BARCLAYS

Building the bank of the future

Barclays PLC
Pillar 3 Report 2016

Contents

See page 187 for an index of all risk disclosures in the Pillar 3 and Annual Reports

A glossary of terms and remuneration disclosures can be found at: home.barclays/annualreport

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Chief Risk Officer

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Group Finance Director

“We have made strong progress in 2016 to accelerate the restructuring of Barclays and refocus our business as a transatlantic, consumer, corporate and investment bank anchored in London and New York.”

Capital position and risk management in 2016

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:

- the fully loaded CRD IV Common Equity Tier 1 (CET1) ratio increased significantly to 12.4% (2015: 11.4%) primarily driven by an increase in CET1 capital of £4.5bn to £45.2bn
- the increase in capital was driven largely by profits generated during the period and favourable movements in other qualifying reserves
- the leverage ratio increased to 4.6% (2015: 4.5%) primarily driven by the increase in Tier 1 capital of £5.8bn to £52.0bn.

Strategic repositioning of the business underpinned by accelerated Non-Core business rundown:

- Non-Core risk weighted assets (RWAs) reduced £22bn to £32bn, which represents a 66% decrease since the business unit was created
- Non-Core leverage exposures reduced £48bn to £101bn primarily driven by reduced potential future exposure on derivatives and trading portfolio assets
- Core RWAs increased £30bn to £334bn, mainly driven by the appreciation of ZAR, USD and EUR against GBP and business growth
- Core leverage exposures increased £145bn to £1,024bn, largely driven by IFRS assets increase as a result of the appreciation of major currencies against GBP, an increase in liquidity pool assets and lending growth in Barclays UK and Barclays International.

Increases in credit impairments and market risk management Value at Risk:

- credit impairment charges increased 35% to £2.4bn, reflecting the management review of the UK and US cards portfolio impairment modelling
- market risk levels increased with average management value at risk up 24% year on year reflecting volatility in credit spreads.

We have updated our Enterprise Risk Management Framework (ERMF):

- 3 new Principal Risks (Model, Legal and Reputation)
- simplified three lines of defence model
- additional emphasis on first line accountability for managing the risks which arise their activities, including ownership of Operational Risk policies

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 187 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. During 2016, the Group's performance was in line with its risk appetite. The following risk metrics reflect the Group's risk profile:

Key metrics

Common Equity Tier 1 ratio (see page 16)

12.4%

2015: 11.4%

Common Equity Tier 1 capital (see page 16)

£45.2bn

2015: £40.7bn

Risk weighted assets (see page 23)

£366bn

2015: £358bn

Leverage ratio (see page 28)

4.6%

2015: 4.5%

Loan loss rate (see page 120)

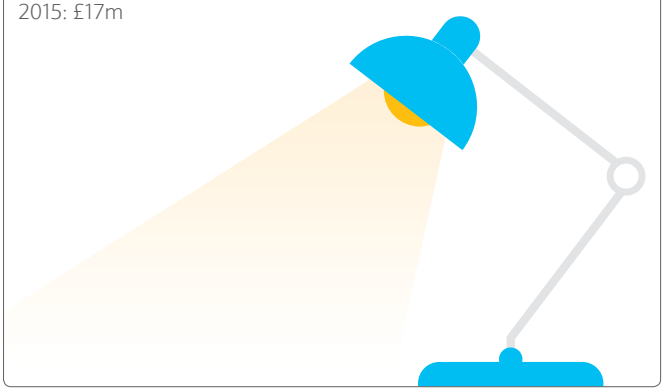
53bps

2015: 42bps

Management Value at Risk (see page 83)

£21m

2015: £17m



Summary of risk profile

- Fully loaded CRD IV CET1 ratio increased significantly to 12.4% (2015: 11.4%) reflecting an increase in CET1 capital of £4.5bn to £45.2bn, partly offset by an RWA increase of £7bn to £366bn.
- The increase in CET1 capital was largely driven by profits generated in the period, after absorbing the impact of notable items, and favourable movements in other qualifying reserves which included the currency translation reserves as a result of the appreciation of all major currencies against GBP.
- The RWAs increase was principally due to the appreciation of ZAR, USD and EUR against GBP and business growth which more than offset RWA reductions in Non-Core.
- The leverage ratio increased to 4.6% (2015: 4.5%), reflecting an increase in Tier 1 capital of £5.8bn to £52.0bn, partly offset by an increase in exposure of £97bn to £1,125bn; the leverage exposure increase was driven by an increase in IFRS balance sheet assets primarily due to the appreciation of major currencies against GBP, an increase in liquidity pool assets and lending growth in Barclays UK and Barclays International, partly offset by the rundown and exit of Non-Core assets.
- The loan loss rate (LLR) increased to 53bps (2015: 42bps) reflecting increased charges following the management review of impairment modelling for UK and US cards portfolios and the impairment of a number of single name exposures.
- Average management value at risk increased by 24% to £21m (2015: £17m), mainly driven by credit and basis risk.

Another component of the Group's risk appetite is a set of mandate and scale limits to help mitigate concentration risk, keep business activities within our mandate and allow Barclays to remain of an appropriate scale. During 2016, Barclays has made enhancement in the management of leveraged finance lending including a new framework of notional and stress loss limits and triggers to control concentration risk to this higher risk lending segment.

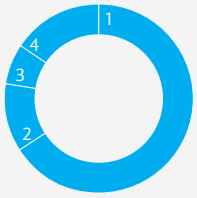
The material existing and emerging risks section on page 136 of the Barclays PLC Annual Report describes the main risks currently faced by the Group.

Please see page 110 for a discussion of risk appetite, and page 136 of the Annual Report for a discussion of material and emerging risks.

The Pillar 3 report provides detailed regulatory risk measures that reflect the Group's risk profile and strategy. 2016 measures show the progress accomplished in strategically repositioning the Group's risk profile as follows:

RWA

	2016 £bn	2015 £bn
1 Credit risk	**241.5**	230.4
2 Counterparty credit risk	**42.4**	45.0
3 Market risk	**25.0**	26.3
4 Operational risk	**56.7**	56.7

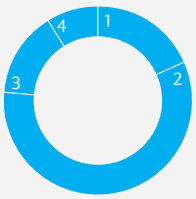


1. Credit risk increased £11.1bn to £241.5bn primarily driven by foreign exchange movements due to the appreciation of ZAR, USD and EUR against GBP, offset by the rundown and exit of Non-Core assets including the sale of the Portuguese and Italian businesses
2. Counterparty credit risk decreased £2.6bn to £42.4bn primarily driven by the effect of collateral modelling for mismatched FX collateral on average CVA
3. Market risk decreased £1.3bn to £25.0bn driven by risk reduction in Barclays International and Non-Core
4. Operational risk remained unchanged at £56.7bn (2015: £56.7bn).

We hold RWAs for credit risk (discussed on page 32), market risk (page 80), and operational risk (page 105). See pages 25 to 26 for the main drivers of movements for each of these risk types.

RWA

	2016 £bn	2015 £bn
1 Barclays UK	**67.5**	69.5
2 Barclays International	**212.7**	194.8
3 Head Office	**53.3**	39.7
4 Barclays Non-Core	**32.1**	54.3



RWAs increased 2% to £365.6bn (2015: £358.4bn):

1. Barclays UK decreased £2.0bn to £67.5bn primarily driven by mortgage model changes following approval
2. Barclays International increased £17.9bn to £212.7bn primarily driven by appreciation of USD and EUR against GBP, increased trading activity and business growth including the acquisition of the JetBlue credit card portfolio in Consumer, Cards and Payments
3. Head Office, which includes Africa Banking, increased £13.6bn to £53.3bn primarily driven by appreciation of ZAR against GBP and the reallocation of operational risk RWAs associated with exited businesses and assets from Non-Core
4. Non-Core decreased £22.2bn to £32.1bn, primarily driven by rundown and disposals including the sale of Portuguese and Italian businesses, as well as the reallocation of operational risk RWAs to Head Office.

Notes on basis of preparation

Pillar 3 report regulatory framework

The Pillar 3 report is prepared in accordance with the Capital Requirements Regulation and Directive IV (CRR and CRD IV, also known as the 'CRD IV legislative package'). In particular, articles 431 to 455 of the CRR specify the Pillar 3 framework requirements. The CRD IV legislative package came into force on 1 January 2014.

See 'Application of the Basel framework' on page 7 for a more detailed description.

Key changes in the 2016 Pillar 3 report

The report includes 27 new tables that have been early adopted, as proposed by the Basel Committee on Banking Supervision (BCBS) and implemented in line with European Banking Authority (EBA) guidelines. These tables are part of the drive to make Pillar 3 disclosures comparable and consistent across the industry. The first phase of these changes should be fully implemented by 2017 year end.

A geographical Countercyclical Capital Buffer (CCyB) disclosure has been introduced in line with new regulatory technical standards, in line with regulatory guidance.

Credit Valuation Adjustment (CVA) RWAs have been reclassified as a subset of counterparty credit risk, rather than market risk.

In 2016 Barclays announced a reorganisation of its structure, so that it would be simplified. As such, business unit comparative information has been restated to reflect the new structure.

See Appendix E on page 178 for a CRD IV reference.

Presentation of risk data in the Pillar 3 disclosures vs. the Annual Report and Accounts

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

Asset/exposure classes

Throughout this report, tables show credit exposures or capital requirements split into various exposure classes (for instance, industry or type of borrower). Some of these classes are specified in CRD IV. Where the regulations are not explicit, such as in industry and geographic analyses, Barclays shows exposure class splits at an appropriate level of granularity.

Credit losses

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

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 in 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 will differ from asset values as reported in the Annual Report.

Table 23 provides a reconciliation between IFRS and EAD for credit risk. Tables 42 to 47 provide a reconciliation between the IFRS impairment provision and the regulatory impairment allowance.

Policy, validation and sign-off

Throughout the year ended 31 December 2016, and to date, Barclays has operated a system of risk management and internal control which provides reasonable assurance over the information disclosed in this report as well as with regards to compliance with laws and regulations.

See Appendix E for a reference to Barclays' compliance with the CRD IV.

This report was validated and approved internally by Barclays in line with its Pillar 3 policy. Businesses attest to the accuracy of their data submissions. Consistency checks and reconciliations are performed with accounts and regulatory returns.

The Pillar 3 policy, approved by the Board Risk Committee, also requires that Barclays' external disclosures (which include the Pillar 3 report, half yearly Results Announcement and the Annual Report) convey its risk profile comprehensively, subject to the information being material and not proprietary or confidential. The policy also covers frequency of disclosures.

During the publication process the report is subject to reviews by Barclays' Legal and Technical Committee. This committee is responsible for reviewing the Group's financial reports and disclosures to ensure that they are fit for purpose for external disclosures, and reports its conclusions to the Disclosure Committee.

The Disclosure Committee, which is chaired by the Group Finance Director, considers the content and accuracy of the disclosures, reporting its conclusions to the Board Audit Committee (BAC). The BAC reviews the report, with final approval provided on behalf of the Board.

This governance process is in place to ensure both management and the Board are given sufficient opportunity to review and challenge the Group's financial statements and other significant disclosures before they are made public.

Scope of application of Basel rules

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

- Figure 1 shows a representation of Barclays' entities within the scope of regulatory consolidation and how this differs from IFRS consolidation.
- Table 1 shows how IFRS balances contribute to the regulatory scope of consolidation on a line-by-line basis.
- The regulatory risk type associated with each balance sheet line is indicated in Table 2.
- Tables 3 and 4 show the scope of permission of calculation approaches that summarise the various approaches to calculate RWAs, and Barclays' permission to use them.

Overview of Pillar 3

Barclays has applied the Basel framework since its implementation. The framework is made up of three pillars:

Pillar 1:
covers 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 rules 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
- market risk
- securitisations
- operational risk.

Approaches to calculating capital requirements under CRD IV

Calculation of capital for credit risk

The credit risk weighted assets calculation is based on an estimate of the Exposure at Default. In addition, where Barclays has the necessary regulatory waivers, it estimates Probabilities of Default (PD) and Loss Given Default (LGD) (see page 127 and the online glossary for definitions):

- Standardised approach: assesses capital requirements using standard industry-wide risk weightings based on a detailed classification of asset types, 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 (AIRB).

See page 32 for more details on capital requirements for credit risk. Also, the Internal Ratings-Based approach to credit risk section on page discusses credit risk modelling in detail.

Calculation of capital for counterparty credit risk

CCR differs from credit risk, above, in how the EAD is calculated and applies to traded exposures. It arises where a counterparty default may lead to losses of an uncertain nature as they 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 exposure:

- the Mark to Market method (MTM, also known as Current Exposure Method), which is the sum of the current market value of the instrument plus an add-on (dependent on potential future exposure, or PFE) that accounts for the potential change in the value of the contract until a hypothetical default of the counterparty
- the Internal Model Method (IMM), subject to regulatory approval, allows the use of internal models to calculate an effective expected positive exposure (EEPE), multiplied by a factor stipulated by the regulator called alpha. For Barclays this is set at 1.4
- the Financial Collateral Comprehensive Method (FCCM), which is the net position of securities financing transactions after the application of volatility haircuts prescribed by CRR.

See page 67 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). As for CCR, two approaches can be used to calculate the adjustment:

- Standardised approach: takes account of the external credit rating of each counterparty, and incorporates the effective maturity and EAD from the CCR calculation
- Advanced approach: this approach requires the calculation of the charge as: a) a 10-day 99% value at risk (VaR) measure for the current one-year period; and b) the same measure for a stressed period. The sum of the two VaR measures is tripled to yield the capital charge.

See page 79 for more details on CVA.

Calculation of capital for market risk

Risk weighted assets calculations for market risk assess the losses from extreme movements in the prices of financial assets and liabilities:

- 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, while specific market risk is calculated based on features of the specific security (for instance, country of issuance)
- Model-based approach: with their regulator's permission, firms can use proprietary value at risk models to calculate capital requirements. Under the Basel 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 80 for more details on capital requirements for market risk.

Calculation of capital for securitisation exposures

A separate regulatory framework exists for the calculation of securitisation risk weighted asset exposures, the scope of which is defined by the CRR. Securitisations give rise to credit, market and other risks. Whilst CRR prescribes a standardised and advanced approach for the calculation of risk weights, Barclays has approval to use, and therefore applies, the IRB approach which includes:

- the Ratings Based Approach, where external ratings are available
- for unrated transactions and where certain criteria is met the 'look through' approach can be used, which considers the risk of the underlying assets
- the Internal Assessment Approach, which is also used for unrated backed commercial paper programmes, which applies a similar methodology to rating agency models.

See page 92 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 following methods apply:

- Standardised approach: the capital requirement is calculated as a percentage of the income, averaged over the last three years. The Group does not use this approach
- Basic Indicator approach (BIA): sets the capital requirement as 15% of the net interest and non-interest income, averaged over the last three years. If the income in any year is negative or zero, that year is not considered in the average
- Advanced Management approach (AMA): under the AMA, and subject to the regulatory approval, the capital requirement is calculated using the Group's own models.

Note that only two of the above methods can be used concurrently. Barclays uses the AMA for the majority (94%) of its exposures, and the BIA for the remainder.

See page 105 for more details on capital requirements for operational risk.

Calculation of capital for large exposures

Barclays has not exceeded the large exposure limit set in CRR, and as such no capital charge applies.

Regulatory minimum capital and leverage requirements

Capital

Barclays' current regulatory requirement is to meet a fully loaded CRD IV CET1 ratio comprising the required 4.5% minimum CET1 ratio and, phased in from 2016, a Combined Buffer Requirement. This currently comprises a Capital Conservation Buffer (CCB) of 2.5% and a Globally Systemically Important Institution (G-SII) buffer determined by the Prudential Regulation Authority (PRA) in line with guidance from the Financial Stability Board (FSB). Both buffers are subject to phased implementation, the CCB is phased in at 25% per annum with 0.625% applicable for 2016. The G-SII buffer for 2016 and 2017 has been set at 2% and is also phased in at 25% per annum with 0.5% applicable for 2016 and 1% for 2017. On 21 November 2016 the FSB confirmed that the G-SII buffer for 2018 will be 1.5% with 1.1% applicable for 2018 and taking full effect from 2019 onwards.

Also forming part of the Combined Buffer Requirement is a Counter-Cyclical Capital Buffer (CCyB) and a Systemic Risk Buffer (SRB). On 30 November 2016 the Financial Policy Committee (FPC) reaffirmed that it expects to maintain a CCyB of 0% on UK exposures until at least June 2017. Other national authorities also determine the appropriate CCyBs that should be applied to exposures in their jurisdiction. During 2016, CCyBs started to apply for Barclays' exposures to other jurisdictions; however, based on current exposures these are not material. No SRB has been set to date.

In addition, Barclays' Pillar 2A requirement as per the PRA's Individual Capital Guidance (ICG) for 2016 based on a point in time assessment was 3.9% of which 56% needs to be met in CET1 form, equating to approximately 2.2% of RWAs. The Pillar 2A requirement is subject to at least annual review and for 2017 Barclays' Pillar 2A add-on will be 4.0%, with approximately 2.3% of RWAs needing to be met in CET1 form. All capital, RWA and leverage calculations reflect Barclays' interpretation of the current rules.

The CRD IV CET1 transitional minimum capital requirement for 2016 is 7.8% including the 4.5% CET1 ratio requirement, 2.2% of Pillar 2A, a 0.625% CCB buffer, a 0.5% G-SII buffer and a 0% CCyB.

Leverage

Effective 1 January 2016, Barclays is required to disclose a leverage ratio and an average leverage ratio applicable to the Group:

- the leverage ratio is consistent with the December 2015 method of calculation and has been included in our disclosure. The calculation uses the end point CRR definition of Tier 1 capital for the numerator and the CRR definition of leverage exposure. The current expected minimum fully loaded requirement is 3%, but this could be impacted by the Basel Consultation on the Leverage Framework
- the average leverage ratio as outlined by the PRA Supervisory Statement SS45/15 and the updated PRA rulebook is calculated as the capital measure divided by the exposure measure, where the capital and exposure measure is based on the average of the last day of each month in the quarter. The expected end point minimum requirement is 3.5% comprising of the 3% minimum requirement, a fully phased in G-SII additional leverage ratio buffer (G-SII ALRB) and a countercyclical leverage ratio buffer (CCLB). The minimum requirement is on a phased basis in line with CET1 G-SII buffer which results in a minimum requirement of 3.175% at 31 December 2016.

In August 2016, the PRA implemented the FPC's recommendation to allow firms to exclude qualifying central bank claims from the calculation of the leverage exposure measure, as long as these are matched by deposits denominated in the same currency, subject to firms obtaining permission from the PRA. This change in reporting requirements is effective 1 April 2017, which will result in a modification to the calculation of the exposure measure for the purpose of calculating the UK leverage ratio. At 31 December 2016, Barclays' reported leverage ratio and average leverage ratio disclosed is unaffected by this announcement as firms are required to disclose based on the existing rules.

Impact of new regulations

Structural reform of banking groups

The UK Financial Services (Banking Reform) Act 2013 (the UK Banking Reform Act) and associated secondary legislation and regulatory rules, require the separation of the Group's UK Retail and SME deposit-taking activities into a legally, operationally and economically separate and independent entity and restrict the types of activity such an entity may conduct (so-called 'ring fencing'). Changes resulting from this work will impact the way the Group operates, given the consequent increased focus on legal entity management and performance.

At the European level, Structural Reform Regulation is still being developed as highlighted by the European Union proposal issued in November 2016 for Intermediate Holding Companies. The impact of final rules on Barclays' businesses is still to be assessed once European regulation is finalised. Final rules will need to be considered alongside EU Referendum implications. The implementation date for these proposals will depend on the date on which any final legislation is agreed. Accordingly, the potential impact on the Group remains unclear.

Please see page 236 of the Annual Report for a more complete discussion of structural reform.

In January 2017, the BCBS announced that its finalisation of reforms to Basel III had been delayed. The BCBS is now expected to issue updated standards on the calculation of operational risk, the standardised framework for credit risk, restrictions on the use of internal models (including the application of RWA floors based on standardised approaches), the leverage ratio (including a leverage ratio buffer for G-SIBs) and an output floor based on a standardised approach, later in 2017. As these measures will require EU and domestic legislation to be implemented, it is not clear when they will become effective.

