the counterparty will reflect the additional risk generated by these transactions. (the exposure will be consistent with jump-to-default of the reference asset assuming zero recovery).

### Derivative CCR (credit value adjustments)

As the Group participates in derivative transactions it is exposed to CCR, which is the risk that a counterparty will fail to make the future payments agreed in the derivative contract. This is considered as a separate risk to the volatility of the MTM payment flows. Modelling this counterparty risk is an important part of managing credit risk on derivative transactions.

The counterparty risk arising under derivative transactions is taken into account when reporting the fair value of derivative positions. The adjustment to the value is known as credit value adjustment (CVA). It is the difference between the value of a derivative contract with a risk-free counterparty and that of a contract with the actual counterparty. This is equivalent to the cost of hedging the counterparty risk in the Credit Default Swap (CDS) market.

CVAs for derivative positions are calculated as a function of the expected exposure, which is the average of future hypothetical exposure values for a single transaction or group of transactions with the same counterparty, the credit spread for a given horizon and the LGD.

The expected exposure is calculated using Monte Carlo simulations of risk factors that may affect the valuation of the derivative transactions in order to simulate the exposure to the counterparty through time. These simulated exposures include the effect of credit mitigants such as netting, collateral and mandatory break clauses. Counterparties with appropriate credit mitigants will generate a lower expected exposure profile compared to counterparties without credit mitigants in place for the same derivative transactions.

### Netting and collateral arrangements for derivatives and SFTs

Credit risk from derivatives and securities financing transactions (SFTs) is mitigated where possible through netting agreements whereby assets and liabilities with the same counterparty can be offset. The Group policy requires all netting arrangements to be legally documented. The ISDA Master Agreement is the Group's preferred agreement for documenting OTC derivatives. It provides the contractual framework within which dealing activities across a full range of OTC products are conducted, and contractually binds both parties to apply close-out netting across all outstanding transactions covered by an agreement if either party defaults or other predetermined events occur. The majority of the Group's OTC derivative exposures are covered by ISDA master netting and ISDA CSA collateral agreements. SFTs are documented under Global Master Repurchase Agreement.

Collateral may be obtained against derivative and SFTs, depending on the creditworthiness of the counterparty and/or nature of the transaction. Any non-cash collateral taken in respect of OTC trading exposures will be subject to a 'haircut', which is negotiated at the time of signing the collateral agreement. A haircut is the valuation percentage applicable to each type of collateral and will be largely based on liquidity and price volatility of the underlying security. The collateral obtained for derivatives is predominantly either cash, direct debt obligation government (G14+) bonds denominated in the domestic currency of the issuing country, debt issued by supranationals or letters of credit issued by an institution with a long-term unsecured debt rating of A+/A3 or better. Where the Group has ISDA master agreements, the collateral document will be the ISDA CSA. The collateral document must give the Group the power to realise any collateral placed with it in the event of the failure of the counterparty.

# Management of credit risk and the internal ratings-based approach (continued)

## Internal ratings based (IRB) approach

The IRB approach largely relies on internal models to derive the risk parameters/ components used in determining the capital requirement for a given exposure. The main risk components include measures of the probability of default (PD), loss given default (LGD) and the exposure at default (EAD). The IRB approach is divided into three alternative applications: Own-Estimates, Supervisory Estimates and Specialised Lending.

**Own-Estimates IRB (OEIRB):** The Group uses its own models to estimate PD, LGD and EAD to calculate given risk exposures for various asset classes and the associated Risk Weighted Assets (RWAs).

**Supervisory IRB (SIRB):** Barclays uses its own PD estimates, but relies on supervisory estimates for other risk components. The SIRB approach is particularly used to floor risk parameters for wholesale credit exposures where default data scarcity may impact the robustness of the model build process.

**Specialised Lending IRB:** For specialised lending exposures for which PD cannot be modelled reliably, the Group uses a set of risk weights defined in the relevant regulation, and takes into account a range of prescribed risk factors.

While in the past the industry has used the terms 'Advanced', 'Foundation' and 'Slotting' IRB, the current enforcing regulation (CRR) does not use these terms.

## The IRB calculation for credit risk

For both OEIRB and SIRB approaches, the Group uses the regulatory prescribed risk-weight functions for the purposes of deriving capital requirements.

In line with regulatory requirements, Long Run Average PD and downturn LGD and CF (Conversion Factor) estimates are used for each customer/facility to determine regulatory capital for all exposures in scope.

For the purpose of pricing and existing customer management, point in time (PIT) PD, LGD and EAD are generally used as these represent the best estimates of risk given the current position in the credit cycle. Whilst Long Run Average PDs are always tested at grade/pool level, PIT PDs are also used for the calculation of capital on certain retail unsecured products, in line with regulation.

## Applications of internal ratings

The three components – PD, LGD and CF – are the building blocks used in a variety of applications that measure credit risk across the entire portfolio:

- **Credit approval:** PD models are used in the approval process in both retail and wholesale portfolios. In high-volume retail portfolios, application and behaviour scorecards are frequently used as decision-making tools. In wholesale and some retail mortgage portfolios, PD models are used to direct applications to an appropriate credit- sanctioning level
- **Credit grading:** this was originally introduced in the early 1990s to provide a common measure of risk across the Group. The Group employs a 21-point scale of default probabilities. In some applications, grades in this scale are divided further to permit more detailed analysis. These are shown in Table 34 on page 51
- **Risk-reward and pricing:** RWA derived from the PD, LGD and CF estimates is used to assess the profitability of deals and portfolios and to facilitate risk-adjusted pricing and strategy decisions
- **Risk appetite:** estimates are used to calculate the expected loss and the potential volatility of loss in the Group's risk appetite framework. See page 94
- **Impairment calculation:** under IFRS 9, ECL outputs are produced based on PD, EAD and CF IRB feeder models, with scenario and weighting. See page 113
- **Collections and recoveries:** PD model outputs are used to identify segments of the portfolio where collection and recovery efforts should be prioritised
- **Economic capital (EC) calculation:** EC models for most portfolios use inputs from the IFRS9 impairment models
- **Risk management information:** Risk generate reports to inform senior management on issues such as business performance, risk appetite and EC consumption. Model outputs are used as key indicators in those reports. Risk also generates regular reports on model risk, which covers model accuracy, model use, input data integrity and regulatory compliance among other issues.

## Ratings processes and models for credit exposures

### Wholesale credit

To construct ratings for wholesale customers, including financial institutions, corporations, specialised lending, purchased corporate receivables and equity exposures, the Group complements its internal models suite with external models and rating agencies' information. A model hierarchy is in place requiring users/credit officers to adopt a consistent approach/model to rate each counterparty based on the asset class type and the nature of the transaction.

#### Wholesale PD models

The Group employs a range of methods in the construction of these models:

- Statistical models are used for our high volume portfolios such as small or medium enterprises (SME). The models are typically built using large amounts of internal data, combined with supplemental data from external data suppliers where available. Wherever external data is sourced to validate or enhance internally held data, similar data quality standards to those applicable to the internal data management are enforced
- Structural models incorporate, in their specification, the elements of the industry- accepted Merton framework to identify the distance to default for a counterparty. This relies upon the modeller having access to specific time series data or data proxies for the portfolio. Data samples used to build and validate these models are typically constructed by appropriately combining data sets from internal default observations with comparable externally obtained data sets from commercial providers such as rating agencies and industry data gathering consortia

## Management of credit risk and the internal ratings-based approach (continued)

- Expert lender models are used for those parts of the portfolio where there is insufficient internal or external data to support the construction of a statistically robust model. These models utilise the knowledge and in-depth expertise of the senior credit officers dealing with the specific customer type being modelled. For all portfolios with a low number of default observations, the Group adopts specific regulatory rules, methodologies and floors in its estimates so that the calibration of the model meets the current regulatory criteria for conservatism.

### *Wholesale LGD models*

The LGD models typically rely on statistical analysis to derive the model drivers (including seniority of claim, collateral coverage, recovery periods, industry and costs) that best explain the Group's historical loss experience, often supplemented with other relevant and representative external information where available. The models are calibrated to downturn conditions for regulatory capital purposes and, where internal and external data is scarce, they are subject to SIRB floors so that the calibration of the model meets the current regulatory criteria for conservatism.

### *Wholesale CF models*

The wholesale CF models estimate the potential utilisation of the currently available headroom based on statistical analysis of the available internal and external data and past client behaviour. As is the case with the LGD models, the CF models are subject to downturn calibration for regulatory capital purposes and to floors where data is scarce.

### **Retail credit**

Retail banking and cards operations have long and extensive experience of using credit models in assessing and managing risks. As a result, models play an integral role in customer approval and management decisions. Most retail portfolios are data rich; consequently, most models are built in-house using statistical techniques and internal data. Exceptions are some expert lender models (similar to those described in the wholesale context) where data scarcity precludes the statistically robust derivation of model parameters. In these cases, appropriately conservative assumptions are typically used, and wherever possible these models are validated/benchmarked against external data.

### *Retail PD models*

Application and behavioural scorecards are most commonly used for retail PD modelling:

- Application scorecards are derived from historically observed performance of new clients. They are built using customer demographic and financial information, supplemented by credit bureau information where available. Through statistical techniques, the relationship between these candidate variables and the default marker is quantified to produce output scores reflecting a PD. These scores are used primarily for new customer decisioning but are, in some cases, also used to allocate a PD to new customers for the purpose of capital calculation
- Behavioural scorecards differ from application scorecards in that they rely on the historically observed performance of existing clients. The statistically derived output scores are used for existing customer management activities as well as for the purpose of capital calculation.

Retail LGD models are built using bespoke methods chosen to best model the operational recovery process and practices. In a number of secured portfolios, LGD drivers are parameterised with market factors (e.g. house price indices, haircut of the property value) to capture market trends. For most unsecured portfolios, where recoveries are not based on collateral, statistical models of cash flows are used to estimate ultimate recoveries and LGDs. In all instances, cash flows are discounted to the point of default by using bespoke country and product level factors. For capital calculations, customised economic downturn adjustments, taking into account loss and default dependency, are made to adjust losses to stressed conditions.

### *Retail CF models*

CF models within retail portfolios are split into two main methodological categories. The general methodology is to derive product level credit conversion factors (CCFs) from historical balance migrations, typically for amortising product, such as mortgages, consumer loans. These are frequently further segmented at a bucket level (e.g. by delinquency). The most sophisticated CF models are based on behavioural factors, determining customer level CCFs from characteristics of the individual facility, typically for overdrafts and credit cards. For capital calculations, customised downturn adjustments, taking into account loss and default dependency, are made to adjust for stressed conditions.

### **The control mechanisms for the rating system**

Model risk is a risk managed under the ERMF. Consequently, Barclays Model Risk Policy (MRP) and its supporting standards covering the end-to-end model life cycle are in place to support the management of risk models.

Key controls captured by the MRP cover:

- Model governance is anchored in assigning accountabilities and responsibilities to each of the main stakeholders:
  - model owner – each model must have an owner who has overall accountability for the model
  - model developers – support the model owner and drive development according to the model owner's defined scope/ purpose
  - Independent Validation Unit (IVU) – responsible for independent review, challenge and approval of all models.
- Externally developed models are subject to the same governance standards as internal models
- Models are classified by materiality (high/low) and complexity (complex/non-complex)
- All models must be validated and approved by IVU before initial implementation/use
- Models are subject to annual assessment, including performance monitoring, by model owner and independently validated by IVU annually.
- All models must be recorded in the Group Models Database (GMD), which records model owners and developers
- Model owners must evidence that model implementation is accurate and tested.

If a model is found to perform sub-optimally, it may be rejected and/or subjected to a Post Model Adjustment (PMA) before approval for continued use is granted.

## Management of credit risk and the internal ratings-based approach (continued)

The IVU reporting line is separate from that of the model developers. IVU is part of Model Risk Management (MRM), and the head of MRM reports to the Group Chief Risk Officer (GCRO). The model development teams have separate reporting lines to the Barclays UK and Barclays International Chief Risk Officers, who in turn report to the GCRO.

Under the Three Lines of Defence approach stated in the ERMF, the actions of all parties with responsibilities under the MRP are subject to independent review by Barclays Internal Audit.

### **Validation processes for credit exposures**

Validation of credit models covers observed model performance but also the scope of model use, interactions between models, data use and quality, the model's theoretical basis, regulatory compliance and any remediation to model risk that are proposed or in place. The following sections provide more detail on processes for validating the performance of each model type.

#### **Wholesale PD models**

To assess model calibration, the IVU compares the model prediction of default frequency to the realised internal default rate both over the latest year and over all observable model history. Due to the relative infrequency of default of large wholesale obligors, a long-run perspective on default risk is vital. Default rates are also compared to external benchmarks where these are relevant and available, such as default rates in rating-agency data. In practice, since financial crises have been infrequent, IVU would expect the model PD used in calculating regulatory capital to exceed the long run observed default rate.

For portfolios where few internal defaults have been observed, portfolio PD is compared to the 'most prudent PD' generated by the industry-standard Pluto-Tasche method, using conservative parameter assumptions.

To assess model discrimination performance, the IVU compares the rank-ordering of internal ratings with the pattern of defaults, if any, to construct the industry-standard Gini statistic or similar. The ordering of internal ratings is also compared to the ordering of internal and external comparator ratings where these are available.

Measures of grade stability and the degree to which PD tracks default rates over time are also routinely calculated to infer relevant aspects of the model performance.

#### **Wholesale LGD models**

To assess model calibration, model outputs are compared to the LGD observed on facilities that entered default in 'downturn' periods, as requested by the regulator. Both internal and external data on observed LGD are examined, but preference is given to internal data, since these reflect the Group's recovery policies. Comparisons are performed by product seniority and security status and for other breakdowns of the portfolio. Model outputs are also compared to the long-run average of observed LGD. The time-lapse between facility default and the closure of recovery is varied and may be long. In the construction of observed LGD, recoveries are discounted back to the date of default at a conservative interest rate, following regulatory guidance of at least 9%. As noted above, regulatory floors are in place for the LGD used in calculating regulatory capital for exposure types where few default observations are available.

To assess model discrimination, the IVU compares the rank-ordering of model predictions to that of observed LGD and calculates the Spearman's Rank correlation coefficient and other measures of discrimination.

#### **Wholesale CF models**

To assess model calibration, the conversion factors observed in internal data are compared to model predictions, both in downturn periods as defined by the regulator, and on a long-run average basis. Comparisons are performed separately for different product types. Validation focuses on internal data, with external data used as a benchmark, because conversion factors are related to banks' facility management practices. Particular care is used in separating cases where facility limits changed between the date of observation and default, as these can lead to measurements of conversion factors that take extreme values. As a benchmark only, total predicted exposure at default for all defaulted facilities is compared to realised exposure at default. This comparison is done because it is relatively insensitive to extreme values for observed CF on some facilities. The primary validation tests are performed on facility-weighted rather than exposure-weighted basis, however, in line with the relevant regulations.

#### **Retail PD models**

To assess rating philosophy, i.e. whether it is a Point-in-Time system or Through-the-Cycle system, the IVU produces migration indices to investigate relevant grade migration.

To assess model calibration, the IVU compares the model prediction of default frequency to the realised internal default rate by grade/pool as required by CRR. As a minimum, IVU expects the expected default rate is at least equal or above the level of observed default rate.

To assess model discrimination performance, the IVU compares the rank-ordering of internal ratings with the pattern of defaults, if any, to construct the industry-standard Gini statistic or similar.

To assess model stability, the population distribution, the character distribution and parameter estimates are assessed individually.

A 0.03% regulatory floor is in place for the facility level PD used in calculating regulatory capital.

#### **Retail LGD models**

LGD model components are compared to observed value respectively, this may include but not limited to probability of possession/charge off, forced sale discount, time from default to crystallisation and discount rate. Where components are similar to PD in nature, the approach stated in the PD section applies to assess the calibration, discrimination and stability of the component.

The calibration of the overall LGD is assessed through the expected against actual comparison by default flow and stock population respectively. The downturn LGD appropriateness is further assessed to test that the downturn LGD is equal to or above the long-run average of observed LGD. This exercise is performed at grade/pool level according to CRR. In the construction of observed LGD, recoveries are discounted back to the date of default at a conservative interest rate, following regulatory guidance. As noted above, regulatory floors are in place for the LGD used in calculating regulatory capital where appropriate (this includes but not limited to the non-zero LGD floor at account level, the collateral uncertainty consideration, the portfolio level LGD floor and UK property haircut floor).

## Management of credit risk and the internal ratings-based approach (continued)

The primary validation tests are performed on facility-weighted rather than exposure-weighted basis, however, in line with the relevant regulations.

### Retail CF models

The calibration of the overall CF is assessed through the expected against actual comparison by default flow and stock population respectively. The downturn CF appropriateness is further assessed to test that the downturn CF is equal to or above the long-run average of observed CF. This exercise is performed at grade/pool level according to CRR. Particular care is used in separating cases where facility limits changed between the date of observation and default, as these can lead to measurements of conversion factors that take extreme values.

Depending on the modelling approach, the relevant measure used for PD/LGD may be used accordingly to assess calibration, discrimination and stability.

CF is floored so that the exposure at the point of default cannot be less than exposure observed at point of regulatory reporting.

The primary validation tests are performed on facility-weighted rather than exposure-weighted basis, however, in line with the relevant regulations.

Table 98 for credit risk model characteristics shows modelled variables to calculate RWAs (PD, LGD, and EAD) at portfolio level, with number of models and their significance in terms of RWAs, model method or approach, numbers of years of data used, Basel asset class of the customer or client, and regulatory thresholds applied.

### Selected features of material models

The table below contains selected features of the key Group's AIRB credit risk models which are used to calculate RWAs, including AIRB PMA. Please note that the RWAs reported in this table are based on the models in production as of Nov'22.

- PD models listed in the table account for £118bn of total AIRB approach RWAs
- LGD models listed in the table account for £113bn of total AIRB approach RWAs

## Management of credit risk and the internal ratings-based approach (continued)

**Table 74: IRB credit risk models' selected features**

Component modelled	Portfolio	Size of associated portfolio (RWAs)			Number of years loss data	Basel asset classes measured	Applicable industry-wide regulatory thresholds
		BUK (£m)	BI (£m)	Model description and methodology			
PD	Publicly traded corporate	—	22,340	Statistical model using a Merton-based methodology. It takes quantitative factors as inputs.	> 10 Years	Corporate	PD floor of 0.03%
PD	Customers rated by Moody's and S&P	—	44,877	Rating Agency Equivalent model converts agency ratings into estimated equivalent PiT default rates using credit cycles based on Moody's data.	> 10 Years	Corporate, Financial Institutions and Sovereigns	PD floor of 0.03% for corporate and institutions
PD	SME customers with turnover < £20m	8,476	2,031	Statistical models that uses regression techniques to derive relationship between observed default experience and a set of behavioural variables.	> 10 Years	Corporate SME, SME	Regulatory PD floor of 0.03%
PD	Corporate customers with turnover >= £20m	—	4,750	Statistically derived models sourced from an external vendor (Moody's RiskCalc).	> 10 Years	Corporate	PD floor of 0.03%
PD	UK Home Finance	24,345	—	Statistical scorecards estimated using regression techniques, segmented along arrears status and portfolio type.	> 10 Years	Secured By Real Estate (residential and buy-to-let mortgages)	Regulatory PD floor of 0.03%
PD	Barclaycard UK	11,506	—	Statistical scorecards estimated using regression techniques, segmented along arrears status and portfolio type.	6 - 10 Years	Qualifying Revolving Retail (QRRE)	PD floor of 0.03%
LGD	Corporate and Financial Institutions	—	63,934	Model based on a statistical regression that outputs a long run average LGD by estimating the expected value of recovery. Inputs include industry, seniority, instrument, collateral and country.	> 10 Years	Corporate, Financial Institutions	LGD floor of 45% based on low default portfolio criteria
LGD	All business customers (excluding certain specialised sectors)	1,415	11,577	Model is based on a function estimated using actual recoveries experience. It takes account of collateral value and an allowance for non-collateral recovery.	> 10 Years	Corporate	LGD floor of 5%
LGD	UK Home Finance	24,345	—	Data driven estimates of loss and probability of possession	6 - 10 Years	Secured By Real Estate (residential and buy-to-let mortgages)	The portfolio average downturn LGD is floored at 10%
LGD	Barclaycard UK	11,506	—	Statistical models combining segmented regression and other forecasting techniques	6 - 10 Years	Qualifying Revolving Retail (QRRE)	—

# Management of credit risk and the internal ratings-based approach (continued)

## Credit Risk IRB models performance back testing - estimated versus actual

The following tables compare the PDs estimated by the Group's IRB models with the actual default rates. Comparisons are based on the assets in IRB approach portfolios and are used to assess performance of the models - the estimates and actual figures represent direct outputs from the models rather than outputs used in regulatory capital calculations that may be adjusted to apply more conservative assumptions.

Risk models are subject to the Model Risk Policy which contains detailed guidance on the minimum standards for model risk management. For example, PDs must be estimated over a sufficient period, show sufficient differentiation in predictions for different customers, show conservatism where data limitations exist, and follow prescriptive techniques. These standards are achieved via an independent validation process using independent experts. Once validated and correctly implemented, models are subject to regular monitoring to ensure they can still be used. Comparing model estimates with actual default rates for PD form part of this monitoring. Such analysis is used to assess and enhance the performance of the models.

Further detail is provided in the management of model risk on page 168.

### PD measures

- Within each IRB exposure class, the model estimated Point in time (PiT) PDs are compared with the actual default rates within PD ranges. PD ranges, estimated PDs and actual default rates are based on the existing model default definitions. UK Cards, UK Home Finance, UK Current Account, UK Barclayloan and SME are the only CRD IV compliant portfolio as of the reference month (Nov'22). For the remaining portfolios compliant models are either currently under the PRA approval process or will be submitted as per the EBA IRB Repair roll out plan periodically reviewed by the PRA.
- The estimated PDs are forward-looking average PDs from the model at the beginning of the twelve-month period, i.e. average PD of the Nov'21 non-defaulted obligors including inactive and non-borrowers.
- The estimated PDs are compared with the observed average default rate and the simple average of historical annual default rates over the past 5 years, starting Nov'17.
- The PiT PD is used as a predicted measure in internal monitoring and annual validation of the models. In contrast, the capital calculation uses Through the Cycle (TTC) or Regulatory PDs (not shown below), calibrated to long-run default averages with additional adjustments where modelled outputs display evidence of risk understatement (including credit expert overrides, regulatory adjustments etc.). The PiT measure is subject to under or over prediction depending on the relative position of the portfolio to the credit cycle.
- The above mapping between external ratings and internal PD ranges is based on the published reports from the two rating agencies - Moody's and S&P.
- For the wholesale models, the average default probabilities in the tables have been determined from the full scope of obligors graded by the IRB model suites, which may include some obligors that have either zero exposure or zero limits marked at the time of calculation.
- The obligors are defined as 'Grade As Group' (GAG) parents for all wholesale models except SME, since wholesale models are built to predict and grade at this level. In SME, the obligors are defined as 'individual borrower' with no connection to group structure, consistent with the model development approach. This methodology is in line with the approaches followed across wholesale models in internal model performance back testing.
- In accordance with the new regulations, specialised lending and counterparty credit risk exposures have been removed from the scope of the wholesale asset classes.

## Management of credit risk and the internal ratings-based approach (continued)

### IRB approach – Back-testing of PD per exposure class (fixed PD scale)

These tables provide an overview of credit risk model performance, assessed by the analysis of average PDs. Please note these tables exclude exposures calculated under the supervisory slotting approach and the straddling obligors between BUK and BI have been classified under BUK.

The tables compare the model output to the actual experience in our portfolios. Such analysis is used to assess and enhance the adequacy and accuracy of models. The outputs are subject to a number of adjustments before they are used in the calculation of capital, e.g. adjustments for the position in the credit cycle and the impact of stress on recovery rates.

**Table 75 : CR9 - IRB approach – Back-testing of PD for central governments and central banks<sup>a</sup>**

PD Range	As at 31 December 2022	Number of obligors at the end of previous year		Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
			Of which number of obligors which defaulted in the year				
0.00 to <0.15		61	—	0.0%	0.0%	0.0%	0.0%
0.00 to <0.10		58	—	0.0%	0.0%	0.0%	0.0%
0.10 to <0.15		3	—	0.0%	—	0.1%	0.0%
0.15 to <0.25		26	—	0.0%	—	0.2%	0.0%
0.25 to <0.50		27	—	0.0%	0.4%	0.4%	0.0%
0.50 to <0.75		17	—	0.0%	0.6%	0.6%	0.0%
0.75 to <2.50		26	—	0.0%	—	1.3%	0.0%
0.75 to <1.75		19	—	0.0%	—	1.1%	0.0%
1.75 to <2.5		7	—	0.0%	—	1.9%	0.0%
2.50 to <10.00		22	—	0.0%	—	4.6%	0.0%
2.5 to <5		12	—	0.0%	—	2.7%	0.0%
5 to <10		10	—	0.0%	—	6.9%	0.0%
10.00 to <100.00		2	—	0.0%	—	10.0%	0.0%
10 to <20		2	—	0.0%	—	10.0%	0.0%
20 to <30		—	—	0.0%	—	0.0%	0.0%
30.00 to <100.00		—	—	0.0%	—	0.0%	0.0%
100.00 (Default)		—	—	0.0%	—	0.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

**Table 76 : CR9 - IRB approach – Back-testing of PD for institutions<sup>a</sup>**

PD Range	As at 31 December 2022	Number of obligors at the end of previous year		Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
			Of which number of obligors which defaulted in the year				
0.00 to <0.15		738	1	0.1%	0.0%	0.0%	0.1%
0.00 to <0.10		690	1	0.1%	0.0%	0.0%	0.1%
0.10 to <0.15		48	—	0.0%	0.1%	0.1%	0.0%
0.15 to <0.25		53	2	3.8%	0.2%	0.2%	0.8%
0.25 to <0.50		48	—	0.0%	0.3%	0.4%	0.0%
0.50 to <0.75		26	—	0.0%	0.7%	0.6%	0.0%
0.75 to <2.50		49	1	2.0%	1.5%	1.4%	0.4%
0.75 to <1.75		31	—	0.0%	1.1%	1.1%	0.0%
1.75 to <2.5		18	1	5.6%	2.3%	1.9%	1.1%
2.50 to <10.00		54	—	0.0%	3.5%	5.8%	1.5%
2.5 to <5		21	—	0.0%	2.9%	3.2%	1.7%
5 to <10		33	—	0.0%	8.5%	7.4%	0.6%
10.00 to <100.00		12	—	0.0%	17.5%	18.5%	0.0%
10 to <20		8	—	0.0%	12.6%	13.8%	0.0%
20 to <30		2	—	0.0%	26.3%	25.7%	0.0%
30.00 to <100.00		2	—	0.0%	43.9%	30.0%	0.0%
100.00 (Default)		—	—	0.0%	100.0%	0.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Management of credit risk and the internal ratings-based approach (continued)

**Table 77 : CR9 - IRB approach – Back-testing of PD for corporates - SME<sup>a</sup>**

PD Range	As at 31 December 2022		Number of obligors at the end of previous year Of which number of obligors which defaulted in the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
0.00 to <0.15		707	—	0.0%	0.1%	0.1%	0.2%
0.00 to <0.10		129	—	0.0%	0.1%	0.1%	0.1%
0.10 to <0.15		578	—	0.0%	0.1%	0.1%	0.3%
0.15 to <0.25		769	3	0.4%	0.2%	0.2%	0.3%
0.25 to <0.50		8,501	36	0.4%	0.4%	0.4%	0.5%
0.50 to <0.75		9,145	35	0.4%	0.6%	0.6%	0.7%
0.75 to <2.50		21,790	189	0.9%	1.4%	1.3%	1.6%
0.75 to <1.75		16,749	136	0.8%	1.2%	1.1%	1.3%
1.75 to <2.5		5,041	53	1.1%	2.0%	2.1%	2.5%
2.50 to <10.00		7,189	208	2.9%	4.6%	4.2%	4.8%
2.5 to <5		5,403	113	2.1%	3.3%	3.3%	3.8%
5 to <10		1,786	95	5.3%	6.6%	6.8%	6.7%
10.00 to <100.00		953	149	15.6%	19.7%	23.5%	16.6%
10 to <20		597	64	10.7%	14.1%	13.5%	12.3%
20 to <30		159	33	20.8%	23.8%	24.2%	22.4%
30.00 to <100.00		197	52	26.4%	35.9%	53.5%	26.1%
100.00 (Default)		685	—	0.0%	100.0%	100.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

**Table 78 : CR9 - IRB approach – Back-testing of PD for corporates - others<sup>a</sup>**

PD Range	As at 31 December 2022		Number of obligors at the end of previous year Of which number of obligors which defaulted in the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
0.00 to <0.15		1,378	3	0.2%	0.1%	0.1%	0.2%
0.00 to <0.10		890	3	0.3%	0.1%	0.1%	0.2%
0.10 to <0.15		488	—	0.0%	0.1%	0.1%	0.2%
0.15 to <0.25		681	—	0.0%	0.2%	0.2%	0.2%
0.25 to <0.50		2,195	4	0.2%	0.3%	0.3%	0.2%
0.50 to <0.75		1,029	9	0.9%	0.6%	0.6%	0.4%
0.75 to <2.50		2,195	4	0.2%	1.4%	1.4%	0.8%
0.75 to <1.75		1,533	2	0.1%	1.2%	1.1%	0.6%
1.75 to <2.5		662	2	0.3%	2.0%	2.1%	1.5%
2.50 to <10.00		1,389	24	1.7%	5.3%	4.2%	2.6%
2.5 to <5		985	11	1.1%	3.7%	3.3%	2.0%
5 to <10		404	13	3.2%	7.0%	6.3%	4.0%
10.00 to <100.00		217	22	10.1%	16.2%	17.5%	11.5%
10 to <20		187	14	7.5%	14.3%	14.1%	8.7%
20 to <30		9	2	22.2%	23.8%	24.1%	17.7%
30.00 to <100.00		21	6	28.6%	35.9%	45.4%	25.4%
100.00 (Default)		121	—	0.0%	100.0%	100.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Management of credit risk and the internal ratings-based approach (continued)