Please see page 230 of the Annual Report for a more complete discussion of prudential developments.

Scope of consolidation

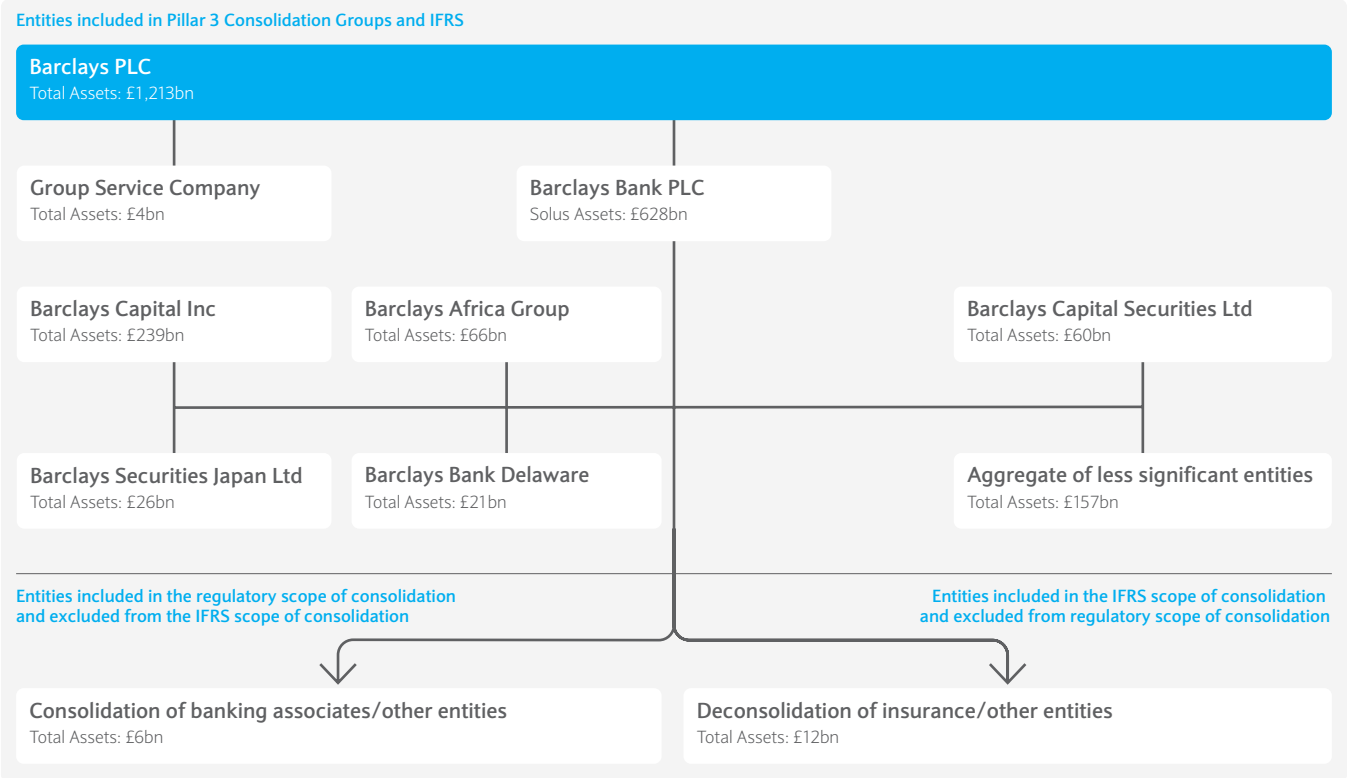
In this report, Barclays PLC is presented on a consolidated basis. All disclosures are published for Barclays PLC for the year ended 31 December 2016. The consolidation basis used is the same as that used for reporting regulatory capital adequacy to the UK PRA. This scope of consolidation is similar to that used for statutory accounting reporting 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 92 for further details). Entities not consolidated for regulatory purposes are adequately capitalised
- 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 the participation for regulatory calculations
- 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 calculations.

The chart below summarises Barclays' structure with an indication of the sizes of subsidiaries in terms of their respective contribution to total assets.

Barclays also reports on a solo consolidation basis in accordance with its regulatory waiver. The solo consolidation is not reported on a standalone basis in this report.

Figure 1: Summary of regulatory scope of consolidation as at 31 December 2016[a]



Significant subsidiaries (not wholly owned)

CRD IV regulations require Barclays to prepare its Pillar 3 disclosures at a consolidated Group level. Significant subsidiaries must also report limited Pillar 3 information on their capital resources on a standalone basis. Barclays Bank PLC is the main operating subsidiary of the Group.

Barclays also has a significant subsidiary in Barclays Africa Group Limited (BAGL). BAGL's primary regulator is the South African Reserve Bank (SARB). BAGL discloses its own separate Pillar 3 report in compliance with the SARB's regulation. These disclosures may be found in the investor relations section of BAGL's website: barclaysafrica.com

On 1 March 2016, Barclays announced its intention to sell down the Group's interest in BAGL. This sell down is intended to be to a level which will permit deconsolidation from an accounting and regulatory perspective, subject to shareholder and regulatory approvals if and as required. For IFRS reporting purposes BAGL is currently presented as a discontinued operation, for the purposes of regulatory reporting BAGL's treatment currently remains unchanged.

Please see page 155 for information on transferability of capital between parent and subsidiaries.

Notes:
a Solus Assets refers to the assets of Barclays Bank PLC, excluding those of its subsidiaries.

Table 1: Barclays PLC balance sheet – statutory versus regulatory view

This table shows a reconciliation between Barclays PLC balance sheet for statutory and regulatory purposes. Please note that the amount shown under the regulatory scope of consolidation is not a risk weighted asset measure; it is based on an accounting measure and cannot be directly reconciled to other tables in this report.

As at 31 December 2016	Accounting balance sheet per published financial statements £m	Deconsolidation of insurance/ other entities £m	Consolidation of banking associates/ other entities £m	Balance sheet per regulatory scope of consolidation £m
Assets				
Cash and balances at central banks	102,353	(1)	35	102,387
Items in the course of collection from other banks	1,467	–	–	1,467
Trading portfolio assets	80,240	–	6,640	86,880
Financial assets designated at fair value	78,608	–	218	78,826
Derivative financial instruments	346,626	–	(1,808)	344,818
Financial investments	63,317	(533)	100	62,884
Loans and advances to banks	43,251	–	93	43,344
Loans and advances to customers	392,784	(6,756)	1,264	387,292
Reverse repurchase agreements and other similar secured lending	13,454	–	–	13,454
Prepayments, accrued income and other assets	2,893	1,032	14	3,939
Investments in associates and joint ventures	684	(124)	(477)	83
Property, plant and equipment	2,825	–	13	2,838
Goodwill and intangible assets	7,726	–	10	7,736
Current tax assets	561	–	(1)	560
Deferred tax assets	4,869	(16)	1	4,854
Retirement benefit assets	14	–	–	14
Assets included in disposal groups classified as held for sale	71,454	(5,878)	–	65,576
Total assets	1,213,126	(12,276)	6,102	1,206,952
Liabilities				
Deposits from banks	(48,214)	873	(911)	(48,252)
Items in the course of collection due to other banks	(636)	–	–	(636)
Customer accounts	(423,178)	–	1,430	(421,748)
Repurchase agreements and other similar secured borrowing	(19,760)	–	–	(19,760)
Trading portfolio liabilities	(34,687)	–	(5,938)	(40,625)
Financial liabilities designated at fair value	(96,031)	–	(579)	(96,610)
Derivative financial instruments	(340,487)	–	–	(340,487)
Debt securities in issue	(75,932)	7,461	–	(68,471)
Subordinated liabilities	(23,383)	–	(2)	(23,385)
Accruals, deferred income and other liabilities	(8,871)	(1,631)	(48)	(10,550)
Provisions	(4,134)	2	–	(4,132)
Current tax liabilities	(737)	10	–	(727)
Deferred tax liabilities	(29)	–	(44)	(73)
Retirement benefit liabilities	(390)	3	(6)	(393)
Liabilities included in disposal groups classified as held for sale	(65,292)	5,580	–	(59,712)
Total liabilities	(1,141,761)	12,298	(6,098)	(1,135,561)
Total equity				
Called up share capital and share premium	(21,842)	–	–	(21,842)
Other equity instruments	(6,449)	(1)	–	(6,450)
Other reserves	(6,051)	(80)	(1)	(6,132)
Retained earnings	(30,531)	(57)	(3)	(30,591)
Total equity excluding non-controlling interests	(64,873)	(138)	(4)	(65,015)
Non-controlling interests	(6,492)	116	–	(6,376)
Total equity	(71,365)	(22)	(4)	(71,391)
Total liabilities and equity	(1,213,126)	12,276	(6,102)	(1,206,952)

Table 2: Regulatory calculation drivers split by IFRS account classification

	Driver for regulatory calculations		
IFRS classification	Credit risk page 32	Counterparty credit risk[a] page 67	Market risk page 80
Assets			
Cash and balances at central banks	●		
Items in course of collection from other banks	●		
Trading portfolio assets			●
Financial assets designated at fair value	●	●	●
Derivative financial instruments		●	●
Financial investments	●		
Loans and advances to banks	●		
Loans and advances to customers	●		
Reverse repurchase agreements and other similar secured lending		●	
Other assets[b]	●		●
Liabilities			
Deposits from banks			
Items in course of collection due to other banks			
Customer accounts			
Repurchase agreements and other similar secured borrowing		●	
Trading portfolio liabilities			●
Financial liabilities designated at fair value:		●	●
Derivative financial instruments		●	●
Debt securities in issue			
Subordinated liabilities			
Other liabilities[c]			

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 2016.

Table 3: The scope of the Standardised and IRB approaches for credit and counterparty credit risk excluding CVA

	Credit risk (see Tables 20 & 21)			Counterparty credit risk excl. CVA (see Tables 49 & 50)				
Business as at 31 December 2016	RWA £m	Average risk weight	EAD post-CRM £m	RWA £m	Average risk weight	EAD post-CRM £m	Advanced Internal Ratings Based (IRB) approaches	Standardised approach
Barclays UK	55,183	21%	257,529	47	102%	46	UK managed retail and wholesale portfolios; UK cards	Minor UK Cards Portfolio
Barclays International	135,528	40%	339,686	27,251	31%	89,180	UK Corporate Portfolio; Germany retail credit cards; Most investment banking portfolios	UK asset and sales finance; mainly Non-UK managed retail (including Wealth) and wholesale portfolios (including legacy); US retail credit cards, joint card issuance, partner finance, secure lending, commercial payment and any recent portfolio acquisitions; European Corporate Portfolio previously in corporate banking; Certain investment banking portfolios typically with low or no defaults, or other exposures by exception
Head Office and Other Operations[a]	36,170	52%	69,588	1,234	12%	10,248	Small number of portfolios; Retail mortgages, current accounts, personal loans and credit cards in South Africa	Most portfolios including high quality liquidity pool assets Africa Banking, mainly retail and wholesale portfolios outside South Africa
Barclays Non-Core	14,659	31%	47,574	7,161	32%	22,518	Certain legacy investment banking portfolios, Models related to retail exposures in Continental Europe	Certain portfolios typically with low or no defaults, or insufficient historical data
Group Total	241,540	34%	714,377	35,693	29%	121,992		

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

Barclays has permission to use the Internal Model Method to calculate its counterparty credit risk exposures. The permission is comprehensive and applies to the majority of its trades and portfolios. Exceptions include certain contracts entered into by Barclays Capital Inc., for instance exchange traded derivatives and margin loans.

Note:
a Includes Africa Banking discontinued operation.

Table 4: Summary of the scope of application of regulatory methodologies for CVA, market and operational risk

As at 31 December 2016

Risk type	Risk weighted assets £m	Scope
Credit value adjustment	6,743	Barclays calculates CVA risk 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.
Market risk	25,013	As explained from page 141, 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 types and legal entities; see Table 9 on page 23 for capital requirements related to each approach and risk factor. 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. 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.
Operational risk	56,660	Barclays has regulatory approval to calculate its operational risk capital requirement using a CRD IV AMA. Recently acquired businesses are excluded from this approval. The former account for 94% of operational risk RWAs as at 2016 year end. Barclays uses the BIA while it transitions these businesses to AMA.

Risk and capital position review

Contents

Risk and capital position review

This section details Barclays' capital position providing information on both capital resources and capital requirements, and the leverage ratio and exposures.

Key metrics and movements in 2016

12.4%

Fully loaded Common Equity Tier 1 ratio

The fully loaded CRD IV CET1 ratio increased to 12.4% (2015: 11.4%) reflecting an increase in CET1 capital of £4.5bn to £45.2bn, despite RWAs increasing by £7bn to £366bn.

The increase in CET1 capital was largely driven by profits of £2.1bn generated in the period, after absorbing the impact of notable items. Other favourable movements included the currency translation reserve as a result of the appreciation of all major currencies against GBP.

The increase in RWAs was principally due to the appreciation of ZAR, USD and EUR against GBP, which more than offset RWA reductions in Non-Core.

4.6%

Leverage ratio

The leverage ratio increased to 4.6% (2015: 4.5%) driven by a £5.8bn increase in fully loaded Tier 1 capital to £52.0bn partially offset by an increase in the leverage exposure of £97bn to £1,125bn.

Leverage exposure increased 9% to £1,125bn, while total assets increased 8% to £1,213bn from December 2015.

Group capital resources, requirements and leverage

Table 5: Capital resources

This table shows the Group's capital resources. Table 7 presents the components of regulatory capital on both a transitional and fully loaded basis as at 31 December 2016.

Key capital ratios		
As at 31 December	**2016**	2015
Fully Loaded CET1[a, b]	**12.4%**	11.4%
PRA Transitional Tier 1[c]	**15.6%**	14.7%
PRA Transitional Total Capital[c]	**19.6%**	18.6%

Capital resources (audited)		
As at 31 December	**2016 £m**	2015 £m
Shareholders' equity (excluding non-controlling interests) per the balance sheet	**64,873**	59,810
Less: other equity instruments (recognised as AT1 capital)	**(6,449)**	(5,305)
Adjustment to retained earnings for foreseeable dividends	**(388)**	(631)
Minority interests (amount allowed in consolidated CET1)	**1,825**	950
Other regulatory adjustments and deductions		
Additional value adjustments (PVA)	**(1,571)**	(1,602)
Goodwill and intangible assets	**(9,054)**	(8,234)
Deferred tax assets that rely on future profitability excluding temporary differences	**(494)**	(855)
Fair value reserves related to gains or losses on cash flow hedges	**(2,104)**	(1,231)
Excess of expected losses over impairment	**(1,294)**	(1,365)
Gains or losses on liabilities at fair value resulting from own credit	**86**	127
Defined benefit pension fund assets	**(38)**	(689)
Direct and indirect holdings by an institution of own CET1 instruments	**(50)**	(57)
Deferred tax assets arising from temporary differences (amount above 10% threshold)	**(183)**	–
Other regulatory adjustments	**45**	(177)
Fully loaded CET1 capital	**45,204**	40,741
Additional Tier 1 (AT1) capital		
Capital instruments and related share premium accounts	**6,449**	5,305
Qualifying AT1 capital (including minority interests) issued by subsidiaries	**5,445**	6,718
Other regulatory adjustments and deductions	**(130)**	(130)
Transitional AT1 capital	**11,764**	11,893
PRA transitional Tier 1 capital	**56,968**	52,634
Tier 2 (T2) capital		
Capital instruments and related share premium accounts	**3,769**	1,757
Qualifying T2 capital (including minority interests) issued by subsidiaries	**11,366**	12,389
Other regulatory adjustments and deductions	**(257)**	(253)
PRA transitional total regulatory capital	**71,846**	66,527

Notes

a The transitional regulatory adjustments to CET1 capital are no longer applicable resulting in CET1 capital on a fully loaded basis being equal to that on a transitional basis.

b The CRD IV CET1 ratio (FSA October 2012 transitional statement) as applicable to Barclays' Tier 2 Contingent Capital Notes was 13.7% based on £50.0bn of transitional CRD IV CET1 capital and £366bn RWAs.

c The PRA transitional capital is based on the PRA Rulebook and accompanying supervisory statements.

Table 6: Summary of movements in capital resources

Movement in PRA transitional total capital	2016 £m
Opening fully loaded CET1 capital	**40,741**
Profit for the period attributable to equity holders	**2,080**
Own credit	**(41)**
Dividends paid and foreseen	**(843)**
Increase in retained regulatory capital generated from earnings	**1,196**
Net impact of share schemes	**535**
Available for sale reserves	**(391)**
Currency translation reserves	**3,674**
Other reserves	**(778)**
Increase in other qualifying reserves	**3,040**
Retirement benefit reserve	**(988)**
Defined benefit pension fund asset deduction	**651**
Net impact of pensions	**(337)**
Minority interests	**875**
Additional value adjustments (PVA)	**31**
Goodwill and intangible assets	**(820)**
Deferred tax assets that rely on future profitability excluding those arising from temporary differences	**361**
Excess of expected loss over impairment	**71**
Direct and indirect holdings by an institution of own CET1 instruments	**7**
Deferred tax assets arising from temporary differences (amount above 10% threshold)	**(183)**
Other regulatory adjustments	**222**
Increase in regulatory capital due to adjustments and deductions	**564**
Closing fully loaded CET1 capital	**45,204**
Opening PRA transitional AT1 capital	**11,893**
Capital instruments and related share premium accounts	**1,144**
Qualifying AT1 capital (including minority interests) issued by subsidiaries	**(1,273)**
Decrease in AT1 capital	**(129)**
Closing PRA transitional AT1 capital	**11,764**
Opening PRA transitional T2 capital	**13,893**
Capital instruments and related share premium accounts	**2,012**
Qualifying T2 capital (including minority interests) issued by subsidiaries	**(1,023)**
Other regulatory adjustments and deductions	**(4)**
Increase in T2 capital	**985**
Closing PRA transitional T2 capital	**14,878**
Total PRA transitional regulatory capital	**71,846**

- The CET1 ratio improved to 12.4% (2015: 11.4%) primarily driven by an increase in CET1 capital of £4.5bn to £45.2bn as a result of profits of £2.1bn generated in the year, after absorbing the impact of notable items. Regulatory capital generated from earnings after absorbing the impacts of own credit and dividends paid and foreseen increased CET1 capital by £1.2bn. Other significant movements in the year were:
  - a £3.0bn increase in other qualifying reserves including a £3.7bn increase in the currency translation reserves as USD, EUR and ZAR strengthened against GBP; partially offset by a £0.4bn decrease as a result of preference share redemptions and a £0.4bn decrease in AFS reserves
  - a £0.3bn decrease, net of tax, as a result of movements relating to pensions. There was a £1.0bn decrease in the retirement benefit reserve largely due to the UKRF, which is the Group's main pension scheme, moving from a £0.8bn surplus in December 2015 to a £27m deficit in December 2016. The decrease in reserves was partially offset by the removal of a £0.7bn capital deduction for the UKRF asset in December 2015
  - a £0.9bn increase in minority interest following the sale of 12.2% of BAGL's issued share capital was partially offset by £0.3bn higher capital deductions
- Transitional AT1 capital remained largely flat in the period as redemptions and repurchases of £1.3bn of CRD IV end point non-qualifying preference shares, tier one notes and reserve capital instruments were offset by the issuance of $1.5bn of end point qualifying AT1 capital instruments.

Table 7: Regulatory capital

This table shows the components of regulatory capital presented on both a transitional and fully loaded basis as at 31 December 2016.

This disclosure has been prepared using the format set out in Annex IV and Annex VI of the final 'Implementing technical standards with regard to disclosure of own funds requirements for institution' (Commission implementing regulation- EU 1423/2013).

	Common Equity Tier 1 (CET1) capital: instruments and reserves	31 December 2016 Transitional position £m	Transitional impacts £m	31 December 2016 Fully loaded position £m
1	Capital instruments and the related share premium accounts	21,842	–	21,842
	of which: ordinary shares	*21,842*	–	*21,842*
2	Retained earnings	30,531	–	30,531
3	Accumulated other comprehensive income (and other reserves)	6,051	–	6,051
5	Minority interests (amount allowed in consolidated CET1)	1,825	–	1,825
5a	Independently reviewed interim net profits net of any foreseeable charge or dividend	(388)	–	(388)
	Scope of consolidation adjustment	45	–	45
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	59,906	–	59,906
	Common Equity Tier 1 (CET1) capital: regulatory adjustments			
7	Additional value adjustments	(1,571)	–	(1,571)
8	Intangible assets (net of related tax liability)	(9,054)	–	(9,054)
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability)	(494)	–	(494)
11	Fair value reserves related to gains or losses on cash flow hedges	(2,104)	–	(2,104)
12	Negative amounts resulting from the calculation of expected losses amounts	(1,294)	–	(1,294)
14	Gains or losses on liabilities at fair value resulting from changes in own credit standing	86	–	86
15	Defined-benefit pension fund assets	(38)	–	(38)
16	Direct and indirect holdings by an institution of own CET1 instruments	(50)	–	(50)
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability)	(183)	–	(183)
28	**Total regulatory adjustments to Common Equity Tier 1 (CET1)**	(14,702)	–	(14,702)
29	**Common Equity Tier 1 (CET1) capital**	45,204	–	45,204
	Additional Tier 1 (AT1) capital: instruments			
30	Capital instruments and the related share premium accounts	6,449	–	6,449
31	*of which: classified as equity under IFRS*	*6,449*	–	*6,449*
34	Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests) issued by subsidiaries and held by third parties	5,445	(4,975)	470
35	*of which: instruments issued by subsidiaries subject to phase out*	*5,481*	*(5,481)*	–
36	**Additional Tier 1 (AT1) capital before regulatory adjustments**	11,894	(4,975)	6,919
	Additional Tier 1 (AT1) capital: regulatory adjustments			
37	Direct and indirect holdings by an institution of own AT1 instruments	(130)	–	(130)
43	Total regulatory adjustments to Additional Tier 1 (AT1) capital	(130)	–	(130)
44	**Additional Tier 1 (AT1) capital**	11,764	(4,975)	6,789
45	**Tier 1 capital (T1 = CET1 + AT1)**	56,968	(4,975)	51,993

Table 7: Regulatory capital continued

		31 December 2016 Transitional position £m	Transitional impacts £m	31 December 2016 Fully loaded position £m
	Tier 2 (T2) capital			
46	Capital instruments and the related share premium accounts	3,769	–	3,769
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests) issued by subsidiaries and held by third parties	11,366	901	12,267
49	*of which: instruments issued by subsidiaries subject to phase out*	*1,578*	*(1,578)*	–
51	**Tier 2 (T2) capital before regulatory adjustments**	15,135	901	16,036
	Tier 2 (T2) capital: regulatory adjustments			
52	Direct and indirect holdings by an institution of own T2 instruments and subordinated loans	(250)	–	(250)
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions)	(7)	–	(7)
57	**Total regulatory adjustments to Tier 2 (T2) capital**	(257)	–	(257)
58	**Tier 2 (T2) capital**	14,878	901	15,779
59	**Total capital (TC = T1 + T2)**	71,846	(4,074)	67,772
60	**Total risk weighted assets**	365,649	–	365,649
	Capital ratios and buffers			
61	Common Equity Tier 1 (as a percentage of risk exposure amount)	12.4%		12.4%
62	Tier 1 (as a percentage of risk exposure amount)	15.6%		14.2%
63	Total capital (as a percentage of risk exposure amount)	19.6%		18.5%
64	Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1) (a) plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer) expressed as a percentage of risk exposure amount)	5.6%		8.5%
65	*of which: capital conservation buffer requirement*	*0.6%*		*2.5%*
66	*of which: countercyclical buffer requirement*	*0.0%*		*0.0%*
67a	*of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer*	*0.5%*		*1.5%*
68	Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)	7.9%		7.9%
	Amounts below the thresholds for deduction (before risk weighting)			
72	Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	2,257		2,257
73	Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	516		516
75	Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability)	4,539		4,539
	Applicable caps on the inclusion of provisions in Tier 2			
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	1,073		1,073
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	1,139		1,139
	Capital instruments subject to phase out arrangements (only applicable between 1 Jan 2013 and 1 Jan 2022)			
82	Current cap on AT1 instruments subject to phase out arrangements	5,757		
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	73		
84	Current cap on T2 instruments subject to phase out arrangements	2,126		

Table 8: Summary of terms and conditions of capital resources

This table breaks down the Additional Tier 1 and Tier 2 capital issued by instrument and provides selected key terms and conditions. All Tier 1 capital comprises perpetual instruments with no maturity date. Regulatory capital might differ from the amounts recorded under IFRS due to PRA requirements relating to: capital eligibility criteria; amortisation of principal in the final five years to maturity; and the exclusion of the impact of fair value hedging.

Transitional provisions contained within CRR Article 486 are not applicable on an instrument-by-instrument basis and therefore instruments have been included in their transitional tiers rather than their tiers under fully loaded rules.

Further details on the terms of each instrument of subordinated liabilities can be found on pages 339 to 342 of the 2016 Annual Report and online at home.barclays/annualreport. The online disclosure has been prepared using the format set out in Annex II of the EBA Commission Implementing Regulation (EU) No 1423/2013 laying down implementing technical standards with regard to disclosure of own funds requirements for institutions.

		Regulatory balance		IFRS balance	
Instrument	Initial call date	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Additional Tier 1 Capital					
Additional Tier 1 Equity Instruments – Barclays PLC					
8.25% Perpetual Subordinated Contingent Convertible Securities (USD 2,000m)	2018	**1,232**	1229	**1,232**	1229
7.00% Perpetual Subordinated Contingent Convertible Securities	2019	**695**	695	**695**	695
6.625% Perpetual Subordinated Contingent Convertible Securities (USD 1,211m)	2019	**711**	712	**711**	712
6.5% Perpetual Subordinated Contingent Convertible Securities (EUR 1,077m)	2019	**856**	844	**856**	844
8.0% Perpetual Subordinated Contingent Convertible Securities (EUR 1,000m)	2020	**830**	830	**830**	830
7.875% Perpetual Subordinated Contingent Convertible Securities	2022	**994**	995	**994**	995
7.875% Perpetual Subordinated Contingent Convertible Securities (USD 1,500m)	2022	**1,131**	–	**1,131**	–
Total Additional Tier 1 Equity Instruments		**6,449**	5,305	**6,449**	5,305
Preference Shares					
Barclays Bank PLC					
6.00% non cumulative callable preference shares	2017	**203**	203	**203**	203
4.75% non cumulative callable preference shares	2020	**211**	211	**211**	211
6.278% non cumulative callable preference shares	2034	**318**	318	**318**	318
6.625% non cumulative callable preference shares	Any dividend payment date	**–**	406	**–**	406
7.1% non cumulative callable preference shares	Any dividend payment date	**657**	657	**657**	657
7.75% non cumulative callable preference shares	Any dividend payment date	**–**	550	**–**	550
8.125% non cumulative callable preference shares	Any dividend payment date	**1,309**	1,309	**1,309**	1,309
Absa Bank Limited					
Absa Preference Shares		**277**	201	**277**	201
Total Preference Shares		**2,975**	3,855	**2,975**	3,855
Tier One Notes (TONs) – Barclays Bank PLC					
6% Callable Perpetual Core Tier One Notes	2032	**13**	13	**17**	16
6.86% Callable Perpetual Core Tier One Notes (USD 179m)	2032	**145**	383	**232**	626
Total Tier One Notes		**158**	396	**249**	642
Reserve Capital Instruments (RCIs) – Barclays Bank PLC					
5.926% Step-up Callable Perpetual Reserve Capital Instruments	2016	**–**	107	**–**	113
7.434% Step-up Callable Perpetual Reserve Capital Instruments (USD 117m)	2017	**95**	79	**100**	85
6.3688% Step-up Callable Perpetual Reserve Capital Instruments	2019	**33**	33	**37**	38
14% Step-up Callable Perpetual Reserve Capital Instruments	2019	**2,184**	2,178	**3,124**	3,062
5.3304% Step-up Callable Perpetual Reserve Capital Instruments	2036	**36**	35	**54**	51
Total Reserve Capital Instruments		**2,348**	2,432	**3,315**	3,349

Table 8: Summary of terms and conditions of capital resources continued

Instrument	Initial call date	Regulatory balance 2016 £m	Regulatory balance 2015 £m	IFRS balance 2016 £m	IFRS balance 2015 £m
Tier 2 Capital					
Undated subordinated liabilities – Barclays Bank PLC					
6.375% Undated Subordinated Notes	2017	**133**	134	**140**	143
7.7% Undated Subordinated Notes (USD 99m)	2018	**80**	67	**84**	69
8.25% Undated Subordinated Notes	2018	**140**	140	**148**	149
7.125% Undated Subordinated Notes	2020	**158**	158	**193**	195
6.125% Undated Subordinated Notes	2027	**34**	195	**45**	245
Junior Undated Floating Rate Notes (USD 38m)	Any interest payment date	**31**	74	**31**	74
Undated Floating Rate Primary Capital Notes Series 3	Any interest payment date	**21**	145	**21**	145
Bonds – Barclays Bank PLC					
9.25% Perpetual Subordinated Bonds (ex-Woolwich Plc)	2021	**75**	75	**91**	91
9% Permanent Interest Bearing Capital Bonds	At any time	**40**	40	**47**	45
Loans – Barclays Bank PLC					
5.03% Reverse Dual Currency Undated Subordinated Loan (JPY 8,000m)	2028	**56**	45	**54**	42
5% Reverse Dual Currency Undated Subordinated Loan (JPY 12,000m)	2028	**83**	67	**77**	59
Total undated subordinated liabilities		**851**	1,140	**931**	1,257

Table 8: Summary of terms and conditions of capital resources continued

Instrument	Initial call date	Maturity date	Regulatory balance 2016 £m	Regulatory balance 2015 £m	IFRS balance 2016 £m	IFRS balance 2015 £m
Barclays PLC issued						
2.625% Fixed Rate Subordinated Callable Notes (EUR 1,250m)	2020	2025	**1,066**	916	**1,084**	918
4.375% Fixed Rate Subordinated Notes (USD 1,250m)		2024	**1,017**	842	**1,054**	883
5.20% Fixed Rate Subordinated Notes (USD 2,050m)		2026	**1,686**	–	**1,590**	–
Barclays Bank PLC issued						
6.05% Fixed Rate Subordinated Notes (USD 1,556m)		2017	**233**	404	**1,316**	1,124
Floating Rate Subordinated Notes (EUR 40m)		2018	**10**	15	**34**	29
6% Fixed Rate Subordinated Notes (EUR 1,750m)		2018	**318**	532	**1,590**	1,377
CMS-Linked Subordinated Notes (EUR 100m)		2018	**19**	30	**90**	77
CMS-Linked Subordinated Notes (EUR 135m)		2018	**28**	44	**120**	103
Fixed/Floating Rate Subordinated Callable Notes	2018	2023	**500**	500	**548**	555
7.75% Contingent Capital Notes (USD 1,000m)	2018	2023	**810**	672	**822**	679
Floating Rate Subordinated Notes (EUR 50m)		2019	**23**	29	**42**	36
5.14% Lower Tier 2 Notes (USD 1,094m)		2020	**752**	718	**956**	808
6% Fixed Rate Subordinated Notes (EUR 1,500m)		2021	**1,096**	1,104	**1,444**	1,252
9.5% Subordinated Bonds (ex-Woolwich Plc)		2021	**186**	200	**286**	293
Subordinated Floating Rate Notes (EUR 100m)		2021	**76**	74	**85**	73
10% Fixed Rate Subordinated Notes		2021	**1,760**	1,955	**2,345**	2,317
10.179% Fixed Rate Subordinated Notes (USD 1,521m)		2021	**1,153**	1,027	**1,285**	1,083
Subordinated Floating Rate Notes (EUR 50m)		2022	**43**	37	**43**	37
6.625% Fixed Rate Subordinated Notes (EUR 1,000m)		2022	**853**	733	**1,042**	891
7.625% Contingent Capital Notes (USD 3,000m)		2022	**2,437**	2,016	**2,390**	1,984
Subordinated Floating Rate Notes (EUR 50m)		2023	**43**	37	**43**	37
5.75% Fixed Rate Subordinated Notes		2026	**273**	604	**384**	802
5.4% Reverse Dual Currency Subordinated Loan (JPY 15,000m)		2027	**105**	84	**103**	80
6.33% Subordinated Notes		2032	**50**	50	**64**	60
Subordinated Floating Rate Notes (EUR 68m)		2040	**58**	74	**58**	74
Absa Bank Limited issued[a]						
10.28% Subordinated Callable Notes (ZAR 600m)	2017	2022	**–**	–	**–**	26
Subordinated Callable Notes (ZAR 400m)	2017	2022	**–**	–	**–**	18
Subordinated Callable Notes (ZAR 1,805m)	2017	2022	**108**	78	**–**	79
Subordinated Callable Notes (ZAR 2,007m)	2018	2023	**120**	87	**–**	88
8.295% Subordinated Callable Notes (ZAR 1,188m)	2018	2023	**71**	51	**–**	42
5.50% CPI-linked Subordinated Callable Notes (ZAR 1,500m)	2023	2028	**–**	–	**–**	86
Barclays Africa Group Limited Issued[a]						
Subordinated Callable Notes (ZAR 370m)	2019	2024	**22**	16	**–**	16
10.835% Subordinated Callable Notes (ZAR 130m)	2019	2024	**8**	6	**–**	6
Subordinated Callable Notes (ZAR 1,693m)	2020	2025	**101**	73	**–**	74
10.05% Subordinated Callable Notes (ZAR 807m)	2020	2025	**48**	34	**–**	36
11.4% Subordinated Callable Notes (ZAR 288m)	2020	2025	**30**	22	**–**	23
11.365% Subordinated Callable Notes (ZAR 508m)	2020	2025	**26**	19	**–**	19
Subordinated Callable Notes (ZAR 437m)	2020	2025	**17**	13	**–**	13
Subordinated Callable Notes (ZAR 31m)	2021	2026	**2**	–	**–**	–
12.43% Subordinated Callable Notes (ZAR 200m)	2021	2026	**12**	–	**–**	–
11.81% Subordinated Callable Notes (ZAR 737m)	2022	2027	**44**	32	**–**	33
Subordinated Callable Notes (ZAR 30m)	2022	2027	**2**	1	**–**	1
Other capital issued by Barclays Africa[a]		2019	**–**	–	**–**	3
Capital issued by other subsidiaries		2017-2019	**–**	–	**70**	84
Total dated subordinated liabilities			**15,206**	13,129	**18,888**	16,219
Non controlling tier 2 capital – Barclays Bank PLC						
Undated Floating Rate Primary Capital Notes Series 1 (USD 167m)	Any interest payment date		**93**	222	**93**	222
Undated Floating Rate Primary Capital Notes Series 2 (USD 295m)	Any interest payment date		**179**	264	**179**	264
Total non controlling tier 2 capital			**272**	486	**272**	486

Note
a Instruments forming part of the BAGL group have been reclassified to liabilities included in disposal groups classified as held for sale. For more information refer to Note 44 in the Barclays Plc Annual Report on page 363.

Group capital resources, requirements and leverage

Table 9: Risk weighted assets by risk type and business

This table shows risk weighted assets by business and risk type.

RWAs by risk type and business

	Credit risk		Counterparty credit risk				Market risk		Operational risk	Total risk weighted assets
	Std £m	AIRB £m	Std £m	AIRB £m	Settlement risk £m	CVA £m	Std £m	IMA £m	£m	£m
As at 31 December 2016										
Barclays UK	**5,592**	**49,591**	**47**	**–**	**–**	**–**	**–**	**–**	**12,293**	**67,523**
Barclays International	**53,201**	**82,327**	**13,515**	**13,706**	**30**	**3,581**	**9,343**	**9,460**	**27,538**	**212,701**
Head Office	**9,048**	**27,122**	**77**	**1,157**	**–**	**927**	**482**	**2,323**	**12,156**	**53,292**
Total Core	**67,841**	**159,040**	**13,639**	**14,863**	**30**	**4,508**	**9,825**	**11,783**	**51,987**	**333,516**
Barclays Non-Core	**4,714**	**9,945**	**1,043**	**6,081**	**37**	**2,235**	**477**	**2,928**	**4,673**	**32,133**
Barclays Group	**72,555**	**168,985**	**14,682**	**20,944**	**67**	**6,743**	**10,302**	**14,711**	**56,660**	**365,649**
As at 31 December 2015										
Barclays UK	6,562	50,763	26	–	–	–	–	–	12,174	69,525
Barclays International	45,892	77,275	10,463	11,055	516	3,406	8,373	10,196	27,657	194,833
Head Office	8,291	20,156	54	538	8	382	399	1,903	8,003	39,734
Total Core	60,745	148,194	10,543	11,593	524	3,788	8,772	12,099	47,834	304,092
Barclays Non-Core	8,704	12,797	1,653	9,430	1	7,480	1,714	3,679	8,826	54,284
Barclays Group	69,449	160,991	12,196	21,023	525	11,268	10,486	15,778	56,660	358,376

Table 10: Overview of risk weighted assets by risk type and capital requirements

The table shows RWAs, split by risk type and approach. For credit risk, RWAs are shown by credit exposure class.

Please see additional disclosures for each risk type in the Analysis of Credit Risk (page 32), Counterparty Credit Risk (page 67), Market Risk (page 80), Securitisation Exposures (page 92) and Operational Risk sections (page 105).

Overview of RWAs and Cap requirements

		RWA		Minimum Capital Requirements	Minimum Capital Requirements
		As at 31 December 2016 £m	As at 31 December 2015 £m	As at December 2016 £m	As at December 2015 £m
1	**Credit risk (excluding counterparty credit risk) (CCR)**	**225,393**	216,273	**18,032**	17,302
2	Of which standardised approach	**71,264**	68,728	**5,701**	5,498
3	Of which the foundation IRB (FIRB) approach	**–**	–	**–**	
4	Of which the advanced IRB (AIRB) approach	**154,129**	147,545	**12,331**	11,804
5	Of which Equity IRB under the Simple risk-weight or the internal models approach	**–**	–	**–**	
6	CCR	**41,978**	44,060	**3,358**	3,525
7	Of which mark to market	**3,839**	4,312	**307**	345
8	Of which original exposure	**–**	–	**–**	
9	Of which standardised approach	**–**	–	**–**	
9a	Of which financial collateral comprehensive method	**8,013**	5,194	**641**	416
10	Of which internal model method	**22,080**	22,181	**1,766**	1,774
11	Of which risk exposure amount for contributions to the default fund of a CCP	**1,303**	1,104	**104**	88
12	Of which CVA	**6,743**	11,268	**539**	901
13	Settlement risk	**67**	525	**5**	42
14	Securitisation exposures in banking book (after cap)	**3,937**	3,569	**315**	286
14a	Of which capital deduction approach (CAPD)	**84**	125	**7**	–
14b	Of which look through approach (KIRB)	**644**	1,499	**52**	120
15	Of which IRB approach	**2,754**	1,556	**220**	124
16	Of which IRB supervisory formula approach (SFA)	**–**	–	**–**	
17	Of which internal assessment approach (IAA)	**455**	389	**36**	31
18	Of which standardised approach	**–**	–	**–**	
19	Market risk	**25,013**	26,264	**2,001**	2,101
20	Of which the standardised approach	**10,302**	10,486	**824**	839
21	Of which IMA	**14,711**	15,778	**1,177**	1,262
22	Large exposures	**–**	–	**–**	
23	Operational risk	**56,660**	56,660	**4,533**	4,533
24	Of which basic indicator approach	**3,252**	3,708	**260**	297
25	Of which standardised approach	**–**	–	**–**	–
26	Of which advanced measurement approach	**53,408**	52,952	**4,273**	4,236
27	Amounts below the thresholds for deduction (subject to 250% risk weight)	**12,601**	11,025	**1,008**	881
28	Floor adjustments	**–**	–	**–**	–
29	Total	**365,649**	358,376	**29,252**	28,670

Table 11: Movements in risk weighted assets

The below tables show movements in RWAs, split by risk types and macro drivers.