**Table 79 : CR9 - IRB approach – Back-testing of PD for secured retail - non SME<sup>a</sup>**

As at 31 December 2022	Number of obligors at the end of previous year		Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
	PD Range	Of which number of obligors which defaulted in the year				
0.00 to <0.15	647,273	530	0.1%	0.1%	0.1%	0.1%
0.00 to <0.10	252,906	158	0.1%	0.1%	0.1%	0.1%
0.10 to <0.15	394,367	372	0.1%	0.1%	0.1%	0.1%
0.15 to <0.25	175,702	236	0.1%	0.2%	0.2%	0.2%
0.25 to <0.50	71,005	213	0.3%	0.4%	0.3%	0.5%
0.50 to <0.75	15,741	87	0.6%	0.6%	0.6%	0.9%
0.75 to <2.50	20,325	216	1.1%	1.3%	1.4%	1.4%
0.75 to <1.75	14,647	146	1.0%	1.1%	1.1%	1.3%
1.75 to <2.5	5,678	70	1.2%	2.0%	2.1%	1.7%
2.50 to <10.00	14,200	548	3.9%	4.5%	4.8%	5.2%
2.5 to <5	8,695	205	2.4%	3.4%	3.5%	3.4%
5 to <10	5,505	343	6.2%	7.3%	7.0%	8.1%
10.00 to <100.00	7,571	2,170	28.7%	29.0%	30.4%	31.3%
10 to <20	3,024	435	14.4%	14.7%	13.9%	16.5%
20 to <30	1,466	352	24.0%	25.1%	24.9%	28.4%
30.00 to <100.00	3,081	1,383	44.9%	53.9%	49.2%	46.4%
100.00 (Default)	14,466	—	0.0%	100.0%	100.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

**Table 80 : CR9 - IRB approach – Back-testing of PD for revolving retail<sup>a</sup>**

As at 31 December 2022	Number of obligors at the end of previous year		Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
	PD Range	Of which number of obligors which defaulted in the year				
0.00 to <0.15	13,550,620	7,225	0.1%	0.1%	0.1%	0.1%
0.00 to <0.10	11,303,309	4,446	0.0%	0.1%	0.0%	0.0%
0.10 to <0.15	2,247,311	2,779	0.1%	0.1%	0.1%	0.1%
0.15 to <0.25	1,905,930	4,122	0.2%	0.2%	0.2%	0.2%
0.25 to <0.50	1,781,315	7,107	0.4%	0.4%	0.4%	0.3%
0.50 to <0.75	884,356	6,150	0.7%	0.6%	0.6%	0.6%
0.75 to <2.50	1,971,016	31,461	1.6%	1.4%	1.4%	1.4%
0.75 to <1.75	1,487,767	19,434	1.3%	1.1%	1.2%	1.2%
1.75 to <2.5	483,249	12,027	2.5%	2.1%	2.1%	2.2%
2.50 to <10.00	849,406	50,378	5.9%	4.6%	4.7%	5.1%
2.5 to <5	553,422	25,283	4.6%	3.4%	3.5%	3.7%
5 to <10	295,984	25,095	8.5%	6.9%	6.9%	7.3%
10.00 to <100.00	215,000	59,911	27.9%	23.2%	25.9%	26.2%
10 to <20	128,800	20,529	15.9%	13.4%	13.6%	14.6%
20 to <30	34,065	9,190	27.0%	24.0%	24.4%	24.6%
30.00 to <100.00	52,135	30,192	57.9%	52.9%	57.1%	55.5%
100.00 (Default)	287,305	—	0.0%	100.0%	100.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Management of credit risk and the internal ratings-based approach (continued)

**Table 81 : CR9 - IRB approach – Back-testing of PD for other retail - SME<sup>a</sup>**

As at 31 December 2022	Number of obligors at the end of previous year		Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
	PD Range	Of which number of obligors which defaulted in the year				
0.00 to <0.15	77,906	17	0.0%	0.1%	0.1%	0.1%
0.00 to <0.10	24,119	15	0.1%	0.1%	0.1%	0.1%
0.10 to <0.15	53,787	2	0.0%	0.1%	0.1%	0.2%
0.15 to <0.25	41,180	44	0.1%	0.2%	0.2%	0.4%
0.25 to <0.50	186,251	4,231	2.3%	0.4%	0.4%	1.0%
0.50 to <0.75	148,971	1,578	1.1%	0.6%	0.6%	1.2%
0.75 to <2.50	373,748	11,579	3.1%	1.5%	1.3%	2.4%
0.75 to <1.75	291,009	7,706	2.6%	1.2%	1.1%	2.1%
1.75 to <2.5	82,739	3,873	4.7%	2.1%	2.1%	3.8%
2.50 to <10.00	160,763	18,087	11.3%	4.6%	4.6%	6.7%
2.5 to <5	109,578	9,366	8.5%	3.5%	3.4%	5.7%
5 to <10	51,185	8,721	17.0%	6.9%	7.0%	9.3%
10.00 to <100.00	20,536	8,061	39.3%	24.0%	23.2%	28.6%
10 to <20	14,579	4,298	29.5%	13.6%	12.7%	19.1%
20 to <30	1,892	785	41.5%	24.0%	24.6%	28.6%
30.00 to <100.00	4,065	2,978	73.3%	44.7%	60.0%	51.0%
100.00 (Default)	28,599	—	0.0%	100.0%	100.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

**Table 82 : CR9 - IRB approach – Back-testing of PD for other retail - non SME<sup>a</sup>**

As at 31 December 2022	Number of obligors at the end of previous year		Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate (%)
	PD Range	Of which number of obligors which defaulted in the year				
0.00 to <0.15	75,674	81	0.1%	0.1%	0.1%	0.1%
0.00 to <0.10	44,465	36	0.1%	0.1%	0.1%	0.1%
0.10 to <0.15	31,209	45	0.1%	0.1%	0.1%	0.1%
0.15 to <0.25	46,550	94	0.2%	0.2%	0.2%	0.2%
0.25 to <0.50	89,745	290	0.3%	0.4%	0.4%	0.3%
0.50 to <0.75	56,670	303	0.5%	0.6%	0.6%	0.6%
0.75 to <2.50	146,640	1,794	1.2%	1.4%	1.4%	1.4%
0.75 to <1.75	109,831	1,098	1.0%	1.2%	1.2%	1.1%
1.75 to <2.5	36,809	696	1.9%	2.1%	2.1%	2.1%
2.50 to <10.00	91,207	4,028	4.4%	4.6%	4.7%	4.9%
2.5 to <5	58,848	1,903	3.2%	3.5%	3.5%	3.5%
5 to <10	32,359	2,125	6.6%	7.0%	7.0%	7.2%
10.00 to <100.00	26,310	7,007	26.6%	27.9%	27.2%	27.6%
10 to <20	15,949	1,963	12.3%	13.5%	13.4%	13.7%
20 to <30	3,456	817	23.6%	24.2%	24.2%	24.0%
30.00 to <100.00	6,905	4,227	61.2%	62.6%	60.7%	59.6%
100.00 (Default)	28,502	—	0.0%	100.0%	100.0%	0.0%

**Note**

a. No comparatives are provided as this is a new disclosure requirement from 1 January 2022.

## Management of credit risk and the internal ratings-based approach (continued)

### IRB approach – Back-testing of PD per exposure class (only for PD estimates according to point (f) of Article 180(1) CRR)

**Table 83: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Central governments and central banks**

As at 31 December 2022	External rating equivalent		Number of obligors at the end of the year		Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)
	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited	Of which number of obligors which defaulted in the year	—			
PD Ranges							
0.00 to <0.15	AAA, AA1, AA2, AA3, A1, A2, A3, BAA1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	61	—	0.00%	0.02%	0.00%
0.00 to <0.10	AAA, AA1, AA2, AA3, A1, A2, A3	AAA, AA+, AA, AA-, A+, A, A-	58	—	0.00%	0.01%	0.00%
0.10 to <0.15	BAA1	BBB+	3	—	0.00%	0.13%	0.00%
0.15 to <0.25	BAA2, BAA3	BBB	26	—	0.00%	0.20%	0.00%
0.25 to <0.50	BAA3, BA1	BBB-, BB+	27	—	0.00%	0.36%	0.00%
0.50 to <0.75	BA1, BA2	BB+, BB	17	—	0.00%	0.62%	0.00%
0.75 to <2.50	BA2, BA3, B1	BB, BB-, B+	26	—	0.00%	1.29%	0.00%
0.75 to <1.75	BA2, BA3	BB, BB-, B+	19	—	0.00%	1.07%	0.00%
1.75 to <2.5	BA2, BA3, B1	BB, BB-, B+	7	—	0.00%	1.29%	0.00%
2.50 to <10.00	B1, B2, B3, CAA1	B+, B, B-, CCC+	22	—	0.00%	4.60%	0.00%
2.5 to <5	B1, B2, B3, CAA1	B+, B	12	—	0.00%	2.70%	0.00%
5 to <10	B3, CAA1	B, B-, CCC+	10	—	0.00%	6.88%	0.00%
10.00 to <100.00	B3, CAA1, CAA2, C, AA3, CA, C	CCC+, CCC, CC, C-, CC+, CC, C	2	—	0.00%	10.00%	0.00%
10 to <20	B3, CAA1, CAA2, CAA3, CA, C	CCC+, CCC, CCC-, CC+, CC, C	2	—	0.00%	10.00%	0.00%
20 to <30	CAA3, CA, C	CCC-, CC+, CC, C	—	—	0.00%	0.00%	0.00%
30.00 to <100.00	CAA3, CA, C	CCC-, CC+, CC, C	—	—	0.00%	0.00%	0.00%
100.00 (Default)	D	D	—	—	0.00%	0.00%	0.00%

## Management of credit risk and the internal ratings-based approach (continued)

**Table 84: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Institutions**

As at 31 December 2022	External rating equivalent		Number of obligors at the end of the year	Of which number of obligors which defaulted in the year	Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)
	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited					
PD Ranges							
0.00 to <0.15	AAA, AA1, AA2, AA3, A1, A2, A3, BAA1	AAA, AA+, AA-, A+, A, A-, BBB+	738	1	0.14%	0.03%	0.07%
0.00 to <0.10	AAA, AA1, AA2, AA3, A1, A2, A3	AAA, AA+, AA-, A+, A, A-	690	1	0.15%	0.03%	0.07%
0.10 to <0.15	BAA1	BBB+	48	—	0.00%	0.12%	0.00%
0.15 to <0.25	BAA2, BAA3	BBB	53	2	3.77%	0.19%	0.75%
0.25 to <0.50	BAA3, BA1	BBB-, BB+	48	—	0.00%	0.35%	0.00%
0.50 to <0.75	BA1, BA2	BB+, BB	26	—	0.00%	0.64%	0.00%
0.75 to <2.50	BA2, BA3, B1	BB, BB-, B+	49	1	2.04%	1.41%	0.41%
0.75 to <1.75	BA2, BA3	BB, BB-, B+	31	—	0.00%	1.12%	0.00%
1.75 to <2.5	BA3, B1	B+	18	1	5.56%	1.90%	1.11%
2.50 to <10.00	B1, B2, B3, CAA1	B+, B, B-, CCC+	54	—	0.00%	5.76%	1.50%
2.5 to <5	B1, B2, B3, CAA1	B+, B	21	—	0.00%	3.20%	1.74%
5 to <10	B3, CAA1	B, B-, CCC+	33	—	0.00%	7.39%	0.63%
10.00 to <100.00	B3, CAA1, CAA2, C AA3, CA, C	CCC+, CCC, CC C-, CC+, CC, C	12	—	0.00%	18.45%	0.00%
10 to <20	B3, CAA1, CAA2, CAA3, CA, C	CCC+, CCC, CCC-, CC+, CC, C	8	—	0.00%	13.76%	0.00%
20 to <30	CAA3, CA, C	CC-, CC+, CC, C	2	—	0.00%	25.65%	0.00%
30.00 to <100.00	CAA3, CA, C	CC-, CC+, CC, C	2	—	0.00%	30.00%	0.00%
100.00 (Default)	D	D	—	—	0.00%	0.00%	0.00%

## Management of credit risk and the internal ratings-based approach (continued)

**Table 85: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Corporates - SMEs**

PD Ranges	As at 31 December 2022		Number of obligors at the end of previous year	Of which number of obligors which defaulted in the year	Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)
	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited					
0.00 to <0.15	AAA, AA1, AA2, AA3, A1, A2, A3, BAA1	AAA, AA+, AA-, A-, A, A-, BBB+	707	—	0.00%	0.11%	0.19%
0.00 to <0.10	AAA, AA1, AA2, AA3, A1, A2, A3	AAA, AA+, AA-, A-, A, A-	129	—	0.00%	0.08%	0.10%
0.10 to <0.15	BAA1	BBB+	578	—	0.00%	0.11%	0.27%
0.15 to <0.25	BAA2, BAA3	BBB	769	3	0.39%	0.21%	0.32%
0.25 to <0.50	BAA3, BA1	BBB-, BB+	8,501	36	0.42%	0.37%	0.45%
0.50 to <0.75	BA1, BA2	BB+, BB	9,145	35	0.38%	0.63%	0.66%
0.75 to <2.50	BA2, BA3, B1	BB, BB-, B+	21,790	189	0.87%	1.35%	1.55%
0.75 to <1.75	BA2, BA3	BB, BB-, B+	16,749	136	0.81%	1.13%	1.29%
1.75 to <2.5	BA3, B1	B+	5,041	53	1.05%	2.09%	2.46%
2.50 to <10.00	B1, B2, B3, CAA1	B+, B, B-, CCC+	7,189	208	2.89%	4.20%	4.76%
2.5 to <5	B1, B2, B3, CAA1	B+, B	5,403	113	2.09%	3.34%	3.82%
5 to <10	B3, CAA1	B, B-, CCC+	1,786	95	5.32%	6.79%	6.70%
10.00 to <100.00	B3, CAA1, CAA2, C AA3, CA, C	CCC+, CCC, CC C-, CC+, CC, C	953	149	15.64%	23.53%	16.65%
10 to <20	B3, CAA1, CAA2, CAA3, CA, C	CCC+, CCC, CCC-, CC+, CC, C	597	64	10.72%	13.47%	12.32%
20 to <30	CAA3, CA, C	CCC-, CC+, CC, C	159	33	20.76%	24.17%	22.42%
30.00 to <100.00	CAA3, CA, C	CCC-, CC+, CC, C	197	52	26.40%	53.47%	26.14%
100.00 (Default)	D	D	685	—	0.00%	100.00%	0.00%

**Table 86: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Corporates - Others**

PD Ranges	As at 31 December 2022		Number of obligors at the end of the year	Of which number of obligors which defaulted in the year	Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)
	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited					
0.00 to <0.15	AAA, AA1, AA2, AA3, A1, A2, A3, BAA1	AAA, AA+, AA-, A-, A, A-, BBB+	1,378	3	0.22%	0.08%	0.17%
0.00 to <0.10	AAA, AA1, AA2, AA3, A1, A2, A3	AAA, AA+, AA-, A-, A, A-	890	3	0.34%	0.06%	0.19%
0.10 to <0.15	BAA1	BBB+	488	—	0.00%	0.12%	0.18%
0.15 to <0.25	BAA2, BAA3	BBB	681	—	0.00%	0.20%	0.16%
0.25 to <0.50	BAA3, BA1	BBB-, BB+	2,195	4	0.18%	0.34%	0.21%
0.50 to <0.75	BA1, BA2	BB+, BB	1,029	9	0.88%	0.63%	0.44%
0.75 to <2.50	BA2, BA3, B1	BB, BB-, B+	2,195	4	0.18%	1.41%	0.79%
0.75 to <1.75	BA2, BA3	BB, BB-, B+	1,533	2	0.13%	1.12%	0.58%
1.75 to <2.5	BA3, B1	B+	662	2	0.30%	2.09%	1.53%
2.50 to <10.00	B1, B2, B3, CAA1	B+, B, B-, CCC+	1,389	24	1.73%	4.16%	2.65%
2.5 to <5	B1, B2, B3, CAA1	B+, B	985	11	1.12%	3.27%	1.98%
5 to <10	B3, CAA1	B, B-, CCC+	404	13	3.22%	6.34%	3.96%
10.00 to <100.00	B3, CAA1, CAA2, C AA3, CA, C	CCC+, CCC, CC C-, CC+, CC, C	217	22	10.14%	17.51%	11.48%
10 to <20	B3, CAA1, CAA2, CAA3, CA, C	CCC+, CCC, CCC-, CC+, CC, C	187	14	7.49%	14.06%	8.74%
20 to <30	CAA3, CA, C	CCC-, CC+, CC, C	9	2	22.22%	24.12%	17.74%
30.00 to <100.00	CAA3, CA, C	CCC-, CC+, CC, C	21	6	28.57%	45.40%	25.35%
100.00 (Default)	D	D	121	—	0.00%	100.00%	0.00%

## Management of credit risk and the internal ratings-based approach (continued)

**Table 87: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Secured retail - non SME**

As at 31 December 2022	External rating equivalent		Number of obligors at the end of the year		Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)	
	PD Ranges	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited	Of which number of obligors which defaulted in the year				
0.00 to <0.15		AAA, AA1, AA2, AA3, A1, A2, A3, BAA1	AAA, AA+, AA-, A+, A, A -, BBB+	647,273	530	0.08%	0.10%	0.09%
0.00 to <0.10		AAA, AA1, AA2, AA3, A1, A2, A3	AAA, AA+, AA-, A+, A, A -	252,906	158	0.06%	0.07%	0.07%
0.10 to <0.15		BAA1	BBB+	394,367	372	0.09%	0.12%	0.14%
0.15 to <0.25		BAA2, BAA3	BBB	175,702	236	0.13%	0.19%	0.22%
0.25 to <0.50		BAA3, BA1	BBB-, BB+	71,005	213	0.30%	0.33%	0.51%
0.50 to <0.75		BA1, BA2	BB+, BB	15,741	87	0.55%	0.60%	0.86%
0.75 to <2.50		BA2, BA3, B1	BB, BB-, B+	20,325	216	1.06%	1.41%	1.41%
0.75 to <1.75		BA2, BA3	BB, BB-, B+	14,647	146	1.00%	1.13%	1.32%
1.75 to <2.5		BA3, B1	B+	5,678	70	1.23%	2.13%	1.66%
2.50 to <10.00		B1, B2, B3, CAA1	B+, B, B-, CCC+	14,200	548	3.86%	4.84%	5.16%
2.5 to <5		B1, B2, B3, CAA1	B+, B	8,695	205	2.36%	3.49%	3.39%
5 to <10		B3, CAA1	B, B-, CCC+	5,505	343	6.23%	6.98%	8.06%
10.00 to <100.00		B3, CAA1, CAA2, C AA3, CA, C	CCC+, CCC, CC C-, CC+, CC, C	7,571	2,170	28.66%	30.38%	31.28%
10 to <20		B3, CAA1, CAA2, CAA3, CA, C	CCC+, CCC, CCC-, CC+, CC, C	3,024	435	14.39%	13.90%	16.54%
20 to <30		CAA3, CA, C	CCC-, CC+, CC, C	1,466	352	24.01%	24.87%	28.38%
30.00 to <100.00		CAA3, CA, C	CCC-, CC+, CC, C	3,081	1,383	44.89%	49.17%	46.36%
100.00 (Default)		D	D	14,466	—	0.00%	100.00%	0.00%

## Management of credit risk and the internal ratings-based approach (continued)

**Table 88: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) – Revolving retail**

PD Ranges	As at 31 December 2022		External rating equivalent		Number of obligors at the end of previous year		Average historical annual default rate (%)
	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited		Of which number of obligors which defaulted in the year	Observed average default rate (%)	Average PD (%)	
0.00 to <0.15	AAA, AA1, AA2, AA3, A1, A2, A3, BAA1	AAA, AA+, AA-, A+, A, A -, BBB+	13,550,620	7,225	0.05%	0.06%	0.05%
0.00 to <0.10	AAA, AA1, AA2, AA3, A1, A2, A3	AAA, AA+, AA-, A+, A, A -	11,303,309	4,446	0.04%	0.04%	0.04%
0.10 to <0.15	BAA1	BBB+	2,247,311	2,779	0.12%	0.12%	0.11%
0.15 to <0.25	BAA2, BAA3	BBB	1,905,930	4,122	0.22%	0.19%	0.18%
0.25 to <0.50	BAA3, BA1	BBB-, BB+	1,781,315	7,107	0.40%	0.36%	0.33%
0.50 to <0.75	BA1, BA2	BB+, BB	884,356	6,150	0.70%	0.61%	0.60%
0.75 to <2.50	BA2, BA3, B1	BB, BB-, B+	1,971,016	31,461	1.60%	1.38%	1.41%
0.75 to <1.75	BA2, BA3	BB, BB-, B+	1,487,767	19,434	1.31%	1.16%	1.17%
1.75 to <2.5	BA3, B1	B+	483,249	12,027	2.49%	2.08%	2.16%
2.50 to <10.00	B1, B2, B3, CAA1	B+, B, B-, CCC+	849,406	50,378	5.93%	4.69%	5.08%
2.5 to <5	B1, B2, B3, CAA1	B+, B	553,422	25,283	4.57%	3.49%	3.72%
5 to <10	B3, CAA1	B, B-, CCC+	295,984	25,095	8.48%	6.92%	7.32%
10.00 to <100.00	B3, CAA1, CAA2, C AA3, CA, C	CCC+, CCC, CC C-, CC+, CC, C	215,000	59,911	27.87%	25.85%	26.20%
10 to <20	B3, CAA1, CAA2, CAA3, CA, C	CCC+, CCC, CCC-, CC+, CC, C	128,800	20,529	15.94%	13.60%	14.57%
20 to <30	CAA3, CA, C	CCC-, CC+, CC, C	34,065	9,190	26.98%	24.43%	24.63%
30.00 to <100.00	CAA3, CA, C	CCC-, CC+, CC, C	52,135	30,192	57.91%	57.06%	55.53%
100.00 (Default)	D	D	287,305	—	0.00%	100.00%	0.00%

## Management of credit risk and the internal ratings-based approach (continued)

**Table 89: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Other retail - SME**

As at 31 December 2022	External rating equivalent		Number of obligors at the end of previous year		Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)
	PD Ranges	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited	Of which number of obligors which defaulted in the year			
0.00 to <0.15		AAA, AA1, AA2,AA3,A1,A2, A3,BAA1	AAA, AA+, AA,AA-,A+,A,A -,BBB+	77,906	17	0.02%	0.11%
0.00 to <0.10		AAA, AA1, AA2,AA3,A1,A2, A3	AAA, AA+, AA,AA-,A+,A,A -	24,119	15	0.06%	0.09%
0.10 to <0.15		BAA1	BBB+	53,787	2	0.00%	0.12%
0.15 to <0.25		BAA2, BAA3	BBB	41,180	44	0.11%	0.21%
0.25 to <0.50		BAA3,BA1	BBB-,BB+	186,251	4,231	2.27%	0.35%
0.50 to <0.75		BA1,BA2	BB+,BB	148,971	1,578	1.06%	0.63%
0.75 to <2.50		BA2,BA3,B1	BB,BB-,B+	373,748	11,579	3.10%	1.33%
0.75 to <1.75		BA2,BA3	BB,BB-,B+	291,009	7,706	2.65%	1.11%
1.75 to <2.5		BA3,B1	B+	82,739	3,873	4.68%	2.10%
2.50 to <10.00		B1,B2,B3,CAA1	B+,B,B-,CCC+	160,763	18,087	11.25%	4.55%
2.5 to <5		B1,B2,B3,CAA1	B+,B	109,578	9,366	8.55%	3.43%
5 to <10		B3,CAA1	B, B-, CCC+	51,185	8,721	17.04%	6.96%
10.00 to <100.00		B3, CAA1,CAA2,C AA3, CA, C	CCC+,CCC,CC C-, CC+, CC, C	20,536	8,061	39.25%	23.17%
10 to <20		B3, CAA1, CAA2, CAA3, CA, C	CCC+,CCC, CCC-, CC+, CC, C	14,579	4,298	29.48%	12.72%
20 to <30		CAA3, CA, C	CC+, CC, C	1,892	785	41.49%	24.57%
30.00 to <100.00		CAA3,CA, C	CC+, CC, C	4,065	2,978	73.26%	59.98%
100.00 (Default)		D	D	28,599	—	0.00%	100.00%

## Management of credit risk and the internal ratings-based approach (continued)

**Table 90: CR9.1 - IRB approach – Back-testing of PD (only for PD estimates according to point (f) of Article 180(1) CRR) - Other retail - non SME**

As at 31 December 2022	External rating equivalent		Number of obligors at the end of previous year		Observed average default rate (%)	Average PD (%)	Average historical annual default rate (%)
	PD Ranges	Moody's Investors Service España S.A.	S&P Global Ratings Europe Limited	Of which number of obligors which defaulted in the year			
0.00 to <0.15		AAA, AA1, AA2,AA3,A1,A2, A3,BAA1	AAA, AA+, AA-,A+,A,A -,BBB+	75,674	81	0.11%	0.09%
0.00 to <0.10		AAA, AA1, AA2,AA3,A1,A2, A3	AAA, AA+, AA-,A+,A,A -	44,465	36	0.08%	0.06%
0.10 to <0.15		BAA1	BBB+	31,209	45	0.14%	0.12%
0.15 to <0.25		BAA2, BAA3	BBB	46,550	94	0.20%	0.20%
0.25 to <0.50		BAA3,BA1	BBB-,BB+	89,745	290	0.32%	0.37%
0.50 to <0.75		BA1,BA2	BB+,BB	56,670	303	0.54%	0.62%
0.75 to <2.50		BA2,BA3,B1	BB,BB-,B+	146,640	1,794	1.22%	1.40%
0.75 to <1.75		BA2,BA3	BB,BB-,B+	109,831	1,098	1.00%	1.18%
1.75 to <2.5		BA3,B1	B+	36,809	696	1.89%	2.09%
2.50 to <10.00		B1,B2,B3,CAA1	B+,B,B-,CCC+	91,207	4,028	4.42%	4.74%
2.5 to <5		B1,B2,B3,CAA1	B+,B	58,848	1,903	3.23%	3.51%
5 to <10		B3,CAA1	B, B-, CCC+	32,359	2,125	6.57%	6.99%
10.00 to <100.00		B3, CAA1,CAA2,C AA3, CA, C	CCC+,CCC,CC C-, CC+,CC, C	26,310	7,007	26.63%	27.21%
10 to <20		B3, CAA1, CAA2, CAA3, CA, C	CCC+,CCC, CCC-, CC+,CC, C	15,949	1,963	12.31%	13.35%
20 to <30		CAA3, CA, C	CC+,CC, C	3,456	817	23.64%	24.22%
30.00 to <100.00		CAA3,CA, C	CC+,CC, C	6,905	4,227	61.22%	60.73%
100.00 (Default)		D	D	28,502	—	0.00%	100.00%

# Management of credit risk and the internal ratings-based approach (continued)

## 2022 AIRB models back testing summary

The section below provides AIRB model performance summary based on the above back testing results, along with the remediation plans.

### **Wholesale**

- For Investment Bank
  - No defaults observed for 'Central Governments or Central Banks' asset class. For 'Institutions' asset class, the PiT PDs are higher (conservative) compared to actual default rates across PD ranges.
- For Corporate Bank
  - Corporate asset class comprises of Social Housing, Business Banking Corporate Others and Other Wholesale Corporates.
  - Overall Corporate asset class continues to maintain low default rates across IRB exposures with estimated PiT PDs being higher (conservative) compared to actual default rates for most of the PD ranges.
  - The Eagle PD models were submitted to the PRA in Mar-21 for the material wholesale portfolios. Interim Post Model Adjustments (PMAs) are in place to mitigate any model weaknesses and compliance gaps.
  - There are no defaults observed in Social Housing portfolio over last one year. The new Social Housing PD model was submitted to the PRA in Nov-22. Interim Post Model Adjustments (PMAs) are in place to mitigate any model weaknesses and compliance gaps.

### **SME**

- SME comprises BUK Retail SME, BUK Corporate SME and BI Corporate SME.
- The back testing report is based on the CRD IV compliant models implemented in 2017. Oct'22 data was the latest available data as of the extraction date. Historical average has been calculated using 4 years of data starting Oct'18 onwards.
- The PiT PD model under-estimates the default rate for BUK Retail SME (1.86% estimated vs. 4.32% actual) and over-estimates the default rate for combined Corporate SME (1.86% estimated vs. 1.26% actual). Default rates are increasing due to Bounce Back Loans (BBLs) on the overall SME portfolio. Shift of customers towards higher PD bands in 2022 is due to the dynamic calibration adjusting to the increase in observed default rate. For BUK Retail SME, the model over-estimates if Government Lending Scheme customers are excluded.
- The existing SME model suite is being enhanced to achieve compliance with definition of default (DoD) and other IRB repair regulations. The new PD model was submitted to the PRA in Sep-22. Interim Post Model Adjustments (PMAs) are in place to mitigate any model weaknesses and compliance gaps.

### **Secured by Real Estate**

- This covers the Mortgage portfolios for UK and Italy. Rank ordering is maintained across PiT PD ranges.
- For UK Mortgages, the PiT PD model over-estimates at an overall level (0.45% estimated vs. 0.39% actual). The TTC PD model continues to maintain conservatism.
- For Italy Mortgages, the PiT PD model under-estimates the default rate for Barclays portfolio (0.72% estimated vs. 0.79% actual) and over-estimates for Macquarie portfolio (4.09% estimated vs. 2.27% actual).
- The new PiT PD and Hybrid PD models were submitted to the PRA in Oct-22 for UK Mortgages portfolio.
- The new Capital Suite for Italy Mortgage portfolio will be submitted as per the EBA IRB Repair roll out plan with periodic reviews by the PRA. Interim Post Model Adjustments (PMAs) are in place to mitigate any model weaknesses and compliance gaps for Italy.

### **Qualifying Revolving Retail**

- This constitutes UK Cards, Germany Cards and UK Current Account portfolios. Rank ordering for estimated PDs is maintained across all 3 portfolios.
- For UK Cards, there is under-estimation in the PiT PD model (1.46% estimated vs. 1.69% actual), the regulatory PD is slightly non-conservative, however adequate PMAs (IRB repair) are in place. It is also observed from the latest monitoring exercise that there is an increasing trend of PiT PD moving closer to the current observed default rate levels.
- For Germany Cards, the PiT PD model over-estimates (0.77% estimated vs. 0.61% actual) at an overall level.
- For UK Current Account, there is under-estimation in the PiT PD model at an overall level (0.28% estimated vs. 0.34% actual).
- The new set of models will be submitted for all three portfolios as per the EBA IRB Repair roll out plan, which is periodically reviewed with the PRA. Interim Post Model Adjustments (PMAs) are in place to address existing models' deficiencies and compliance gaps for all these three portfolios.

### **Other Retail**

- This covers UK Barclayloan portfolio. The back-testing report is based on CRD IV compliant model, approved by the PRA and implemented in Jul'19.
- The PD model over-estimates (2.70% estimated vs. 2.55% actual) on PiT basis at an overall level; rank ordering is maintained.
- The new set of models will be submitted as per the EBA IRB Repair roll out plan, which is periodically reviewed with the PRA. Interim Post Model Adjustments (PMAs) are in place to address existing models' deficiencies and compliance gaps.

# Management of market risk

This section describes the governance structure specific to the management of market risks, as well as a discussion of measurement techniques.

- Market risks are varied, and a range of techniques must be used to manage them. From page [139](#) we provide an overview of the market risks we incur across Barclays Group
- The governance structure specific to market risks is discussed on pages [139](#) to [140](#).
- Market risk, the risk of loss arising from potential adverse changes in the value of the Group's assets and liabilities from fluctuation in market variables including, but not limited to, interest rates, foreign exchange, equity prices, commodity prices, credit spreads, implied volatilities and asset correlations, is covered on pages [141](#) to [147](#). Measurement techniques such as VaR, are discussed, as well as techniques applied when statistical techniques are not appropriate.

# Management of market risk

## Market risk

The risk of loss arising from potential adverse changes in the value of the Group's assets and liabilities from fluctuation in market variables including, but not limited to, interest rates, foreign exchange, equity prices, commodity prices, credit spreads, implied volatilities and asset correlations.

### Overview

Market risk arises primarily as a result of client facilitation in wholesale markets, involving market-making activities, risk management solutions and execution of syndications. Upon execution of a trade with a client, the Group will look to hedge against the risk of the trade moving in an adverse direction. Mismatches between client transactions and hedges result in market risk due to changes in asset prices, volatility or correlations.

### Organisation and structure

Market risk in the businesses resides primarily in Barclays International and Group Treasury. These businesses have the mandate to assume market risk. Market risk oversight and challenge is provided by business committees and Barclays Group committees, including the Market Risk committee. The front office and Treasury trading desks are responsible for managing market risk on a day-to-day basis, where they are required to understand and adhere to all limits applicable to their businesses. The Market Risk team support the trading desks with the day-to-day limit management of market risk exposures through governance processes which are outlined in supporting market risk policies and standards.

### Roles and responsibilities

The objectives of market risk management are to:

- identify, understand and control market risk by robust measurement, limit setting, reporting and oversight
- facilitate business growth within a controlled and transparent risk management framework
- control market risk in the businesses according to the allocated appetite.

To meet the above objectives, a governance structure is in place to manage these risks consistent with the ERMF.

The BRC recommends market risk appetite to the Barclays PLC Board for their approval. The Market Risk Principal Risk Lead (PR Lead) is responsible for the Market Risk Control Framework and, under delegated authority from the Group CRO, agrees with the business CROs a limit framework within the context of the approved market risk appetite.

The Market Risk Committee (MRC) reviews and makes recommendations concerning the Group-wide market risk profile. This includes overseeing the operation of the Market Risk Framework and associated policies and standards, monitoring market and regulatory changes, and reviewing limit utilisation levels. The committee is chaired by the PR Lead and attendees include the business heads of market risk and business aligned market risk managers.

In addition to MRC, the Corporate and Investment Bank Risk Committee (CIBRC) is the main forum in which market risk exposures are discussed and reviewed with senior business heads. The Committee is chaired by the CRO of Barclays International and meets weekly, covering current market events, notable market risk exposures, and key risk topics. New business initiatives are generally socialised at CIBRC before any changes to risk appetite or associated limits are considered in other governance committees.

### Organisation and structure

#### Barclays PLC Board Risk Committee

- Review and recommends Barclays Group's risk appetite for market risk to the Barclays PLC Board
- Reviews and material events impacting market risk

#### Barclays Group Risk Committee

- Monitors risk profile with respect to financial risk appetite
- Debates and agrees actions on the financial risk profile and risk strategy across Barclays Group
- Considers issues escalated by risk type heads and business risk directors

#### Barclays Group Risk Committee

- Reviews market risk appetite proposals from the business
- Oversees the management of Barclays Group's market risk profile
- Reviews arising market or regulatory issues
- Reviews state of the implementation of the risk frameworks in the business

The head of each business is accountable for all market risks associated with its activities, while the head of the market risk team covering each business is responsible for implementing the risk control framework for market risk.

# Management of market risk (continued)

## Risk management in the setting of strategy

Appetite for market risk is recommended by the risk function to BRC for agreement by the Board. Mandate and scales are set to control levels of market risk and maintain the Group remains within the BRC approved risk appetite. The Group runs an annual Group-wide stress testing exercise which aims to simulate the dynamics of exposures across the Group and cover all risk factors. The exercise is also designed to measure the impact to the Group's fundamental business plan, and is used to manage the wider Group's strategy.

 See page 103 for more detail on the role of risk in the setting of strategy.

## Market risk culture

Market risk managers are independent from the businesses they cover, and their line management reports into the CRO. This embeds a risk culture with strong adherence to limits that support the Group-wide risk appetite.

 See page 97 for more detail on risk culture.

## Management of market risk, mitigation and hedging policies

The governance structure helps maintain all market risks that the Group is exposed to are well managed and understood. Market risk is generated primarily as a result of client facilitation in wholesale markets, involving market making activities, risk management solutions and execution of syndications. Group Treasury supports the businesses in managing their interest rate risk. Positions will contribute both to market risk limits and regulatory capital if relevant.

As part of the continuous monitoring of the risk profile, Market Risk meets with the businesses to discuss the risk profile on a regular basis. The outcome of these reviews includes further detailed assessments of event risk via stress testing, risk mitigation and risk reduction.

### Market risk measurement – management view

#### Market risk measures

A range of complementary approaches to measure market risk are used which aim to capture the level of losses that the Group is exposed to due to unfavourable changes in asset prices. The primary tools to control the Group's exposures are:

Measure	Description
<b>Management Value at Risk (VaR)</b>	An estimate of the potential loss arising from unfavourable market movements, if the current positions were to be held unchanged for one business day.
<b>Primary stress tests</b>	An estimate of the potential losses that might arise due to liquid risk factors from extreme market moves or scenarios.
<b>Secondary stress tests</b>	An estimate of the potential losses that might arise due to illiquid risk factors from extreme market moves or scenarios.
<b>Business scenario stresses</b>	Multi-asset scenario analysis of severe, but plausible events that may simultaneously impact Market Risk exposures across all primary and secondary stresses.

The use of Management VaR for market risk is broader than the application of VaR for regulatory capital, and captures standardised, advanced and certain banking books where market risks are deemed to exist. The wider scope of Management VaR is what Barclays Group deems as material market risk exposures which may have a detrimental impact on the performance of the trading business. The scope used in Regulatory VaR (see page 143) is narrower as it applies only to trading book positions as approved by the PRA.

Stress testing and scenario analysis are also an important part of the risk management framework, to capture potential risk that may arise in severe but plausible events.

#### Management VaR

- estimates the potential loss arising from unfavourable market movements, over one day for a given confidence level
- differs from the Regulatory VaR used for capital purposes in scope and confidence level
- back testing is performed to evaluate that the model is fit for purpose.

VaR is an estimate of the potential loss arising from unfavourable market movements if the current positions were to be held unchanged for one business day. For internal market risk management purposes, a historical simulation methodology with a one-year equally weighted historical period, at the 95% confidence level is used for all trading books and some banking books. Risk factors driving VaR are grouped into key risk types as summarised below:

## Management of market risk (continued)

Risk factor	Description
<b>Interest rate</b>	Risk arises from changes in the level or shape of interest rate curves can impact the price of interest rate sensitive assets, such as bonds and derivatives instruments. For example, the price of an interest rate swap will vary due to changes in the absolute level of interest rates and/ or in the shape of the yield curve
<b>Foreign exchange</b>	Risk arises from changes in foreign exchange rates and volatilities
<b>Equity</b>	Risk due to changes in equity prices, volatilities and dividend yields, for example as part of market making activities, syndication or underwriting of initial public offerings.
<b>Commodity</b>	Risk arises from providing clients and investors with access to a range of commodity products on both a derivative and physical basis.
<b>Traded credit</b>	Risk arises from changes in credit quality impacting the prices of assets, for example positions such as corporate bonds, securitised products and credit based derivative instruments, including credit default swaps. Similar to interest rate risk, the price of these assets will change as the credit quality of the asset (or its pricing index in the case of credit based derivative instruments) changes.
<b>Securitised products</b>	Risk arises from structured cash flow positions predominantly of an asset-backed nature, and their derivatives. The market value of these positions is influenced by the interplay of the cash-flow structure with changes in credit quality and value of assets backing the positions, as well as changes in the level and shape of interest rate curves.

The output of the Management VaR model can be readily tested through back testing. This checks instances where actual losses exceed the predicted potential loss estimated by the VaR model. If the number of instances is higher than expected, where actual losses exceed the predicted potential loss estimated by the VaR model, this may indicate limitations with the VaR calculation, for example, a risk factor that would not be adequately captured by the model.

The Management VaR model in some instances may not appropriately measure some market risk exposures, especially for market moves that are not directly observable via prices. Market risk managers are required to identify risks which are not adequately captured in VaR ('risks not in VaR' or 'RNIVs', discussed below).

When reviewing VaR estimates, the following considerations are taken into account:

- the historical simulation uses the most recent year of past data to generate possible future market moves, but the past may not be a good indicator of the future
- the one-day time horizon may not fully capture the market risk of positions that cannot be closed out or hedged within one day
- VaR is based on positions as at close of business and consequently, it is not an appropriate measure for intra-day risk arising from a position bought and sold on the same day
- VaR does not indicate the potential loss beyond the VaR confidence level.

Limits are applied at the total level as well as by risk factor type, which are then cascaded down to particular trading desks and businesses by the market risk management function.

### Primary stress tests

Primary stress tests are key tools used by management to measure liquid market risks from extreme market movements or scenarios in each major trading asset class.

Stress testing provides an estimate of potential significant future losses that might arise from extreme market moves or scenarios. Primary stress tests apply stress moves to key liquid risk factors for each of the major trading asset classes, namely:

- interest rates: shock to the level and structure of interest rates and inflation across currencies
- credit: impact on traded corporate credit exposures and securities structures, including across rating grades, geography, sectors and products
- foreign exchange: impact of unfavourable moves in currency prices and volatility
- equity: shocks to share prices including exposures to specific markets and sectors
- commodities: adverse commodity price changes across both physical and derivative markets.

Primary stresses apply moves to liquid assets incorporating up to 10 days holding period. Shock scenarios are determined by a combination of observed extreme historical moves and forward looking elements as appropriate.

Primary stresses are calculated for each asset class on a standalone basis. Risk managers calculate several stress scenarios and communicate the results to senior managers to highlight concentrations and the level of exposures. Primary stress loss limits are applied across the trading businesses and is a key market risk control.

### Secondary stress tests

Secondary stress tests are key tools used by management to measure illiquid, directional or concentrated market risks from extreme market movements or scenarios in each major asset class.

Secondary stress tests are used in measuring potential losses arising from market risks that are not captured in the primary stress tests. These may relate to financial instruments or risk exposures which are not readily or easily tradable or markets that are naturally sensitive to a rapid deterioration in market conditions.

## Management of market risk (continued)

For each asset class, secondary stresses are aggregated to a single stress loss which allows the business to manage its liquid and illiquid risk factors. Limits against secondary stress losses are also applied, which allows the Group to manage and control the level of illiquid risk factors.

Stresses are specific to the exposure held and are calibrated on both observed extreme moves and some forward-looking elements as appropriate.

### **Business scenario stresses**

Business scenario stresses are key tools used by management to measure aggregated losses across the entire trading book as a result of extreme forward-looking scenarios encompassing simultaneous shocks to multiple asset classes.

Business scenario stresses apply simultaneous shocks to all risk factors assessed by applying changes to foreign exchange rates, interest rates, credit spreads, commodities and equities to the entire portfolio, for example, the impact of a rapid and extreme slowdown in the global economy. The measure shows results on a multi-asset basis across all trading exposures. Business scenarios are used for risk appetite monitoring purposes and are useful in identifying concentrations of exposures and highlighting areas that may provide some diversification.

The estimated impacts on market risk exposures are calculated and reported by the market risk management function on a frequent and regular basis. The stress scenario and the calibration on the shocks are also reviewed by market risk managers periodically for its relevance considering any market environment.

Scenarios focusing on adverse global recession, deterioration in the availability of liquidity, contagion effects of a slowdown in one of the major economies, easing of global growth concerns, and a historical event scenario are examples of business scenarios. If necessary, market event-specific scenarios are also calculated, such as:

- a unilateral decision to exit the Eurozone by a member country
- the impact of a large financial institution collapse, or
- a disorderly exit of quantitative easing programmes, including unexpected rapid and continuous interest rate rises as a result.



See page 80 for a review of business scenario stresses.

### **Market risk measurement – regulatory view**

#### **Regulatory view of traded positions**

For regulatory purposes, the trading book is defined as one that consists of all positions in CRD financial instruments and commodities held either with trading intent, or in order to hedge other elements of trading, and which are either free of any restrictive covenants on their tradability, or able to be hedged. A CRD financial instrument is defined as a contract that gives rise to both a financial asset of one party and a financial liability or equity instrument of another party.

All of the below regulatory measures, including the standardised approach, generate market risk capital requirements, in line with the regulatory requirements set out in the Capital Requirements Directive and Regulation ('CRD IV'). Positions which cannot be included in the trading book are included within the banking book and generate risk capital requirements in line with this treatment.

#### **Inclusion of exposures in the regulatory trading book**

The Group maintains a Trading Book Policy, which defines the minimum requirements a business must meet to run trading positions and the process by which positions are allocated to trading or banking books. Trading intent is a key element in deciding whether a position should be treated as a trading or banking book exposure.

Positions in the trading book are subject to market risk capital, computed using models where regulatory approval has been granted, otherwise the market risk capital requirement is calculated using standard rules as defined in the Capital Requirement Regulation (CRR), part of the CRD IV package. If any of the criteria specified in the policy are not met for a position, then that position must be allocated to the banking book.

Most of the Group's market risk regulatory models are assigned the highest model materiality rating. Consequently, the Regulatory VaR model is subject to annual re-approval by the Independent Validation Unit. The Independent Validation Unit makes an assessment of model assumptions and considers evidence of model suitability provided by the model owner. The following table summarises the models used for market risk regulatory purposes and the applicable regulatory thresholds.

#### **Valuation standards**

CRR article 105 defines regulatory principles which need to be applied to fair value assets and liabilities, in order to determine a prudent valuation.

The Prudent Valuation Adjustment (PVA) is applied to accounting fair values where there are a range of plausible alternative valuations. It is calculated in accordance with Article 105 of the CRR, and includes (where relevant) adjustments for the following factors: unearned credit spreads, close-out costs, operational risk, market price uncertainty, early termination, investing and funding costs, future administrative costs and model risk. The PVA includes adjustment for all fair valued financial instruments and commodities, irrespective of whether they are in the trading or banking book.

## Management of market risk (continued)

### Regulatory measures for Market risk

There are a number of regulatory measures which the Group has permission to use in calculating regulatory capital (internal models approval):

Measure	Definition
<b>Regulatory Value at Risk (VaR)</b>	An estimate of the potential loss arising from unfavourable market movements calibrated to 99% confidence interval and 10-day holding period.
<b>Stressed Value at Risk (SVaR)</b>	An estimate of the potential loss arising from a twelve-month period of significant financial stress calibrated to 99% confidence interval and 10-day holding period.
<b>Incremental Risk Charge (IRC)</b>	An estimate of the incremental risk arising from rating migrations and defaults, beyond what is already captured in specific market risk VaR for the non-correlation trading portfolio. Uses a 99.9% confidence level and a one-year horizon.
<b>Comprehensive Risk Measure (CRM)</b>	An estimate of all the material market risk, including rating migration and default for the correlation trading portfolio.  The legal entities for which the PRA has given permission to use internal models for market risk regulatory capital are: BBPlc Trading, BCSL and BBI on a consolidated basis, BBPlc Trading, BBI and BCSL. The legal entity for which the FRBNY has given permission to use internal models is IHC. The legal entity for which the Central Bank of Ireland (CBI) has given permission to use internal models is BBI.

### Regulatory VaR

- Estimates the potential loss arising from unfavourable market movements.
- Regulatory VaR differs from the management approach in the following respects.

VaR Variable	Regulatory	Management
<b>Confidence interval</b>	99%	95%
<b>Scope</b>	As approved by the regulator (PRA,CBI or FRBNY)	Management view of market risk exposures. Includes trading books and banking books exposed to price risk
<b>Look-back period</b>	1 year	1 year
<b>Liquidity Horizon (holding period)</b>	10 days	1 day

Regulatory VaR allows oversight of the total potential losses, at a given confidence level, of those trading books which received approval from the regulator to be covered via an internal model. Barclays Group uses a Regulatory VaR model that diversifies general and specific market risk for regulatory capital. Market risks are captured in the Regulatory VaR model using either full revaluation or an approximate revaluation approach depending on the type of product. When simulating potential movements in risk factors, returns are modelled using a combination of absolute changes, proportional changes or a blended mix of these two approaches.

Management VaR allows Barclays Group to supervise the total market risk across Barclays Group, including all trading books and some banking books. Management VaR is also utilised for the internal capital model (economic capital).

Regulatory VaR is fundamentally the same as the Management VaR (see page 141), with the key differences listed above. The model is complemented with RNIVs, as described on page 147.

### Stressed Value at Risk (SVaR)

- Estimates the potential loss arising from unfavourable market movements in a stressed environment.
- Identical to Regulatory VaR, but calibrated over a one-year stressed period.
- Regulatory capital is allocated to individual businesses. For regulatory capital calculation purposes the Group computes a market risk capital requirement based on a one-day scaled to ten-day, 99% VaR metric calibrated to a period of significant financial stress. This SVaR capital requirement is added to the market risk capital requirement arising from regulatory VaR, the Incremental Risk Charge and the All Price Risk on an undiversified basis.

The SVaR model must be identical to the VaR model used by the Group, with the exception that the SVaR model must be calibrated to a one-year period of significant financial stress ('the SVaR period'). The Group selects the SVaR period to be a one-year period that maximises Regulatory VaR for positions in scope of regulatory approval. The SVaR period is ordinarily reviewed on a monthly basis or when required by material changes in market conditions or the trading portfolio.

SVaR cannot be meaningfully backtested as it is not sensitive to current market conditions. Many market risk factors with complete historical data over a one-year period may not have complete data covering the SVaR period and consequently, more proxies may be required for SVaR than for VaR. The SVaR metric itself has the same strengths and weaknesses as the Group's VaR model.

### Incremental Risk Charge (IRC)

- Captures risk arising from rating migrations and defaults for traded debt instruments incremental to that already captured by Regulatory VaR and SVaR.

IRC captures the risk arising from ratings migrations or defaults in the traded credit portfolio. IRC measures this risk at a 99.9% confidence level with a one-year holding period and applies to all positions in scope for specific risk including sovereign exposure.

The Group's IRC model simulates default and ratings transition events for individual names. The behaviour of names is correlated with one another to simulate a systemic factor to model the possibility of multiple downgrades or defaults. The correlations between non-sovereign names are based on the Basel- defined correlations stipulated in the IRB approach to measuring credit risk capital, with a fixed correlation between sovereign names.

## Management of market risk (continued)

The Group's IRC model simulates the impact of a ratings transition by estimating the improvement or deterioration in credit spreads resulting from the transition and assumes that the historically observed average change in credit spreads (measured in relative terms) resulting from ratings transitions provides an accurate estimate of likely widening or tightening of credit spreads in future transitions. For each position, the model computes the impact of spread moves up or down at pre-specified relative movements, and the actual impact is obtained by interpolating or extrapolating the actual spread move from these pre-computed values.

The Group's IRC model assumes that ratings transitions, defaults and any spread increases occur on an instantaneous basis.

**Table 91: Market risk models selected features**

Component modelled	Number of significant models and size of associated portfolio (RWAs)	Model description and methodology	Applicable regulatory thresholds
Regulatory VaR	1 model; £6.8bn	Equally-weighted historical simulation of potential daily P&L arising from market moves	Regulatory VaR is computed with ten-day holding period and 99% confidence level
SVaR	1 model; £9.9bn	Same methodology as used for VaR model, but using a different time series	Regulatory SVaR is computed with ten-day holding period and 99% confidence level
IRC	1 model; £2.8bn	Monte Carlo simulation of P&L arising from ratings migrations and defaults	IRC is computed with one-year holding period and 99.9% confidence level
CRM	1 model; £0.0bn	Same approach as IRC, but it incorporates market-driven movements in spreads and correlations for application to correlation trading portfolios.	CRM is computed with one-year holding period and 99.9% confidence level. As required in CRD IV, the CRM charge is subject to a floor set with reference to standard rules charge

### Regulatory back testing

Backtesting is the method by which Group checks and affirms that its procedures for estimating VaR are reasonable and serve its purpose of estimating the potential loss arising from unfavourable market movements. The backtesting process is a regulatory requirement and seeks to estimate the performance of the regulatory VaR model. Performance is measured by the number of exceptions to the model, i.e. actual or hypothetical P&L loss in one trading day is greater than the estimated VaR for the same trading day. Group's procedures could be underestimating VaR if exceptions occur more frequently than expected (a 99% confidence interval indicates that one exception will occur in 100 days).

Backtesting is performed at a legal entity level, sub-portfolio levels and business-aligned portfolios (shown in the table below and in the charts on the next page) on Group's regulatory VaR model. Regulatory backtesting compares Regulatory VaR at 99% confidence level (one-day holding period equivalent) to actual and hypothetical changes in portfolio value as defined in CRR Article 366. The consolidated Barclays Bank PLC, Barclays Capital Securities Ltd and Barclays Bank Ireland PLC is the highest level of consolidation for the VaR model that is used in the calculation of regulatory capital. The IHC backtesting process compares IHC 99% Regulatory VaR against Hypothetical P&L. The definition of Hypothetical P&L and the scope of Regulatory VaR for the IHC are consistent with the Federal Reserve's Market Risk Rule.

A backtesting exception is generated when a loss is greater than the daily VaR for any given day.

As defined by the PRA, a green status is consistent with a good working VaR model and is achieved for models that have four or fewer backtesting exceptions in a 250-day period. Backtesting counts the number of days when a loss exceeds the corresponding VaR estimate, measured at the 99% regulatory confidence level

Backtesting is also performed on management VaR to validate it remains reasonable and fit for purpose.

The table below shows the VaR backtesting exceptions on legal entities aligned to Group's business as at 31 December 2022. Model performance at a legal entity level determines regulatory capital within those entities. Legal entity disclosure is also relevant from a management perspective as Barclays' VaR and model performance of VaR for a legal entity across asset classes are key metrics in addition to asset class metrics across legal entities.

Barclays' regulatory DVaR model at the consolidated legal entity level maintained green model status throughout 2022.

Portfolios	Actual P&L		Hypo P&L	
	Total Exceptions	Status	Total Exceptions	Status
BBPlc Trading + BCSL + BBI	0	G	3	G
BBPlc Trading	0	G	2	G
BCSL	0	G	0	G
BBI	2	G	2	G
IHC	N/A	N/A	0	G

The charts below show VaR for the Group's regulatory portfolios aligned by legal entity. The dark blue and grey points on the charts indicate losses on those days on which actual and hypothetical P&L respectively exceeded the VaR amount.

In addition to being driven by market moves in excess of the 99% confidence level, backtesting exceptions can be caused by risks that impact P&L not captured directly in the VaR itself but separately captured as non VaR-type, namely Risks Not in VaR (RNIVs).

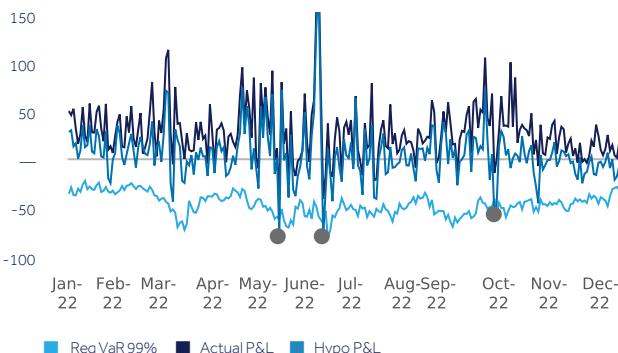
In 2022, the Group experienced three back testing exceptions against hypothetical P&L which were driven by volatility in rates and FX markets during the year.

## Management of market risk (continued)

**Table 92: MR4 - Comparison of Var estimates with gains/ losses**

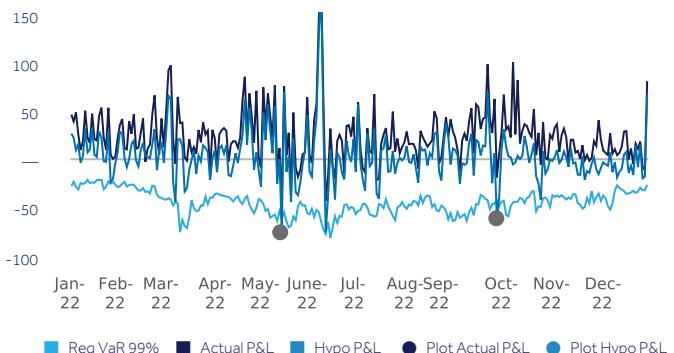
### BBPlc Trading + BCSL + BBI

(£m)



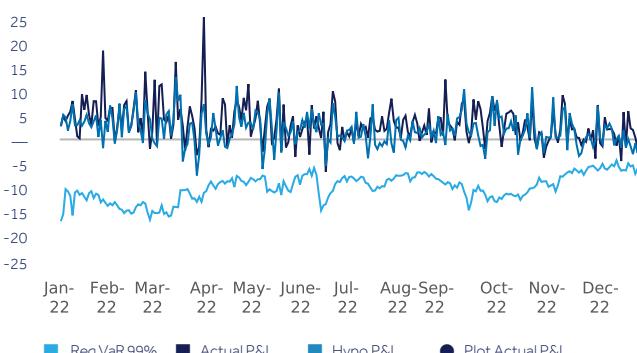
### BBPlc Trading

(£m)



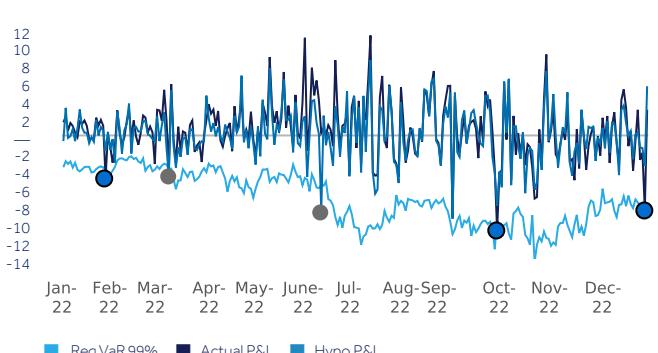
### BCSL

(£m)



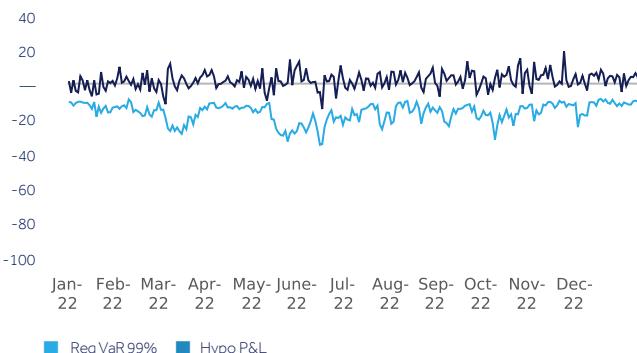
### BBI

(£m)



### IHC

(£m)



## Management of market risk (continued)

### Management of risks not fully captured in models, including Risks not in VaR (RNIVs)

Barclays Group's risk identification process captures risks that either have been observed to, or have the capacity to, produce material losses in normal and stressed market conditions. To maintain risk coverage, the range of core risks is identified following either market convention, regulatory guidance, or the specific historical experience of Barclays Group; and for new products or changes to existing products, is considered as part of the New and Amended Product Approval (NAPA) process.

In some instances, the Management and Regulatory VaR model may not appropriately measure some market risks, especially where market moves are not directly observable via prices. Barclays Group has policies to apply add-ons where risks are not captured by the model. RNIVs refer to those core risks that are not captured, or not adequately captured, in VaR and SVaR. RNIVs can include:

- risks not fully captured elsewhere and/or illiquid risk factors such as cross-risks;
- basis risks;
- higher-order risks;
- calibration parameters, for instance to model parameter uncertainty; and
- potential losses in excess of fair valuation adjustments taken in line with the Valuation Control Framework. Please see Note 17 in the Barclays PLC Annual Report 2022 'Fair value of assets and liabilities' for more details of fair value adjustments.