Movement analysis of risk weighted assets

	Credit Risk £bn	Counterparty Credit Risk[a,b] £bn	Market Risk £bn	Operational Risk £bn	Total £bn
As at 1 January 2016	**230.4**	**45.0**	**26.3**	**56.7**	**358.4**
Book size	0.8	1.2	(0.6)	–	1.4
Acquisitions and disposals	(6.4)	(0.2)	–	–	(6.6)
Book quality	(0.5)	(0.4)	0.6	–	(0.3)
Model updates	(2.9)	(2.0)	(0.3)	–	(5.2)
Methodology and policy	1.1	(1.2)	(1.0)	–	(1.1)
Foreign exchange movement[c]	19.0	–	–	–	19.0
Other	–	–	–	–	–
As at 31 December 2016	**241.5**	**42.4**	**25.0**	**56.7**	**365.6**

Total RWA movement

RWAs increased £7.2bn to £365.6bn, driven by:

- Book size increased RWAs by £1.4bn primarily due to an increase in trading activity in Barclays International and business growth in corporate and consumer lending partially offset by securitisation transactions
- Acquisitions and disposals decreased RWAs by £6.6bn primarily due to the rundown of Non-Core portfolios, including the sale of Portuguese and Italian businesses
- Model updates decreased RWAs by £5.2bn primarily driven by model changes in Barclays UK mortgages
- Methodology and Policy decreased RWAs by £1.1bn primarily driven by the effect of collateral modelling for mismatched FX collateral on average CVA and a new treatment for sovereign exposures, partly offset by modelled wholesale recalibration
- Foreign exchange movements increased RWAs by £19.0bn primarily driven by the appreciation of ZAR, USD and EUR against GBP.

Tables 12, 13 and 14 below show a subset of the information included in Table 11, focused on positions captured under modelled treatment.

Table 12: RWA flow statement of credit risk exposures under the IRB approach

Movement analysis of risk weighted assets and capital requirements

		RWA amount £bn	Capital requirements £bn
1	**As at 1 January 2016**	**161.0**	**12.9**
2	Asset size	**1.3**	**0.1**
3	Asset quality	**(1.0)**	**(0.1)**
4	Model updates	**(2.9)**	**(0.2)**
5	Methodology and policy	**2.0**	**0.2**
6	Acquisitions and disposals	**(3.7)**	**(0.3)**
7	Foreign exchange movements	**12.3**	**0.9**
8	Other	**–**	**–**
9	**As at 31 December 2016**	**169.0**	**13.5**

Advanced credit risk RWAs increased £8.0bn to £169.0bn, driven by:

- Asset size increased RWAs by £1.3bn primarily due to business growth across Barclays UK, changes across corporates and institutions exposures within Africa Banking, partly offset by securitisation transactions in Barclays International
- Model updates decreased RWAs by £2.9bn, driven by the model changes in Barclays UK mortgages
- Methodology and policy increased RWAs by £2.0bn driven by modelled wholesale recalibration and a new treatment for sovereign exposures
- Acquisitions and disposals decreased RWAs by £3.7bn primarily due to the run-down of Non-Core portfolios, including the sale of Portuguese and Spanish businesses
- Foreign exchange movements increased RWAs by £12.3bn primarily driven by the appreciation of ZAR, USD and EUR against GBP.

Notes
a RWAs in relation to default fund contributions are included in counterparty credit risk.
b RWAs in relation to credit valuation adjustment (CVA) are included in counterparty credit risk.
c Foreign exchange movement does not include FX for modelled counterparty risk or modelled market risk.

Table 13: RWA flow statement of counterparty credit risk exposures under the IMM

The total in this table shows the contribution of IMM exposures to CCR RWAs (under both standardised and AIRB) and will not directly reconcile to CCR AIRB RWAs in Table 9.

Movement analysis of risk weighted assets and capital requirements

		RWA amount £bn	Capital requirements £bn
1	**As at 1 January 2016**	22.6	1.8
2	Asset size	1.9	0.1
3	Credit quality of counterparties	(1.5)	(0.1)
4	Model updates (IMM only)	–	–
5	Methodology and policy (IMM only)	(0.3)	–
6	Acquisitions and disposals	–	–
7	Foreign exchange movements	–	–
8	Other	–	–
9	**As at 31 December 2016**	22.7	1.8

IMM RWAs increased £0.1bn to £22.7bn, driven by:

- Asset size increased RWAs by £1.9bn primarily due to an increase in trading activity in Barclays International
- Credit quality of counterparties decreased RWAs by £1.5bn in Barclays International primarily driven by new treatment for sovereign exposures.

Table 14: RWA flow statement of market risk exposures under the IMA

Movement analysis of risk weighted assets and capital requirements

		VaR £bn	SVaR £bn	IRC £bn	CRM £bn	Other £bn	Total RWA	Total Capital requirements £bn
1	**As at 1 January 2016**	3.9	6.9	1.6	0.1	3.3	15.8	1.3
2	Movement in risk levels	(0.2)	(0.1)	0.5	(0.1)	(0.9)	(0.8)	(0.1)
3	Model updates/changes	(0.2)	(0.1)	–	–	–	(0.3)	-
4	Methodology and policy	–	–	–	–	–	–	–
5	Acquisitions and disposals	–	–	–	–	–	–	–
6	Other	–	–	–	–	–	–	–
7	**As at 31 December 2016**	3.5	6.7	2.1	–	2.4	14.7	1.2

Internal Model Approach RWAs decreased £1.1bn to £14.7bn with no individually significant movements. For further details on market risk, please refer to Table 67.

Basis of preparation for movements in risk weighted assets

This analysis splits RWA movement by credit, counterparty credit, market and operational risk. Seven categories of drivers have been identified and are described below. Not all the drivers are applicable to all risk types; however all categories have been listed below for completeness purposes.

Book size

Credit risk and counterparty risk (inc. CVA)

This represents RWA movements driven by changes in the size and composition of underlying positions, measured using EAD values for existing portfolios over the period. This includes, but is not exclusive to:

- new business and maturing loans
- changes in product mix and exposure growth for existing portfolios
- book size reductions owing to risk mitigation and write-offs.

Market risk

This represents RWA movements owing to the changes in trading positions and volumes driven by business activity.

Book quality

Credit risk and counterparty risk (inc. CVA)

This represents RWA movements driven by changes in the underlying credit quality and recoverability of portfolios and reflected through model calibrations or realignments where applicable. This includes, but is not exclusive to:

- PD migration and LGD changes driven by economic conditions
- ratings migration for standardised exposures.

Market risk

This is the movement in RWAs owing to changing risk levels in the trading book, caused by fluctuations in market conditions.

Model updates

Credit risk and counterparty risk (inc. CVA)

This is the movement in RWAs as a result of both internal and external model updates. This includes, but is not exclusive to:

- updates to existing model inputs driven by both internal and external review
- model enhancements to improve models performance.

Market risk

This is the movement in RWAs reflecting change in model scope, changes to market data levels, volatilities, correlations, liquidity and ratings used as input for the internal modelled RWA calculations.

Methodology and policy

Credit risk and counterparty risk (inc. CVA)

This is the movement in RWAs as a result of both internal and external methodology, policy and regulatory changes. This includes, but is not exclusive to:

- updates to RWA calculation methodology, communicated by the regulator
- the implementation of credit risk mitigation to a wider scope of portfolios.

Market risk

This is the movement in RWAs as a result of both internal and external methodology, policy and regulatory changes for market risk.

Acquisitions and disposals

This is the movement in RWAs as a result of the disposal or acquisition of business operations impacting the size of banking and trading portfolios. This includes credit RWA reductions relating to Non-Core.

Foreign exchange movements

This is the movement in RWAs as a result of changes in the exchange rate between the functional currency of the Barclays business area or portfolio and our presentational currency for consolidated reporting. It should be noted that foreign exchange movements shown in Table 11 do not include the impact of foreign exchange for the counterparty credit risk IMM and modelled market risk RWAs.

Other

This is the movement in RWAs driven by items that cannot be reasonably assigned to the other driver categories. In relation to market risk RWAs, this includes changes in measurement that are not driven by methodology, policy or model updates. This category had a nil balance for the year ended 31 December 2016.

Leverage ratio and exposures

At 31 December 2016, Barclays' leverage ratio was 4.6% (2015: 4.5%) and the average leverage ratio was 4.3%, which exceeds the transitional minimum requirements for Barclays of 3.175% and expected end point minimum requirement of 3.5%.

The impact of the PRA rule modification to allow firms to exclude qualifying central bank claims from the calculation of the leverage exposure measure would have resulted in an average leverage ratio of 4.5% and a leverage ratio at 31 December 2016 of 5.0%.

Table 15: Leverage ratio

Leverage exposure	As at 31.12.16 £bn	As at 31.12.15 £bn
Accounting assets		
Derivative financial instruments	**347**	328
Cash collateral	**67**	62
Reverse repurchase agreements and other similar secured lending	**13**	28
Financial assets designated at fair value[a]	**79**	77
Loans and advances and other assets	**707**	625
Total IFRS assets	**1,213**	1,120
Regulatory consolidation adjustments	**(6)**	(10)
Derivatives adjustments		
Derivatives netting	**(313)**	(293)
Adjustments to cash collateral	**(50)**	(46)
Net written credit protection	**12**	15
Potential Future Exposure (PFE) on derivatives	**136**	129
Total derivatives adjustments	**(215)**	(195)
Securities financing transactions (SFTs) adjustments	**29**	16
Regulatory deductions and other adjustments	**(15)**	(14)
Weighted off-balance sheet commitments	**119**	111
Total leverage exposure	**1,125**	1,028
Fully loaded CET1 capital	**45.2**	40.7
Fully loaded AT1 capital	**6.8**	5.4
Fully loaded Tier 1 capital	**52.0**	46.2
Leverage ratio	**4.6%**	4.5%

Note
a Included within financial assets designated at fair value are reverse repurchase agreements designated at fair value of £63bn (2015: £50bn).

Group capital resources, requirements and leverage

The leverage ratio increased to 4.6% (2015: 4.5%) primarily driven by a £5.8bn increase in fully loaded Tier 1 capital to £52.0bn (December 2015: £46.2bn), partially offset by an increase in the leverage exposure of £97bn to £1,125bn (2015: £1,028bn):

- the IFRS asset increase was mainly driven by loans and advances and other assets which increased £82bn to £707bn. The increase was primarily due to the appreciation of major currencies against GBP, an increase in liquidity pool assets, and lending growth in Barclays UK and Barclays International. This was partially offset by the rundown and exit of Non-Core assets
- SFT adjustments increased by £13bn to £29bn, primarily as a result of a change in treatment of securities pre-positioned for use against undrawn central bank lending facilities
- PFE on derivatives increased by £7bn to £136bn primarily driven by the appreciation of major currencies against GBP, partially offset by compression activity, sale of positions and maturity of trades
- weighted off-balance sheet commitments increased by £8bn to £119bn primarily driven by the appreciation of major currencies against GBP.

The average leverage exposure measure for Q4 16 was £1,206bn, resulting in an average leverage ratio of 4.3%. The CET1 capital held against the 0.175% transitional G-SII ALRB was £2bn. The impact of the CCLB is currently nil.

The difference between the average leverage ratio and the leverage ratio was primarily driven by higher positions in October and November within trading portfolio assets, reverse repurchase agreements and settlements balances.

Group capital resources, requirements and leverage

The following leverage tables show the components of the leverage ratio using the CRR definition for the leverage exposure and Tier 1 capital, on a fully loaded basis as at 31 December 2016.

This disclosure has been prepared using the format set out in Annex I and Annex II of the final 'Implementing technical standards with regard to disclosure of the leverage ratio for institutions (Commission implementing regulation-EU 2016/200)'.

Table 16: Summary reconciliation of accounting assets and leverage ratio exposures

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

		As at 31.12.16 £bn	As at 31.12.15 £bn
1	Total assets as per published financial statements	**1,213**	1,120
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	**(6)**	(10)
4	Adjustments for derivative financial instruments	**(215)**	(195)
5	Adjustments for securities financing transactions SFTs	**29**	16
6	Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	**119**	111
7	Other adjustments	**(15)**	(14)
8	**Total leverage ratio exposure**	**1,125**	1,028

Table 17: Leverage ratio common disclosure

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

		As at 31.12.16 £bn	As at 31.12.15 £bn
On-balance sheet exposures (excluding derivatives and SFTs)			
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	**734**	659
2	(Asset amounts deducted in determining Tier 1 capital)	**(15)**	(14)
3	**Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)**	**719**	645
Derivative exposures			
4	Replacement cost associated with all derivatives transactions (ie net of eligible cash variation margin)	**72**	68
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	**136**	129
7	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	**(38)**	(34)
8	(Exempted CCP leg of client-cleared trade exposures)	**–**	–
9	Adjusted effective notional amount of written credit derivatives	**384**	404
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	**(372)**	(389)
11	**Total derivative exposures**	**182**	178
Securities financing transaction exposures			
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	**264**	184
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	**(188)**	(106)
14	Counterparty credit risk exposure for SFT assets	**29**	16
16	**Total securities financing transaction exposures**	**105**	94
Other off-balance sheet exposures			
17	Off-balance sheet exposures at gross notional amount	**350**	322
18	(Adjustments for conversion to credit equivalent amounts)	**(231)**	(211)
19	**Other off-balance sheet exposures**	**119**	111
Capital and total exposures			
20	Tier 1 capital	**52**	46
21	**Total leverage ratio exposures**	**1,125**	1,028
Leverage ratio			
22	**Leverage ratio**	**4.6%**	4.5%
Choice on transitional arrangements and amount of derecognised fiduciary items			
EU-23	Choice on transitional arrangements for the definition of the capital measure		Fully phased in

Table 18: Split-up of on balance sheet exposures (excluding derivatives, SFTs, and exempted exposures)
The table shows a breakdown of the on-balance sheet exposures excluding derivatives, SFTs and exempted exposures, by asset class.

		As at 31.12.16 £bn	As at 31.12.15 £bn
EU-1	Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	**734**	659
EU-2	Trading book exposures	**119**	97
EU-3	Banking book exposures, of which:	**615**	562
EU-4	Covered bonds	**–**	1
EU-5	Exposures treated as sovereigns	**174**	138
EU-6	Exposures to regional governments, MDB, international organisations and PSE NOT treated as sovereigns	**6**	5
EU-7	Institutions	**35**	40
EU-8	Secured by mortgages of immovable properties	**158**	163
EU-9	Retail exposures	**68**	59
EU-10	Corporate	**130**	128
EU-11	Exposures in default	**6**	4
EU-12	Other exposures (eg equity, securitisations, and other non-credit obligation assets)	**38**	24

Barclays manages the risk of excessive leverage through the Group's Capital Management process which is outlined in the Annual Report. Barclays' leverage exposure is continually monitored against internal targets, which are approved by the Group Executive Committee and take into consideration the risk appetite, growth and strategic aims of the Group. Additionally, agreed leverage exposure limits are regularly monitored against early warning indicators which trigger actions to mitigate risk. The Group's leverage exposure is also subject to regular internal and external stress testing.

Further details on the key movements during the reporting period are disclosed on page 29.

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

RWAs for credit risk increased 4.8% to £241.5bn, primarily driven by foreign exchange movements due to the appreciation of ZAR, USD and EUR against GBP, offset by the rundown and exit of Non-Core assets including the sale of the Portuguese and Italian businesses.

Key metrics

Risk weighted assets for credit risk increased in the year

£11.1bn

Total RWA

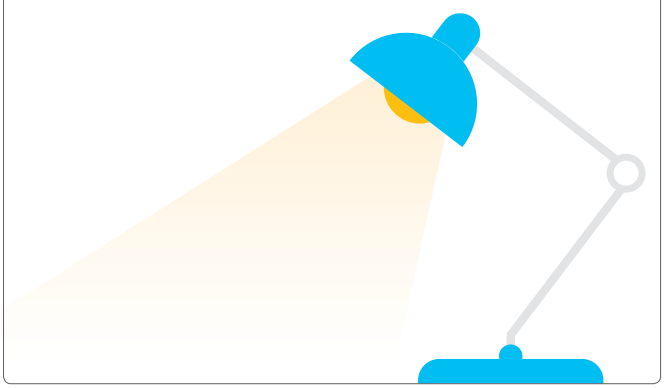
Driven by:

+£19.0bn

Foreign exchange movement due to the appreciation of ZAR, USD and EUR against GBP

-£6.4bn

Rundown of Non-Core portfolios, including the sale of Portuguese and Italian businesses



Analysis of capital requirements for credit risk and exposures

Table 19: Minimum capital requirements and exposure for credit risk – Note on pre- and post- credit risk mitigation (CRM) EAD

This table summarises credit risk information presented in the rest of this report and shows exposure at default pre- and post-CRM, and the associated capital requirements. In accordance with regulatory requirements, credit mitigation is either reflected in regulatory measures for exposure at default (EAD), or in the risk inputs: probability of default (PD) and loss given default (LGD). For the majority of Barclays' exposures, in particular mortgages and those under the AIRB treatment, the impact of CRM is primarily reflected in the PD or LGD rather than EAD measures.

RWAs and post-CRM exposures are analysed by business on pages 35 to 38. Pre-CRM exposures are further analysed by geography on page 41, industry on page 43 and residual maturity on page 45. Information on the impact of CRM on EAD is set out on page 39.

Credit exposure class	EAD pre-CRM[a]		EAD post-CRM[a]		Capital requirements		
As at 31 December 2016	Year end £m	Average[b] £m	Year end £m	Average[b] £m	RWA £m	Average RWA[b] £m	Capital reqs £m
Standardised approach							
Central governments or central banks	100,736	113,470	100,323	113,348	2,754	2,725	220
Regional governments or local authorities	620	486	547	486	13	33	1
Public sector entities	572	440	572	435	285	159	23
Multilateral development banks	5,884	5,372	5,884	5,372	–	–	–
International organisations	1,884	2,326	1,884	2,326	–	–	–
Institutions	8,425	7,190	8,425	7,144	2,391	2,163	191
Corporates	43,725	49,387	32,755	37,131	30,468	31,704	2,437
Retail	32,096	30,096	31,413	29,377	23,559	22,020	1,885
Secured by mortgages	12,407	13,315	12,407	13,315	4,965	5,396	397
Exposures in default	2,625	2,493	2,587	2,448	3,272	3,056	262
Items associated with high risk	1,827	1,833	1,737	1,752	2,648	2,787	212
Covered bonds	100	430	100	430	20	86	2
Securitisation positions	–	–	–	–	–	–	–
Collective investment undertakings	1	1	1	1	1	1	–
Equity positions	475	497	475	497	1,102	1,148	88
Other items	3,922	3,456	3,922	3,456	1,077	844	86
Total standardised approach credit risk exposure	215,299	230,792	203,032	217,518	72,555	72,122	5,804
Advanced IRB approach							
Central governments or central banks	66,573	40,494	66,520	40,353	5,646	4,298	452
Institutions	24,645	29,024	23,689	28,241	6,539	7,135	523
Corporates	164,018	162,217	157,568	155,614	76,356	76,443	6,108
Retail							
– Small and medium-sized enterprises (SMEs)	9,125	8,815	9,125	8,815	4,245	4,041	340
– Secured by real estate collateral	156,254	157,056	156,255	157,056	23,677	24,445	1,894
– Qualifying revolving retail	46,074	45,902	46,074	45,902	20,323	20,008	1,626
– Other retail	10,828	10,169	10,828	10,169	9,975	9,582	798
Equity	–	–	–	–	–	–	–
Securitisation positions	29,131	21,424	29,131	21,424	3,546	2,972	284
Non-credit obligation assets	12,297	11,553	12,297	11,553	18,678	17,620	1,494
Total advanced IRB credit risk exposure	518,945	486,654	511,487	479,127	168,985	166,544	13,519
Total credit exposure	734,244	717,446	714,519	696,645	241,540	238,666	19,323

Notes
a Collateral and guarantees for advanced IRB are not included within EAD as these are incorporated in loss given default (LGD) calculations.
b Averages are calculated from the past four quarters. This is to show intra-year fluctuations.