The treatment of RNIVs follows whether the risks are considered VaR type or non-VaR type, which depends on, and can change with, the evolving state of financial markets:

- VaR-type RNIVs: Typically represent risks that are not well captured in VaR, mainly because of infrastructure limitations or methodology limitations. In this instance two metrics are calculated, a VaR RNIV and a SVaR RNIV, using the same confidence level, capital horizon and observation period as VaR and SVaR respectively and are capitalised using the same multipliers as VaR and SVaR
- Non VaR-type RNIVs: Typically represent risks which would not be well captured by any VaR model either because it represents an event not historically observed in the VaR time series (e.g., currency peg break) or a market risk factor which is not seen to move frequently (e.g. correlation). These are typically estimated using stress scenarios. The stress methodology is calibrated equivalently to at least 99% confidence level and a capital horizon of at least 10 days over an appropriate observation period, depending on the liquidity of the risk. For the purpose of regulatory capital, the capital charge is equal to the loss arising from the stress test except when these risks are already adequately captured elsewhere e.g. via the IRC or CRM models, which are intended to capture certain risks not adequately covered by VaR.

For regulatory capital these RNIVs are aggregated without any offsetting or diversification benefit.

### Market risk control

The metrics that are used to measure market risk are controlled through the implementation of appropriate limit frameworks. Limits are set at the total Barclays Group level, asset class level, for example, interest rate risk, and at business level, for example, rates trading. Stress limits and many book limits, such as foreign exchange and interest rate sensitivity limits, are also used to control risk appetite.

Barclays Group-wide limits are reported to the BRC and are termed A-level limits for total management VaR and scenario stress. Lower level limits by business are set by risk managers to monitor and control overall risk appetite utilisation.

Group-wide VaR and stress limits are set after considering revenue generation opportunities and overall risk appetite approved by the Board. Compliance with limits is monitored by the independent risk functions in the trading businesses with oversight provided by Market Risk.

Throughout 2022, Barclays Group Market Risk continued its ongoing programme of control testing and conformance testing on the trading businesses' market risk management practices. These reviews are intended to verify the business's conformance with the Market Risk Control Framework and best practices.

### Market risk reporting

Trading businesses market risk managers produce a number of detailed and summary market risk reports daily, weekly, fortnightly and monthly for business and risk managers. Where relevant on a Barclays Group-wide basis, these are sent to Barclays Group Market Risk for review and a risk summary is presented at Barclays Group Market Risk Committee and the trading businesses' various market risk committees. The overall market risk profile is also presented to BRC on a regular basis.

# Management of securitisation exposures

Securitisations give rise to credit, market and other risks. This section discusses the types of business activities and exposures that we incur in the course of activities related to securitisations.

- The objectives pursued in securitisation activities and the types of activities undertaken are discussed on page 149.
- A description of the risks incurred in the course of securitisation activities, and how we manage them, is contained on page 150

# Management of securitisation exposures

This section discloses information about the Group's securitisation activities distinguishing between the various functions performed in supporting its customers and managing its risks. It includes traditional securitisations as well as synthetic transactions effected through the use of derivatives or guarantees.

For the purposes of Pillar 3 disclosures on pages 83 to 88, a securitisation is defined as a transaction or scheme where the payments are dependent upon the performance of a single exposure or pool of exposures and where the subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme. Such transactions are ordinarily undertaken to transfer risk for the Group or on behalf of a client.

Certain transactions undertaken by the Group are not disclosed in the quantitative section (pages 83 to 88) as they do not fall under the regulatory securitisation framework (the new securitisation Regulation (EU) 2017/2402 (the Securitisation Regulation) and Regulation (EU) 2017/2401 (amendments to CRR)). These include funding transactions for the purposes of generating term liquidity, and certain government guaranteed transactions.

## Objectives of securitisation activities

In the course of its business, the Group has undertaken securitisations of its own originated assets as well as the securitisation of primarily third party assets via special purpose vehicles, sponsored conduit vehicles and shelf programmes.

The Group has securitised its own originated assets in order to manage the Group's credit risk position and to generate term funding for the Group balance sheet. The Group also participates in primary securitisations and distributes bonds to the market to facilitate term liquidity for its clients.

The Group also purchases asset backed loans and securities for the purpose of supporting client franchise, and purchases asset backed securities (ABS) for the purpose of investing its liquidity pool.

Further, the Group makes a secondary market for a range of securitised products globally, including residential mortgage backed securities (RMBS), commercial mortgage backed securities (CMBS) and ABS.

## The role and involvement of Barclays Group in securitisations in 2022

The Group adopts the following roles in the securitisation processes in which it is involved:

### Originator of assets for securitisation

The Group originates or purchases commercial mortgage loans for the purpose of securitisation. The securities are then sold to investors through a broker-dealer subsidiary.

The Group securitisises assets otherwise originated in the ordinary course of business including corporate loans, consumer loans and residential and commercial mortgage loans. The Group also provides derivative transactions to securitisations sponsored by itself and third parties. These transactions carry counterparty credit risk and are included in the Group trading book.

### Providing warehousing facilities collateralised by third party assets prior to securitisation or exit via whole-loan sale

The Group provides warehouse financing to third party loan originators and aggregators, including for agency eligible loans that can be securitised by the Federal National Mortgage Association ('Fannie Mae'), the Federal Home Loan Mortgage Corporation ('Freddie Mac'), or the Government National Mortgage Association ('Ginnie Mae') and for corporate loans that can be securitised via collateralised loan obligations (CLO).

### Executor of securitisation trades including bond marketing and syndication

The Group transacts primarily as a principal in RMBS, ABS, CLO and CMBS with institutional investors and other broker-dealers. Agency backed residential and commercial mortgage securitisations include Credit Risk Transfer securities (Fannie Mae-sponsored CAS and Freddie Mac-sponsored STACR bonds). ABS securitisations include consumer ABS (e.g. credit card, student loan and auto) and non-traditional ABS (e.g. timeshares, wireless towers and whole business securitisations). Non-agency commercial mortgage securitisations include CMBS and commercial real estate collateralised loan obligations (CRE CLO). The Group makes secondary market in CLOs and acts as arranger on behalf of clients to structure and place arbitrage CLOs. In certain limited instances, the Group may also hold a portion of securitisations, which are required for risk retention purposes.

### Purchaser of third party securitisations

The Group may purchase third party securitisations. The Group also funds on its own balance sheet securitisations similar to the ones funded via its sponsored conduits (see below). This can include STS securitisations from time to time as well as assets held in its liquidity buffer.

### Sponsoring conduit vehicles

The Group acts as managing agent and administrative agent of three multi-seller asset backed commercial paper (ABCP) conduits, Sheffield Receivables Company, LLC (Sheffield) and Salisbury Receivables Company, LLC (Salisbury), and Sunderland Receivables S.A. (Sunderland) through which interests in securitisations of third party originated assets are funded via a variety of funding mechanics including the issuance of ABCP.

From a regulatory perspective, Barclays acts as a sponsor of Sheffield, Salisbury and Sunderland. In relation to such conduit activity, the Group provides all or a portion of the backstop liquidity to the commercial paper and, as appropriate, interest rate and foreign currency hedging facilities. The Group receives fees for the provision of these services.

Sheffield, Salisbury and Sunderland have a hold to collect business model and their assets are measured at amortised cost. It funds the assets through the issuance of ABCP. Note that Sheffield, Salisbury and Sunderland are consolidated for accounting but not regulatory purposes.

### Funding transactions to generate term liquidity

Secured funding forms one of the key components of the Group's diversified funding sources providing access to the secured wholesale market and complementing the diversification of funding by maturity, currency and geography. The Group issues ABS and covered bonds secured primarily by customer loans and advances.

## Management of securitisation exposures (continued)

The Group currently manages four key, on-balance sheet asset backed funding programmes to obtain term financing for mortgage loans and credit card receivables. These programmes also support retained issuances for the Group to access central bank liquidity and funding. The UK regulated covered bond and the residential mortgage master trust securitisation programmes both utilise assets originated by the Group's UK residential mortgage business. The third programme is a credit card master trust securitisation and uses receivables from the Group's UK credit card business. The fourth programme is a SEC registered securitisation programme backed by US domiciled credit card receivables.

### Risk transfer transactions

The Group has entered into synthetic and cash securitisations of corporate and commercial loans (originated in the ordinary course of business), as well as consumer and residential loans, for the purposes of the transfer of credit risk to third party investors. The regulatory capital requirements of these transactions fall under the new securitisation Regulation (EU) 2017/2402 (the Securitisation Regulation) and Regulation (EU) 2017/2401 (amendments to CRR).

### Securitisation risks, monitoring and hedging policies

Capital requirements against securitisation exposures are subject to a separate Securitisation Regulation framework to account for the particular characteristics of this asset class. For risk management purposes, however, a securitisation is aligned to the risk type to which it gives rise.

#### Credit risks

In a securitisation structure, the payments are dependent upon the performance of a single exposure or pool of exposures. As these underlying exposures are usually credit instruments, the performance of the securitisation is exposed to credit risk.

Securitisation exposures are subject to the Group Credit Risk policies and standards and business level procedures. This includes the requirement to review in detail each transaction at a minimum on an annual basis. As collateral risk is the primary driver the analysis places a particular focus on the underlying collateral performance, key risk drivers, services due diligence and cash flows, and the impact of these risks on the securitisation notes. The risk is addressed through the transaction structure and by setting an appropriate modelled tolerance level. Structural features incorporate wind-down triggers set against factors including, but not limited to, defaults/charge-offs, delinquencies, excess spread, dilution, payment rates and yield, all of which help to mitigate potential credit deterioration. Qualitative aspects such as counterparty risk and ancillary issues (operational and legal risk) are also considered. Changes to the credit risk profile of securitisation exposures will also be identified through ongoing transaction performance monitoring. In addition, periodic stress tests of the portfolio as part of ongoing risk management are conducted as well as in response to Group-wide or regulatory requests. The provision of implicit support to securitisations, including own originated securitisations, is not permitted under Barclays' internal standards and policies.

The principal committee responsible for the monitoring of the credit risk arising from securitisations is Wholesale Credit Risk Management Committee (WCRMC).

#### Market and liquidity risks

Market risk for securitised products is measured, controlled and limited through a suite of VaR, non-VAR and stress metrics in accordance with the Group's Market Risk Policies and Procedures. The key risks of securitisation structures are interest rate, credit, spread, prepayment and liquidity risk. Interest rate and spread risk are hedged with standard liquid interest rate instruments (including interest rate swaps, US Treasuries and US Treasury futures). The universe of hedging instruments for credit and prepayment risk is limited and relatively illiquid, resulting in basis risks. In providing warehouse financing, the Group is exposed to mark to market (if counterparty defaults on related margin call).

#### Hedging

Securitisation and re-securitisation exposures benefit from the relative seniority of the exposure in the capital structure. Due to lack of availability in the credit default swap market for individual asset backed securities, there are no material CDS hedge counterparties relating to the securitisation and re-securitisation population.

#### Operational risks

Operational risks are incurred in all of the Group's operations. In particular, all securitised (and re-securitised) assets are subject to a degree of risk associated with documentation and the collection of cash flows.

In providing warehouse financing, the Group incurs potential contingent operational risks related to representations and warranties should there be a need to foreclose on the line and it later be discovered that the underlying loans were not underwritten to agency agreed criteria. Such risks are mitigated by daily collateral margining and ready agency bids. Market risk is also mitigated by employing forward trades.

The Operational Risk Review Forum oversees the management of operational risks for the entire range of the Group's activities.

#### Rating methodologies, ECAs and RWA calculations

RWAs reported for securitised and re- securitised banking book and trading book assets at 31 December 2022 are calculated in line with CRR and UK PRA rules and guidance. The Group has approval to use, and therefore applies, the internal ratings based approach for the calculation of RWAs where appropriate, and the Standardised Approach elsewhere.

The Group employs eligible ratings issued by nominated External Credit Assessment Institutions (ECAs) to risk weight its securitisation and re- securitisation exposure where their use is permitted. Ratings are considered eligible for use based on their conformance with the internal rating standard which is compliant with both CRR and European Credit Rating Agency regulation. The ECAs nominated by the Group for this purpose are Standard & Poor's, Moody's, Fitch, DBRS and Kroll.

As required by CRR, the Group uses credit ratings issued by these ECAs consistently for all exposures within the securitisation exposure class. For that reason, there is no systematic assignment of particular agencies to types of transactions within the securitisation exposure class.

## Management of securitisation exposures (continued)

For Sheffield, Salisbury and Sunderland the Internal Assessment Approach (IAA) framework mirrors the ECAI methodology, which also includes Moody's, Standard & Poor's and Fitch, who rate the Sheffield, Salisbury and Sunderland programmes. Under the IAA framework, the securitisation exposure must be internally rated, and the Group internal assessment process must meet certain requirements in order to map its own internal rating to an ECAI. Cash flow stress analysis on a securitisation structure is performed as prescribed by an ECAI methodology for the relevant ratings level, and is at least as conservative as the published methodology. Stress factors may include, among other factors, asset yields, principal payment rates, losses, delinquency rates and interest rates.

In determining an internal rating, collateral risks are the primary driver and are addressed through the transaction structure and modelled statistical confidence. The analysis reflects the Group's view on the transaction, including dilution risk, concentration and tenor limits, as well as qualitative aspects such as counterparty risk and important ancillary issues (operational and legal risks). The adequacy and integrity of the servicer's systems and processes for underwriting, collections policies and procedures are also reviewed. The Group conducts a full due diligence review of the servicer for each transaction. Each transaction is reviewed on, at least, an annual basis with a focus on the performance of underlying assets. The results of any due diligence review and the financial strength of the seller/servicer, are also factored into the analysis. Ratings of the transaction are reaffirmed with the most up to date ECAI methodologies. Any transaction which deviates from the current methodology is amended accordingly.

### Summary of the accounting policies for securitisation activities

Certain Group-sponsored entities have issued debt securities or have entered into funding arrangements with lenders in order to finance specific assets. An entity is consolidated by the Group when the Group has control over the entity. The Group controls an entity if it has all of the three elements of control which are i) power over the entity; and ii) exposure, or rights, to variable returns from its involvement with the entity; iii) the ability to use its power over the entity to affect the amount of the Group returns. The consolidation treatment must be initially assessed at inception and is reassessed if facts and circumstances indicate that there are changes to one or more of the three elements of control.

The accounting measurement of assets initially recognised for the purpose of securitisation will depend on whether the securitisation entity is consolidated by the Group and whether the assets transferred to the securitisation entity meet the accounting derecognition test, meaning whether the transfer will be accounted for as a sale.

- Where assets on initial recognition are expected to be securitised by a transfer to an unconsolidated Group entity, the accounting will depend on whether the transfer is expected to meet the accounting derecognition test. Assets will remain on the Group balance sheet, and consideration received will be treated as financings, unless the following criteria apply:
  - substantially all the risks and rewards associated with the assets have been transferred, in which case, they are derecognised in full; or
  - if substantially all the risks and rewards have not been transferred or retained, the assets are derecognised in full if the transferee has the practical ability to sell the financial asset, otherwise the assets continue to be recognised only to the extent of the Group's continuing involvement.
- Where assets acquired for securitisation are expected to be derecognised in full as a result of pending securitisation, those assets will typically be measured at fair value through the income statement.
- Where a securitisation entity is consolidated by the Group or the assets fail to meet the derecognition test, such that the Group balance sheet includes the assets held for securitisation prior to and post transfer to the securitisation entity, the assets will generally be part of a 'Hold to Collect' business model, and if the contractual cash flows characteristics are solely payments of principal and interest (SPPI), the assets will be measured at amortised cost.

Any financial support or contractual arrangements provided to unconsolidated entities, over securitised assets, would be recognised as a financial liability on balance sheet if it met the relevant IFRS 9 criteria, or a commitment under IAS 37, and have to be disclosed (see Note 35 in the Barclays PLC Annual Report 2022). Note, however, that the Group has a Significant Risk Transfer policy that does not allow for any support to be provided to any transactions that fall under the Significant Risk Transfer framework.

Assets may be transferred to a third party through a legal sale or an arrangement that meets the 'pass-through' criteria where the substance of the arrangement is principally that the Group is acting solely as a cash collection agent on behalf of the eventual recipients.

Where the transfer applies to a fully proportionate share of all or specifically identified cash flows, the relevant accounting treatment is applied to that proportion of the asset.

When the above criteria support the case that the securitisation should not be accounted for as financing, the transaction will result in sale treatment or partial continued recognition of the assets to the extent of the Group's continuing involvement in those assets. Gains are recognised to the extent that proceeds that can be measured using observable market data exceed the carrying value of assets derecognised.

Any retained interests, which will consist of loans and/or securities depending on the nature of the transaction, are valued in accordance with the Group's Accounting Policies, as set out in the Barclays PLC Annual Report 2022. To the extent that these interests are measured at fair value, they will be included within the fair value disclosures in the financial statements in the Annual Report. As outlined in these disclosures, key valuation assumptions for retained interests of this nature will include spreads to discount rates, default and recovery rates and prepayment rates that may be observable or unobservable.

In a synthetic securitisation transaction, the underlying assets are not sold into the relevant special purpose entity (SPE). Instead, their performance is transferred into the vehicle through a synthetic instrument such as a CDS, a credit linked note or a financial guarantee. The accounting policies outlined above will apply to synthetic securitisations.

## Management of securitisation exposures (continued)

The following tables show the information required by CRR2 article 449 (d).

<sup>1</sup> Securitisation Special Purpose Entities (SSPE) originated by the institution

## Management of securitisation exposures (continued)

COLONNADE GLOBAL 2022-2 - 2022-2-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-3 - 2022-3-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-3 - 2022-3-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-3B - 2022-3B-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-3B - 2022-3B-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-4 - 2022-4-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-4 - 2022-4-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-5A - 2022-5A-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-5A - 2022-5A-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-5B - 2022-5B-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-5B - 2022-5B-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-6 - 2022-6-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE GLOBAL 2022-6 - 2022-6-IB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
COLONNADE UK 2017-1 SRL - 2017-1-CB	Originator	Synthetic transactions	Consolidated - Structured Entity (Special Purpose Entity)
DELPHI SECURITIES DAC SERIES 1	Originator	Traditional transactions	Third Party Other Financial Institution
DURHAM MORTGAGES A (REFINANCING)	Originator	Traditional transactions	Third Party Other Financial Institution
DURHAM MORTGAGES B (REFINANCING)	Originator	Traditional transactions	Third Party Other Financial Institution
GLENBEIGH 1 ISSUER 2021-1 DESIGNATED ACTIVITY COMPANY	Originator	Traditional transactions	Third Party Other Financial Institution
HARBEN FINANCE 2017-1 REFINANCE	Originator	Traditional transactions	Third Party Other Financial Institution
LAST MILE LOGISTICS PAN EURO FINANCE	Originator	Traditional transactions	Third Party Other Financial Institution
MONAGHAN SECURITIES RMBS DESIGNATED ACTIVITY COMPANY	Originator	Traditional transactions	Third Party Other Financial Institution
PAVILLION MORTGAGES 2021-1	Originator	Traditional transactions	Third Party Other Financial Institution
PAVILLION POINT OF SALE 2021-1A	Originator	Traditional transactions	Third Party Other Financial Institution
RIPON MORTGAGES REFINANCE	Originator	Traditional transactions	Third Party Other Financial Institution
ROSSBEIGH 1 WAREHOUSE DAC	Originator	Traditional transactions	Non Consolidated Structured Entity (Special Purpose Entity)
TUNGSTEN 2020-1 - 2020-1	Originator	Synthetic transactions	Third Party Other Financial Institution
TUNGSTEN 2021-1 - 2021-1	Originator	Synthetic transactions	Third Party Other Financial Institution

### Notes<sup>1</sup>

a The securitisation list disclosed includes deals originated by Barclays that are SRT achieved and where horizontal tranches are held and risk-weighted per securitisation rules.

b Sponsored deals, deals originated by Barclays with no holdings and SRT failed deals are not part of the disclosure.

# Management of treasury and capital risk

This section provides an overview of the management of liquidity risk, capital risk and interest rate risk in the banking book.

- Liquidity risk, with a focus on how it is managed so that the firm has appropriate amount, tenor and composition of funding and liquidity to meet all its contractual and contingent funding obligations at all times, is discussed on pages 156 to 158.
- Capital risk, including how the risks of insufficient capital and leverage ratios and pension risk are managed, is discussed on pages 158 to 160.
- The management of Interest rate risk in the banking book is discussed on page 160.

# Management of treasury and capital risk

## Treasury and capital risk management

This comprises:

**Liquidity risk:** The risk that the Group is unable to meet its contractual or contingent obligations or that it does not have the appropriate amount, tenor and composition of funding and liquidity to support its assets.

**Capital risk:** The risk that the Group has an insufficient level or composition of capital to support its normal business activities and to meet its regulatory capital requirements under normal operating environments and stressed conditions (both actual and as defined for internal planning or regulatory testing purposes). This also includes the risk from the Group's pension plans.

**Interest rate risk in the banking book:** The risk that the Group is exposed to capital or income volatility because of a mismatch between the interest rate exposures of its (non-traded) assets and liabilities.

### Overview

The Treasury function manages treasury and capital risk exposure on a day-to-day basis with the Group Treasury Committee acting as the principal management body. The Treasury and Capital Risk function is responsible for oversight and provide insight into key capital, liquidity, interest rate risk in the banking book (IRRBB) and pension risk management activities.

### Organisation and structure

#### Barclays PLC Board Risk Committee

- Reviews and recommends Barclays Group's risk appetite for treasury and capital risk to the Barclays PLC Board for approval
- Reviews any material issues impacting treasury and capital risk
- Approves the ICAAP and ILAAP, via delegated authority of the Board

#### Barclays Group Treasury Committee

- Monitors and manages capital and liquidity risk in line with objective and risk appetite of the Group
- Guides development of the Group recover and resolution planning for capital, funding and liquidity
- Reviews non-traded market risk positions against risk appetite and limits

#### Barclays Group Risk Committee

- Reviews and recommends treasury and capital risk appetite to the Barclays PLC Board Risk Committee
- Escalates material issues impacting treasury and capital risk to the Barclays PLC Board Risk Committee
- Reviews and recommends the ICAAP and ILAAP to the Barclays PLC Board Risk Committee for approval

#### Barclays Bank Group/Barclays Bank UK Group Asset and Liability Committees (ALCOs)

- Manages the balance sheet of the Barclays Bank Group and the Barclays Bank UK Group
- Monitors the performance in managing of capital and liquidity risk within agreed first line of defence targets and limits
- Oversees the risks managed by the Treasury function of key legal entities through their funding, investment and hedging activities

#### Barclays Group Treasury and Capital Risk Committee

- Manages treasury and capital risk appetite
- Monitors the treasury and capital risk profile
- Monitors the treasury and capital risk control environment
- Recommends risk appetite to the Barclays Group Risk Committee and Barclays PLC Board Risk Committee
- Escalates material issues impacting treasury and capital risk to the Barclays Group Risk Committee and Barclays PLC Board Risk Committee

# Management of treasury and capital risk (continued)

## Liquidity risk management

### Overview

The efficient management of liquidity is essential to the Group in order to retain the confidence of the financial markets and maintain the sustainability of the business. Treasury and Capital Risk have established a framework to manage all liquidity risk exposures under both normal and stressed conditions. The framework is designed to maintain liquidity resources that are sufficient in amount, quality and funding tenor profile to remain within the liquidity risk appetite as expressed by the Barclays PLC Board. The liquidity risk appetite is monitored against both internal and regulatory liquidity metrics.

### Organisation, roles and responsibilities

Treasury has the primary responsibility for managing liquidity risk within the set risk appetite. Both Risk and Treasury contribute to the production of the Internal Liquidity Adequacy Assessment Process (ILAAP). The Treasury and Capital Risk function is responsible for the management and governance of the liquidity risk mandate, as defined by the Board.

The framework established by Treasury and Capital Risk is designed to deliver the appropriate term and structure of funding, consistent with the liquidity risk appetite set by the Board. The control framework incorporates a range of ongoing business management tools to monitor, limit and stress test the Group's balance sheet, contingent liabilities and the recovery plan. Limit setting and transfer pricing are tools designed to control the level of liquidity risk taken and drive the appropriate mix of funds. Adherence to limits reduces the likelihood that a liquidity stress event could lead to an inability to meet Group's obligations as they fall due.

The Board approves the Group funding plan, internal stress tests, regulatory stress test results, recovery plan and liquidity risk appetite. The Group Treasury Committee is responsible for monitoring and managing liquidity risk in line with the Group's funding management objectives, funding plan and risk appetite. The Treasury and Capital Risk Committee monitors and reviews the liquidity risk profile and control environment, providing second line oversight of the management of liquidity risk. The BRC reviews the risk profile, and reviews at least annually the liquidity risk appetite and the impact of stress scenarios on the Group funding plan/forecast in order to agree the Group's projected funding abilities.

The Group maintains a range of management actions for use in a liquidity stress. These are documented in the Group Recovery Plan. Since the precise nature of any stress event cannot be known in advance, the actions are designed to be flexible to the nature and severity of the stress event and provide a menu of options that can be drawn upon as required. The Group Recovery Plan also contains more severe recovery options to generate additional liquidity in order to facilitate recovery during a severe stress. Any stress event would be regularly monitored and reviewed using key management information by Treasury, Risk and business representatives.

Ongoing management business	Scenario design and parameter setting	Severe stress	Recovery
<ul style="list-style-type: none"> <li>• Stress testing and planning</li> <li>• Liquidity limits</li> <li>• Early warning indicators</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and review</li> <li>• Management actions requiring minimal business rationalisation</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and review</li> <li>• Management actions with limited impact on franchise</li> </ul>	<ul style="list-style-type: none"> <li>• Activate appropriate recovery options to restore the capital and/or liquidity position of the Group</li> </ul>

## Management of treasury and capital risk (continued)

### Risk Appetite and planning

Barclays has established a Group liquidity risk appetite (LRA) stress test to quantify the level of liquidity risk the Group is exposed to in pursuit of its business objectives and ensuring compliance with its regulatory obligations.

The key expression of the liquidity risk is through stress tests. It is measured with reference to the liquidity pool compared to anticipated net stressed outflows for each of five stress scenarios. Barclays has defined both internal short term and long term LRA stress testing metrics.

The Group LRA stress test is approved by the Board. The LRA is reviewed on a continuous basis and is subject to formal review at least annually as part of the ILAAP.

**Statement of LRA:** For 2022, the Board has approved that the Group will maintain an amount of available liquidity resources to meet modelled and prescribed regulatory liquidity stress outflows over different periods of time:

- >£0 at low-point within 30 days in a Barclays specific stress
- >£0 at low-point within 90 days in a market wide stress
- >£0 at low-point within 30 days in a combined stress
- £0 minimum surplus post management actions at 12 months
- LCR 30 days minimum ratio 100% (Pillar 2 basis)
- NSFR minimum ratio 100%

### Examples of liquidity limits

Liquidity Risk Appetite	Liquidity Coverage Ratio	Currency Risk Limits	Net Stable Funding Ratio ('NSFR')
Prime Brokerage Limits	Gross Repo Limits	Concentration Limits	Secured Stress Limits

### Early warning indicators

Barclays Treasury monitor a range of market indicators for early signs of liquidity risk. Both market indicators and Barclays specific indicators are tracked, a sample of which is shown in the table below. These are designed to immediately identify the emergence of increased liquidity risk in order to maximise the time available to execute appropriate mitigating management actions. Early Warning Indicators (EWIs) are used as part of the assessment of whether to invoke the Group Recovery Plan, which provides a framework for how a liquidity stress would be managed.

### Examples of early warning indicators

Reduction in 'sticky' deposits	Deterioration in stress test surplus	Rising funding costs
Widening CDS Spreads	Change in maturity profile	Stress in financial markets

# Management of treasury and capital risk (continued)

## Recovery & resolution planning

Barclays maintains a Group Recovery Plan (GRP) designed to provide a framework to effectively manage a severe financial stress. The GRP is proportionate to the nature, scale and complexity of the business and is tested on a regular basis to ensure it is operationally robust. The GRP details the escalation and invocation process for the plan, including integration with i) BAU monitoring of capital and liquidity EWLs to detect signs of approaching financial stress, ii) existing processes within Barclays Treasury and Risk to respond to mild/moderate stress and iii) the governance process for executing recovery options. The GRP is legal entity aware and includes considerations for Barclays Bank UK Group and Barclays Bank PLC including entity-specific EWLs, recovery options, recovery strategies and governance arrangements.

Significant financial stress will be managed holistically by Barclays, with appropriate senior management coming together to deal with stress, and key entities/branches remaining involved and able to manage stress locally and continuing to meet local regulatory requirements. The financial crisis process is centred around a hierarchy based on the structure of the Group, so that stress is managed both locally and at the highest level at which it manifests. The procedures for Barclays Group, Barclays Bank UK Group and Barclays Bank PLC include the convening of the Group-wide Capital and Liquidity Crisis Management Team (CLCMT) and the Group Executive Committee (ExCo) as Barclays' most senior crisis leadership committee, the use of a crisis playbook of detailed management information and a range of management actions that can be taken to restore Barclays' capital and/or liquidity position. This coordinated process provides a more consistent and therefore more effective crisis response.

The GRP includes a range of recovery options to respond to financial stresses of varying severity and includes detailed information on financial and non-financial impacts of exercising the recovery options. The GRP is updated annually and fully embedded within Barclays' existing processes.

## Liquidity risk governance

The Treasury function operates within the bounds of the framework established by Treasury and Capital Risk. The framework describes liquidity risk management processes, associated policies, controls and how the Group have implemented controls. This framework is used to manage liquidity risk within the Liquidity Risk Appetite. The framework is reviewed annually and supported by the internal architecture used to record and measure group wide liquidity metrics.

The Board sets the Liquidity Risk Appetite (LRA) based on the internal liquidity stress test and external regulatory requirements, namely the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). The Liquidity Risk Appetite stress test quantifies the level of liquidity risk the Group is exposed to in pursuit of its business objectives and ensuring compliance with its regulatory obligations. The approved Liquidity Risk Appetite is implemented in line with the Enterprise Risk Management Framework.

## Capital risk management

### Overview

Capital risk is managed through ongoing monitoring and management of the capital position, regular stress testing and a robust capital governance framework. The objectives of the framework are to maintain adequate capital for the Group and legal entities to withstand the impact of the risks that may arise under normal and stressed conditions, and maintain adequate capital to cover current and forecast business needs and associated risks to provide a viable and sustainable business offering.

### Organisation, roles and responsibilities

Treasury has the primary responsibility for managing and monitoring capital. The Treasury and Capital Risk function provides oversight of capital risk. Production of the Barclays PLC Internal Capital Adequacy Assessment Process (ICAAP) is the responsibility of Treasury.

Capital risk management is underpinned by a control framework and policy. The capital management strategy, outlined in the Group and legal entity capital plans, is developed in alignment with the control framework and policy for capital risk, and is implemented consistently in order to deliver on the Group's objectives.

The Board approves the Group capital plan, internal stress tests and results of regulatory stress tests, and the Group recovery plan. The Group Treasury Committee is responsible for monitoring and managing capital risk in line with the Group's capital management objectives, capital plan and risk frameworks. The Treasury and Capital Risk Committee monitors and reviews the capital risk profile and control environment, providing second line oversight of the management of capital risk. The BRC reviews the risk profile, and annually reviews risk appetite and the impact of stress scenarios on the Group capital plan/forecast in order to agree the Group's projected capital adequacy.

Local management assures compliance with an entity's minimum regulatory capital requirements by reporting to local Asset and Liability Committees (ALCOs) with oversight by the Group Treasury Committee, as required. In 2022, Barclays complied with all regulatory minimum capital requirements.

## Capital risk management strategy

Barclays Group's capital management strategy is driven by the strategic aims of Barclays Group and the risk appetite set by the Board. Barclays Group's objectives are achieved through well embedded capital management practices.

### Capital planning and allocation

Barclays Group assesses its capital requirements on multiple bases, with Barclays Group's capital plan set in consideration of Barclays Group's risk profile and appetite, strategic and performance objectives, regulatory requirements, international financial reporting standards (including IFRS 9), and market and internal factors, including the results of stress testing. The capital plan is managed on a top-down and bottom-up basis through both short-term and medium-term financial planning cycles, and is developed with the objective that Barclays Group maintains an adequate level of capital in line with internal and regulatory requirements. The planning process captures the impact of IFRS 9 to the capital plan, both including and excluding the impacts of transitional regulatory adjustments.

The PRA determines the regulatory capital requirements for the consolidated Barclays Group. Under these regulatory frameworks, capital requirements are set in consideration of the level of risk that Barclays Group is exposed to and the factors described above, and

## Management of treasury and capital risk (continued)

are measured through both risk-based Risk Weighted Assets (RWAs) and leverage-based metrics. An internal assessment of Barclays Group's capital adequacy is undertaken through the ICAAP and is used to inform the capital requirements of Barclays Group.

Barclays Group expects to meet the minimum requirements for capital and leverage at all times and also holds an internal buffer sized according to Barclays Group's assessment of capital risk.

Through the capital planning process, capital allocations are approved by Barclays Group Executive committee, taking into consideration the risk appetite and strategic aims of Barclays Group. Regulated legal entities are, at a minimum, capitalised to meet their current and forecast regulatory and business requirements.

### **Monitoring and reporting**

Capital is managed and monitored to maintain that Barclays' capital plans remain appropriate and that risks to the plans are considered. Limits are set by Risk to control the level of capital risk within Barclays Group. Treasury is responsible for complying with these limits as the first line of defence for the management of capital risk.

Limits are monitored through appropriately governed forums in the first and second line of defence.

To support compliance with risk limits, Treasury monitor capital risks against firm-specific and macroeconomic early warning indicators and report on these to the Treasury Committee and entity ALCOs. This enables a consistent and objective approach to monitoring the capital outlook against the capital plan, and supports the early identification when outlooks deteriorate.

Capital management information is readily available to support Senior Management's strategic and day-to-day business decision making.

### **Stress testing and risk mitigation**

Internal group-wide stress testing is undertaken to quantify and understand the impact of sensitivities on the capital plan and capital ratios arising from stressed macroeconomic conditions. Recent economic, market and peer institution stresses are used to inform the assumptions developed for internal stress tests and to assess the effectiveness of mitigation strategies.

Barclays Group also undertakes stress tests prescribed by the BoE and EBA, and legal entities undertake stress tests prescribed by their local regulators. These stress tests inform decisions on the size and quality of the internal capital buffer required and the results are incorporated into Barclays Group capital plan to maintain adequacy of capital under normal and severe, but plausible stressed conditions.

Actions are identified as part of the stress tests that can be taken to mitigate the risks that may arise in the event of material adverse changes in the current economic and business outlook. As an additional layer of protection, Barclays Group Recovery Plan defines the actions and implementation strategies available to Barclays Group to increase or preserve capital resources in the situation that a stress occurs that is more severe than anticipated.

### **Capitalisation of legal entities**

Barclays as a group comprises legal entities across multiple jurisdictions. Barclays Group and regulated legal entities are subject to prudential requirements from the PRA and/or local regulators. Sufficient capital needs to be available to meet these requirements both at a consolidated Group and individual legal entity level.

Where aggregate requirements for individual entities in Barclays Group are higher than the consolidated requirement, Barclays Group may use debt or capital other than CET1 to meet these incremental requirements (so called 'double leverage'). There are regulatory and rating agency expectations that constrain the amount of double leverage that can be used. This might increase the overall level of capital Barclays Group is required to hold.

The capitalisation of legal entities is reviewed annually as part of the capital planning process and monitored on an ongoing basis.

### **Transferability of capital**

Surplus capital held in Group entities is required to be repatriated to the immediate parent in the form of dividends and/or capital repatriation, subject to local regulatory requirements, exchange controls and tax implications. This approach provides optimal flexibility on the re-deployment of capital across legal entities. Capital is managed at Barclays Group as a whole as well as for its operating subsidiaries to allow fungibility and redeployment of capital while meeting relevant internal and regulatory targets at entity levels.

### **Foreign exchange risk**

Barclays Group has capital resources and risk weighted assets denominated in foreign currencies. Changes in foreign exchange rates result in changes in the Sterling equivalent value of foreign currency denominated capital resources and RWAs. As a result, Barclays Group's CET1 ratio is sensitive to foreign currency movements.

Barclays Group seeks to minimise the volatility of the CET1 ratio caused by foreign exchange rate movements by ensuring that the CET1 capital movements broadly match the revaluation of Barclays Group's foreign currency RWA exposures. This is achieved by seeking to align the ratio of CET1 sensitive to foreign exchange rate movements to foreign currency RWAs with Barclays Group CET1 ratio.

### **Pension risk**

The Group maintains a number of defined benefit pension schemes for past and current employees. The ability of schemes to meet pension payments is achieved with investments and contributions.

Pension risk arises because the market value of pension fund assets might decline; investment returns might reduce; or the estimated value of pension liabilities might increase. The Group monitors the pension risks arising from its defined benefit pension schemes and works with Trustees to address shortfalls. In these circumstances, the Group could be required or might choose to make extra contributions to the pension fund. The Group's main defined benefit scheme was closed to new entrants in 2012.

# Management of treasury and capital risk (continued)

## Management of pension risk

Many of the Group's defined benefit pension funds are established as trusts in order to keep the fund's assets separate from the sponsor (Barclays). As such the Trustees are responsible for:

- the investment strategy including asset allocation and performance
- assessing the level of technical provisions required
- ensuring any minimum funding objectives are met
- complying with local legislation.

The legal structure of Barclays' defined benefit pension funds and the role of the Trustees mean that pension risk can't be directly controlled by the Group. However, Barclays must ensure that the Risk Appetite at Group and entity levels is calibrated to accommodate exposure to pension risk.

## Pension Forums

The Pension Executive Board (PEB) has accountability for the effective operation of pensions across the Group. It is the most senior executive body for pensions in Barclays.

The Pension Management Group (PMG) is accountable for the oversight and management of the Group's responsibilities relating to its pension arrangements. The PMG is accountable to the PEB.

The PEB and PMG are not created or mandated under the ERMF. However, these forums provide Risk the opportunity to discuss and comment on pension risk in a wider context with other relevant stakeholders from HR, Legal, Treasury and Finance.

## Key pension risk controls and governance include:

- annual review, challenge and proposal of the IAS19 market-driven assumptions used for the calculation of pension liabilities used in Barclays' disclosures
- representation and input at key pension forums
- input into the Group's ICAAP for pension risk
- input into the Group's strategic planning and stress test exercises
- provision of independent oversight of the pension risk profiles from the Group's perspective
- coordination of responses to regulatory initiatives, developments and proposals on pensions, which may include inputs from material overseas schemes.

## Interest rate risk in the banking book management (IRRBB)

### Overview

Interest rate risk in the banking book is driven by customer deposit taking and lending activities, investments in the liquid asset portfolio and funding activities. As per the Group's policy to remain within the defined risk appetite, hedging strategies are executed to mitigate the various IRRBB risks that result from these activities.

However, the Group remains susceptible to interest rate risk and other non-traded market risks from the following key sources:

- **Interest rate and repricing risk:** the adverse impact by a change in interest rates, differences in the timing of interest rate changes between assets and liabilities, and other constraints on interest rate changes as per product terms and conditions.
- **Customer behavioural risk:** the adverse impact by the discretion that customers and counterparties may have in respect of being able to vary their contractual obligations with Barclays. This risk is often referred to by industry regulators as 'embedded option risk'.
- **Investment risks in the liquid asset portfolio:** the risk that the fair value of assets held in the liquid asset portfolio and associated risk management portfolios could be adversely impacted by market volatility, creating volatility in capital directly.

### Organisation, roles and responsibilities

The entity ALCOs and /or treasury committees, together with the Group Treasury Committee, are responsible for monitoring and managing IRRBB risk in line with the Group's management objectives and risk frameworks. The GRC and Treasury and Capital Risk Committee monitors and reviews the IRRBB risk profile and control environment, providing second line oversight of the management of IRRBB. The BRC reviews the interest rate risk profile, including annual review of the risk appetite and the impact of stress scenarios on the interest rate risk of the Group's banking books.

In addition, the Group's IRRBB policy sets out the processes and key controls required to identify all IRRBB risks arising from banking book operations, to monitor the risk exposures via a set of metrics with a frequency in line with the risk management horizon, and to manage these risks within agreed risk appetite and limits.

## Management of IRRBB

Barclays executes hedging strategies to minimise IRRBB and maintain it within the agreed risk appetite, whilst actively managing the trade-off between return and associated risks in liquid asset portfolio. Therefore, the primary control for IRRBB is calculating the risk metrics described in the table below and monitoring risk exposure vs. defined limits. Limits are set at an aggregate business level and then cascaded down.

These measures of risk are typically dependent on an assumption of expected customer behaviour, to the extent that actual behaviour may vary from expectation this variation is measured using a supplementary set of behavioural stress measures.

## Management of treasury and capital risk (continued)

### Summary of measures for non-traded market risk

Measure	Definition
<b>Net Interest Income (NII)</b>	A measure of the potential change in Net Interest Income (NII) due to an adverse interest rate movement over a predefined time horizon.
<b>Economic value of equity (EVE)</b>	A measure of the potential change in the present value of expected future cash flows due to an adverse interest rate movement, based on the existing balance sheet expected run-off profile.
<b>Value at risk (VaR)</b>	A measure of the potential loss of value arising from unfavourable market movements at a specific confidence level, if current positions were to be held unchanged for the predefined holding period.
<b>Stress Loss</b>	A measure of the potential loss from an adverse shock to market variables

## Management of treasury and capital risk (continued)

### **Net Interest Income (NII)**

NII measures the sensitivity of net interest income over a one-year period. It is calculated as the difference between the estimated income using the expected rate forecast and the lowest estimated income following a parallel increase or decrease in interest rates on a pre-tax basis.

The main model assumptions are:

Interest rate levels are shocked in line with those prescribed by the PRA Rulebook. The balance sheet is primarily kept at the current level with no assumed growth, and run-off balances are reinvested on a like-for-like basis to maintain a constant balance sheet. A number of temporary non-core funding balances are not reinvested. Contractual positions are adjusted for an assumed behavioural profile, to align with the expected product life-cycle.

Forecast net interest income accounts for expected pricing changes to managed rate products both in the base scenario and shocked scenarios, including the impact of either implied product rate floors or explicit product rate floors in line with product terms and conditions. Further management actions in response to interest rate shocks are excluded.

NII sensitivity is calculated on a monthly basis for the entire banking book, including the investments in liquid asset portfolio. The metric provides a measure of how interest rate risk may impact the Group's earnings, providing a simple comparison between risk and returns. As NII provides a view on the next year's earnings impacts of interest rate risk, Barclays also monitors economic value metrics to complement the view as this captures the IRRBB impact of risk exposures beyond one year.

### **Economic Value of Equity (EVE)**

EVE calculates the change in the present value of the Group's expected future cash-flows across the six prescribed scenarios in the PRA Rulebook. Note that the EVE calculation measures sensitivity in terms of present value, while NII measures income sensitivity, and as such are complimentary.

The EVE measure is calculated on a monthly basis and is applied to the full life of transactions and hedges allowing the risk over the whole life of positions to be considered. It does not capture the impact of business growth or management actions, and is based on the expected balance sheet run-off profile.

The main model assumptions are:

All cash flows are included within the EVE scenarios, with commercial margins excluded and discounted at the relevant risk-free interest rate. Market rate floors are accounted for in line with regulatory guidance, with market rates floored at -100bps and increasing by 5bps linearly per annum from the reporting date.

The Group's equity instruments without a call date are excluded from the calculation. Deposits which have no defined maturity date have been profiled according to their relevant behavioural maturity which aligns to the Group's hedging strategy. The profiling of non-maturing deposits is aligned in shock scenarios to the baseline scenario as the baseline scenario is sufficiently prudent to mitigate expected customer behaviours in shocked scenarios.

Fixed-rate customer balances where customers have the option to adjust payments are also reported including expected customer behaviours, with the baseline Conditional Prepayment Rate adjusted by 20% in shocked scenarios.

EVE is calculated by currency and aggregated accounting for 50% of the benefit of any positive change in EVE.

### **Value at Risk (VaR)**

In addition to the above measures, VaR is also used for IRRBB management, although primarily focused on items held at fair value. VaR is an estimate of the potential loss arising from unfavourable market movements if the current position were to be held unchanged for a set period. For internal market risk management purposes, a historical simulation methodology is used with a one-year equally weighted historical period, at a 95% confidence level.

Internal risk management daily VaR is used to measure residual interest and foreign exchange risks within certain banking book portfolios held at fair value. Quarterly scaled VaR is used to measure risk for items in the liquid asset portfolio held at fair value.

VaR is calculated on a daily basis and exposure is reported versus defined limits.

### **Stress Loss**

Securities in the buffer are subject to several market risk stresses designed to estimate potential losses in various scenarios. This includes, but is not limited to, an annual internal stress test, regulatory stress tests as well as various ad hoc exploratory exercises.

## Management of treasury and capital risk (continued)

### ICAAP information

The purpose of the capital adequacy assessment is to confirm that the Group is adequately capitalised to support its business strategy against the risks the bank faces and the performance constraints set by the Board.

The capital adequacy is assessed by verifying the following conditions:

- Group meets the capital regulatory requirements.
- The Internal Stress Testing (IST) passes the risk appetite constraints set by the Board and;
- Group holds sufficient loss absorbing capital to cover economic risks.

This is supplemented by benchmarking of capital metrics to peer banks and considering rating agency assessments.

# Management of operational risk

The sources of operational risks, and how those risks are managed, are detailed in this section.

- The types of risks that are classified as operational risks are described on pages 165 and 166.
- Governance, management and measurement techniques are covered on pages 166 and 167.

# Management of operational risk

## Operational risk

The risk of loss to the Group from inadequate or failed processes or systems, human factors or due to external events (for example fraud) where the root cause is not due to credit or market risks.

### Overview

The management of operational risk has three key objectives:

- deliver an operational risk capability owned and used by business leaders
- provide the frameworks, policies and standards to enable management to meet their risk management responsibilities while the second line of defence provides robust, independent, and effective oversight and challenge
- deliver a consistent and aggregated measurement of operational risk that will provide clear and relevant insights, so that the right management actions can be taken to keep the operational risk profile consistent with the Group's strategy, the stated risk appetite and stakeholder needs.

The Group operates within a strong system of internal controls that enables business to be transacted and risk taken without exposing the Group to unacceptable potential losses or reputational damages.

### Organisation and structure

#### Barclays PLC Board Risk Committee

- Approves operational risk framework
- Oversees operational risk capital
- Recommends and monitors operational risk appetite and the residual risk position, supported by feedback from the Barclays PLC Board Audit Committee/Chief of Controls Officer

#### Barclays PLC Board Audit Committee

- Oversees the operating effectiveness of the control environment
- Oversees remediation of control issues
- Gives feedback to the Barclays PLC Board Risk Committee where concerns exist over the impact on residual risk through either the design or operating effectiveness of the control environment

#### Barclays Group Risk Committee

- Reviews and recommend risk appetite and risk limit across operational risk to the Barclays PLC Board
- Monitors the Barclays Group risk profile and the utilisation of risk appetite
- Reviews appetite, limit usage and risk management within tolerance agreed by the Barclays PLC Board
- Reviews deep dives of specific risks as requested
- Reviews the impact of any material acquisitions and disposals on the risk profile
- Reviews remediation plans and actions taken, and agrees any further action required
- Escalated to Barclays PLC Board level

#### Barclays Group Controls Committee

- Oversees the effectiveness of the control environment
- Reviews and recommends the control framework
- Oversees control remediation activities
- Oversees the execution of the Operational Risk Management Framework consistently across Barclays Group
- Oversees risk and internal control matters including significant issues
- Escalates to Barclays PLC Board level

#### Operational Risk Committees

- Manage and oversee risk at the Group level
- Escalate to Barclays group level

#### Business Risk Committees

- Manage and oversee risk at the business/function level
- Escalate to Barclays Group level

#### Barclays Control Committees

- Manage and oversee the control environment at the business/function level
- Escalate to Barclays Group level

### Operational risk categories

Operational risks are grouped into risk categories to support effective risk management, measurement and reporting. These are defined as follows:

- **Data Management & Information Risk:** The risk that Barclays Data and Records are not defined, captured, stored or managed in accordance with their value, and legal and regulatory requirements
- **Financial Reporting Risk:** The risk of a material misstatement or omission within the Group's external financial reporting, regulatory reporting or internal financial management reporting
- **Fraud Risk:** The risk of financial loss when an internal or external party acts dishonestly with the intent to obtain an undue benefit, cause a loss to, or to expose either the Group or its customers and clients to a risk of loss
- **Information Security Risk:** The risk that Barclays information is not protected against potential unauthorised access, use, modification, disruption or destruction

## Management of operational risk (continued)

- **Operational Recovery Planning Risk:** The risk that Barclays does not understand the impact of operational disruption on its business services, is unable to recover business services within agreed timeframes, or does not have the ability to effectively respond to a crisis
- **Payments Process Risk:** The risk of payments being processed inaccurately, with delays, without appropriate authentication and authorisation. It also covers the risk associated with ineffective management associated with Payment/Card Scheme membership
- **People Risk:** The set of risks associated with employing and managing people, including compliance with regulations, appropriate resourcing for requirements, recruitment and development risks
- **Premises Risk:** The risk of business detriment or harm to people due to premises and infrastructure issues
- **Physical Security Risk:** The risk of business detriment, financial loss or harm to people as a result of any physical security incident impacting the Group or a Group employee - relating to harm to people, unauthorised access, intentional damage to premises or theft or intentional damage to moveable assets
- **Change Delivery Management Risk:** The risk of failing to deliver and implement the agreed change initiatives and business outcomes required to deliver the Group and Business Unit Strategy within agreed timelines. Change Delivery Management Risk exists whenever there is change in flight (delivery risk) and/or fails to recognise incremental risk to the business that the change may introduce once it is delivered (delivered risk).
- **Supplier Risk:** The risk that is introduced to the firm or entity as a consequence of obtaining services or goods from another legal entity or entities whether External or Internal as a result of inappropriate and/or inadequate selection, management, or exit management
- **Tax Risk:** The risk of unexpected tax cost in relation to any tax for which Barclays is liable, or of reputational damage on tax matters with key stakeholders such as tax authorities, regulators, shareholders or the public. Tax cost includes tax, interest or penalties levied by a taxing authority
- **Technology Risk:** The risk to Barclays that comes about through its dependency on Technological solutions
- **Transaction Operations Risk:** The risk of an unintentional error in the execution of a customer transaction resulting in delayed or inaccurate processing

In addition to the above, operational risk encompasses risks associated a breach of Prudential regulatory requirements relating to maintaining Group Resolution Plan.

These risks may result in financial and/or non-financial impacts including legal/regulatory breaches or reputational damage.

### Connected risks

Barclays also recognises that there are certain threats/risk drivers which are interconnected and have the potential to impact the Group's strategic objectives. These are referred to as Connected Risks and require an overarching and integrated risk management and / or reporting approach. Including:

- **Cyber:** The potential loss or detriment to Barclays caused by individuals or groups (threat actors) with the capabilities and intention to cause harm or to profit from attacks committed via network information systems against us, our suppliers, or customers/clients
- **Data:** The risks associated with the management, quality and control of data, its protection and confidentiality and its correct usage
- **Resilience:** The risk of the organisation's ability to anticipate, prevent, adapt, respond to, recover and learn from internal or external disruption, continuing to provide important business services to customers and clients, and minimise any impact on the wider financial system
- **Third-Party Service Management:** The risk associated with Third-Party Service Providers - defined as all entities that have entered into an arrangement with Barclays in order to provide business functions, activities, goods, and/or services.

### Roles and responsibilities

The prime responsibility for the management of operational risk and the compliance with control requirements rests with the legal entities, business and functional units where the risk arises. The operational risk profile and control environment is reviewed by business management through specific meetings which cover these items. Operational risk issues escalated from these meetings are considered through the second line of defence review meetings. Depending on their nature, the outputs of these meetings are presented to the Operational Risk Profile Forum, the Operational Risk Committee, the Barclays PLC Board Risk Committee or the Barclays PLC Board Audit Committee.

Legal entities, businesses and functions are required to report their operational risks on both a regular and an event-driven basis. The reports include a profile of the material risks that may threaten the achievement of their objectives and the effectiveness of key controls, operational risk events and a review of scenarios.

The Group Head of Operational Risk is responsible for establishing, owning and maintaining an appropriate Group-wide Operational Risk Framework and for overseeing the portfolio of operational risk across the Group.

The Operational Risk function acts in a second line of defence capacity, and is responsible for defining and overseeing the implementation of the framework and monitoring the Group's operational risk profile. The Operational Risk function alerts management when risk levels exceed acceptable tolerance in order to drive timely decision making and actions by the first line of defence. Specific reports are prepared by Operational Risk on a regular basis for the Barclays Group Risk Committee, and the Barclays PLC Board Risk Committee.

### Operational Risk Framework

The Operational Risk Framework comprises a number of elements which allow Barclays Group to manage and measure its operational risk profile and to calculate the amount of operational risk capital that Barclays Group needs to hold to absorb potential losses. The minimum, mandatory requirements for each of these elements are set out in the Operational Risk Framework and supporting policies. This framework is implemented across Barclays Group with all legal entities, businesses and functions required to implement and operate an Operational Risk Framework that meets, as a minimum, the requirements detailed in the operational risk policies.

## Management of operational risk (continued)

The Operational Risk Framework is a key component of the ERMF and has been designed to improve risk management and meet a number of external governance requirements including the Basel Capital Accord, the Capital Requirements Directive and Turnbull guidance as an evaluation framework for the purposes of Section 404(a) of the Sarbanes-Oxley Act. It also supports the Sarbanes-Oxley requirements.

The Operational Risk Framework includes the following elements.

### Risk and Control Self-Assessments

Risk and control self-assessments (RCSAs) are the way in which Barclays Group identifies and assesses the risks which are inherent in the material processes operated by Barclays Group. Managers in the business use the RCSA approach to evaluate the controls in place to mitigate those risks and assess the residual risk exposure to Barclays Group. The businesses / functions are then able to make decisions on what action, if any, is required to reduce the level of residual risk to Barclays Group. These risk assessments are monitored on a regular basis to maintain that each business understands the risks it faces.

### Risk Events

An operational risk event is any circumstance where, through the lack or failure of a control, Barclays Group has actually, or could have, made a loss. The definition includes situations in which Barclays Group could have made a loss, but in fact made a gain, as well as incidents resulting in reputational damage or regulatory impact only.

A standard threshold is used across Barclays Group for reporting risk events and part of the analysis includes the identification of improvements to processes or controls, to reduce the recurrence and/or magnitude of risk events. For significant events, both financial and non-financial, this analysis includes the completion of a formal lessons learned report.

Barclays Group also maintains a record of external risk events which are publicly available and is a member of the Operational Risk data eXchange (ORX), a not-for-profit association of international banks formed to share anonymous loss data information. This external loss information is used to support and inform risk identification, assessment and measurement.

### Operational Risk Appetite

The Board approves an Operational Risk Appetite Statement on an annual basis, establishing the level of operational risk that is acceptable in pursuit of Barclays Group's strategic objectives.

Operational risks are assessed and monitored against the Board approved Operational Risk Appetite, with Risk Reduction Plans established for any risks that are above the acceptable level.

The Operational Risk Profile is monitored through Risk Committees at legal entity, Barclays Group and Board level in the context of Operational Risk Appetite.

### Key Indicators

Key indicators (KIs) are metrics which allow the Operational Risk Profile to be measured and monitored against Management's Risk Appetite. KIs include defined thresholds and performance is reported regularly to Management to drive action when risk exceeds acceptable limits.

### Risk Scenarios

Risk scenarios are a summary of the extreme potential risk exposures for Barclays Group covering the complete range of risks. The scenarios include an assessment of the key drivers for the exposure, occurrence and impact of the scenario and a review of the corresponding control environment. The risk scenario assessments are a key input to the calculation and benchmarking of economic capital requirements (see following section on operational risk measurement). The assessment considers analysis of internal and external loss experience, Key Risk Indicators, Risk and Control Self-Assessments and other relevant information. The businesses and functions analyse potential extreme scenarios, considering the:

- circumstances and contributing factors that could lead to an extreme event;
- potential financial impacts;
- controls that seek to limit the likelihood of such an event occurring; and
- the mitigating actions that would be taken if the event were to occur (for example crisis management procedures, business continuity or disaster recovery plans).

Management then determine whether the potential risk exposure is acceptable or whether changes in risk management control or business strategy are required.

The risk scenarios are regularly re-assessed, taking into account trends in risk factors.

### Reporting

The ongoing monitoring and reporting of operational risk is a key component of the Operational Risk Framework. Reports and management information are used by the Operational Risk function and by legal entity and business management to understand, monitor, manage and control operational risks and losses.

The operational risk profile is reviewed by senior management at legal entity Risk Committee meetings as well as the Operational Risk Profile Forum, Operational Risk Committee and BRC, BAC and the Board.

### Operational Risk Measurement

Barclays Group assesses its Operational Risk Capital requirements using the Standardised Approach (TSA).

### Insurance

As part of its risk management approach, Barclays Group also uses insurance to mitigate the impact of some operational risks.

# Management of model risk

The types of model risk, and how they are managed, are detailed in this section.

- **Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs and reports.**

# Management of model risk

## Model risk

The potential for adverse consequences from decisions based on incorrect or misused model outputs and reports.

### Overview

The Group uses models to support a broad range of activities, including informing business decisions and strategies, measuring and limiting risk, valuing exposures, conducting stress testing, assessing capital adequacy, managing client assets, and meeting reporting requirements.

Since models are imperfect and incomplete representations of reality, they may be subject to uncertainty, errors and inappropriate use affecting the accuracy of their output. This can result in inappropriate business decisions being made, financial loss, regulatory risk, reputational risk and/or inadequate capital reporting. Models may also be misused, for instance applied to products that they were not intended for, or not adjusted, where fundamental changes to their environment would justify re-evaluating their core assumptions.

Robust model risk management is crucial to assessing and managing model risk within a defined risk appetite. Strong model risk culture, appropriate technology environment, and adequate focus on understanding and resolving model limitations are crucial components.

### Organisation and structure

The Group allocates substantial resources to identify and record models and their usage, document and monitor the performance of models, validate models and adequately address model limitations. The Group manages model risk as an enterprise level risk similar to other principal risks. Barclays Group has a dedicated Model Risk Management (MRM) function that consists of five teams : (i) Independent Validation Unit (IVU), responsible for model validation and approval; (ii) Model Risk Governance, responsible for model risk governance, controls and reporting as well as providing oversight for compliance of the Model Owner community with the Model Risk Framework; (iii) Framework team, responsible for the Model Risk Policy and associated standards; (iv) Strategy and Transformation responsible for inventory, strategy, communications and business management and (v) Model Risk Measurement and Quantification (MRMQ), responsible for the design of the framework and methodology to measure and, where possible, quantify model risk. It is also responsible for the strategic Validation Center of Excellence (VCoE), which is an independent quality assurance function within MRM with the mandate to review and challenge validation outcomes.

The Model Risk Framework consists of the Model Risk Policy and standards. The policy prescribes Group-wide, end-to-end requirements for the identification, measurement and management of model risk, covering model documentation, development, monitoring, annual review, independent validation and approval, change and reporting processes. The policy is supported by global standards covering model inventory, documentation, validation, testing and monitoring, overlays, risk appetite, and stress testing challenger models.

The function reports to the Group CRO and operates a global framework. Implementation of best practice standards is a central objective of the Group. Model risk reporting flows to senior management as depicted below.