Table 19: Minimum capital requirements and exposure for credit risk – Note on pre- and post- credit risk mitigation (CRM) EAD continued

Credit exposure class	EAD pre-CRM[a]		EAD post-CRM[a]		Capital requirements		
As at 31 December 2015	Year end £m	Average[b] £m	Year end £m	Average[b] £m	RWA £m	Average RWA[b] £m	Capital reqs £m
Standardised approach							
Central governments or central banks	113,327	105,769	113,183	105,716	2,509	2,512	201
Regional governments or local authorities	881	638	881	638	121	46	10
Public sector entities	213	306	204	297	45	112	4
Multilateral development banks	4,181	4,145	4,181	4,145	–	7	–
International organisations	2,394	2,634	2,394	2,634	–	–	–
Institutions	7,735	8,004	7,663	7,863	1,990	2,160	161
Corporates	48,749	49,394	36,638	36,754	31,211	31,142	2,497
Retail	27,109	26,746	26,476	26,033	19,828	19,596	1,586
Secured by mortgages	13,860	14,913	13,860	14,913	5,714	6,130	457
Exposures in default	2,247	2,183	2,199	2,145	2,800	2,710	224
Items associated with high risk	2,034	1,625	2,034	1,625	3,339	2,722	267
Covered bonds	1,209	1,118	1,209	1,118	242	224	19
Securitisation positions	–	–	–	–	–	–	–
Collective investment undertakings	1	–	1	–	1	–	–
Equity positions	526	627	526	627	1,161	1,362	93
Other items	2,167	2,933	2,167	2,933	488	558	39
Total Standardised approach credit risk exposure	226,633	221,035	213,616	207,441	69,449	69,281	5,558
Advanced IRB approach							
Central governments or central banks	14,782	13,135	14,782	13,135	2,648	3,054	212
Institutions	28,219	30,023	28,219	30,023	7,096	6,895	568
Corporates	159,011	155,311	151,520	147,720	72,926	73,460	5,833
Retail							
– Small and medium-sized enterprises (SMEs)	7,897	8,432	7,897	8,432	3,609	3,889	289
– Secured by real estate collateral	155,977	158,534	155,977	158,534	27,023	27,601	2,162
– Qualifying revolving retail	44,003	44,198	44,003	44,198	18,766	19,389	1,501
– Other retail	8,596	8,963	8,596	8,963	8,658	9,013	693
Equity	–	–	–	–	–	–	–
Securitisation positions	17,367	20,237	17,367	20,237	3,141	4,178	251
Non-credit obligation assets	11,319	11,663	11,319	11,663	17,124	17,080	1,370
Total Advanced IRB credit risk exposure	447,171	450,496	439,680	442,905	160,991	164,559	12,879
Total credit exposure	673,804	671,531	653,296	650,346	230,440	233,840	18,437

The key movements by business are shown in Tables 20 and 21 while further details are provided in Tables 24 to 41.

Exposure at default pre-CRM increase is primarily driven by an increase in cash at Central Banks as the Group strengthened its liquidity position and foreign exchange movements due to appreciation of ZAR, USD and EUR against GBP.

Exposures to Central governments or central banks have been subject to a change in classification between Standardised and Advanced approaches during the year as a result of a change in treatment for Sovereign exposures.

Securitisation positions have increased due to securitisation of corporate loans (see Analysis of securitsation exposures on page 92 for more details). The corresponding decrease is primarily in Corporates which has been offset by increases due to appreciation of ZAR, USD and EUR against GBP and business growth.

Notes
a Collateral and guarantees for advanced IRB are not included within EAD as these are incorporated in loss given default (LGD) calculations.
b Averages are calculated from the past four quarters. This is to show intra-year fluctuations.

Credit risk exposures

The following tables analyse credit risk exposures and risk weighted assets.

Table 20: Detailed view of exposure at default, post-CRM by business
This table shows exposure at default post-CRM by business and credit exposure class for credit risk.

EAD post-CRM credit exposure class						
As at 31 December 2016	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Credit risk						
Standardised approach						
Central governments or central banks	28,118	58,951	6,326	93,395	6,928	100,323
Regional governments or local authorities	169	329	11	509	38	547
Public sector entities	151	228	175	554	18	572
Multilateral development banks	1,896	3,439	126	5,461	423	5,884
International organisations	605	1,104	40	1,749	135	1,884
Institutions	1,907	5,925	181	8,013	412	8,425
Corporates	559	27,490	3,334	31,383	1,372	32,755
Retail	1,777	27,112	2,068	30,957	456	31,413
Secured by mortgages	6,136	5,486	203	11,825	582	12,407
Exposures in default	577	1,565	189	2,331	256	2,587
Items associated with high risk	33	521	271	825	912	1,737
Covered bonds	1	2	–	3	97	100
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	–	1	1
Equity positions	–	–	334	334	141	475
Other items	1,690	1,899	278	3,867	55	3,922
Total Standardised approach credit risk exposure	43,619	134,051	13,536	191,206	11,826	203,032
Advanced IRB approach						
Central governments or central banks	19,000	36,767	6,054	61,821	4,699	66,520
Institutions	1,676	11,006	1,305	13,987	9,702	23,689
Corporates	6,509	121,556	20,586	148,651	8,917	157,568
Retail						
– Small and medium-sized enterprises (SMEs)	7,231	157	1,737	9,125	–	9,125
– Secured by real estate collateral	130,914	–	15,227	146,141	10,114	156,255
– Qualifying revolving retail	39,245	3,497	3,332	46,074	–	46,074
– Other retail	5,987	–	4,841	10,828	–	10,828
Equity	–	–	–	–	–	–
Securitisation positions	1,576	25,313	422	27,311	1,820	29,131
Non-credit obligation assets	1,777	7,476	2,548	11,801	496	12,297
Total Advanced IRB credit risk exposure	213,915	205,772	56,052	475,739	35,748	511,487
Total credit risk exposure	257,534	339,823	69,588	666,945	47,574	714,519

Table 20: Detailed view of exposure at default, post-CRM by business continued

EAD post-CRM credit exposure class

As at 31 December 2015	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Credit risk						
Standardised approach						
Central governments or central banks	17,729	46,386	42,557	106,672	6,511	113,183
Regional governments or local authorities	94	473	267	834	47	881
Public sector entities	2	177	–	179	25	204
Multilateral development banks	538	1,892	1,537	3,967	214	4,181
International organisations	308	1,083	880	2,271	123	2,394
Institutions	795	4,113	1,791	6,699	964	7,663
Corporates	1,635	28,762	3,069	33,466	3,172	36,638
Retail	1,940	21,145	1,827	24,912	1,564	26,476
Secured by mortgages	7,365	5,204	153	12,722	1,138	13,860
Exposures in default	501	1,102	125	1,728	471	2,199
Items associated with high risk	–	238	583	821	1,213	2,034
Covered bonds	132	464	436	1,032	177	1,209
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	1	1	–	1
Equity positions	–	78	222	300	226	526
Other items	1,163	636	269	2,068	99	2,167
Total Standardised approach credit risk exposure	32,202	111,753	53,717	197,672	15,944	213,616
Advanced IRB Approach						
Central governments or central banks	1,249	3,561	8,601	13,411	1,371	14,782
Institutions	1,127	16,033	3,241	20,401	7,818	28,219
Corporates	6,531	120,170	13,522	140,223	11,297	151,520
Retail						
– Small and medium-sized enterprises (SMEs)	6,781	9	1,107	7,897	–	7,897
– Secured by real estate collateral	130,530	–	10,782	141,312	14,665	155,977
– Qualifying revolving retail	38,646	2,734	2,220	43,600	403	44,003
– Other retail	5,389	–	3,199	8,588	8	8,596
Equity	–	–	–	–	–	–
Securitisation positions	–	13,514	667	14,181	3,186	17,367
Non-credit obligation assets	1,734	6,674	1,995	10,403	916	11,319
Total Advanced IRB credit risk exposure	191,987	162,695	45,334	400,016	39,664	439,680
Total credit risk exposure	224,189	274,448	99,051	597,688	55,608	653,296

Exposure at default post-CRM increased by £61.2bn to £714.5bn. The key movements by business were as follows:

- Barclays UK increased by £33.3bn to £257.5bn, primarily driven by cash held at central banks as the Group strengthened its liquidity position
- Barclays International increased by £65.4bn to £339.8bn, primarily driven by foreign exchange movements due to appreciation of USD and EUR against GBP, cash held at central banks as the Group strengthened its liquidity position and a change in the allocation of the Group liquidity pool to businesses
- Head Office decreased by £29.5bn to £69.6bn, driven by a change in the allocation of the Group liquidity pool to businesses, offset by foreign exchange movements due to appreciation of ZAR against GBP
- Barclays Non-Core decreased by £8.0bn to £47.6bn, driven by business rundown and disposal, including the sale of Portuguese and Italian businesses.

Table 21: Detailed view of credit risk RWAs by business

This table shows RWAs for credit risk by business, broken down by credit exposure class for credit risk in the banking book.

Risk weighted assets credit exposure class As at 31 December 2016	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Credit risk						
Standardised approach						
Central governments or central banks	75	47	1,964	2,086	668	2,754
Regional governments or local authorities	–	13	–	13	–	13
Public sector entities	30	76	175	281	4	285
Multilateral development banks	–	–	–	–	–	–
International organisations	–	–	–	–	–	–
Institutions	376	1,755	143	2,274	117	2,391
Corporates	539	25,376	3,432	29,347	1,121	30,468
Retail	1,333	20,333	1,551	23,217	342	23,559
Secured by mortgages	2,264	2,334	152	4,750	215	4,965
Exposures in default	662	2,047	239	2,948	324	3,272
Items associated with high risks	49	682	402	1,133	1,515	2,648
Covered bonds	–	1	–	1	19	20
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	–	1	1
Equity positions	–	–	736	736	366	1,102
Other items	264	537	254	1,055	22	1,077
Total Standardised approach credit risk exposure	5,592	53,201	9,048	67,841	4,714	72,555
Advanced IRB approach						
Central governments or central banks	1,049	2,166	2,150	5,365	281	5,646
Institutions	185	2,836	467	3,488	3,051	6,539
Corporates	3,549	59,817	11,119	74,485	1,871	76,356
Retail						
– Small and medium-sized enterprises (SMEs)	3,227	54	964	4,245	–	4,245
– Secured by real estate collateral	16,043	–	4,012	20,055	3,622	23,677
– Qualifying revolving retail	17,052	1,472	1,799	20,323	–	20,323
– Other retail	6,479	–	3,496	9,975	–	9,975
Equity	–	–	–	–	–	–
Securitisation positions	192	3,063	44	3,299	247	3,546
Non-credit obligation assets	1,815	12,919	3,071	17,805	873	18,678
Total Advanced IRB credit risk exposure	49,591	82,327	27,122	159,040	9,945	168,985
Total credit risk weighted assets	55,183	135,528	36,170	226,881	14,659	241,540

Table 21: Detailed view of credit risk RWAs by business continued

Risk weighted assets credit exposure class

As at 31 December 2015	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Credit risk						
Standardised approach						
Central governments or central banks	6	9	1,305	1,320	1,189	2,509
Regional governments or local authorities	–	111	–	111	10	121
Public sector entities	–	40	–	40	5	45
Multilateral development banks	–	–	–	–	–	–
International organisations	–	–	–	–	–	–
Institutions	127	1,178	497	1,802	188	1,990
Corporates	1,352	24,370	3,000	28,722	2,489	31,211
Retail	1,563	15,770	1,530	18,863	965	19,828
Secured by mortgages	2,757	2,269	115	5,141	573	5,714
Exposures in default	570	1,441	163	2,174	626	2,800
Items associated with high risk	–	363	875	1,238	2,101	3,339
Covered bonds	26	94	87	207	35	242
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	1	1	–	1
Equity positions	–	150	497	647	514	1,161
Other items	161	97	221	479	9	488
Total Standardised approach credit risk exposure	6,562	45,892	8,291	60,745	8,704	69,449
Advanced IRB approach						
Central governments or central banks	235	622	1,659	2,516	132	2,648
Institutions	262	3,717	740	4,719	2,377	7,096
Corporates	4,111	58,754	7,464	70,329	2,597	72,926
Retail						
– Small and medium-sized enterprises (SMEs)	2,998	2	609	3,609	–	3,609
– Secured by real estate collateral	19,399	–	3,018	22,417	4,606	27,023
– Qualifying revolving retail	15,842	1,141	1,433	18,416	350	18,766
– Other retail	6,161	–	2,496	8,657	1	8,658
Equity	–	–	–	–	–	–
Securitisation positions	–	1,720	67	1,787	1,354	3,141
Non-credit obligation assets	1,755	11,319	2,670	15,744	1,380	17,124
Total Advanced IRB credit risk exposure	50,763	77,275	20,156	148,194	12,797	160,991
Total credit risk weighted assets	57,325	123,167	28,447	208,939	21,501	230,440

Risk weighed assets increased by £11.1bn to £241.5bn. The key movements by business were as follows:

- Barclays UK decreased by £2.1bn to £55.2bn, primarily driven by model changes in mortgages
- Barclays International increased by £12.4bn to £135.5bn, primarily driven by foreign exchange movements due to the appreciation of USD and EUR against GBP, acquisitions of credit card portfolios and business growth. This has been partially offset by securitisation of corporate loans
- Head Office increased by £7.4bn to £36.2bn, primarily driven by foreign exchange movements due to the appreciation of ZAR against GBP
- Barclays Non-Core decreased by £6.8bn to £14.7bn, driven by business rundown and disposal, including the sale of Portuguese and Italian businesses.

Table 22: Standardised – Credit Risk exposure and CRM effect

This table shows the impact of CRM and credit conversion factors (CCF) on exposure values, broken down by credit exposure class. This table includes exposures subject to the Standardised approach only. For details of key movements in these exposure classes please see Tables 19, 20, & 21.

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

Credit risk exposure and credit risk mitigation (CRM) effects

	Exposures before CCF and CRM		Exposures post-CCF and CRM		RWA and RWA density	
	On-balance sheet amount £m	Off-balance sheet amount £m	On-balance sheet amount £m	Off-balance sheet amount £m	RWA £m	RWA density £m
As at 31 December 2016						
1 Central governments or central banks	**98,612**	**989**	**100,146**	**177**	**2,754**	**3%**
2 Regional governments or local authorities	**539**	**72**	**540**	**7**	**13**	**2%**
3 Public sector entities	**468**	**193**	**468**	**104**	**285**	**50%**
4 Multilateral development banks	**5,884**	**–**	**5,884**	**–**	**–**	**0%**
5 International organisations	**1,884**	**–**	**1,884**	**–**	**–**	**0%**
6 Institutions	**9,542**	**966**	**8,042**	**383**	**2,391**	**28%**
7 Corporates	**29,520**	**33,199**	**21,712**	**11,043**	**30,468**	**93%**
8 Retail	**31,906**	**78,184**	**31,269**	**144**	**23,559**	**75%**
9 Secured by mortgages on immovable property	**12,344**	**84**	**12,344**	**63**	**4,965**	**40%**
10 Exposures in default	**2,467**	**317**	**2,430**	**157**	**3,272**	**126%**
11 Items associated with particularly high risk	**1,850**	**77**	**1,707**	**30**	**2,648**	**152%**
12 Covered bonds	**100**	**–**	**100**	**–**	**20**	**20%**
13 Claims on institutions and corporate with a short-term credit assessment	**–**	**–**	**–**	**–**	**–**	**0%**
14 Claims in the form of CIU	**1**	**–**	**1**	**–**	**1**	**100%**
15 Equity exposures	**475**	**–**	**475**	**–**	**1,102**	**232%**
16 Other items	**3,922**	**–**	**3,922**	**–**	**1,077**	**27%**
17 Total	**199,514**	**114,081**	**190,924**	**12,108**	**72,555**	**36%**
As at 31 December 2015						
1 Central governments or central banks	110,699	691	113,165	19	2,509	2%
2 Regional governments or local authorities	770	189	770	111	121	14%
3 Public sector entities	213	3	204	1	45	22%
4 Multilateral development banks	4,181	–	4,181	–	–	0%
5 International organisations	2,394	–	2,394	–	–	0%
6 Institutions	8,902	760	7,264	399	1,990	26%
7 Corporates	36,239	33,768	25,892	10,745	31,211	85%
8 Retail	26,920	64,957	26,327	149	19,828	75%
9 Secured by mortgages on immovable property	13,811	83	13,811	49	5,714	41%
10 Exposures in default	2,149	111	2,100	98	2,800	127%
11 Items associated with particularly high risk	1,959	95	1,959	75	3,339	164%
12 Covered bonds	1,209	–	1,209		242	20%
13 Claims on institutions and corporate with a short–term credit assessment	–	–	–	–	–	0%
14 Claims in the form of CIU	1	–	1	–	1	100%
15 Equity exposures	525	2	525	1	1,161	221%
16 Other items	2,166	–	2,167	–	488	23%
17 Total	212,138	100,659	201,969	11,647	69,449	33%

Table 23: Banking book reconciliation of IFRS balance sheet and credit risk calculation

This table provides a bridge between the IFRS balance sheet and regulatory exposures subject to credit risk calculation.

The table expands upon Table 1, which shows the difference between the IFRS and regulatory scope of consolidation. In addition, the following balances are excluded for the purpose of determining exposures subject to credit risk calculations:

- assets not subject to credit risk – this includes items subject to market risk, counterparty credit risk calculations, and settlement balances
- specific regulatory adjustments – this includes adjustments to account for differences in IFRS and regulatory netting, items treated as regulatory capital deductions and other adjustments to IFRS balances as prescribed by CRD IV
- off balance sheet – this captures items that are off-balance sheet for the purpose of IFRS disclosures, but within the scope of credit risk calculations. These balances are shown after applying credit conversion factors to reflect the conversion of credit facilities into drawn balances.

The total regulatory exposure is disclosed pre-CRM, as the differences between EAD pre- and post-CRM are already expressed through other tables within the document.

As at 31 December 2016	Accounting balance sheet per published financial statements £m	Deconsolidation of insurance/ other entities £m	Consolidation of banking associates/ other entities £m	Balance sheet per regulatory scope of consolidation £m	Balances not subject to credit risk calculations £m	Specific regulatory adjustments and balances adjusted directly through Capital £m	Regulatory exposure value of IFRS off balance sheet items post CCFs £m	Total £m
Assets								
Cash and balances at central banks and items in the course of collection from other banks	103,820	(1)	35	103,854	–	–	–	103,854
Trading portfolio assets	80,240	–	6,640	86,880	(86,880)	–	–	–
Financial assets designated at fair value	78,608	–	218	78,826	(64,446)	–	–	14,380
Derivative financial instruments	346,626	–	(1,808)	344,818	(344,818)	–	–	–
Financial investments	63,317	(533)	100	62,884	–	–	–	62,884
Loans and advances to banks	43,251	–	93	43,344	(23,324)	–	–	20,020
Loans and advances to customers	392,784	(6,756)	1,264	387,292	(69,068)	18,958	117,487	454,669
Reverse repurchase agreements and other similar secured lending	13,454	–	–	13,454	(13,454)	–	–	–
Other assets	91,026	(4,986)	(440)	85,600	(14,059)	512	6,384	78,437
Total assets	1,213,126	(12,276)	6,102	1,206,952	(616,048)	19,470	123,871	734,244

Table 24: Geographic analysis of credit exposure

This table shows exposure at default pre-CRM, broken down by credit exposure class and geographic location of the counterparty.

EAD pre-CRM credit exposure class As at 31 December 2016	United Kingdom £m	Europe £m	Americas £m	Africa and Middle East £m	Asia £m	Total £m
Standardised approach						
Central governments or central banks	49,526	41,927	4,577	4,655	51	100,736
Regional governments or local authorities	11	599	10	–	–	620
Administrative bodies and non-commercial undertakings	72	176	45	175	104	572
Multilateral development banks	80	3,979	1,384	202	239	5,884
International organisations	–	1,884	–	–	–	1,884
Institutions	2,334	986	1,894	114	3,097	8,425
Corporates	11,549	8,362	15,917	5,726	2,171	43,725
Retail	6,410	2,695	20,671	2,302	18	32,096
Secured by mortgages	7,687	2,315	1,652	585	168	12,407
Past due items	1,142	536	652	268	27	2,625
Private equity positions	696	160	925	3	43	1,827
Covered bonds	–	100	–	–	–	100
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	1	–	1
Equity positions	38	91	–	346	–	475
Other items	3,115	520	–	273	14	3,922
Total Standardised approach credit risk exposure	82,660	64,330	47,727	14,650	5,932	215,299
Advanced IRB approach						
Central governments or central banks	904	17,866	31,431	5,080	11,292	66,573
Institutions	13,906	4,464	2,185	1,340	2,750	24,645
Corporates	71,586	16,348	54,445	20,149	1,490	164,018
Retail	183,536	13,598	6	25,139	2	222,281
Equity	–	–	–	–	–	–
Securitisation positions	10,651	2,658	15,475	208	139	29,131
Non-credit obligation assets	8,891	211	1,227	1,778	190	12,297
Total Advanced IRB credit risk exposure	289,474	55,145	104,769	53,694	15,863	518,945
Total credit risk exposure	372,134	119,475	152,496	68,344	21,795	734,244

Table 24: Geographic analysis of credit exposure continued

EAD pre-CRM credit exposure class

As at 31 December 2015	United Kingdom £m	Europe £m	Americas £m	Africa and Middle East £m	Asia £m	Total £m
Standardised approach						
Central governments or central banks	31,591	44,299	32,974	4,202	261	113,327
Regional governments or local authorities	41	728	11	101	–	881
Public sector entities	47	154	3	–	9	213
Multilateral development banks	–	2,866	1,147	86	82	4,181
International organisations	–	2,394	–	–	–	2,394
Institutions	3,569	981	753	120	2,312	7,735
Corporates	15,094	8,680	15,404	6,012	3,559	48,749
Retail	6,564	3,188	15,099	2,150	108	27,109
Secured by mortgages	9,235	2,231	1,451	596	347	13,860
Exposures in default	844	622	553	198	30	2,247
Items associated with high risk	998	409	603	3	21	2,034
Covered bonds	–	1,209	–	–	–	1,209
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	1	–	1
Equity positions	120	136	17	226	27	526
Other items	1,775	94	2	280	16	2,167
Total Standardised approach credit risk exposure	69,878	67,991	68,017	13,975	6,772	226,633
Advanced IRB approach						
Central governments or central banks	4,385	2,247	106	3,672	4,372	14,782
Institutions	11,695	5,425	7,342	925	2,832	28,219
Corporates	79,355	20,140	43,434	13,742	2,340	159,011
Retail	181,481	17,648	16	17,322	6	216,473
Equity	–	–	–	–	–	–
Securitisation positions	3,521	886	12,634	151	175	17,367
Non-credit obligation assets	7,976	329	1,618	1,210	186	11,319
Total Advanced IRB credit risk exposure	288,413	46,675	65,150	37,022	9,911	447,171
Total credit risk exposure	358,291	114,666	133,167	50,997	16,683	673,804

Exposures at default pre-CRM increased by £60.4bn to £734.2bn. The key movements by geographical area were as follows:

- Exposures in United Kingdom increased by £13.8bn to £372.1bn primarily driven by cash held at the Bank of England as the Group strengthened its liquidity position. Securitisation exposures increased by £7.1bn to £10.7bn primarily driven by securitisation of corporate loans. This was primarily offset by a decrease in Corporates exposures
- Exposures in Americas increased by £19.3bn to £152.5bn primarily driven by foreign exchange movements due to the appreciation of USD against GBP, business growth and acquisitions of card portfolios
- Exposures in Africa and Middle East increased by £17.3bn to £68.3bn primarily driven by appreciation of ZAR against GBP
- Exposures in Asia increased by £5.1bn to £21.8bn primarily driven by cash held at the Bank of Japan as the Group strengthened its liquidity position.

Exposures to Central government or central banks have been subject to a change in classification between Standardised and Advanced approached during the year as a result of a change in treatment for sovereign exposures.

Analysis of credit risk

Table 25: Industry analysis of credit exposure

This table shows exposure at default pre-CRM, broken down by credit exposure class and the industrial sector associated with the obligor or counterparty.

EAD pre-CRM credit exposure class													
As at 31 December 2016	Government and central banks £m	Banks £m	Other financial institutions £m	Manufacturing £m	Construction £m	Property £m	Energy and water £m	Wholesale and retail, distribution and leisure £m	Business and other services £m	Home loans £m	Cards, unsecured loans, other personal lending £m	Other £m	Total £m
Standardised approach													
Central governments or central banks	100,736	–	–	–	–	–	–	–	–	–	–	–	100,736
Regional governments or local authorities	100	–	–	–	–	4	10	–	498	–	8	–	620
Public sector entities	195	41	–	3	–	–	130	–	170	–	31	2	572
Multilateral development banks	–	5,796	–	–	–	–	–	–	88	–	–	–	5,884
International organisations	–	–	1,884	–	–	–	–	–	–	–	–	–	1,884
Institutions	7	6,814	200	29	–	–	–	30	1,304	–	41	–	8,425
Corporates	58	314	15,187	5,070	557	1,631	2,425	3,788	9,785	21	2,447	2,442	43,725
Retail	1	61	42	7	1	32	–	9	803	172	30,968	–	32,096
Secured by mortgages	–	4	1,327	7	3	527	3	143	2,233	3,602	4,539	19	12,407
Exposures in default	–	28	145	84	6	302	101	212	621	33	1,017	76	2,625
Items associated with high risk	–	142	614	271	4	194	188	4	378	–	–	32	1,827
Covered bonds	–	100	–	–	–	–	–	–	–	–	–	–	100
Securitisation positions	–	–	–	–	–	–	–	–	–	–	–	–	–
Collective investment undertakings	1	–	–	–	–	–	–	–	–	–	–	–	1
Equity positions	–	–	403	4	27	–	–	–	–	–	–	41	475
Other items	8	279	15	18	6	–	7	66	107	161	–	3,255	3,922
Total Standardised approach credit exposure	101,106	13,579	19,817	5,493	604	2,690	2,864	4,252	15,987	3,989	39,051	5,867	215,299
Advanced IRB approach													
Central governments or central banks	66,573	–	–	–	–	–	–	–	–	–	–	–	66,573
Institutions	7,450	12,252	333	–	–	–	317	–	4,246	–	–	47	24,645
Corporates	496	3,430	16,339	28,159	4,982	28,684	19,014	15,516	32,448	–	38	14,912	164,018
Retail	1	12	2	480	525	1,399	14	1,837	1,537	157,064	52,636	6,774	222,281
Equity	–	–	–	–	–	–	–	–	–	–	–	–	–
Securitisation positions	–	2	21,557	1,923	37	319	804	1,879	1,962	–	–	648	29,131
Non-credit obligation assets	–	1,744	–	–	–	–	–	–	–	–	–	10,553	12,297
Total Advanced IRB approach credit exposure	74,520	17,440	38,231	30,562	5,544	30,402	20,149	19,232	40,193	157,064	52,674	32,934	518,945
Total credit exposures	175,626	31,019	58,048	36,055	6,148	33,092	23,013	23,484	56,180	161,053	91,725	38,801	734,244

Table 25: Industry analysis of credit exposure continued

EAD pre-CRM credit exposure class

As at 31 December 2015	Government and central banks £m	Banks £m	Other financial institutions £m	Manufacturing £m	Construction £m	Property £m	Energy and water £m	Wholesale and retail, distribution and leisure £m	Business and other services £m	Home loans £m	Cards, unsecured loans, other personal lending £m	Other £m	Total £m
Standardised approach													
Central governments or central banks	113,327	–	–	–	–	–	–	–	–	–	–	–	113,327
Regional governments or local authorities	109	–	–	–	–	–	11	–	753	–	8	–	881
Public sector entities	149	–	–	–	–	–	9	–	50	–	–	5	213
Multilateral development banks	–	4,181	–	–	–	–	–	–	–	–	–	–	4,181
International organisations	21	–	533	–	–	–	–	–	1,840	–	–	–	2,394
Institutions	86	6,953	284	–	–	–	–	114	195	–	102	1	7,735
Corporates	49	872	14,198	4,911	577	1,675	2,430	3,625	14,012	–	3,784	2,616	48,749
Retail	–	–	–	7	3	26	1	14	775	141	26,055	87	27,109
Secured by mortgages	–	154	781	11	9	669	–	315	2,504	3,649	5,713	55	13,860
Exposures in default	2	1	79	119	23	422	45	89	347	32	937	151	2,247
Items associated with high risk	–	3	685	235	–	110	189	76	336	–	–	400	2,034
Covered bonds	–	851	358	–	–	–	–	–	–	–	–	–	1,209
Securitisation positions	–	–	–	–	–	–	–	–	–	–	–	–	–
Collective investment undertakings	1	–	–	–	–	–	–	–	–	–	–	–	1
Equity positions	–	5	372	7	11	–	–	5	85	–	–	41	526
Other items	–	242	16	–	–	–	–	–	–	113	–	1,796	2,167
Total Standardised approach credit exposure	113,744	13,262	17,306	5,290	623	2,902	2,685	4,238	20,897	3,935	36,599	5,152	226,633
Advanced IRB approach													
Central governments or central banks	14,782	–	–	–	–	–	–	–	–	–	–	–	14,782
Institutions	6,312	17,902	1,374	–	–	2	87	–	2,499	–	–	43	28,219
Corporates	344	1,821	10,538	27,967	4,818	30,028	20,490	15,850	32,826	–	69	14,260	159,011
Retail	–		–	412	458	1,230	5	1,703	1,596	156,290	49,887	4,892	216,473
Equity	–	–	–	–	–	–	–	–	–	–	–	–	–
Securitisation positions	–	–	16,916	–	–	–	–	–	446	–	–	5	17,367
Non-credit obligation assets	–	1,138	–	–	–	–	–	–	–	–	–	10,181	11,319
Total Advanced IRB approach credit exposure	21,438	20,861	28,828	28,379	5,276	31,260	20,582	17,553	37,367	156,290	49,956	29,381	447,171
Total credit exposures	135,182	34,123	46,134	33,669	5,899	34,162	23,267	21,791	58,264	160,225	86,555	34,533	673,804

Exposures at default pre-CRM increased by £60.4bn to £734.2bn. The key movements by industry sector were as follows:

- Governments and central banks increased by £40.4bn to £175.6bn primarily driven by cash held at central banks as the Group strengthened its liquidity position
- Other financial institutions increased by £11.9bn to £58.0bn primarily driven by holding of securitisation positions
- Cards, Unsecured Loans, other personal lending increased by £5.2bn to £91.7bn primarily driven by foreign exchange movements due to appreciation of USD against GBP, business growth and acquisitions of card portfolios
- Others increase by £4.3bn to £38.8bn primarily driven by foreign exchange movements due to appreciation of ZAR against GBP.

Exposures to Central government or central banks have been subject to a change in classification between Standardised and Advanced approaches during the year as a result of a change in treatment for Sovereign exposures.

Table 26: Residual maturity analysis credit exposures

This table shows exposure at default pre-CRM, broken down by credit exposure class and residual maturity. Residual maturity is the remaining number of years before an obligation becomes due according to the existing terms of the agreement.

EAD pre-CRM credit exposure class As at 31 December 2016	On demand and qualifying revolving £m	Under one year £m	Over one year but not more than three years £m	Over three years but not more than five years £m	Over five years but not more than 10 years £m	Over 10 years or undated[a] £m	Total £m
Standardised approach							
Central governments or central banks	53,618	15,197	8,864	8,979	8,093	5,985	100,736
Regional governments or local authorities	8	4	501	10	97	–	620
Public sector entities	–	263	199	52	16	42	572
Multilateral development banks	–	298	2,489	1,358	1,716	23	5,884
International organisations	–	1,479	405	–	–	–	1,884
Institutions	618	7,490	169	97	3	48	8,425
Corporates	2,177	17,019	8,316	8,363	2,082	5,768	43,725
Retail	24,629	950	2,606	2,377	1,155	379	32,096
Secured by mortgages	9	2,795	2,461	1,766	2,897	2,479	12,407
Exposures in default	388	1,018	469	348	382	20	2,625
Items associated with high risk	33	284	225	66	–	1,219	1,827
Covered bonds	–	–	30	70	–	–	100
Securitisation positions	–	–	–	–	–	–	–
Collective investment undertakings	1	–	–	–	–	–	1
Equity positions	–	–	129	346	–	–	475
Other items	302	69	221	60	25	3,245	3,922
Total Standardised approach credit exposure	81,783	46,866	27,084	23,892	16,466	19,208	215,299
Advanced IRB approach							
Central governments or central banks	44,329	4,630	5,393	9,907	974	1,340	66,573
Institutions	3,754	4,859	4,690	1,055	369	9,918	24,645
Corporates	19,529	31,822	34,212	53,284	6,476	18,695	164,018
Retail	50,722	4,075	6,860	11,660	23,739	125,225	222,281
Equity	–	–	–	–	–	–	–
Securitisation positions	–	2,681	2,955	2,233	18,500	2,762	29,131
Non-credit obligation assets	619	639	338	–	–	10,701	12,297
Total Advanced IRB approach credit exposure	118,953	48,706	54,448	78,139	50,058	168,641	518,945
Total credit exposures	200,736	95,572	81,532	102,031	66,524	187,849	734,244

Note:
a The 'Over 10 years or undated' category includes some items without contractual liquidity such as cash and tax assets. These are found in the 'Other items' and 'Non-credit obligations assets' lines.

Table 26: Residual maturity analysis credit exposures continued

EAD pre-CRM credit exposure class

As at 31 December 2015	On demand and qualifying revolving £m	Under one year £m	Over one year but not more than three years £m	Over three years but not more than five years £m	Over five years but not more than 10 years £m	Over 10 years or undateda £m	Total £m
Standardised approach							
Central governments or central banks	34,059	23,825	12,904	15,058	16,872	10,609	113,327
Regional governments or local authorities	–	111	572	105	93	–	881
Public sector entities	–	9	7	151	10	36	213
Multilateral development banks	–	93	1,316	1,067	1,573	132	4,181
International organisations	6	–	2,267	–	121	–	2,394
Institutions	655	6,685	122	122	114	37	7,735
Corporates	5,187	19,160	8,669	8,061	2,297	5,375	48,749
Retail	19,280	1,107	2,339	2,624	1,383	376	27,109
Secured By mortgages	27	2,970	2,862	2,130	3,067	2,804	13,860
Exposures in default	293	1,128	294	134	365	33	2,247
Items associated with high risk	–	640	157	43	–	1,194	2,034
Covered bonds	–	97	995	52	65	–	1,209
Securitisation positions	–	–	–	–	–	–	–
Collective investment undertakings	1	–	–	–	–	–	1
Equity positions	–	33	175	222	–	96	526
Other items	228	–	72	–	–	1,867	2,167
Total Standardised approach credit exposure	59,736	55,858	32,751	29,769	25,960	22,559	226,633
Advanced IRB approach							
Central governments or central banks	1,058	5,357	6,850	1,517	–	–	14,782
Institutions	3,053	9,499	5,126	2,664	178	7,699	28,219
Corporates	18,505	24,202	41,011	49,931	5,805	19,557	159,011
Retail	48,174	3,030	6,392	10,229	21,729	126,919	216,473
Equity	–	–	–	–	–	–	–
Securitisation positions	–	2,636	3,366	4	9,834	1,527	17,367
Non-credit obligation assets	351	764	202	–	–	10,002	11,319
Total Advanced IRB approach credit exposure	71,141	45,488	62,947	64,345	37,546	165,704	447,171
Total credit exposures	130,877	101,346	95,698	94,114	63,506	188,263	673,804

Exposure at default pre-CRM increased by £60.4bn to £734.2bn. The key movements by maturity band were as follows:

- On demand and qualifying revolving increased by £69.9bn to £200.7bn primarily driven by an increase in cash held at central banks as the Group strengthened its liquidity positions, foreign exchange movements due to appreciation of USD against GBP, business growth and acquisitions of card portfolios
- Exposures over one year but not more than three years decreased by £14.2bn to £81.5bn primarily driven by a change in the maturity profile of the loan portfolio
- Exposures over three years but not more than five years increased by £7.9bn to £102.0bn primarily driven by a change in the maturity profile of the loan portfolio.

Exposures to Central government or central banks have been subject to a change in classification between Standardised and Advanced approaches during the year as a result of a change in treatment for Sovereign exposures.

Note:
a The 'Over 10 years or undated' category includes some items without contractual liquidity such as cash and tax assets. These are found in the 'Other items' and 'Non-credit obligations assets' lines.

Credit risk mitigation

Barclays employs a range of techniques and strategies to actively mitigate credit risks. Within the regulatory framework this is commonly referred to as credit risk mitigation (CRM) and is fully discussed on pages 135 of this document. In the case of collateral, the recognition of the mitigant is reflected through regulatory calculations in several different ways. This is dependent on the nature of the collateral and the underlying approach applied to the exposure.

Table 27: Exposures covered by guarantees and credit derivatives

This table shows the proportion of credit risk exposures, covered by funded credit protection and unfunded credit protection in the form of guarantees or credit derivatives.

Under the Standardised approach, the risk weight of the underlying exposure covered is substituted by that of the credit protection provider – generally a central government or institution. Any uncovered exposure is risk weighted using the normal framework. The below table has been populated post-substitution effect for Standardised approach.

Under the Advanced approach, Barclays typically recognises eligible collateral by reducing the modelled downturn loss given default (LGD) metric. The below table represents exposures covered by eligible collateral for Advanced calculations.

Financial collateral includes, but is not exclusive of, cash, debt securities, equities and gold, that can be used to directly reduce credit exposures subject to the Standardised approach. The impact of financial collateral CRM can be observed on pages 33 and 34, as a component of the difference between EAD pre-CRM and EAD-post CRM.

Credit exposure class	Exposures covered by unfunded credit protection		Exposures covered by funded credit protection
	Standardised £m	Advanced IRB £m	Advanced IRB £m
As at 31 December 2016			
Central governments or central banks	–	334	117
Institutions	1,561	1,094	1,169
Corporates	520	7,445	42,116
Retail	–	4,559	437,457
Exposures in default	–	–	–
Items associated with high risk	75	–	–
Securitisation positions	–	–	–
Non-credit obligation assets	–	–	–
Total	2,156	13,432	480,859
As at 31 December 2015			
Central governments or central banks	–	436	–
Institutions	1,937	1,330	5,078
Corporates	1,183	6,225	35,811
Retail	3	5,016	423,633
Exposures in default	1	–	–
Items associated with high risk	–	–	–
Equity	–	–	–
Securitisation positions	–	–	–
Non-credit obligation assets	–	–	–
Total	3,124	13,007	464,522

The exposures covered by funded credit protection increased £16.3bn to £480.9bn primarily driven by appreciation of ZAR against GBP and growth in exposure, partially offset by the sale of the Italian business.

Credit quality analysis of Standardised exposures

Credit rating agencies

Under the Standardised approach, ratings assigned by External Credit Assessment Institutions (ECAIs) are used in the calculation of RWAs. The PRA determines which agencies may be used to determine the correct risk weight. Barclays uses ratings assigned by the following agencies for credit risk calculations:

- Standard & Poor's
- Moody's
- Fitch

These ratings are used in the calculation of risk weights for the central governments and central banks, institutions and corporate exposure classes[a].

Rated and unrated counterparties

The following section summarises the rules governing standardised calculations.

Each exposure must be assigned to one of six credit quality steps if a rating is available, as defined in the table below[b]. After assignment to a quality step, exposure class and maturity are then used to determine the risk weight percentage. Exposures cannot be assigned a risk weight lower than that of the sovereign risk of the country in which the asset is located. The following table is a simplified version of the risk weight allocation process.

Where a credit rating is not available, a default treatment is applied as specified by regulatory guidance. In most cases this default risk weight equates to that which is applied to credit quality step 3.