### Organisation and structure

#### Barclays PLC Board Risk Committee

- Review and recommends Barclays Group's risk appetite for model risk to the Barclays PLC Board
- Reviews the effectiveness of the processes and policies by which Barclays Group identifies and manages model risk
- Assesses performance relative to model risk appetite

#### Barclays Group Risk Committee

- Reviews risk appetite across model risk
- Monitors the Barclays Group risk profile for model risk, including emerging risks, against expected trends, and the utilisation of risk appetite

#### Group Model Management Steering Committee

- Oversees strategic modelling approaches for the development and redevelopment of in scope models
- Reviews and challenges compliance and interpretation of relevant regulations and technical standards
- Reviews the pipeline of model change proposals requiring pre-notification and post-notification to regulators
- Review of key findings from Annual Review and model performance monitoring activities focusing on models where material deficiencies have been identified
- Oversees the approach to regulatory feedback on model related matters

#### Group Model Risk Management Committee

- Reviews and monitors the model risk profile across the Bank and assesses exposures against approved tolerance
- Identifies and escalates model issues and emerging risks as appropriate
- Monitors the Model Risk Control Environment, including review and recommendation on critical and major control issues
- Reviews and challenges progress with critical Regulatory commitments and strategic initiatives

## Management of model risk (continued)

### Roles and responsibilities

The key model risk management activities include:

- Correctly identifying models across all relevant areas of the Group, and recording models in the Group Models Database (GMD), the Group-wide model inventory. The heads of the relevant model ownership areas (typically, the business Chief Risk Officers, business Chief Executive Officers, Group Finance Director, Treasurer, etc.) annually attest to the completeness and accuracy of the model inventory
- Enforcing that every model has a model owner who is accountable for the model. The model owner must sign off models prior to submission to IVU for validation. The model owner works with the relevant technical teams (model developers, implementation, monitoring, data services, regulatory) to maintain that the model presented to IVU is and remains fit for purpose
- Overseeing that every model is subject to validation and approval by IVU, prior to being used and on a continual basis. While all models are reviewed and re-approved for continued use each year, the validation frequency and the level of review and challenge applied by IVU is tailored to the materiality and complexity of each model. Validation includes a review of the model assumptions, conceptual soundness, data, design, performance testing, compliance with external requirements if applicable, as well as any limitations, proposed remediation and overlays with supporting rationale. Material model changes are subject to prioritised validation and approval
- Defining model risk appetite in terms of risk tolerance, and qualitative metrics which are used to track and report model risk.
- Maintaining specific standards that cover model risk management activities relating to stress testing challenger models, model overlays and vendor models

# Management of conduct risk

This section provides an overview of the management of conduct risk

- **Conduct risk is the risk of poor outcomes for, or harm to, customers, clients and markets, arising from the delivery of the Group's products and services.**

# Management of Conduct risk

## Conduct risk

The risk of poor outcomes for, or harm to, customers, clients and markets, arising from the delivery of the Group's Products and Services.

### Overview

The Group defines, manages and mitigates conduct risk with the objective of providing good customer and client outcomes and protecting market integrity.

Conduct Risk incorporates market integrity, customer protection, financial crime and product design and review risks.

### Organisation and structure

The governance of conduct risk within the Group is fulfilled through management committees and forums operated by the first and second lines of defence, with clear escalation and reporting lines to the Board.

The Barclays Group and Barclays Bank Group Risk Committee and the Barclays Bank UK Group Risk Committee are the primary second line governance committees for the oversight of the conduct risk profile. The risk committees' responsibilities include the identification and discussion of any emerging conduct risk exposures in their respective entities.

The Barclays Group and Barclays Bank Board Risk Committee and the Barclays Bank UK Group Board Risk Committee review, on behalf of their respective Boards, the management of conduct risk and the conduct risk profile for the respective entities. The Committees also safeguard the independence of, and oversee the performance of, the Group Compliance Function.

### Roles and responsibilities

The Conduct Risk Management Framework (CRMF) outlines how the Group manages and measures its conduct risk profile. The Group Chief Compliance Officer is accountable for developing, maintaining and overseeing a group-wide CRMF. This includes defining and owning the relevant conduct risk policies which detail the control objectives, principles and other core requirements for the activities of the Group. It is the responsibility of the first line of defence to establish controls to manage its performance and assess conformance to these policies and controls.

Senior managers are accountable within their areas of responsibility for owning and managing conduct risk in accordance with the CRMF, as defined within their regulatory Statement of Responsibilities.

Compliance, as an independent second line function, oversees that conduct risks are effectively identified, managed, monitored and escalated and has a key role in helping Barclays achieve the right conduct outcomes and evolve a conduct-focused culture.

## Organisation and structure

### Barclays PLC Board Risk Committee

- Reviews the effectiveness of the processes and policies by which Barclays Group and Barclays Bank Group identifies and manages conduct risk including the consideration and approval of the Barclays Group Conduct Risk Management Framework and any amendments thereto, and annually reviewing the effectiveness
- Reviews periodic Conduct Risk reports which, with respect to Barclays Bank Group Conduct Risk Policies and
- Maintains oversight of the Barclays Group Compliance Function

### Barclays PLC Board Audit Committee

- Reviews the effectiveness of the processes by which Barclays Bank UK Group identifies and manage conduct risk, including annually reviewing the effectiveness of the Barclays Group Conduct Risk Management Framework as it applies to Barclays Bank UK Group;
- Reviews periodic Conduct Risk reports which will include adopting Conduct Risk metrics as set by the Barclays PLC Board Risk Committee, agreeing any specific Barclays Bank UK Group business and function metrics and performance against the same and compliance with Barclays Group Conduct Risk Policies, and
- Maintains oversight of the Barclays Group Compliance Function

### Barclays Group Controls Committees

- Provides oversight of the effectiveness of the Control Environment in relation to Conduct Risk, including remediation of control failures relating to Conduct issues and risk events

### Barclays Group Risk Committee

- Oversees the Conduct Risk Profile and implementation of the Group Conduct Risk Management Framework for Barclays Group and Barclays Bank Group

### Barclays UK Risk Committee

- Oversees the Conduct Risk Profile and implementation of the Group Conduct Risk Management Framework for Barclays Bank UK Group

# Management of reputation risk

This section provides an overview of the management of reputation risk

- Reputation risk is the risk that an action, transaction, investment, event, decision, or business relationship will reduce trust in the Group's integrity and/or competence.

# Management of reputation risk

## Reputation risk

The risk that an action, transaction, investment, event, decision, or business relationship will reduce trust in the firm's integrity and/or competence.

### Overview

A reduction of trust in the Group's integrity and competence may reduce the attractiveness of the Group to stakeholders and could lead to negative publicity, loss of revenue, regulatory or legislative action, loss of existing and potential client business, reduced workforce morale and difficulties in recruiting talent. Ultimately it may destroy shareholder value.

### Organisation and structure

The Barclays PLC Board is the most senior body responsible for reviewing and monitoring the effectiveness of the Group's management of reputation risk.

### Roles and responsibilities

The Group Chief Compliance Officer is accountable for developing a Reputation Risk Management Framework, and the Head of Public Policy and Corporate Responsibility is responsible for developing a reputation risk policy and associated standards, including tolerances against which data is monitored, reported on and escalated, as required. Reputation risk is by nature pervasive and can be difficult to quantify, requiring more subjective judgement than many other risks. The Reputation Risk Management Framework sets out what is required to manage reputation risk across the Group.

The primary responsibility for identifying and managing reputation risk and adherence to the control requirements sits with the business and support functions where the risk arises.

Barclays Bank Group and Barclays Bank UK Group are required to operate within established reputation risk appetite, and their component businesses prepare reports highlighting their most significant current and potential reputation risks and issues and how they are being managed.

These reports are a key internal source of information for the quarterly reputation risk reports which are prepared for Group ExCo and reviewed by the Group Board twice-yearly.

### Organisation and structure

#### Barclays PLC Board

- Reviews the effectiveness of the process and policies by which Barclays Group identifies and manages reputation risk
- Considers and evaluates regular reports on Barclays Group's reputation risk issues and exposures
- Considers whether significant business decisions will compromise Barclays Group's ethical policies or core business beliefs and values

#### Group Reputation Risk Committee

- Reviews the monitoring processes utilised by Compliance and Public Policy and Corporate Responsibility to ensure they are proportionate given the level of risk identified in the businesses
- Sub-committee of the Group Executive Committee authorised to manage material reputation risks and issues as they are brought to the attention of the committee via relevant reputation risk assessment and escalation processes

#### Business Risk Committees/Forums

- Review and escalate reputation risks in accordance with Barclays Group's Reputation Risk Management Framework

# Management of legal risk

This section provides an overview of the management of legal risk

- Legal risk is the risk of loss or imposition of penalties, damages or fines from the failure of the Group to meet its legal obligations, including regulatory or contractual requirements.

# Management of legal risk

## Legal risk

The risk of loss or imposition of penalties, damages or fines from the failure of the Group to meet its legal obligations, including regulatory or contractual requirements.

### Overview

The Group has no tolerance for wilful breaches of laws, regulations or other legal obligations.

However, the multitude of laws and regulations across the globe are highly dynamic and their application to particular circumstances is often unclear. This results in a high level of inherent legal risk which the Group seeks to mitigate through the operation of a Group-wide legal risk management framework, which requires identification of legal risks by legal professionals, engagement of legal professionals in situations that have the potential for legal risk, and escalation of legal risk as necessary.

Notwithstanding these mitigating actions, the Group operates with a level of residual legal risk, for which the Group has limited tolerance.

### Organisation, roles and responsibilities

The Group's businesses and functions have responsibility for identifying and escalating to the Legal Function legal risk in their area, as well as responsibility for adherence to control requirements.

The Legal Function organisation and coverage model aligns legal expertise to businesses, functions, products, activities and geographic locations so that the Group receives legal advice and support from appropriate legal professionals, working in partnership proactively to identify, manage and escalate legal risk as necessary.

The senior management of the Legal Function oversees, challenges and monitors the legal risk profile and effectiveness of the legal risk control environment across the Group. The Legal Function does not sit in any of the three lines of defence but supports them all. Except in relation to the legal advice it provides or procures, the Legal Function is subject to oversight from the second line of defence.

The Group General Counsel is responsible for developing and maintaining a Group-wide legal risk management framework. This includes defining the relevant legal risk policies, developing Group-wide risk appetite for legal risk and oversight of the implementation of controls to manage and escalate legal risk.

The legal risk profile and control environment is reviewed by management through business risk committees and control committees. The Group Risk Committee is the most senior executive body responsible for reviewing and monitoring the effectiveness of risk management across the Group. Escalation paths from this committee exist to the Barclays PLC Board Risk Committee.

## Organisation and structure

### Barclays PLC Board Risk Committee

- Considers and recommends to the Barclays PLC Board legal risk appetite and tolerances
- Reviews the legal risk profile and the management of legal risk
- Commissions, receives and considers reports on key legal risk issues

### Barclays Group Risk Committee

- Reviews and monitors the legal risk profile with respect to legal risk appetite and tolerances
- Reviews and recommends to the Barclays PLC Board Risk Committee legal risk appetite and tolerances
- Escalates and reports to Barclays Group Board level

### Barclays Group Controls Committee

- Oversees the effectiveness of the legal risk control environment with respect to legal risk appetite and tolerances
- Escalates to Group Risk Committee and reports to Barclays Group Board level

### Business Risk Committees

- Oversee the legal risk profile for their business with respect to its legal risk appetite and tolerances
- Escalate to Barclays Group Risk Committee

### Legal Executive Committee

- Oversees, reviews and challenges, as appropriate, the legal risk profile and effectiveness of the legal risk control environment across the Barclays Group with respect to legal risk appetite and tolerances
- Escalates and reports to Barclays Group Risk and Controls Committees as appropriate

### Business Controls Committees

- Oversee the effectiveness of the legal risk control environment for their business with respect to its legal risk appetite and tolerances
- Escalate to Barclays Group Controls Committee

# Appendices

# Appendix A – Countercyclical Capital Buffer

**Table 93: CCyB1 - Geographical distribution of credit exposures relevant for the calculation of the countercyclical buffer**

The below table shows the geographical distribution of credit exposures relevant to the calculation of the countercyclical buffer in line with CRR Article 440. Note that exposures in the below table are prepared in accordance with CRD Article 140 and as such exclude exposures to central governments/banks, regional governments, local authorities, public sector entities, multilateral development banks, international organisations and institutions and hence the exposure values differ to those found in the Analysis of credit risk section.

As at 31 December 2022	General credit exposures		Relevant credit exposures – Market risk						Own fund requirements						
	Exposure value under the standardised approach	Exposure value under the IRB approach	Sum of long and short positions of trading book exposures for SA		Value of trading book exposures for internal models	Securitisation exposures	Exposure value for non-trading book	Total exposure value	Relevant credit risk exposures – Credit risk	Relevant credit exposures – Market risk	Relevant credit exposures – Securitisation positions in the non-trading book	Total	Risk-weighted exposure amounts	Own fund requirements weights	Counter-cyclical buffer rate (%)
			£m	£m											
<b>Breakdown by country</b>															
NORWAY	404	423	22	35	—	885	33	3	—	36	449	0.20%	2.00%		
DENMARK	310	167	5	36	—	517	29	2	—	31	386	0.17%	2.00%		
ICELAND	—	—	—	6	—	7	—	—	—	—	4	—	2.00%		
CZECH REPUBLIC	3	152	—	21	—	176	5	2	—	7	89	0.04%	1.50%		
UNITED KINGDOM	26,979	258,342	577	52	23,368	309,317	7,168	62	315	7,545	94,316	41.51%	1.00%		
SWEDEN	1,119	457	25	7	382	1,990	79	4	7	90	1,129	0.50%	1.00%		
HONG KONG	347	465	20	96	—	927	37	2	—	40	494	0.22%	1.00%		
BULGARIA	—	—	—	—	—	—	—	—	—	—	—	—	1.00%		
SLOVAKIA	—	—	—	8	—	8	—	—	—	—	5	—	1.00%		
ESTONIA	—	3	—	—	—	3	—	—	—	—	4	—	1.00%		
LUXEMBOURG	2,673	2,932	95	28	577	6,305	252	13	10	275	3,435	1.51%	0.50%		
ROMANIA	—	—	—	—	—	—	—	—	—	—	—	—	0.50%		
<b>Total (countries with existing CCyB rate)</b>	<b>31,835</b>	<b>262,941</b>	<b>744</b>	<b>289</b>	<b>24,327</b>	<b>320,135</b>	<b>7,603</b>	<b>88</b>	<b>332</b>	<b>8,024</b>	<b>100,311</b>	<b>44.15%</b>			
UNITED STATES	43,701	57,278	10,958	7,513	57,254	176,705	5,602	519	927	7,048	88,103	38.78%	n/a		
GERMANY	2,695	6,947	252	120	44	10,058	388	25	2	415	5,190	2.28%	n/a		
INDIA	2,997	126	66	7	151	3,348	254	8	2	264	3,297	1.45%	n/a		
ITALY	583	5,129	64	333	—	6,109	241	17	—	258	3,228	1.42%	n/a		
FRANCE	2,163	3,568	284	50	667	6,732	185	32	14	230	2,876	1.27%	n/a		
IRELAND	841	4,019	48	67	1,419	6,394	162	4	23	189	2,361	1.04%	n/a		
NETHERLANDS	714	2,925	120	195	163	4,118	167	14	3	183	2,291	1.01%	n/a		
<b>Total (countries with own funds requirements weights 1% or above)</b>	<b>53,694</b>	<b>79,992</b>	<b>11,792</b>	<b>8,285</b>	<b>59,698</b>	<b>213,464</b>	<b>6,999</b>	<b>619</b>	<b>971</b>	<b>8,587</b>	<b>107,346</b>	<b>47.25%</b>			
<b>Total (rest of the world less than 1% requirement)</b>	<b>11,733</b>	<b>20,184</b>	<b>1,921</b>	<b>2,094</b>	<b>1,579</b>	<b>37,509</b>	<b>1,363</b>	<b>177</b>	<b>24</b>	<b>1,565</b>	<b>19,544</b>	<b>8.60%</b>	n/a		
<b>Total</b>	<b>97,262</b>	<b>363,117</b>	<b>14,457</b>	<b>10,668</b>	<b>85,604</b>	<b>571,108</b>	<b>15,965</b>	<b>884</b>	<b>1,327</b>	<b>18,176</b>	<b>227,201</b>	<b>100.00%</b>			

## Appendix A – Countercyclical Capital Buffer (continued)

**Table 94: CCyB2 - Amount of institution-specific countercyclical capital buffer**

This table shows an overview of institution specific countercyclical exposure and buffer requirements

As at 31 December 2022		
1	Total risk exposure amount	336,518
2	Institution specific countercyclical capital buffer rate	0.4%
3	Institution specific countercyclical capital buffer requirement	1,473

## Appendix B – Disclosures on asset encumbrance

Asset encumbrance arises from collateral pledged against secured funding and other collateralised obligations. The Group funds a portion of trading portfolio assets and other securities via repurchase agreements and other similar borrowing, and pledges a portion of loans and advances as collateral in securitisation, covered bond and other similar secured structures. The Group monitors the mix of secured and unsecured funding sources and seeks to efficiently utilise available collateral to raise secured funding and meet other collateral requirements.

Assets are considered encumbered when they have been pledged or used to secure, collateralise or credit enhance a transaction which impacts their transferability and free use. This includes external repurchase or other similar agreements with market counterparties.

Excluding assets positioned at central banks, as at 31 December 2022, £206.8bn of the Group's assets were encumbered, primarily due to firm financing of trading portfolio assets, posting of cash collateral and, funding secured against loans and advances.

Assets may also be encumbered under secured funding arrangements with central banks. In advance of such encumbrance, assets are often positioned with central banks to facilitate efficient future draw down. £81.4bn of on-balance sheet assets were positioned at the central banks, consisting of encumbered assets and collateral available for use in secured financing transactions.

There may be occasions where agreements are in place to over-collateralise funding structures such as securitisations and covered bonds. This is on an individual transaction basis and will typically result in higher levels of encumbrance. Encumbered assets comprise a range of different currencies primarily GBP, USD, EUR and JPY.

£507.6bn of on and off balance sheet assets not positioned at central banks were identified as readily available. They include cash and securities held in the Group liquidity pool as well as unencumbered assets which provide a source of contingent liquidity. A portion of the assets in this category that are not part of the liquidity pool, may be monetised to generate liquidity through use as collateral for secured funding or through outright sale. Loans and advances to customers are only classified as readily available if they are already in a form, such that, they can be used to raise funding without further management actions. This includes excess collateral already in secured funding vehicles.

£233.7bn of assets not positioned at central banks were identified as available as collateral. These assets are not subject to any restrictions on their ability to secure funding, to be offered as collateral, or to be sold to reduce potential future funding requirements, but are not immediately available in the normal course of business in their current form. They primarily consist of loans and advances which would be suitable for use in secured funding structures but are conservatively classified as not readily available because they are not in a transferable form.

The Group has £109.2bn of underlying assets and cover pool assets of securitisations and covered bonds, of which £53.0bn of assets are encumbered and £56.2bn are unencumbered. In total, the Group has £15.3bn of retained securitisations and retained covered bonds.

£72.4bn of assets not positioned at central banks were identified as not available as collateral consists of assets that cannot be pledged or used as security for funding due to restrictions that prevent their pledge or use as security for funding in the normal course of business.

Derivatives and reverse repos are shown separately as these on-balance sheet assets cannot be pledged. However, these assets can give rise to the receipt of non-cash assets which are held off-balance sheet, and can be used to raise secured funding or meet additional funding requirements.

In addition, £888.5bn of the total £980.9bn securities accepted as collateral, and held off-balance sheet, were on-pledged, the significant majority of which related to matched-book activity where reverse repurchase agreements are matched by repurchase agreements entered into to facilitate client activity. The remainder relates primarily to reverse repurchase agreements used to settle trading portfolio liabilities as well as collateral posted against derivatives margin requirements.

## Appendix B – Disclosure on asset encumbrance (continued)

### Asset encumbrance

Barclays Group	Assets encumbered as a result of transactions with counterparties other than central banks						Other assets (comprising assets encumbered at central banks and unencumbered assets)					
							Assets not positioned at central banks					
	Assets	As a result of covered bonds	As a result of securitisations	Other	Total	Assets positioned at central banks <sup>a</sup>	Readily available assets	Available as collateral	Not available as collateral	Derivatives and Reverse repos	Total	
On-balance sheet	As at As at 31 December 2022	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Cash and balances at central banks	256,288	—	—	—	—	—	256,288	—	—	—	—	256,288
Cash collateral	87,579	—	—	78,384	78,384	—	9,195	—	—	—	—	9,195
Settlement balances	24,411	—	—	—	—	—	—	—	24,411	—	—	24,411
Loans and advances at amortised cost	390,227	4,677	1,932	28,539	35,148	80,165	44,643	229,724	547	—	355,079	
Reverse repurchase agreements and other similar secured lending	776	—	—	—	—	—	—	—	—	776	—	776
Trading portfolio assets	137,160	—	—	67,319	67,319	170	69,671	—	—	—	—	69,841
Financial assets at fair value through the income statement	211,823	—	—	8,354	8,354	—	6,336	3,775	—	193,358	203,469	
Derivative financial instruments	301,931	—	—	—	—	—	—	—	—	301,931	301,931	
Financial assets at fair value through other comprehensive income	65,148	—	—	17,568	17,568	1,018	46,340	222	—	—	—	47,580
Other assets	30,107	—	—	—	—	—	—	—	30,107	—	—	30,107
<b>Total on-balance sheet</b>	<b>1,505,450</b>	<b>4,677</b>	<b>1,932</b>	<b>200,164</b>	<b>206,773</b>	<b>81,353</b>	<b>432,473</b>	<b>233,721</b>	<b>55,065</b>	<b>496,065</b>	<b>1,298,677</b>	

### Off-balance sheet

As at 31 December 2022	Collateral received		Collateral received of which on-pledged		Readily available assets	Available as collateral	Not available as collateral
	£m	£m	£m	£m	£m	£m	£m
Fair value of securities accepted as collateral	980,918	—	888,473	75,085	—	17,360	—
<b>Total unencumbered collateral</b>					<b>507,558</b>	<b>233,721</b>	<b>72,425</b>

#### Note

a. Includes both encumbered and unencumbered assets. Assets within this category that have been encumbered are disclosed as assets pledged in Note 38 on page 509 of the Barclays PLC Annual Report 2022.

The below tables (AE1, AE2 and AE3) are prepared on the regulatory scope of consolidation basis consistent with the regulatory scope of consolidation used to prepare other liquidity reporting. Each of the reported values in the below tables are derived from median of values of the quarterly submissions reported to the regulator via supervisory returns over the period 1 January 2022 to 31 December 2022 and will not agree to those disclosed in the above table which reflects the 31 December 2022 position.

**Table 95: AE1 - Encumbered and unencumbered assets**

As at 31 December 2022	Carrying amount of encumbered assets		Fair value of encumbered assets		Carrying amount of unencumbered assets		Fair value of unencumbered assets	
	010	030	040	050	060	080	090	100
£m	£m	£m	£m	£m	£m	£m	£m	£m
<b>010 Assets of the reporting institution</b>	<b>229,588</b>	<b>162,415</b>			<b>1,318,023</b>	<b>368,272</b>		
030 Equity instruments	26,289	17,195	26,289	17,195	39,660	16,052	39,660	16,052
040 Debt securities	70,685	63,472	70,685	63,472	101,186	80,644	101,186	80,644
050 of which: covered bonds	2,297	1,477	2,297	1,477	7,595	5,397	7,595	5,397
060 of which: securitisations	1,445	533	1,445	533	10,312	6,621	10,312	6,621
070 of which: issued by general governments	52,021	50,901	52,021	50,901	59,976	57,016	59,976	57,016
080 of which: issued by financial corporations	10,785	8,448	10,785	8,448	14,250	10,662	14,250	10,662
090 of which: issued by non-financial corporations	3,523	1,403	3,523	1,403	10,270	1,184	10,270	1,184
120 Other assets	132,614	81,245			1,180,896	269,600		

## Appendix B – Disclosure on asset encumbrance (continued)

Carrying amount of encumbered other assets of £132.6bn predominantly contains loans and advances pledged as collateral in secured funding arrangements with central banks, securitisations, covered bonds and other similar secured structures. This also contains cash collateral posted for derivatives margin requirements.

Carrying amount of unencumbered assets of £1,318.0bn contains:

- £39.7bn of Equity securities and £101.2bn of debt securities that may be monetised to generate liquidity through use as collateral for secured funding or through outright sale.
- £284.3bn of balances at central banks.
- £335.8bn of loans and advances which would be suitable for use in secured funding, some of which are already in a form such that, they can be used to raise funding without further management actions. This also includes excess collateral already in secured funding vehicles.
- £557.0bn of balances that are not readily available for encumbrance in the normal course of business that represents derivative assets, reverse repos, settlement balances, intangibles, deferred tax assets and plant, property and equipment.

**Table 96: AE2 - Collateral received and own debt securities issued**

		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	
		010	030	040	060
<b>As at 31 December 2022</b>					
<b>130</b>	<b>Collateral received by the reporting institution</b>	<b>869,875</b>	<b>755,641</b>	<b>99,668</b>	<b>54,147</b>
140	Loans on demand	—	—	—	—
150	Equity instruments	144,476	102,625	28,996	18,915
160	Debt securities	720,110	648,960	69,712	35,232
170	of which: covered bonds	7,810	1,238	2,606	358
180	of which: securitisations	19,409	5,313	11,229	1,892
190	of which: issued by general governments	632,176	621,296	31,674	29,247
200	of which: issued by financial corporations	23,724	8,230	14,464	771
210	of which: issued by non-financial corporations	36,137	12,511	7,675	1,809
220	Loans and advances other than loans on demand	—	—	—	—
<b>230</b>	<b>Other collateral received</b>	—	—	—	—
<b>240</b>	<b>Own debt securities issued other than own covered bonds or securitisations</b>	—	—	1,497	—
<b>241</b>	<b>Own covered bonds and asset-backed securities issued and not yet pledged</b>			7,891	—
<b>250</b>	<b>TOTAL ASSETS, COLLATERAL RECEIVED AND OWN DEBT SECURITIES ISSUED</b>	<b>1,101,940</b>	<b>922,451</b>		

**Table 97: AE3 - Sources of encumbrance**

		Matching liabilities, contingent liabilities or securities lent		Assets, collateral received and own debt securities issued other than covered bonds and securitisations encumbered	
				010	030
		£m	£m	£m	£m
<b>As at 31 December 2022</b>					
<b>010</b>	<b>Carrying amount of selected financial liabilities</b>			<b>293,729</b>	<b>707,517</b>
<b>120</b>	<b>Other sources of encumbrance</b>			<b>391,080</b>	<b>394,554</b>
<b>170</b>	<b>Total sources of encumbrance</b>			<b>683,415</b>	<b>1,101,940</b>

Carrying amount of selected financial liabilities of £293.7bn primarily relates to repurchase agreements, posting of cash collateral for derivatives margin requirements and secured debt issuances. £391.0bn of other sources of encumbrance represents stock lending agreements and trading portfolio liabilities.

## Appendix C – Disclosures on remuneration

The following disclosures are made by applying instructions provided in Annex XXXIV and the tables as presented in Annex XXXIII of the PRA Rulebook, Disclosure (CRR) Part in application of Article 450 CRR.

The Remuneration report in the Barclays PLC 2022 Annual Report (the 'Remuneration report') provides an overview of the 2022 performance and pay outcomes for the Executive Directors of Barclays PLC, a summary of remuneration policies for all employees (including material risk takers ('MRTs')), Executive Directors and Non-Executive Directors, as well as the decision-making process used for determining the remuneration policy including the role of relevant stakeholders (e.g. shareholders, regulators and employees).

### Remuneration Governance

The Barclays PLC Board Remuneration Committee (the 'Committee') sets the overarching principles and parameters of the remuneration policy across the Barclays Group, completes an annual review of the remuneration policy and practices, and exercises oversight over remuneration issues. The composition of the Committee, details of the number of meetings held during the year, and the role of relevant stakeholders and external consultants in relation to remuneration are all included in the Remuneration report.

The Committee reviewed the remuneration philosophy in 2022 prior to approving it. For 2022 there were not any substantive changes to the all-employee remuneration policy. For 2023, a revised Directors Remuneration Policy is proposed, which is subject to shareholder approval at the AGM in May 2023 (further details in the Remuneration report).

### Performance management and remuneration

Barclays' remuneration philosophy (set out in the Remuneration report) links remuneration to achieving sustained high performance and creating long-term value. Our remuneration philosophy applies to all employees of Barclays PLC globally (including those individuals identified as MRTs) and aims to reinforce our belief that effective performance management is critical to enabling the delivery of our business strategy in line with our Values. Employees who adhere to Barclays' Values and contribute to Barclays' success are rewarded accordingly.

This is achieved by basing performance assessment on clear standards of delivery and behaviour, which starts with employees aligning their objectives ('what' they will deliver) to business and team goals in order to support the delivery of the business strategy and good client/customer outcomes. Behavioural expectations ('how' people will achieve their objectives) are set in the context of our Values and Mindset.

Performance is assessed against both financial and non-financial criteria. Other factors are also taken into consideration within the overall performance assessment, including core job responsibilities, behaviours towards risk and control, colleague and stakeholder feedback as well as input from the Risk and Compliance functions, where appropriate. Details on Barclays' financial and non-financial performance, and how they relate to the bonus pool, can be found as part of the Committee Chair's statement in the Remuneration report. Details of the metrics applicable to the BPLC Executive Directors' incentives, how they performed against these metrics, including where the metrics are not satisfied in full or where the Committee considers performance is below expectations, are also set out in the Remuneration report.

Through our approach to performance management, the equal importance of both what an individual has delivered and how the individual has achieved this is emphasised, encouraging balanced consideration of each dimension. Both of these elements are assessed and rated independently of each other. There is no requirement to have an overall rating. This allows for more robust and reflective conversations between managers and team members on the individual components of performance.

### Risk adjustment and remuneration

Another key feature of our remuneration philosophy is the alignment of remuneration with our risk appetite and with the conduct expectations of Barclays, our regulators and other stakeholders. The Committee takes risk and conduct events very seriously and ensures that there are appropriate adjustments to individual remuneration and, where necessary, the incentive pool.