Table 28: Relationship of long-term external credit ratings to credit quality steps under the Standardised approach

Credit Quality Step	Standard and Poor's	Moody's	Fitch
Credit Quality Step 1	AAA to AA-	Aaa 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 29: 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		Insitutition (includes banks)			
		Sovereign method	Credit assessment method		
	Corporates	Credit assessment 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 generally assigned a risk weight of 0%.

If considered fully and completely secured by residential or commercial property, a retail exposure is assigned a risk weight of 35% or 50% respectively. If only partially secured, a more complex framework is applied. Other retail exposures are generally 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.

Items of high risk are assigned a risk weight of 150%, whereas Equity positions not subject to threshold calculations are generally assigned a risk weight of 100%.

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

Notes:
a The rating agency DBRS is used to calculate risk weight 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 2016 is found in Supervisory Statement SS10/13, published by the Prudential Regulation Authority in December 2013 (see http://www.bankofengland.co.uk/pra/Documents/publications/ss/2013/ss1013.pdf". Implementing technical standards that will update these mappings have been finalised by the Joint Committee of the three European Supervisory Authorities (EBA, ESMA and EIOPA) and are awaiting endorsement by the European Commission (see eba.europa.eu/regulation-and-policy/external-credit-assessment-institutions-ecai).

Table 30: Analysis of exposures by asset classes and risk weight pre-CCF and CRM under the standardised approach
This table shows exposure at default pre-CRM, broken down by Credit Exposure Class and risk weight. This table includes exposures subject to the Standardised approach only.

EAD by asset classes and risk weights pre CCF and CRM

	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deduc-ted	Total	of which: Unrated
As at 31 December 2016																		
1 Central governments or central banks	**96,449**	–	–	–	**299**	–	**456**	–	–	**2,396**	**1**	–	–	–	–	–	**99,601**	**4,087**
2 Regional governments or local authorities	**521**	–	–	–	**80**	–	–	–	–	**10**	–	–	–	–	–	–	**611**	**89**
3 Public sector entities	–	–	–	–	**448**	–	–	–	–	**213**	–	–	–	–	–	–	**661**	**472**
4 Multilateral development banks	**5,884**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**5,884**	–
5 International organisations	**1,884**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1,884**	–
6 Institutions	–	–	–	–	**8,697**	–	**1,292**	–	–	**519**	–	–	–	–	–	–	**10,508**	**1,376**
7 Corporates	–	–	–	–	**2,012**	–	**3,061**	–	–	**57,110**	**536**	–	–	–	–	–	**62,719**	**52,399**
8 Retail	–	–	–	–	–	–	–	–	**110,058**	**32**	–	–	–	–	–	–	**110,090**	**110,090**
9 Secured by mortgages on immovable property	–	–	–	–	–	**11,268**	**21**	–	**431**	**708**	–	–	–	–	–	–	**12,428**	**12,296**
10 Exposures in default	–	–	–	–	–	–	–	–	**3**	**1,264**	**1,517**	–	–	–	–	–	**2,784**	**2,506**
11 Items associated with particularly high risk	–	–	–	–	–	–	–	–	–	–	**1,794**	**133**	–	–	–	–	**1,927**	**1,917**
12 Covered bonds	–	–	–	–	**100**	–	–	–	–	–	–	–	–	–	–	–	**100**	–
14 Claims in the form of CIU	–	–	–	–	–	–	–	–	–	**1**	–	–	–	–	–	–	**1**	**1**
15 Equity exposures	–	–	–	–	–	–	–	–	–	–	**99**	**364**	**12**	–	–	–	**475**	**475**
16 Other items	**1,331**	–	–	–	**1,893**	–	–	–	–	**698**	–	–	–	–	–	–	**3,922**	**3,916**
17 Total	**106,069**	–	–	–	**13,529**	**11,268**	**4,830**	–	**110,492**	**62,951**	**3,947**	**497**	**12**	–	–	–	**313,595**	**189,624**
As at 31 December 2015																		
1 Central governments or central banks	108,464	–	–	–	204	–	449	–	–	2,272	1	–	–	–	–	–	111,390	4,518
2 Regional governments or local authorities	728	–	–	–	109	–	–	–	–	122		–	–	–	–	–	959	238
3 Public sector entities	–	–	–	–	202	–	9	–	–	5		–	–	–	–	–	216	204
4 Multilateral development banks	4,181	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4,181	–
5 International organisations	2,394	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2,394	–
6 Institutions	690	–	–	–	7,601	–	989			382		–	–	–	–	–	9,662	1,572
7 Corporates	–	–	–	–	2,047	–	3,203	–	124	60,445	496	–	–	–	3,692	–	70,007	60,689
8 Retail	–	–	–	–		–	–	–	91,873	4	–	–	–	–	–	–	91,877	91,877
9 Secured by mortgages on immovable property	–	–	–	–	–	12,292	10	–	525	1,066	1	–	–	–	–	–	13,894	13,893
10 Exposures in default	–	–	–	–	–	–	–	–	1	1,006	1,253	–	–	–	–	–	2,260	2,222
11 Items associated with particularly high risk	–	–	–	–	–	–	–	–	–	–	1,765	289	–	–	–	–	2,054	1,934
12 Covered bonds	–	–	–	–	1,209	–	–	–	–	–	–	–	–	–	–	–	1,209	–
14 Claims in the form of CIU	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	1
15 Equity exposures	–	–	–	–	–	–	–	–	–	–	163	355	8	–	–	–	526	526
16 Other items	1,159	–	–	–	648	–	–	–	–	359	–	–	–	–	–	–	2,166	2,167
17 Total	117,616	–	–	–	12,020	12,292	4,660	–	92,523	65,662	3,679	644	8	–	3,692	–	312,796	179,841

Exposures at default pre-CRM increased primarily as a result of portfolio growth in retail unsecured and foreign exchange movements due to appreciation of USD and EUR against GBP. This was offset by a decrease in standardised exposure to central governments or central banks, due to a change in classification between standardised and advanced approaches during the year, as a result of a change in treatment for sovereign exposures.

Table 31: Analysis of exposures by asset classes and risk weight post-CCF and CRM under the standardised approach

The difference between exposure at default pre-CRM set out in Table 30 and exposure at default post-CRM below is the impact of financial collateral as described in Table 22.

EAD by asset classes and risk weights pre CCF and CRM

	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deduc-ted	Total	of which: Unrated
As at 31 December 2016																		
1 Central governments or central banks	**97,228**	–	–	–	**298**	–	**444**	–	–	**2,352**	**1**	–	–	–	–	–	**100,323**	**3,255**
2 Regional governments or local authorities	**522**	–	–	–	**15**	–	–	–	–	**10**	–	–	–	–	–	–	**547**	**25**
3 Public sector entities	–	–	–	–	**359**	–	–	–	–	**213**	–	–	–	–	–	–	**572**	**421**
4 Multilateral development banks	**5,884**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**5,884**	–
5 International organisations	**1,884**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**1,884**	–
6 Institutions	–	–	–	–	**6,888**	–	**1,039**	–	–	**498**	–	–	–	–	–	–	**8,425**	**1,195**
7 Corporates	–	–	–	–	**1,564**	–	**1,907**	–	–	**28,872**	**412**	–	–	–	–	–	**32,755**	**26,394**
8 Retail	–	–	–	–	–	–	–	–	**31,410**	**3**	–	–	–	–	–	–	**31,413**	**31,413**
9 Secured by mortgages on immovable property	–	–	–	–	–	**11,256**	**21**	–	**428**	**702**	–	–	–	–	–	–	**12,407**	**12,275**
10 Exposures in default	–	–	–	–	–	–	–	–	–	**1,148**	**1,439**	–	–	–	–	–	**2,587**	**2,425**
11 Items associated with particularly high risk	–	–	–	–	–	–	–	–	–	–	**1,607**	**130**	–	–	–	–	**1,737**	**1,678**
12 Covered bonds	–	–	–	–	**100**	–	–	–	–	–	–	–	–	–	–	–	**100**	–
14 Claims in the form of CIU	–	–	–	–	–	–	–	–	–	**1**	–	–	–	–	–	–	**1**	**1**
15 Equity exposures	–	–	–	–	–	–	–	–	–	–	**99**	**364**	**12**	–	–	–	**475**	**475**
16 Other items	**1,331**	–	–	–	**1,893**	–	–	–	–	**698**	–	–	–	–	–	–	**3,922**	**3,916**
17 Total	**106,849**	–	–	–	**11,117**	**11,256**	**3,411**	–	**31,838**	**34,497**	**3,558**	**494**	**12**	–	–	–	**203,032**	**83,473**
As at 31 December 2015																		
1 Central governments or central banks	110,287	–	–	–	202	–	451	–	–	2,243	–	–	–	–	–	–	113,183	5,949
2 Regional governments or local authorities	727	–	–	–	42	–	–	–	–	112	–	–	–	–	–	–	881	159
3 Public sector entities		–	–	–	199	–	–	–	–	5	–	–	–	–	–	–	204	201
4 Multilateral development banks	4,181	–	–	–	–	–	–	–	–		–	–	–	–	–	–	4,181	
5 International organisations	2,394	–	–	–	–	–	–	–	–		–	–	–	–	–	–	2,394	
6 Institutions	690	–	–	–	5,530	–	1,075	–	–	368	–	–	–	–	–	–	7,663	1,485
7 Corporates		–	–	–	1,492	–	1,711	–	–	29,348	395	–	–	–	3,692		36,638	31,283
8 Retail		–	–	–	–	–	–	–	26,472	4	–		–	–	–	–	26,476	26,476
9 Secured by mortgages on immovable property		–	–	–	–	12,275	10	–	525	1,049	1		–	–	–	–	13,860	13,860
10 Exposures in default		–	–	–	–	–	–	–	–	997	1,202		–	–	–	–	2,199	2,175
11 Items associated with particularly high risk		–	–	–	–	–	–	–	–	–	1,745	289	–	–	–	–	2,034	1,914
12 Covered bonds		–	–	–	1,209	–	–	–	–	–	–		–	–	–	–	1,209	
14 Claims in the form of CIU		–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	1
15 Equity exposures		–	–	–	–	–	–	–	–	–	163	355	8	–	–	–	526	526
16 Other items	1,160	–	–	–	648	–	–	–	–	359	–	–	–	–	–	–	2,167	2,167
17 Total	119,439	–	–	–	9,322	12,275	3,247	–	26,997	34,485	3,507	644	8	–	3,692	–	213,616	86,196

Exposures at default post-CRM decreased primarily as a result of a decrease in standardised exposure to central governments or central banks, due to a change in classification between standardised and advanced approaches during the year, as a result of a change in treatment for sovereign exposures. This was offset by portfolio growth in retail unsecured and foreign exchange movements due to appreciation of USD and EUR against GBP.

Credit quality analysis of IRB exposures

The following section provides breakdowns of inputs into risk weighted asset calculations. Please note that risk weights and risk factors may be volatile in granular breakdowns of wholesale exposures, especially in categories that are more sparsely populated. This is often due to the addition or removal of a relatively large exposure to or from narrow categories when its risk factors are different to the category average. This happens in the normal course of business, for instance, following new lending, repayments or syndications. See page 126 for a discussion of IRB models.

Table 32: 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 Band	Internal DG Band	Default Probability			Financial statements description	Standard and Poor's	Moody'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%		Aa3, A1	AA-, A+
	4	0.05%	0.08%	0.10%		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	Baa1	BBB+
	7	0.20%	0.23%	0.25%		Baa2	BBB
0.25 to < 0.50	8	0.25%	0.28%	0.30%	Strong	Baa3	BBB-
	9	0.30%	0.35%	0.40%		Ba1	BB+
	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%	–	–		Ba2	BB
0.75 to < 2.50	12	–	0.90%	1.20%	Satisfactory	Ba2	BB
	13	1.20%	1.38%	1.55%		Ba3	BB-
	14	1.55%	1.85%	2.15%		B1	B+
	15	2.15%	–	–		B1, B2	B+, B
2.50 to < 10.00	15	–	2.60%	3.05%	Satisfactory	B1, B2	B+, B
	16	3.05%	3.75%	4.45%		B2	B
	17	4.45%	5.40%	6.35%		B2	B
	18	6.35%	7.50%	8.65%		B3	B-
	19	8.65%	10.00%	–		B3	B-
10.00 to < 100.00	19	–	–	11.35%	Higher risk	B3	B-
	20	11.35%	15.00%	18.65%		Caa1	CCC+
	21	18.65%	30.00%	100.00%		Caa2, Caa3, Ca, C	CCC, CCC-, CC, C
100.00 (Default)						D	D

IRB obligor grade disclosure

The following tables show credit risk exposure at default post-CRM for the advanced IRB approach and foundation IRB approach for portfolios within both the trading and banking books. Separate tables are provided for the following credit exposure classes: central governments and central banks (Table 33), institutions (Table 34), corporates (Table 35), corporates subject to slotting (Table 37), Retail SME (Table 38), secured retail (Table 39), revolving retail (Table 40) and other retail (Table 41).

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 33: Credit risk exposures by exposure class and PD range for central governments and central banks AIRB

Obligor grade disclosure for Advanced IRB	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**64,586**	**846**	**95.4%**	**65,579**	**0.0%**	**46**	**44.8%**	**755**	**5,219**	**8.0%**	**7**	
0.15 to < 0.25	**345**	**6**	**53.6%**	**348**	**0.2%**	**20**	**45.0%**	**606**	**30**	**8.5%**	**–**	
0.25 to < 0.50	**408**	**4**	**60.3%**	**410**	**0.4%**	**27**	**45.0%**	**574**	**241**	**58.8%**	**1**	
0.50 to < 0.75	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
0.75 to < 2.50	**152**	**18**	**48.5%**	**161**	**0.9%**	**9**	**45.0%**	**348**	**124**	**77.0%**	**1**	
2.50 to < 10.00	**21**	**1**	**51.5%**	**22**	**5.3%**	**23**	**45.0%**	**3,871**	**32**	**143.6%**	**1**	
10.00 to < 100.00	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
100.00 (Default)	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
Total	**65,512**	**875**	**93.9%**	**66,520**	**0.0%**	**125**	**44.6%**	**754**	**5,646**	**8.5%**	**10**	**(1)**
As at 31 December 2015												
0.00 to < 0.15	11,956	1,295	96.8%	13,256	0.1%	39	41.1%	479	1,937	14.6%	3	
0.15 to < 0.25	903	–	100.0%	904	0.2%	8	26.5%	1,224	311	34.4%	–	
0.25 to < 0.50	604	–	100.0%	604	0.3%	3	45.6%	1,069	376	62.3%	1	
0.50 to < 0.75	1	–	100.0%	1	0.7%	1	38.8%	1,159	1	63.9%	–	
0.75 to < 2.50	–	–	–	–	–	–	–	–	–	–	–	
2.50 to < 10.00	16	–	–	17	4.0%	20	45.0%	366	23	138.3%	–	
10.00 to < 100.00	–	–	–	–	–	–	–	–	–	–	–	
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
Total	13,480	1,295	96%	14,782	–	71	40.3%	570	2,648	17.9%	4	(1)

The exposure weighted average risk weight associated with IRB exposures to central governments and central banks decreased 9.4% to 8.5%. This was primarily driven by a change in classification between Standardised and Advanced approaches during the year as a result of a change in treatment for sovereign exposures.

The impact of post model adjustments (PMAs) is reflected in the RWAs reported in this table; it has been proportionally allocated on a pre-PMA RWA basis. As a result, the allocation of the PMA may be weighted towards higher quality default grades.

Table 34: Exposure by exposure class and PD range for institutions

Obligor grade disclosure for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**20,966**	**2,630**	**56.7%**	**21,826**	**0.0%**	**732**	**40.5%**	**7,219**	**4,667**	**21.4%**	**4**	
0.15 to < 0.25	**513**	**58**	**12.6%**	**226**	**0.2%**	**52**	**47.7%**	**1,484**	**133**	**58.6%**	**–**	
0.25 to < 0.50	**265**	**94**	**79.6%**	**333**	**0.4%**	**39**	**42.8%**	**1,492**	**272**	**81.5%**	**1**	
0.50 to < 0.75	**48**	**38**	**59.6%**	**71**	**0.7%**	**26**	**48.4%**	**1,924**	**107**	**150.9%**	**–**	
0.75 to < 2.50	**581**	**36**	**50.9%**	**554**	**1.1%**	**67**	**42.7%**	**481**	**539**	**97.3%**	**3**	
2.50 to < 10.00	**419**	**121**	**49.8%**	**480**	**6.4%**	**106**	**28.6%**	**2,206**	**528**	**110.0%**	**7**	
10.00 to < 100.00	**19**	**13**	**25.8%**	**24**	**16.4%**	**31**	**23.1%**	**2,923**	**30**	**131.0%**	**1**	
100.00 (Default)	**157**	**31**	**56.8%**	**175**	**100.0%**	**26**	**17.4%**	**4,675**	**263**	**150.1%**	**9**	
Total	**22,968**	**3,021**	**55.4%**	**23,689**	**1.0%**	**1,079**	**40.2%**	**6,786**	**6,539**	**27.6%**	**25**	**(3)**
As at 31 December 2015												
0.00 to < 0.15	19,451	2,570	55.7%	24,080	0.0%	746	34.0%	6,076	4,288	17.8%	3	
0.15 to < 0.25	1,828	509	64.1%	2,052	0.2%	89	32.8%	962	851	41.5%	1	
0.25 to < 0.50	1,157	153	65.2%	1,257	0.4%	81	46.4%	525	888	70.6%	2	
0.50 to < 0.75	165	99	68.2%	209	0.6%	38	52.0%	698	216	103.3%	1	
0.75 to < 2.50	415	51	61.0%	367	1.3%	139	43.4%	1,348	432	117.7%	2	
2.50 to < 10.00	192	29	54.0%	208	4.5%	148	40.6%	2,493	326	156.7%	4	
10.00 to < 100.00	28	1	75.0%	28	22.0%	49	39.0%	2,427	68	242.9%	2	
100.00 (Default)	17	1	68.0%	18	100.0%	26	30.0%	1,061	27	150.0%	3	
Total	23,253	3,413	58.0%	28,219	0.2%	1,316	34.8%	4,743	7,096	25.1%	18	(4)

The exposure weighted average risk weight associated with advanced IRB exposures to financial institutions increased 2.5% to 27.6%. This was driven by immaterial movements across various counterparties.

The impact of PMAs is reflected in the RWAs reported in this table; it has been proportionally allocated on a pre-PMA RWA basis. As a result, the allocation of the PMA may be weighted towards higher quality default grades.

Table 35: Credit risk exposures by exposure class and PD range for corporates

Credit risk exposures by exposure class and PD range for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**34,175**	**86,801**	**51.0%**	**74,763**	**0.1%**	**3,124**	**34.8%**	**2,302**	**16,743**	**22.4%**	**19**	
0.15 to < 0.25	**9,704**	**11,014**	**54.3%**	**14,316**	**0.2%**	**1,535**	**39.4%**	**1,545**	**6,376**	**44.5%**	**11**	
0.25 to < 0.50	**11,229**	**12,401**	**53.8%**	**16,595**	**0.4%**	**6,850**	**38.0%**	**1,178**	**9,432**	**56.8%**	**23**	
0.50 to < 0.75	**5,733**	**6,586**	**56.9%**	**8,541**	**0.6%**	**5,196**	**37.7%**	**1,455**	**6,171**	**72.3%**	**20**	
0.75 to < 2.50	**9,836**	**12,011**	**47.9%**	**15,114**	**1.4%**	**19,956**	**33.8%**	**1,353**	**12,131**	**80.3%**	**72**	
2.50 to < 10.00	**10,693**	**8,913**	**58.4%**	**15,338**	**4.4%**	**28,565**	**28.8%**	**1,155**	**13,878**	**90.5%**	**191**	
10.00 to < 100.00	**1,315**	**724**	**47.0%**	**1,642**	**19.7%**	**3,396**	**33.6%**	**1,138**	**2,562**	**156.0%**	**109**	
100.00 (Default)	**1,771**	**720**	**45.7%**	**2,052**	**100.0%**	**2,462**	**31.9%**	**1,111**	**2,472**	**120.5%**	**492**	
Total	**84,456**	**139,170**	**52.3%**	**148,361**	**2.3%**	**71,084**	**35.0%**	**1,810**	**69,765**	**47.0%**	**937**	**(767)**
As at 31 December 2015												
0.00 to < 0.15	34,655	81,766	55.5%	73,421	0.1%	3,342	37.2%	2,515	16,292	22.2%	19	
0.15 to < 0.25	8,148	11,494	57.3%	14,152	0.2%	2,631	41.3%	1,695	6,526	46.1%	12	
0.25 to < 0.50	8,228	9,382	56.5%	12,862	0.4%	8,485	39.1%	1,287	7,400	57.5%	18	
0.50 to < 0.75	5,862	6,445	57.7%	9,065	0.6%	5,463	38.9%	1,771	6,331	69.8%	22	
0.75 to < 2.50	10,831	9,861	47.8%	15,106	1.4%	21,155	34.2%	1,205	11,597	76.8%	71	
2.50 to < 10.00	8,858	6,477	57.8%	12,223	4.0%	29,824	29.5%	1,382	11,323	92.6%	151	
10.00 to < 100.00	1,278	839	51.7%	1,604	19.9%	3,231	30.3%	1,374	2,231	139.1%	98	
100.00 (Default)	1,535	404	34.0%	1,642	100.0%	2,370	31.7%	1,289	2,954	179.9%	298	
Total	79,395	126,668	55.1%	140,075	2.0%	76,501	36.7%	2,004	64,654	46.2%	689	(489)

The exposure weighted average risk weight associated with IRB exposures to corporates increased 0.8% to 47.0%. This is primarily driven by an increase in corporate term loans over the period.