The Remuneration Review Panel (the 'Panel'), which reports to the Committee, supports the Committee in this process. The Panel is chaired by the Group HR Director and includes the Group Heads of Risk, Compliance, Legal and Internal Audit as well as the CEO of Barclays Bank UK PLC and the President of Barclays Bank PLC. It applies our policies and processes for assessing compensation adjustments for risk and conduct events.

We have robust processes for considering risk and conduct as part of individual performance management, with outcomes reflected in individual remuneration decisions. Line managers have primary accountability for ensuring that risk and conduct issues are considered when assessing performance and making remuneration decisions. In addition, there is a secondary review by the control functions, for individuals involved in significant failures of risk management, conduct issues, regulatory actions or other major incidents that impact either the Group or a business area, to ensure these issues are also considered. When considering individual responsibility, a variety of factors are taken into account, such as whether an individual was directly responsible, or whether the individual could be deemed indirectly responsible by virtue of seniority, including staff who drive the Group's culture and set its strategy.

Actions that may be taken where risk management and conduct falls below required standards include:

## Appendix C – Disclosures on remuneration

<b>Adjustment</b>	Current year annual bonuses may be adjusted downwards where individuals are found to be involved (either directly or indirectly) in a risk or misconduct event.
<b>Malus</b>	Unvested deferred bonuses from prior years are subject to malus provisions, which enable the Committee to reduce the vesting level of deferred bonuses (including to nil) at its discretion. Events that may lead the Committee to do this include, but are not limited to, employee misconduct or a material failure of risk management.
<b>Clawback</b>	<p>Clawback applies to any variable remuneration awarded to a MRT on or after 1 January 2015 in respect of years for which they were a MRT. Barclays may apply clawback if, at any time during the seven-year period from the date on which variable remuneration is awarded to a MRT:</p> <ul style="list-style-type: none"> <li>(i) there is reasonable evidence of employee misbehaviour or material error, and/or</li> <li>(ii) the firm or the business unit suffers a material failure of risk management, taking account of the individual's proximity to and responsibility for that incident.</li> </ul> <p>Clawback may be extended to 10 years for PRA/FCA Senior Managers where there are outstanding internal or regulatory investigations at the end of the seven-year clawback period.</p>

In addition to reductions to individuals' bonuses, the Committee considers and makes collective adjustments to the incentive pool for specific risk and conduct events. The Committee also adjusts the incentive pool to take account of an assessment of a wide range of future risks including conduct, non-financial factors that can support the delivery of a strong risk management, control and conduct culture, and other factors including reputation, and impact on customers, markets and other stakeholders. The Committee is supported in its consideration of this adjustment by the Barclays PLC Board Risk Committee.

### Remuneration structure

Employees receive salary, pension and other benefits and are eligible to be considered for an annual bonus. Some employees, including some MRTs, also receive Role Based Pay ('RBP'). Remuneration of all MRTs is subject to the 2:1 maximum ratio of variable to fixed remuneration. Executive Directors participate in the Barclays' Long Term Incentive Plan and receive part of their Fixed Pay in Barclays PLC shares (they do not receive RBP). An average notional discount rate of 29% was applied to two individual's variable remuneration in accordance with the 2015 EBA Guidelines on sound remuneration policies.

The remuneration of employees engaged in control functions is determined independently from the business they support and within the parameters of the incentive pool allocated to them by the Committee. Remuneration for control function employees is less weighted towards variable remuneration compared to front-office employees, with the ratio of variable to fixed remuneration typically limited to 1:1.

### Fixed remuneration

<b>Salary</b>	Salaries reflect individuals' skills and experience and are reviewed annually.  They are increased where justified by role change, increased responsibility, to reflect a change in the market rate or maintain appropriate competitive positioning. Salaries may also be increased in line with local statutory requirements and union and works council commitments.
<b>Role Based Pay</b>	Some MRTs receive a class of fixed pay called RBP to recognise the seniority, scale and complexity of their role. RBP may be adjusted where justified by a role or responsibility change or a change in the appropriate market rate.
<b>Pension and benefits</b>	The provision of a competitive package of benefits is important to attracting and retaining the talented staff needed to deliver Barclays' strategy. Employees have access to a range of country-specific company-funded benefits, including pension schemes, healthcare, life assurance and Barclays' share plans, as well as other voluntary employee-funded benefits. The cost of providing these benefits is defined and controlled.

## Appendix C – Disclosures on remuneration

### Variable remuneration

<b>Annual bonus</b>	<p>Annual bonuses incentivise and reward the achievement of Group, business and individual objectives, and reward employees for demonstrating individual behaviours in line with Barclays' Values and Mindset.</p> <p>The ability to recognise performance through variable remuneration enables the Group to control its cost base flexibly and to react to events and market circumstances. Bonuses remain a key feature of remuneration practice in the highly competitive and mobile market for talent in the financial services sector.</p> <p>Annual bonuses may be delivered in both 'up-front' and deferred components. For MRTs (excluding de minimis MRTs), both the up-front and deferred components have cash and share portions, in the case of the share portions subject to retention periods of either six or twelve months.</p>														
<b>Bonus deferral</b>	<p>The Committee is careful to control the proportion of variable to fixed remuneration paid to individuals and also to ensure an appropriate amount is deferred to future years. The typical deferral structures are:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">For MRTs:</th><th style="text-align: left;">For de minimis MRTs/non-MRTs</th></tr> </thead> <tbody> <tr> <td>Incentive award</td><td>Incentive award</td></tr> <tr> <td>&lt; £500,000</td><td>Up to £65,000</td></tr> <tr> <td>£500,000 to £1,000,000</td><td>60% of total award</td></tr> <tr> <td>&gt; £1,000,000</td><td>Graduated level of deferral</td></tr> <tr> <td></td><td>60% up to £1,000,000</td></tr> <tr> <td></td><td>100% above £1,000,000</td></tr> </tbody> </table> <p>Deferred bonuses are generally delivered in equal portions as deferred cash and deferred shares (save for Executive Directors for whom they are delivered 100% as deferred shares) subject to the rules of the deferred cash and share plans (as amended from time to time) and to continued service. Deferred bonuses are subject to either a 3, 4, 5 or 7-year deferral period in line with regulatory requirements.</p> <p>Where dividend equivalents cannot be delivered on deferred bonus shares, the number of deferred bonus shares awarded will be calculated using a share price discounted to reflect the absence of dividend equivalents during the vesting period.</p>	For MRTs:	For de minimis MRTs/non-MRTs	Incentive award	Incentive award	< £500,000	Up to £65,000	£500,000 to £1,000,000	60% of total award	> £1,000,000	Graduated level of deferral		60% up to £1,000,000		100% above £1,000,000
For MRTs:	For de minimis MRTs/non-MRTs														
Incentive award	Incentive award														
< £500,000	Up to £65,000														
£500,000 to £1,000,000	60% of total award														
> £1,000,000	Graduated level of deferral														
	60% up to £1,000,000														
	100% above £1,000,000														

### Shareholding

<b>Shareholding requirements</b>	<p>The current Directors Remuneration Policy (approved by Barclays PLC shareholders in May 2020) specifies Executive Director shareholding requirements, namely Barclays' shareholdings worth a minimum of 233% of Fixed Pay for the Group Chief Executive and 224% of Fixed Pay for the Group Finance Director are required to be accumulated within five years from the date of their appointment, and held for two years post-termination commencing from their last day in office.</p> <p>The shareholding requirement for other Group Executive Committee members is 200% of salary and needs to be met within five years from the date of their appointment.</p> <p>Shares that count towards the requirement are beneficially owned shares including any vested share awards subject to holding periods (including vested LTIPs). Shares from unvested deferred share bonuses and unvested LTIPs do not count towards the requirement during employment, but will count towards post-termination requirements (net of tax) provided there are no remaining untested performance conditions.</p> <p>An update to the Executive Director shareholding requirements, to simplify and align to market practice, is proposed in the revised Directors Remuneration Policy that is included in the Remuneration report in the Barclays PLC 2022 Annual Report. The revised Directors Remuneration Policy is subject to shareholder approval at the AGM in May 2023.</p> <p>The Chairman and Non-Executive Directors have a requirement to use a portion of their annual fees (£100,000 for the Chairman, £30,000 Non-Executive Directors) to purchase shares, which must be retained until they retire from the Board.</p>
<b>Share plans</b>	Alignment of other MRTs with shareholders is achieved through deferral of incentive pay. The Committee encourages additional shareholding through the all-employee share plans.

Awards of guaranteed variable remuneration are only made in exceptional circumstances in the context of hiring and typically only when a new hire starts in the last quarter of the year. When determining a termination payment, Barclays considers any applicable: (a) contractual requirements; (b) policies; (c) local legal and regulatory requirements; and (d) legal and reputational risk.

### Remuneration of MRTs in respect of the financial year

MRTs are Barclays' Group employees whose professional activities could have a material impact on the Group's risk profile, which includes (among the others) the members of the Barclays PLC Board, the Barclays Bank UK PLC Board, the Barclays Bank PLC Board and the Barclays Bank Ireland PLC Board. A total of 1,612 individuals were MRTs in 2022 (2021: 1,556).

177 MRTs in 2022 benefited from the derogation in point (b) of Article 94(3) of the Capital Requirements Directive in respect of the remuneration requirements in points (l) and (m) of Article 94(1). The aggregate fixed remuneration for these MRTs was £29.3m and the aggregate variable remuneration was £5.5m.

The following tables set out remuneration disclosures for individuals identified as MRTs for Barclays PLC (remuneration information for individuals who are only identified as MRTs at Barclays Bank PLC, Barclays Bank UK PLC and Barclays Bank Ireland PLC are included, where relevant, in those entities' disclosures). In the tables, the terms below mean:

- 'MB' means Barclays PLC's management body (i.e. the Barclays PLC Board)
- 'MB Supervisory function' means those individuals who were Non-Executive Directors of Barclays PLC during 2022;
- 'MB Management function' means those individuals who were Executive Directors of Barclays PLC during 2022;

## Appendix C – Disclosures on remuneration

- 'Other senior management' means those individuals (excluding the Executive Directors of Barclays PLC) who were members of the Barclays PLC Executive Committee during 2022 in accordance with Article 3(1)(9) of CRDIV; and
- 'Other identified staff' means MRTs excluding MRTs included in MB Supervisory function, MB Management function and Other senior management.

**Table 98: UK REM1 - Remuneration awarded for the financial year (all figures are in £m except for 'Number of identified staff')**

		MB Supervisory function	MB Management function	Other senior management	Other identified staff
1	Number of identified staff	11	3	10.0	1,573.8
<b>2</b>	<b>Total fixed remuneration</b>	<b>3.4</b>	<b>6.2</b>	<b>18.3</b>	<b>856.0</b>
3	Of which: cash-based	3.4	3.4	12.0	804.9
4	(Not applicable in the UK)				
UK-4a	Of which: shares or equivalent ownership interests	—	2.2	5.6	11.3
	Fixed remuneration	Of which: share-linked instruments or equivalent non-cash instruments	—	—	—
5		—	—	—	—
UK-5x	Of which: other instruments	—	—	—	—
6	(Not applicable in the UK)				
7	Of which: other forms <sup>a</sup>	—	0.6	0.7	39.8
8	(Not applicable in the UK)				
9	Number of identified staff	—	3	10.0	1,387.8
<b>10</b>	<b>Total variable remuneration</b>	<b>—</b>	<b>10.4</b>	<b>18.1</b>	<b>706.2</b>
11	Of which: cash-based	—	1.8	9.0	358.9
12	Of which: deferred	—	1.2	7.2	210.7
UK-13a	Of which: shares or equivalent ownership interests	—	8.6	9.1	347.3
UK-14a	Of which: deferred	—	8.0	7.2	210.7
	Variable remuneration	Of which: share-linked instruments or equivalent non-cash instruments	—	—	—
UK-13b		—	—	—	—
UK-14b	Of which: deferred	—	—	—	—
UK-14x	Of which: other instruments	—	—	—	—
UK-14y	Of which: deferred	—	—	—	—
15	Of which: other forms	—	—	—	—
16	Of which: deferred	—	—	—	—
<b>17</b>	<b>Total remuneration (2 + 10)</b>	<b>3.4</b>	<b>16.6</b>	<b>36.4</b>	<b>1,562.2</b>

**Note**

a. 'Other forms' of fixed remuneration represents an estimate for pensions and benefits during the year.

**Table 99: UK REM2 - Special payments to staff whose professional activities have a material impact on institutions' risk profile (identified staff) (all figures are in £m except for 'Number of identified staff')**

		MB Supervisory function	MB Management function	Other senior management	Other identified staff
	Guaranteed variable remuneration awards				
1	Guaranteed variable remuneration awards - Number of identified staff	—	—	—	2.0
2	Guaranteed variable remuneration awards - Total amount	—	—	—	1.7
3	Of which guaranteed variable remuneration awards paid during the financial year, that are not taken into account in the bonus cap	—	—	—	—
	Severance payments awarded in previous periods, that have been paid out during the financial year				
4	Severance payments awarded in previous periods, that have been paid out during the financial year - Number of identified staff	—	—	—	—
5	Severance payments awarded in previous periods, that have been paid out during the financial year - Total amount	—	—	—	—
	Severance payments awarded during the financial year <sup>a</sup>				
6	Severance payments awarded during the financial year - Number of identified staff	—	—	—	20.0
7	Severance payments awarded during the financial year - Total amount	—	—	—	2.9
8	Of which paid during the financial year	—	—	—	2.9
9	Of which deferred	—	—	—	—
10	Of which severance payments paid during the financial year, that are not taken into account in the bonus cap	—	—	—	2.9
11	Of which highest payment that has been awarded to a single person	—	—	—	0.3

**Note**

a. The severance payments shown are variable remuneration but in accordance with paragraph 154 of the EBA Guidelines on sound remuneration they have not been taken into account for the purposes of the calculation of the 2:1 ratio. Had the severance payments been taken into account, the 2:1 ratio would have continued to have been met for all of the individuals.

## Appendix C – Disclosures on remuneration

**Table 100: UK REM3 - Deferred remuneration (all figures are in £m)**

	Deferred and retained remuneration	Total amount of deferred remuneration awarded for previous performance periods	Of which due to vest in the financial year	Of which vesting in subsequent financial years	Amount of performance adjustment made in the financial year to deferred remuneration that was due to vest in the financial year	Amount of performance adjustment made in the financial year to deferred remuneration that was due to vest in future performance years	Total amount of adjustment during the financial year due to ex post implicit changes of value of deferred remuneration due to the changes of prices of instruments	Total amount of deferred remuneration awarded before the financial year actually paid out in the financial year	Total of amount of deferred remuneration awarded for previous performance period that has vested but is subject to retention periods
<b>MB Supervisory function</b>									
1	—	—	—	—	—	—	—	—	—
2	Cash-based	—	—	—	—	—	—	—	—
3	Shares or equivalent ownership interests	—	—	—	—	—	—	—	—
4	Share-linked instruments or equivalent non-cash instruments	—	—	—	—	—	—	—	—
5	Other instruments	—	—	—	—	—	—	—	—
6	Other forms	—	—	—	—	—	—	—	—
<b>MB Management function</b>									
7	<b>32.6</b>	<b>3.8</b>	<b>28.8</b>	<b>-0.3</b>	<b>-1.2</b>	<b>-1.2</b>	<b>3.1</b>	<b>0.9</b>	
8	Cash-based	6.0	0.8	5.2	—	—	—	0.8	—
9	Shares or equivalent ownership interests	26.6	3.0	23.6	-0.3	-1.2	-1.2	2.3	0.9
10	Share-linked instruments or equivalent non-cash instruments	—	—	—	—	—	—	—	—
11	Other instruments	—	—	—	—	—	—	—	—
12	Other forms	—	—	—	—	—	—	—	—
<b>Other senior management</b>									
13	<b>55.2</b>	<b>9.2</b>	<b>46.0</b>	<b>—</b>	<b>—</b>	<b>-1.9</b>	<b>8.4</b>	<b>1.5</b>	
14	Cash-based	23.5	4.0	19.5	—	—	—	4.0	—
15	Shares or equivalent ownership interests	31.7	5.2	26.5	—	—	-1.9	4.4	1.5
16	Share-linked instruments or equivalent non-cash instruments	—	—	—	—	—	—	—	—
17	Other instruments	—	—	—	—	—	—	—	—
18	Other forms	—	—	—	—	—	—	—	—
19	<b>Other identified staff</b>	<b>1,491.8</b>	<b>406.1</b>	<b>1,085.7</b>	<b>—</b>	<b>—</b>	<b>-44.6</b>	<b>369.3</b>	<b>74.2</b>
20	Cash-based	631.0	164.9	466.1	—	—	—	162.7	—
21	Shares or equivalent ownership interests	860.8	241.2	619.6	—	—	-44.6	206.6	74.2
22	Share-linked instruments or equivalent non-cash instruments	—	—	—	—	—	—	—	—
23	Other instruments	—	—	—	—	—	—	—	—
24	Other forms	—	—	—	—	—	—	—	—
25	<b>Total amount</b>	<b>1,579.6</b>	<b>419.1</b>	<b>1,160.5</b>	<b>-0.3</b>	<b>-1.2</b>	<b>-47.7</b>	<b>380.8</b>	<b>76.6</b>

## Appendix C – Disclosures on remuneration

**Table 101: UK REM4 - Remuneration of 1 million EUR or more per year**

EUR	Identified staff that are high earners as set out in Article 450(l) CRR
1 000 000 to below 1 500 000	348
1 500 000 to below 2 000 000	136
2 000 000 to below 2 500 000	67
2 500 000 to below 3 000 000	45
3 000 000 to below 3 500 000	30
3 500 000 to below 4 000 000	24
4 000 000 to below 4 500 000	16
4 500 000 to below 5 000 000	12
5 000 000 to below 6 000 000	9
6 000 000 to below 7 000 000	5
7 000 000 to below 8 000 000	1
8 000 000 to below 9 000 000	1
9 000 000 to below 10 000 000	3
10 000 000 to below 11 000 000	—
11 000 000 to below 12 000 000	1

**Table 102: UK REM5 - Information on remuneration of staff whose professional activities have a material impact on institutions' risk profile (identified staff) (all figures are in £m except for 'Total number of identified staff')**

	Management body remuneration			Business areas						Total
	MB Supervisory function	MB Management function	Total MB	Investment banking	Retail banking	Asset management	Corporate functions	Independent internal control functions	All other	
1 Total number of identified staff										1,597.8
2 Of which: members of the MB	11	3	14							
3 Of which: other senior management				1	2	—	4	3	—	
4 Of which: other identified staff				864.2	101.4	—	268.6	334.1	5.5	
5 Total remuneration of identified staff	3.4	16.6	20.0	1,170.1	79.7	—	223.6	123.7	1.5	
6 Of which: variable remuneration	—	10.4	10.4	554.9	37.5	—	96.9	35.0	—	
7 Of which: fixed remuneration	3.4	6.2	9.6	615.2	42.2	—	126.7	88.7	1.5	

## Appendix D - Compliance to Pillar 3 requirements

CRR ref.	High-level summary	Compliance reference
<b>Disclosure requirements and policies</b>		
431 (1)	Requirement to publish Pillar 3 disclosures	Barclays publishes Pillar 3 disclosures
431 (2)	Firms with permission to use specific modelled risk methodologies	Refer Pages 14 & 15 - Scope of permission for calculation approaches and Barclays' approach to managing risks section for granular information.
431 (3)	Institution must have a formal policy to verify the comprehensiveness and overall appropriateness of the disclosures	Barclays has a dedicated Pillar 3 policy
431 (4)	Institution to ensure that quantitative disclosures are accompanied by a qualitative narrative and any other supplementary information where deemed appropriate	Quantitative disclosures are accompanied by a narrative to explain significant changes compared to previous disclosures
431 (5)	Explanation of ratings decision upon request	Barclays provides explanations of rating decisions to SMEs whose loan applications were declined in writing, and suggests alternative sources of finance. Barclays participates in a formal appeals process, one of the successful initiatives implemented as part of Business Finance Taskforce, with a government-appointed overseer. In the case of larger corporates, written explanations are not usually requested as direct discussions with relationship managers take place
<b>Non-material, proprietary or confidential information</b>		
432 (1)	Institutions may omit information that is not material if certain conditions are respected	Compliance with this provision is covered by Barclays' policy
432 (2)	Institutions may omit information that is proprietary or confidential if certain conditions are respected	Compliance with this provision is covered by Barclays' policy
432 (3)	Where 432 (2) apply this must be stated in the disclosures, and more general information must be disclosed	Compliance with this provision is covered by Barclays' policy
<b>Frequency and scope of disclosure</b>		
433	Institution shall publish the disclosure in the manner set out in Articles 433a, 433b and 433c in conjunction with article 4 (145), (146), (147), (148)	
433a	Specifies information to be disclosed by large institution along with frequency in conjunction with rule 2.3 of PRA rulebook.	Compliance with this provision is covered by Barclays' policy. See pages 7 & 8 for basis of preparation and page 13 for scope of consolidation
433b	Specifies information to be disclosed by small & non complex institution along with the frequency	
433c	Specifies information to be disclosed by other institutions along with frequency	
<b>Means of disclosures</b>		
434 (1)	To include disclosures in one appropriate medium, or provide clear cross -reference	Most disclosures are contained within this document. Signposting directs the reader to other publications where appropriate.
434 (2)	Disclosures to be made available on websites or in any other appropriate location as an archive	Pillar3 disclosures are published in the Bank's investor relations website
<b>Uniform disclosure formats</b>		
434a	PRA have developed uniform disclosure formats for publications	Barclays makes use of disclosure formats provided in Annexure K of PRA rulebook
434b	Timing and Means of Disclosures under Article 441	Barclays PLC G-SII Disclosure 2022 will be published on the 30th April 2023 at <a href="https://home.barclays/investor-relations/reports-and-events/annual-reports">https://home.barclays/investor-relations/reports-and-events/annual-reports</a>

## Appendix D - Compliance to Pillar 3 requirements (continued)

### Risk management objectives and policies

- 435 (1) (a) Disclose information on strategies and processes; organisational structure, reporting systems and risk mitigation/hedging
- 435 (1) (b)
- 435 (1) (c)
- 435 (1) (d)

Page 15/ Table 2 - Summary of the scope of application of regulatory methodologies for CVA, market and operational risk

Risk management strategy: page 92

Climate Risk: page 104

Credit Risk: page 107

Counterparty Credit Risk: page 120

Market Risk: page 139

Operational Risk: page 164

Treasury and Capital Risk - Capital: page 158

Treasury and Capital Risk - Liquidity: page 156

Model Risk: page 168

Conduct Risk: page 171

Reputation Risk: page 173

Legal Risk: page 175

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
435 (1) (e)	Inclusion of a declaration approved by the Board on adequacy of risk management arrangements	See page 97. This statement covers all Principal Risks
435 (1) (f)	Inclusion of a concise risk statement approved by the Board	See page 99. This statement covers all Principal Risks
435 (2)	Information on governance arrangements, including information on Board composition and recruitment, and risk committees	See page 95 for a description of the risk committees. Pages 152-159 of the Annual Report contains information on Board composition, experience and recruitment
435 (2) (a)	Number of directorships held by directors	Please see pages 152-159 of the 2022 Annual Report
435 (2) (b)	Recruitment policy of Board members, their experience and expertise	Please see pages 152-159 of the 2022 Annual Report
435 (2) (c)	Policy on diversity of Board membership and results against targets	Please see pages 152-159 of the 2022 Annual Report
435 (2) (d)	Disclosure of whether a dedicated risk committee is in place, and number of meetings in the year	Please see pages 169-176 of the 2022 Annual Report
435 (2) (e)	Description of information flow on risk to Board	Figure on page 96 in the risk management strategy section illustrates the reporting structure to Board committees
<b>Scope of application</b>		
436 (a)	Name of institution	See under "Scope of consolidation" on page 13
436 (b)	Difference in basis of consolidation for accounting and prudential purposes, whether those entities are fully or proportionally consolidated and whether the holdings in those legal entities are deducted from own funds	Page 18 / Table 5 : LI3 Outline of the differences in the scopes of consolidation;
436 (c)	Disclosure of the breakdown of assets and liabilities of the financial statements prepared in accordance with requirements on regulatory consolidation.	Page 16 / Table 3 : LI1 Differences between accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories
436 (d)	Disclosure of the reconciliation of the carrying value amounts in the financial statements under regulatory scope of consolidation and the exposure amount used for regulatory purposes.	Page 17/ Table 4 : LI2 Main sources of differences between regulatory exposure amounts and carrying values in financial statements / Explanations of differences between accounting and regulatory exposure amounts (LIA).
436 (e)	Disclosure of the breakdown of the amounts of the constituent elements of an institution's prudent valuation adjustment.	Page 43/ Table 27 : PV1 Prudent valuation adjustment
436 (f)	Disclosure of any current or expected material practice or legal impediment to the prompt transfer of own funds or repayment of liabilities between parent and subsidiaries.	None noted
436 (g)	Capital shortfalls in any subsidiaries outside of scope of consolidation	Entities outside the scope of consolidation are appropriately capitalised.
436 (h)	Making use of articles on derogations from a)prudential requirements or b) liquidity requirements for individual subsidiaries/	Barclays makes use of these provisions according to its waiver from PRA
<b>Own funds</b>		
437		Page 24 / Table 8: Composition of regulatory capital / CC2 - Reconciliation of regulatory own funds to balance sheet in the audited financial statement
437 (a)		
437 (d)	Requirements regarding capital resources table	Page 22 / Table 7: CC1 - Composition of regulatory own funds
437 (e)		
437 (f)		
437 (b)		Standalone document: Summary of terms and conditions of own funds and eligible liabilities
437 (c)		
<b>Disclosure of own funds and eligible liabilities</b>		
437a (a)		Page 34 / Tables 19: TLAC 1 composition for G-SIBs (at resolution group level) Pages 35 / Table 20: TLAC 3 - Resolution entity - Creditor ranking at legal entity level Pages 36 / Table 21 & 22: TLAC 2 - Material subgroup entity - Creditor ranking at legal entity level
437a (b)	Disclosure of requirements regarding MREL / TLAC tables	
437a (c)		
437a (d)		

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
<b>Own funds requirement and risk-weighted exposure amounts</b>		
438 (a)	Summary of institution's approach to assessing adequacy of capital levels	Page 163/ ICAAP information
438 (b)	The amount of the additional own funds requirements based on the supervisory review and evaluation process and its composition in terms of Common Equity Tier 1, additional Tier 1 and Tier 2 instruments	Page 20/ Table 6 KM1 - Key metrics
438 (c)	Result of ICAAP on demand from authorities	Page 163/ ICAAP information
438 (d)	The total risk-weighted exposure amount and the corresponding total own funds requirement	Page 27/ Table 11 OV1 - Overview of risk weighted exposure amounts
438 (e)	Requirement to disclose specialised lending and equity exposures under the simple risk weighted approach	Page 62/ Table 45 CR10 - Specialised lending and equity exposures under the simple risk weighted approach
438 (f)	Disclosure of the exposure value and risk-weighted exposure amount of own funds instruments held in relation to insurance activities that institutions do not deduct from own funds	There is no applicable data to be published in respect of this table
438 (g)	Disclosure of the supplementary own funds requirement and the capital adequacy ratio of the financial conglomerate.	There is no applicable data to be published in respect of this table
438 (h)	The variations in the risk-weighted exposure amounts of the current disclosure period compared to the immediately preceding disclosure period that result from the use of internal models, including an outline of the key drivers explaining those variations.	Pages 28 & 29 / Table 12, 13 & 14: RWEA flow statements of credit risk exposures under the IRB approach (CR8), RWEA flow statements of CCR exposure under the IMM (CCR7) and RWEA flow statements of market risk exposure under the IMA (MR2B)
<b>Exposure to counterparty credit risk (CCR)</b>		
439 (a)	Description of process to assign internal capital and credit limits to CCR exposures, including the methods to assign those limits to exposures to central counterparties	
439 (b)	Discussion of process to secure collateral and establishing reserves	Pages 118 - 120
439 (c)	Discussion of management of wrong-way exposures	
439 (d)	Disclosure of collateral to be provided (outflows) in the event of a ratings downgrade	
439 (e)	Composition of collateral for CCR exposures	Page 76/ Table 61 : CCR5 Composition of collateral for CCR exposures
439 (f)	Analysis of CCR exposure by approach for derivative transactions	
439 (g)	Analysis of CCR exposure by approach for securities financing transactions	Page 73/ Table 55 : CCR1 Analysis of CCR exposure by approach
439 (h)	Transactions subject to own funds requirements for CVA risk	Page 78/ Table 63 CCR2 Transactions subject to own funds requirements for CVA risk
439 (i)	Exposures to CCPs	Page 77/ Table 62 CCR8 Exposure to CCPs
439 (j)	Disclosure of credit derivative exposures	Page 76/ Table 61 CCR6 Disclosure of credit derivative exposures
439 (k)	Estimate of Alpha, if applicable	The Alpha used by Barclays is 1.4, see page 10 ; Table 55 : CCR1 Analysis of CCR exposure by approach
439 (l)	Disclosure of CCR exposure by portfolio and PD range under standardised and IRB approach	Page 74/ Table 56 CCR3 Standardised approach - CCR exposures by regulatory exposure class and risk weight Page 75 - 76/ Table 58, 59 & 60 CCR4 IRB approach - CCR exposures by portfolio and PD range for respective asset class
439 (m)	Disclosure of the size of institutions on- and off-balance-sheet derivative business as calculated in accordance with Article 273a(1) or (2), as applicable.	This covers disclosure on simplified SA-CCR and OEM which is not applicable to Barclays'
<b>Countercyclical capital buffers</b>		
440 (a)	Geographical distribution and risk-weighted exposure amounts of relevant credit exposures	Barclays' countercyclical buffer is currently set at 1% for UK exposures. In other jurisdictions where CCyB is being applied, Barclays does not have material relevant exposures. See page 178/ Table 93 CCyB1 Countercyclical capital buffer and page 179/Table 94 CCyB2 Amount of institution specific countercyclical capital buffer
440 (b)	Amount of the institution specific countercyclical capital buffer	
<b>Indicators of global systemic importance</b>		
441	Disclosure of the indicators of global systemic importance	Discussed on page 11
<b>Credit risk adjustments</b>		
442 (a)	Disclosure of bank's definitions of past due and impaired and the differences, if any, between the definitions for accounting and regulatory purposes	Pages 111 - 116 provide a complete description of credit quality measures

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
442 (b)	Approaches for calculating credit risk adjustments	Pages 111 - 116 provide a complete description of credit quality measures
442 (c)	Information on the amount and quality of performing, non-performing and forborne exposures for loans, debt securities and off-balance-sheet exposures, including their related accumulated impairment, provisions and negative fair value changes due to credit	Page 63 - 72 / Table 46 - 54 CR1 Performing and non-performing exposures and related provision/ CQ1 Credit quality of forborne exposure/ CQ3 Credit quality of performing and non-performing exposure by past due days/ CQ4 Quality of non-performing exposures and related provisions/ CQ5 Credit quality of loans and advances by industry/ CQ7 Collateral obtained by taking possession and execution processes.
442 (d)	Ageing analysis of accounting past due exposures	
442 (e)	Disclosure of gross carrying amounts of performing and non-performing exposure and their related provisions and the net carrying amounts and their distribution by geographical area and industry type	Barclays Non-performing loans and advances' ratio stands below 5%, hence additional NPL disclosure required in point (c) and (f) of Article 442 in templates CR2a, CQ2, CQ6 and CQ8 are not published.

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
442 (f)	Changes in the stock of non-performing loans and advances and related net accumulated recoveries	Page 64/ Table 48 CR2 Changes in stock of non-performing loans and advances
442 (g)	Breakdown of loans and debt securities by residual maturities	Page 64/ Table 47 CR1A Maturity of exposures
<b>Encumbered and unencumbered assets</b>		
443	Disclosures on encumbered and unencumbered assets	See pages 181-182: Disclosures on asset encumbrance.
<b>Use of Standardised approach</b>		
444 (a)	Names of the ECAs used in the calculation of standardised approach RWAs, and reasons for any changes	Page 50/ Table 32: Relationship of long-term external credit ratings to credit quality steps under the standardised approach and Table 33 : Credit quality steps and risk weights under the standardised approach
444 (b)	Exposure classes associated with each ECAI	
444 (c)	Explanation of the process for translating external ratings into credit quality steps	
444 (d)	Mapping of external rating to credit quality steps	Issue and Issuer credit assessment are used to determine ratings in accordance with Article 139 of CRR.
444 (e)	Exposure value post-credit risk mitigation, by credit quality step	Page 45/ Table 28 : CR4 Standardised - Credit risk exposure and CRM effect Page 46/ Table 29 : CR5 Standardised approach Page 74/ Table 56 CCR3 Standardised approach - CCR exposures by regulatory exposure class and risk weight
<b>Exposure to market risk</b>		
445	Disclosure of position risk, large exposures exceeding limits, FX, settlement and commodities risk	Page 82 / Table 66: MR1 Market risk under the standardised approach
<b>Operational risk</b>		
446 (a)	Disclosure of the scope of approaches used to calculate operational risk	Page 90/ Table 73: OR1 Operational risk own funds requirements and risk weighted exposure amounts Page 164 - Management of Operational risk
<b>Disclosure of key metrics</b>		
447 (a)		
447 (b)		
447 (c)		
447 (d)		Page 20/ Table 6 KM1 - Key metrics
447 (e)	Provide an overview of regulatory metrics and ratios	
447 (f)		
447 (g)		
447 (h)		Page 33/ Table 18 KM2 - Key Metrics - TLAC requirements (at resolution group level)
<b>Exposures to interest rate risk on positions not included in the trading book</b>		
448 (1) (a)	Information on the impact on the Bank's economic value of equity (EVE) and net interest income (NII) from the six standardised interest rate shock scenarios	Page 42/ Table 26 : IRRBB1 Quantitative information on IRRBB
448 (1) (b)		
448 (1) (c)	Description of key modelling and parametric assumptions used to calculate changes in the economic value of equity and in the net interest income required under Article 448 (1)(a) and 448 (1)(b)	
448 (1) (d)	Explanation of the significance of the risk measures disclosed under Article 448 (1)(a) and 448 (1)(b)and of any significant variations of those risk measures since the previous disclosure	
448 (1) (e)	Description of how institutions define, measure, mitigate and control the interest rate risk of their non-trading book activities	Page 159 IRRBB risk management objectives and policies
448 (1) (f)	Description of the overall risk management and mitigation strategies	
448 (1) (g)	Information on average and longest repricing maturity assigned to non-maturing deposits	
448 (2)	By way of derogation from paragraph 1 of this Article, the requirements set out in points (c ) and (e)(i) to (e)(iv) of paragraph 1 of this Article for description relating to economic value of equity shall not apply to institutions that use the standardised framework	This does not apply to Barclays

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
<b>Exposure to securitisation positions</b>		
449 (a)	Objectives in relation to securitisation and re-securitisation activities and institutions role in the use of simple, transparent and standardised securitisations (STS)	
449 (b)	Type of risk by level of seniority in the relevant securitisation positions providing distinction between STS and non-STS positions	
449 (b)(i)	the risk retained in own-originated transactions	
449 (b)(ii)	the risk incurred in relation to transactions originated by third parties	
449 (c)	Approaches for calculating the risk-weighted exposure amounts to relevant securitisation position along with a distinction between STS and non-STS position	
449 (d)	List of SSPEs and types of exposure to those SSPEs, including derivative contracts	
449 (d)(i)	SSPEs which acquire exposures originated by the institutions	Page 148 - 151 / SECA Qualitative disclosure requirements related to securitisation exposures
449 (d)(ii)	SSPEs sponsored by the institutions	
449 (d)(iii)	SSPEs and other legal entities for which the institutions provide securitisation-related services, such as advisory, asset servicing or management services	
449 (d)(iv)	SSPEs included in the institutions' regulatory scope of consolidation	
449 (e)	List of any legal entities in relation to which the institutions have disclosed that they have provided support	
449 (f)	List of legal entities affiliated with the institutions and that invest in securitisations originated by the institutions or in securitisation positions issued by SSPEs sponsored by the institutions	
449 (g)	Summary of accounting policies for securitisation activities	
449 (h)	Names of ECAs used for securitisations	
449 (i)	Description of Internal Assessment Approach	
449 (j)	Separately for the trading book and the non-trading book, the carrying amount of securitisation exposures, including information on transfer of significant credit risk, separately for traditional and synthetic securitisations, and for STS and non-STS transactions and broken down by type of securitisation exposures	Page 84/ Table 68 : SEC1 Securitisation exposures in the non-trading book; Page 85/Table 69 : SEC2 Securitisation exposures in the trading book
449 (k)(i)	Aggregate amount of securitisation positions where institutions act as originator or sponsor and the associated risk-weighted assets and capital requirements by regulatory approaches	Page 86/ Table 70 : SEC3 Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as originator or as sponsor
449 (k)(ii)	Aggregate amount of securitisation positions where institutions act as investor and the associated risk-weighted assets and capital requirements by regulatory approaches	Page 87/ Table 71 : SEC4 Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as investor
449 (l)	Amount of exposures in default and the amount of the specific credit risk adjustments made by the institution during the current period, both broken down by exposure type	Page 88/ Table 72 : SEC5 Exposures securitised by the institution - Exposures in default and specific credit risk adjustments

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
<b>Remuneration disclosures</b>		
450	Remuneration	Appendix C contains the remuneration awards made to Barclays' Material Risk Takers. See the Directors' remuneration report (DRR) of the 2022 Annual Report for other remuneration disclosures
450 (1)	Disclosure of remuneration policy and practices for those categories of staff whose professional activities have a material impact on risk profile of the institution	Appendix C contains the remuneration policy and practices for Barclays' Material Risk Takers.
450 (2)	For Large institutions - Disclosure of institutions' collective management body to be made available for public, differentiating between executive and non-executive.	Appendix C contains the remuneration awards made to Barclays' Material Risk Takers, differentiating between executive and non-executive.
<b>Leverage</b>		
451 (1) (a)	Leverage ratio, and breakdown of total exposure measure, including reconciliation to financial statements, and derecognised fiduciary items	Pages 30 - 32/ Table 15 : LR1 Summary reconciliation of accounting assets and leverage ratio exposures; Table 16 : LR2 Leverage ratio common disclosure ; Table 17 : LR3 Split-up of on balance sheet exposures (excluding derivatives, SFTs and
451 (1) (d)	Description of the risk management approach to mitigate excessive leverage, and factors that impacted the leverage ratio	See page 31/Table 16: LR2 Leverage ratio common disclosure
451 (1) (e)	during the year	This doesn't apply to Barclays as there is no transitional relief
451 (1) (f)	In relation to the quarterly periods up to 31 December 2022, the leverage ratio calculated as if Article 468 of the CRR did not apply for purposes of the capital measure under Article 429(3) of Chapter 3 of the Leverage Ratio (CRR) Part	
451 (1) (g)	in relation to the quarterly periods up to 31 December 2024, the leverage ratio calculated as if Article 473a of the CRR did not apply for purposes of the capital measure under Article 429(3) of Chapter 3 of the Leverage Ratio (CRR) Part.  LREQ firm must disclose each of the following - a) average exposure measure b) average leverage ratio c) average leverage ratio calculated as if central bank claims to be included in the total exposure measure d) countercyclical leverage ratio buffer	
451 (2)		Page 31/ Table 16 : LR2 Leverage ratio common disclosure
451 (3)	LREQ firm must disclosure of changes in total exposure measure and tier 1 capital (leverage) over the quarter that have affected the bank's average leverage ratio	
451 (4)	Information on calculation o average exposure measure and average leverage ratio by LREQ firms	
451 (5)	Information on calculation of average exposure measure , in relation to the quarterly periods up to 1 January 2023, by LREQ firms	
<b>Disclosure of liquidity requirement</b>		
451a (1)	Information on liquidity coverage ratio, net stable funding ratio and liquidity risk management	Page 37/ Table 23 : LIQ1 Liquidity coverage ratio; LIQB Qualitative information on LCR
451a (2)	Information on liquidity coverage ratio	
451a (3)	Information on net stable funding ratio	Page 39/ Table 24 : LIQ2 Net stable funding ratio
451a (4)	Disclose the arrangements, systems, processes and strategies put in place to identify, measure, manage and monitor their liquidity risk	Page 155 - 157 / LIQA Liquidity risk management

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
<b>Use of the IRB approach to credit risk</b>		
452 (a)	Permission for use of the IRB approach from authority	
452 (b)	Scope of the use of standardised and IRB approaches as well as exposure class subject to permanent partial use and to a roll-out plan	
452 (c)		
452 (c) (i)	The control mechanisms for rating systems at the different stages of model development, controls and changes	121 Management of credit risk - IRB approach
452 (c) (ii)		Page 52 / Table 35 : CR6A Scope of the use of IRB and standardised approach; CRE Qualitative disclosure requirements related to IRB approach
452 (c) (iii)		
452 (c) (iv)		
452 (d)	Functions involved in the development, approval and subsequent changes of the credit risk models	
452 (e)	Scope and main content of the reporting related to credit risk models	Page 14 / Table 1 : The scope of the standardised and AIRB approaches for credit and counterparty credit risk excluding CVA
452 (f)		
452 (f)(i)	Description of the internal ratings process by exposure class, including the number of key models used with respect to each portfolio and a brief discussion of the main differences between the models within the same portfolio	
452 (f)(ii)		
452 (f)(iii)		
452 (g)	For each exposure class, disclose the following information	
452 (g)(i)	their gross on-balance-sheet exposure	
452 (g)(ii)	their off-balance-sheet exposure values prior to the relevant conversion factor	Page 53 - 61 / Table 36 - 44 : CR6 IRB approach – Credit risk exposures by exposure class and PD range for respective asset classes
452 (g)(iii)	their exposure after applying the relevant conversion factor and credit risk mitigation	
452 (g)(iv)	input relevant for the understanding of the risk weighting and the resulting risk exposure amounts disclosed across a sufficient number of obligor grades (including default)	Page 75 - 76 / Table 57 - 59 : CCR4 IRB approach – CCR exposures by portfolio and PD range for central governments and central banks
452 (g)(v)	for exposure classes, in relation to which institutions have received permission to use own LGDs and conversion factors for the calculation of risk-weighted exposure amounts, and for exposures for which the institutions do not use such estimates, the values referred to in points (i) to (iv) subject to that permission	
452 (h)	Back testing of PD per exposure class	Page 127 - 130 / Table 75 - 82 : CR9 IRB approach - Back-testing of PD per exposure class (fixed PD scale); Page 131 - 137 /Table 83 - 90 : CR9.1 IRB approach - Back-testing of PD per exposure class (only for PD estimates according to Article 180(1)(f))

## Appendix D - Compliance to Pillar 3 requirements (continued)

CRR ref.	High-level summary	Compliance reference
<b>Use of credit risk mitigation techniques</b>		
453 (a)	Policies and processes for on- and off-balance sheet netting	
453 (b)	Policies and processes for eligible collateral evaluation and management	
453 (c)	Description of types of collateral used by Barclays	
453 (d)	Types of guarantor and credit derivative counterparty, and their creditworthiness	Pages 118 - 120 / CRC Qualitative disclosure requirements related to CRM techniques
453 (e)	Disclosure of market or credit risk concentrations within risk mitigation exposures	
453 (f)	CRM techniques overview	Page 65 / Table 49 : CR3 CRM techniques overview; Disclosure of the use of credit risk mitigation techniques
453 (g)	Disclose corresponding conversion factor and credit risk mitigation techniques with and without substitution effect	
453 (h)	Exposures before and after the application of conversion factors and any associated credit risk mitigation	Page 49 / Table 31 : CR7A IRB approach – Disclosure of the extent of the use of CRM techniques
453 (i)	Under standardised approach, for each asset class, disclose the risk-weighted exposure amount and the ratio between that risk-weighted exposure amount and the exposure value after applying the corresponding conversion factor and the credit risk mitigation associated with the exposure	Page 45 / Table 28 : CR4 Standardised – Credit risk exposure and CRM effect
453 (j)	Under IRB approach, the risk-weighted exposure amount before and after recognition of the credit risk mitigation impact of credit derivatives. Disclosure to be made for each exposure class subject to permission to use own LGDs and conversion factors	Page 48 / Table 30 : CR7 IRB approach – Effect on the RWEAs of credit derivatives used as CRM techniques
<b>Use of the Advanced Measurement Approaches to operational risk</b>		
454	Description of the use of insurance or other risk transfer mechanisms to mitigate operational risk	This doesn't apply to Barclays
<b>Use of internal market risk models</b>		
455 (a) (i)	Disclosure of the characteristics of the market risk models for each sub-portfolio	
455 (a) (ii)	Disclosure of the methodology and description of all-price risk measure and incremental risk charge	Pages 140 - 145 / MRB Qualitative disclosure requirements for institutions using the IMA
455 (a) (iii)	Descriptions of stress tests applied to the sub-portfolios	
455 (a) (iv)	Methodology for back-testing and validating the models	
455 (b)	Scope of permission for use of the models.	Page 15 / Table 2 - Summary of the scope of application of regulatory methodologies for CVA, market and operational risk
455 (c)	Policies and processes to determine which exposures are to be included in the trading book, and to comply with prudential valuation requirements	Pages 140 - 145 / MRB Qualitative disclosure requirements for institutions using the IMA
455 (d)	High/Low/Mean values of the daily value-at-risk measures over the reporting period and at the end of the reporting period	
455 (d) (i)		
455 (d) (ii)	The stressed value at risk over the reporting period and at the end of the reporting period	Page 80 / Table 64: MR3 IMA values for trading portfolios
455 (d) (iii)	The risk numbers for incremental default and mitigation risk and for the specific risk of the correlation trading portfolio over the reporting period and at the end of the reporting period	
455 (e)	The elements of the own fund calculation	Page 82 / Table 67: MR2A Market risk under the internal Model Approach (IMA)
455 (f)	Weighted average liquidity horizons of portfolios covered by models	Page 145 / Table 91 : Market risk models selected features Page 15 / Table 2 : Summary of the scope of application of regulatory methodologies for CVA, market and operational risk
455 (g)	Comparison of end-of-day VaR measures compared with one-day changes in portfolio's value	Page 146 / Table 92 : MR4 Comparison of VaR estimates with gains/losses

# Location of risk disclosures

**Barclays' Risk disclosures are located across the Annual Report and Pillar 3 Report.**

		Annual Report	Pillar 3 Report
<b>Risk management strategy</b>	<ul style="list-style-type: none"> <li>▪ Enterprise Risk Management Framework (ERMF) 266 93</li> <li>▪ Segregation of duties – the "Three Lines of Defence" model 266 93</li> <li>▪ Principal risks 268 93</li> <li>▪ Risk appetite for the principal risks 268 94</li> <li>▪ Risk committees 268 95</li> <li>▪ Frameworks, policies and standards n/a 97</li> <li>▪ Assurance n/a 97</li> <li>▪ Effectiveness of risk management arrangements n/a 97</li> <li>▪ Learning from our mistakes n/a 97</li> <li>▪ Barclays' risk culture 268 97</li> <li>▪ Group-wide risk management tools n/a 98</li> <li>▪ Risk management in the setting of strategy n/a 103</li> </ul>		
<b>Material existing and emerging risks</b>	<ul style="list-style-type: none"> <li>▪ Material existing and emerging risks potentially impacting more than one principal risk 269 n/a</li> <li>▪ Credit risk 274 n/a</li> <li>▪ Market risk 275 n/a</li> <li>▪ Treasury and capital risk 275 n/a</li> <li>▪ Operational risk 276 n/a</li> <li>▪ Model risk 279 n/a</li> <li>▪ Conduct risk 279 n/a</li> <li>▪ Reputation risk 280 n/a</li> <li>▪ Legal risk and legal, competition and regulatory matters 280 n/a</li> </ul>		
<b>Climate change risk management</b>	<ul style="list-style-type: none"> <li>▪ Overview, organisation and structure 282 n/a</li> <li>▪ Risk management policy 285 n/a</li> </ul>		
<b>Principal risk management</b>	<ul style="list-style-type: none"> <li>▪ Credit risk management 285 107</li> <li>▪ Management of credit risk mitigation techniques and counterparty credit risk n/a 118</li> <li>▪ Market risk management 291 139</li> <li>▪ Management of securitisation exposures n/a 148</li> <li>▪ Treasury and capital risk management 291 154</li> <li>▪ Operational risk management 293 164</li> <li>▪ Model risk management 293 168</li> <li>▪ Conduct risk management 294 171</li> <li>▪ Reputation risk management 295 173</li> <li>▪ Legal risk management 295 175</li> </ul>		

## Location of risk disclosures (continued)

		Annual Report	Pillar 3 Report
<b>Risk performance</b>	<ul style="list-style-type: none"> <li>▪ Credit risk overview and summary of performance</li> <li>▪ Maximum exposure and effects of netting, collateral and risk transfer</li> <li>▪ Expected Credit Losses</li> <li>▪ Movements in gross exposure and impairment allowance including provisions for loan commitments and financial guarantees</li> <li>▪ Management adjustments to models for impairment</li> <li>▪ Measurement uncertainty and sensitivity analysis</li> <li>▪ Analysis of the concentration of credit risk</li> <li>▪ The Group's approach to management and representation of credit quality</li> <li>▪ Analysis of specific portfolios and asset types</li> <li>▪ Forbearance</li> <li>▪ Analysis of debt securities</li> <li>▪ Analysis of derivatives</li> </ul>	301	n/a
Credit risk: The risk of loss to the Group from the failure of clients, customers or counterparties, including sovereigns, to fully honour their obligations to the Group, including the whole and timely payment of principal, interest, collateral and other receivables.		305	n/a
Market risk: The risk of a loss arising from potential adverse changes in the value of the Group's assets and liabilities from fluctuation in market variables including, but not limited to, interest rates, foreign exchange, equity prices, commodity prices, credit spreads, implied volatilities and asset correlations.	<ul style="list-style-type: none"> <li>▪ Market Risk overview and summary of performance</li> <li>▪ Review of management measures</li> <li>▪ Review of regulatory measures</li> </ul>	304	n/a
Treasury and capital risk – Liquidity: The risk that the Group is unable to meet its contractual or contingent obligations or that it does not have the appropriate amount, tenor and composition of funding and liquidity to support its assets.	<ul style="list-style-type: none"> <li>▪ Liquidity risk overview and summary of performance</li> <li>▪ Liquidity risk stress testing</li> <li>▪ Liquidity pool</li> <li>▪ Funding structure and funding relationships</li> <li>▪ Contractual maturity of financial assets and liabilities</li> <li>▪ Asset encumbrance</li> </ul>	308	n/a
Treasury and capital risk – Capital: The risk that the Group has an insufficient level or composition of capital to support its normal business activities and to meet its regulatory capital requirements under normal operating environments or stressed conditions (both actual and as defined for internal planning or regulatory testing purposes). This also includes the risk from the Group's pension plans.	<ul style="list-style-type: none"> <li>▪ Capital risk overview and summary of performance</li> <li>▪ Regulatory minimum capital and leverage requirements</li> <li>▪ Analysis of capital resources</li> <li>▪ Analysis of risk weighted assets</li> <li>▪ Analysis of leverage ratio and exposures</li> <li>▪ Minimum requirement for own funds and eligible liabilities</li> <li>▪ Foreign exchange risk</li> <li>▪ Pension risk review</li> </ul>	315	n/a
Treasury and capital risk – Interest rate risk in the banking book: The risk that the Group is exposed to capital or income volatility because of a mismatch between the interest rate exposures of its (non-traded) assets and liabilities.	<ul style="list-style-type: none"> <li>▪ Interest rate risk in the banking book overview and summary of performance</li> <li>▪ Net interest income sensitivity</li> <li>▪ Analysis of equity sensitivity</li> <li>▪ Volatility of the fair value through other comprehensive income (FVOCI) portfolio in the liquidity pool</li> </ul>	317	n/a
Operational risk: The risk of loss to the Group from inadequate or failed processes or systems, human factors or due to external events (for example, fraud) where the root cause is not due to credit or market risks.	<ul style="list-style-type: none"> <li>▪ Operational risk overview and summary of performance</li> <li>▪ Operational risk profile</li> </ul>	329	n/a
Model risk: The risk of the potential adverse consequences from financial assessments or decisions based on incorrect or misused model outputs and reports.	<ul style="list-style-type: none"> <li>▪ Model risk overview and summary of performance</li> </ul>	331	n/a
Conduct risk: The risk of detriment to customers, clients, market integrity, effective competition or Barclays from the inappropriate supply of financial services, including instances of wilful or negligent misconduct.	<ul style="list-style-type: none"> <li>▪ Conduct risk overview and summary of performance</li> </ul>	333	n/a
Reputation risk: The risk that an action, transaction, investment, event, decision, or business relationship will reduce trust in the Group's integrity and/or competence.	<ul style="list-style-type: none"> <li>▪ Reputation risk overview and summary of performance</li> </ul>	337	n/a
Legal risk: The risk of loss or imposition of penalties, damages or fines from the failure of the Group to meet its legal obligations including regulatory or contractual requirements.	<ul style="list-style-type: none"> <li>▪ Legal risk overview and summary of performance</li> </ul>	339	n/a
		340	n/a
		341	79
		341	81
		n/a	80
		344	n/a
		344	n/a
		346	n/a
		347	n/a
		351	n/a
		n/a	180
		355	n/a
		355	12
		357	22
		359	26
		360	30
		361	34
		362	40
		362	41
		364	42
		364	42
		365	n/a
		365	n/a
		366	89
		366	91
		368	n/a
		369	n/a

## Location of risk disclosures (continued)

		Annual Report	Pillar 3 Report
<b>Supervision and regulation</b>	<ul style="list-style-type: none"> <li>▪ Supervision of the Group</li> <li>▪ Global regulatory developments</li> <li>▪ Financial regulatory framework</li> </ul>	370	n/a
The Group's operations, including its overseas offices, subsidiaries and associates, are subject to a significant body of rules and regulations.		370	n/a
		371	n/a
<b>Pillar 3 Report</b>	<ul style="list-style-type: none"> <li>▪ Summary of risk and capital profile</li> <li>▪ Notes on basis of preparation</li> <li>▪ Scope of application of Basel framework</li> </ul>	n/a	5
Contains extensive information on risk as well as capital management.		n/a	7
Risk and capital position review: Provides a detailed breakdown of Barclays' regulatory capital adequacy and how this relates to Barclays' risk management.	<ul style="list-style-type: none"> <li>▪ Group capital resources, requirements, leverage and liquidity</li> <li>▪ Analysis of credit risk</li> <li>▪ Analysis of counterparty credit risk</li> <li>▪ Analysis of market risk</li> <li>▪ Analysis of securitisation exposures</li> <li>▪ Analysis of operational risk</li> </ul>	n/a	19
		n/a	44
		n/a	72
		n/a	79
		n/a	83
		n/a	89

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The terms Barclays or Group refer to Barclays PLC together with its subsidiaries. The abbreviations '£m' and '£bn' represent millions and thousands of millions of Pounds Sterling respectively.

There are a number of key judgement areas, for example impairment calculations, which are based on models and which are subject to ongoing adjustment and modifications. Reported numbers reflect best estimates and judgements at the given point in time.

Relevant terms that are used in this document but are not defined under applicable regulatory guidance or International Financial Reporting Standards (IFRS) are explained in the results glossary that can be accessed at [home.barclays/investor-relations/reports-and-events/latest-financial-results](http://home.barclays/investor-relations/reports-and-events/latest-financial-results)

### Forward-looking statements

This document contains certain forward-looking statements within the meaning of Section 21E of the US Securities Exchange Act of 1934, as amended, and Section 27A of the US Securities Act of 1933, as amended, with respect to the Group. Barclays cautions readers that no forward-looking statement is a guarantee of future performance and that actual results or other financial condition or performance measures could differ materially from those contained in the forward-looking statements. Forward-looking statements can be identified by the fact that they do not relate only to historical or current facts. Forward-looking statements sometimes use words such as 'may', 'will', 'seek', 'continue', 'aim', 'anticipate', 'target', 'projected', 'expect', 'estimate', 'intend', 'plan', 'goal', 'believe', 'achieve' or other words of similar meaning. Forward-looking statements can be made in writing but also may be made verbally by directors, officers and employees of the Group (including during management presentations) in connection with this document. Examples of forward-looking statements include, among others, statements or guidance regarding or relating to the Group's future financial position, income levels, costs, assets and liabilities, impairment charges, provisions, capital, leverage and other regulatory ratios, capital distributions (including dividend policy and share buybacks), return on tangible equity, projected levels of growth in banking and financial markets, industry trends, any commitments and targets (including environmental, social and governance (ESG) commitments and targets), business strategy, plans and objectives for future operations and other statements that are not historical or current facts. By their nature, forward-looking statements involve risk and uncertainty because they relate to future events and circumstances. Forward-looking statements speak only as at the date on which they are made. Forward-looking statements may be affected by a number of factors, including, without limitation: changes in legislation, regulation and the interpretation thereof, changes in IFRS and other accounting standards, including practices with regard to the interpretation and application thereof and emerging and developing ESG reporting standards; the outcome of current and future legal proceedings and regulatory investigations; the policies and actions of governmental and regulatory authorities; the Group's ability along with governments and other stakeholders to measure, manage and mitigate the impacts of climate change effectively; environmental, social and geopolitical risks and incidents and similar events beyond the Group's control; the impact of competition; capital, leverage and other regulatory rules applicable to past, current and future periods; UK, US, Eurozone and global macroeconomic and business conditions, including inflation; volatility in credit and capital markets; market related risks such as changes in interest rates and foreign exchange rates; higher or lower asset valuations; changes in credit ratings of any entity within the Group or any securities issued by it; changes in counterparty risk; changes in consumer behaviour; the direct and indirect consequences of the Russia-Ukraine war on European and global macroeconomic conditions, political stability and financial markets; direct and indirect impacts of the coronavirus (COVID-19) pandemic; instability as a result of the UK's exit from the European Union (EU), the effects of the EU-UK Trade and Cooperation Agreement and any disruption that may subsequently result in the UK and globally; the risk of cyber-attacks, information or security breaches or technology failures on the Group's reputation, business or operations; the Group's ability to access funding; and the success of acquisitions, disposals and other strategic transactions. A number of these factors are beyond the Group's control. As a result, the Group's actual financial position, results, financial and non-financial metrics or performance measures or its ability to meet commitments and targets may differ materially from the statements or guidance set forth in the Group's forward-looking statements. Additional risks and factors which may impact the Group's future financial condition and performance are identified in Barclays PLC's filings with the SEC (including, without limitation, Barclays PLC's Annual Report on Form 20-F for the financial year ended 31 December 2022), which are available on the SEC's website at [www.sec.gov](http://www.sec.gov).

Subject to Barclays PLC's obligations under the applicable laws and regulations of any relevant jurisdiction (including, without limitation, the UK and the US) in relation to disclosure and ongoing information, we undertake no obligation to update publicly or revise any forward-looking statements, whether as a result of new information, future events or otherwise.



## Our 2022 suite of Reports

### **Barclays PLC Annual Report 2022**

A detailed review of Barclays' 2022 performance with disclosures that provide useful insight and go beyond reporting requirements. The 2022 report integrates our ESG (Environmental, Social and Governance), and DEI (Diversity, Equity and Inclusion) reporting, and incorporates our Task Force on Climate-related Financial Disclosures (TCFD) recommendations in this, the sixth year of disclosure.

### **Barclays PLC Pillar 3 Report 2022**

A summary of our risk profile, its interaction with the Group's risk appetite, and risk management.

### **Barclays PLC Fair Pay Report 2022**

An overview of our approach to pay, including the principles and policies of our Fair Pay agenda.

### **Barclays PLC Country Snapshot 2022**

An overview of our global tax contribution as well as our approach to tax, including our UK tax strategy, together with our country-by-country data.