The impact of PMAs is reflected in the RWAs reported in this table; it has been proportionally allocated on a pre-PMA RWA basis. As a result, the allocation of the PMA may be weighted towards higher quality default grades.

Table 36: Credit risk exposures by exposure class and PD range for corporate of which: SMEs

Credit risk exposures by exposure class and PD range for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**4,867**	**1,106**	**70.3%**	**5,618**	**0.1%**	**895**	**20.0%**	**5,506**	**1,043**	**18.6%**	**1**	
0.15 to < 0.25	**1,530**	**276**	**82.3%**	**1,748**	**0.2%**	**730**	**28.3%**	**4,425**	**600**	**34.4%**	**1**	
0.25 to < 0.50	**2,256**	**601**	**76.3%**	**2,700**	**0.4%**	**5,249**	**31.0%**	**1,936**	**1,105**	**40.9%**	**3**	
0.50 to < 0.75	**1,656**	**500**	**75.4%**	**2,028**	**0.6%**	**4,236**	**32.9%**	**1,602**	**1,071**	**52.8%**	**4**	
0.75 to < 2.50	**4,077**	**1,353**	**69.7%**	**5,031**	**1.3%**	**16,763**	**33.1%**	**2,114**	**3,205**	**63.7%**	**23**	
2.50 to < 10.00	**4,344**	**1,175**	**62.7%**	**5,017**	**4.2%**	**25,726**	**33.6%**	**1,579**	**4,264**	**85.0%**	**73**	
10.00 to < 100.00	**682**	**174**	**45.1%**	**760**	**19.6%**	**2,807**	**34.3%**	**1,681**	**1,022**	**134.6%**	**52**	
100.00 (Default)	**637**	**93**	**36.2%**	**658**	**100.0%**	**2,136**	**31.7%**	**1,352**	**798**	**121.4%**	**159**	
Total	**20,049**	**5,278**	**68.8%**	**23,560**	**4.7%**	**58,542**	**29.5%**	**2,881**	**13,108**	**55.6%**	**316**	**(218)**
As at 31 December 2015												
0.00 to < 0.15	5,639	997	69.0%	6,366	0.1%	872	23.6%	6,769	1,119	17.6%	1	
0.15 to < 0.25	1,456	276	85.8%	1,692	0.2%	1,757	28.0%	4,716	506	29.9%	1	
0.25 to < 0.50	1,971	522	81.7%	2,400	0.4%	6,905	30.7%	2,184	928	38.7%	3	
0.50 to < 0.75	1,775	469	78.2%	2,115	0.6%	4,342	34.7%	3,528	1,150	54.4%	5	
0.75 to < 2.50	3,975	1,138	73.2%	4,804	1.3%	17,876	31.6%	1,736	2,846	59.2%	21	
2.50 to < 10.00	3,673	1,082	70.3%	4,439	4.2%	26,201	34.0%	1,896	3,811	85.9%	65	
10.00 to < 100.00	726	118	58.3%	776	18.6%	2,723	33.8%	1,820	1,017	131.1%	49	
100.00 (Default)	807	106	33.7%	822	100.0%	2,100	30.6%	1,576	1,435	174.6%	149	
Total	20,022	4,708	72.6%	23,414	5.3%	62,776	29.9%	3,555	12,812	54.7%	294	(190)

The exposure weighted average risk weight associated with IRB exposure to corporates SME remained broadly stable at 55.6% (2015: 54.7%).

The impact of PMAs is reflected in the RWAs reported in this table; it has been proportionally allocated on a pre-PMA RWA basis. As a result, the allocation of the PMA may be weighted towards higher quality default grades.

Table 37: Corporate exposures subject to the slotting approach

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.

Obligor grade								
Regulatory categories		Remaining maturity	On-balance sheet amount £m	Off-balance sheet amount £m	Risk weight %	Exposure amount £m	RWA £m	Expected losses £m
As at 31 December 2016								
Category 1	Strong	Less than 2.5 years	**1,651**	**332**	**50%**	**1,922**	**961**	**–**
		Equal to or more than 2.5 years	**2,940**	**645**	**70%**	**3,517**	**2,462**	**14**
Category 2	Good	Less than 2.5 years	**1,719**	**180**	**70%**	**1,242**	**869**	**5**
		Equal to or more than 2.5 years	**912**	**277**	**90%**	**1,288**	**1,159**	**10**
Category 3	Satisfactory	Less than 2.5 years	**298**	**74**	**115%**	**328**	**377**	**9**
		Equal to or more than 2.5 years	**397**	**157**	**115%**	**468**	**538**	**13**
Category 4	Weak	Less than 2.5 years	**35**	**4**	**250%**	**37**	**92**	**3**
		Equal to or more than 2.5 years	**53**	**–**	**250%**	**54**	**133**	**4**
Category 5	Default	Less than 2.5 years	**270**	**27**	**0%**	**255**	**–**	**128**
		Equal to or more than 2.5 years	**97**	**2**	**0%**	**98**	**–**	**49**
Total		Less than 2.5 years	**3,973**	**617**		**3,783**	**2,299**	**145**
		Equal to or more than 2.5 years	**4,399**	**1,081**		**5,424**	**4,292**	**90**
As at 31 December 2015								
Category 1	Strong	Less than 2.5 years	1,602	670	50%	2,184	1,092	
		Equal to or more than 2.5 years	3,949	847	70%	4,660	3,262	19
Category 2	Good	Less than 2.5 years	1,748	360	70%	1,488	1,042	6
		Equal to or more than 2.5 years	1,252	368	90%	1,655	1,490	13
Category 3	Satisfactory	Less than 2.5 years	287	17	115%	300	345	8
		Equal to or more than 2.5 years	439	38	115%	477	548	13
Category 4	Weak	Less than 2.5 years	123	1	250%	124	309	10
		Equal to or more than 2.5 years	73	–	250%	73	184	6
Category 5	Default	Less than 2.5 years	393	20	0%	395	–	198
		Equal to or more than 2.5 years	82	8	0%	89	–	44
Total		Less than 2.5 years	4,153	1,068		4,491	2,788	222
		Equal to or more than 2.5 years	5,795	1,261		6,954	5,484	95

Exposures subject to the slotting approach decreased RWAs by £1.8bn to £6.5bn, driven by securitisation of the commercial real estate portfolio.

Note:
a Exposures in default do not generate risk weighted assets as they are already reflected in deductions to capital resources.

Table 38: Credit risk exposures by exposure class and PD range for retail SME

Credit risk exposures by exposure class and PD range for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**1,284**	**387**	**97.1%**	**1,685**	**0.1%**	**121,725**	**26.5%**	**3,240**	**212**	**12.6%**	**3**	
0.15 to < 0.25	**339**	**152**	**99.8%**	**491**	**0.2%**	**14,463**	**36.1%**	**2,922**	**103**	**21.0%**	**1**	
0.25 to < 0.50	**596**	**264**	**97.9%**	**868**	**0.4%**	**51,985**	**38.1%**	**2,704**	**226**	**26.0%**	**3**	
0.50 to < 0.75	**533**	**213**	**98.9%**	**750**	**0.6%**	**27,834**	**39.5%**	**2,724**	**224**	**29.9%**	**3**	
0.75 to < 2.50	**1,557**	**511**	**95.3%**	**2,079**	**1.4%**	**111,553**	**39.0%**	**2,520**	**928**	**44.6%**	**32**	
2.50 to < 10.00	**1,774**	**382**	**89.7%**	**2,159**	**4.1%**	**111,636**	**43.7%**	**2,060**	**1,346**	**62.3%**	**42**	
10.00 to < 100.00	**516**	**66**	**95.0%**	**585**	**23.5%**	**104,722**	**47.0%**	**2,354**	**564**	**96.6%**	**73**	
100.00 (Default)	**489**	**20**	**98.1%**	**508**	**100.0%**	**30,652**	**23.9%**	**2,884**	**642**	**126.4%**	**73**	
Total	**7,088**	**1,995**	**95.6%**	**9,125**	**8.5%**	**574,570**	**37.3%**	**2,610**	**4,245**	**46.5%**	**230**	**(198)**
As at 31 December 2015												
0.00 to < 0.15	1,194	325	97.3%	1,530	0.1%	122,290	27.6%	3,372	203	13.3%	3	
0.15 to < 0.25	283	130	99.9%	412	0.2%	12,156	37.7%	2,942	90	21.8%	1	
0.25 to < 0.50	563	231	97.8%	797	0.4%	48,558	37.7%	2,835	211	26.5%	2	
0.50 to < 0.75	477	192	98.8%	671	0.6%	25,061	40.6%	2,796	207	30.8%	2	
0.75 to < 2.50	1,396	449	97.1%	1,856	1.4%	106,540	39.9%	2,734	869	46.8%	13	
2.50 to < 10.00	1,474	299	91.0%	1,772	4.1%	93,608	42.8%	2,413	1,099	62.0%	34	
10.00 to < 100.00	439	54	96.5%	493	21.3%	72,326	44.8%	2,771	462	93.7%	46	
100.00 (Default)	359	9	94.6%	366	100.0%	24,233	25.0%	2,600	468	127.9%	81	
Total	6,185	1,689	96.5%	7,897	7.3%	504,772	37.5%	2,808	3,609	45.7%	182	(187)

The exposure weighted average risk weight associated with IRB exposure to retail SME remained broadly stable at 46.5% (2015: 45.7%).

Table 39: Credit risk exposures by exposure class and PD range for secured retail

Obligor grade disclosure for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**7,872**	**70**	**99.6%**	**8,199**	**0.1%**	**95,020**	**20.4%**	**6,204**	**1,162**	**14.2%**	**13**	
0.15 to < 0.25	**2,995**	**951**	**84.5%**	**3,702**	**0.2%**	**37,553**	**15.4%**	**5,655**	**487**	**13.2%**	**6**	
0.25 to < 0.50	**34,727**	**3,923**	**90.2%**	**37,213**	**0.4%**	**239,184**	**10.0%**	**5,727**	**2,264**	**6.1%**	**17**	
0.50 to < 0.75	**38,531**	**2,899**	**89.1%**	**40,053**	**0.6%**	**272,760**	**9.9%**	**5,807**	**3,745**	**9.4%**	**28**	
0.75 to < 2.50	**49,771**	**3,114**	**82.1%**	**52,301**	**1.2%**	**301,690**	**13.1%**	**6,418**	**8,299**	**15.9%**	**90**	
2.50 to < 10.00	**9,990**	**642**	**82.4%**	**10,650**	**3.7%**	**26,767**	**14.6%**	**5,574**	**4,362**	**41.0%**	**70**	
10.00 to < 100.00	**1,597**	**46**	**95.8%**	**1,672**	**33.7%**	**8,548**	**14.2%**	**4,790**	**1,468**	**87.8%**	**179**	
100.00 (Default)	**2,502**	**9**	**32.7%**	**2,465**	**100.0%**	**13,256**	**20.4%**	**3,331**	**1,890**	**76.7%**	**381**	
Total	**147,985**	**11,654**	**87.5%**	**156,255**	**2.9%**	**994,778**	**12.2%**	**5,944**	**23,677**	**15.2%**	**784**	**(533)**
As at 31 December 2015												
0.00 to < 0.15	12,625	1,016	10.8%	13,105	0.1%	151,348	19.6%	6,488	1,389	10.6%	4	
0.15 to < 0.25	4,410	918	85.3%	5,123	0.2%	77,339	17.8%	6,405	688	13.4%	2	
0.25 to < 0.50	30,926	3,576	95.0%	33,407	0.4%	244,819	10.3%	5,539	2,498	7.5%	14	
0.50 to < 0.75	43,091	2,444	97.0%	44,519	0.6%	318,776	10.3%	6,006	4,549	10.2%	29	
0.75 to < 2.50	46,247	2,210	90.7%	48,209	1.2%	304,437	13.5%	6,431	9,721	20.2%	77	
2.50 to < 10.00	7,669	531	73.1%	8,180	4.2%	33,760	15.6%	6,029	4,452	54.4%	65	
10.00 to < 100.00	1,431	44	90.3%	1,496	34.5%	10,670	14.9%	5,295	1,444	96.5%	83	
100.00 (Default)	1,968	3	96.5%	1,938	100.0%	17,934	21.4%	3,910	2,282	117.8%	322	
Total	148,367	10,742	85.3%	155,977	2.4%	1,159,083	12.8%	6,059	27,023	17.3%	596	(465)

The exposure weighted average risk weight associated with IRB exposures to retail mortgages decreased 2.1% to 15.2%. This is primarily driven by model updates in Barclays UK mortgages and the sale of Portuguese and Italian businesses.

Table 40: Credit risk exposures by exposure class and PD range for revolving retail

Obligor grade disclosure for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**852**	**21,785**	**53.5%**	**13,397**	**0.1%**	**10,530,249**	**78.1%**	**4,030**	**472**	**3.5%**	**8**	
0.15 to < 0.25	**765**	**6,766**	**18.0%**	**3,305**	**0.2%**	**1,896,207**	**76.4%**	**1,774**	**286**	**8.7%**	**5**	
0.25 to < 0.50	**1,657**	**8,631**	**13.2%**	**4,729**	**0.4%**	**2,285,721**	**75.5%**	**1,707**	**661**	**14.0%**	**14**	
0.50 to < 0.75	**1,459**	**4,594**	**8.5%**	**2,971**	**0.6%**	**1,229,233**	**75.9%**	**2,094**	**706**	**23.8%**	**17**	
0.75 to < 2.50	**5,887**	**8,254**	**9.7%**	**9,266**	**1.4%**	**2,836,510**	**75.1%**	**3,941**	**3,872**	**41.8%**	**114**	
2.50 to < 10.00	**6,643**	**3,892**	**27.8%**	**8,746**	**4.9%**	**1,803,893**	**71.7%**	**1,165**	**7,876**	**90.1%**	**317**	
10.00 to < 100.00	**1,861**	**268**	**8.2%**	**2,167**	**23.1%**	**511,265**	**72.1%**	**12,834**	**3,923**	**181.0%**	**374**	
100.00 (Default)	**1,493**	**309**	**0.0%**	**1,493**	**100.0%**	**379,026**	**74.8%**	**27,043**	**2,527**	**169.3%**	**945**	
Total	**20,617**	**54,499**	**24.4%**	**46,074**	**5.7%**	**21,472,104**	**75.4%**	**4,103**	**20,323**	**44.1%**	**1,794**	**(1,398)**
As at 31 December 2015												
0.00 to < 0.15	968	21,607	59.3%	13,390	0.1%	10,182,975	79.5%	3,040	474	3.5%	8	
0.15 to < 0.25	822	6,824	44.2%	3,387	0.2%	1,988,118	77.7%	1,580	297	8.8%	5	
0.25 to < 0.50	1,614	8,235	46.3%	4,565	0.4%	2,376,271	77.6%	1,831	658	14.4%	13	
0.50 to < 0.75	1,407	4,286	49.4%	2,835	0.6%	1,245,357	77.3%	2,292	629	22.2%	15	
0.75 to < 2.50	5,783	8,048	64.5%	8,965	1.4%	3,025,916	77.9%	3,987	3,871	43.2%	116	
2.50 to < 10.00	5,744	3,194	82.6%	7,496	4.8%	1,715,958	75.8%	1,461	7,032	93.8%	281	
10.00 to < 100.00	1,417	185	101.1%	1,647	22.8%	451,864	75.2%	13,139	3,135	190.3%	297	
100.00 (Default)	1,718	497	76.6%	1,718	100.0%	515,127	75.0%	31,022	2,670	155.4%	1,109	
Total	19,473	52,876	60.6%	44,003	6.0%	21,501,586	77.7%	4,148	18,766	42.6%	1,844	(1,252)

The exposure weighted average risk weight associated with IRB exposures to qualifying revolving retail, mainly comprising credit cards and overdrafts, increased 1.5% to 44.1%. This was primarily driven by underlying business growth in low quality default grade.

Table 41: Credit risk exposures by exposure class and PD range for other retail exposures

Obligor grade disclosure for Advanced IRB

	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	EL £m	Value Adjust-ment and Provisions £m
As at 31 December 2016												
0.00 to < 0.15	**23**	**7**	**101.6%**	**30**	**0.1%**	**649**	**65.4%**	**935**	**4**	**13.3%**	**–**	
0.15 to < 0.25	**75**	**60**	**143.7%**	**234**	**0.2%**	**2,453**	**26.5%**	**205**	**29**	**12.4%**	**–**	
0.25 to < 0.50	**417**	**7**	**89.2%**	**428**	**0.4%**	**48,849**	**83.5%**	**1,211**	**244**	**57.0%**	**3**	
0.50 to < 0.75	**841**	**1**	**94.6%**	**843**	**0.6%**	**92,816**	**83.8%**	**1,307**	**612**	**72.6%**	**6**	
0.75 to < 2.50	**3,900**	**8**	**94.9%**	**3,912**	**1.4%**	**373,837**	**80.4%**	**1,341**	**3,856**	**98.6%**	**66**	
2.50 to < 10.00	**3,692**	**34**	**58.9%**	**3,732**	**4.6%**	**155,231**	**55.3%**	**1,281**	**3,244**	**86.9%**	**107**	
10.00 to < 100.00	**1,015**	**–**	**98.3%**	**1,015**	**24.1%**	**28,764**	**56.5%**	**1,323**	**1,252**	**123.3%**	**156**	
100.00 (Default)	**654**	**–**	**0.0%**	**634**	**100.0%**	**45,435**	**63.7%**	**4,199**	**734**	**115.8%**	**328**	
Total	**10,617**	**117**	**73.7%**	**10,828**	**10.3%**	**748,034**	**67.7%**	**1,453**	**9,975**	**92.1%**	**666**	**(489)**
As at 31 December 2015												
0.00 to < 0.15	172	2	97.0%	174	0.1%	684	51.6%	1,221	19	10.9%	–	
0.15 to < 0.25	10	–	100.0%	10	0.2%	2,200	77.5%	909	3	30.0%	–	
0.25 to < 0.50	277	–	100.0%	277	0.4%	18,950	58.3%	1,099	108	39.0%	1	
0.50 to < 0.75	290	–	100.0%	290	0.6%	38,864	80.4%	1,218	200	69.0%	1	
0.75 to < 2.50	3,693	14	100.0%	3,731	1.6%	345,705	78.2%	1,266	3,641	97.6%	46	
2.50 to < 10.00	3,109	20	98.9%	3,120	4.2%	203,751	71.1%	1,402	3,416	109.5%	104	
10.00 to < 100.00	455	–	100.0%	455	28.4%	21,095	65.7%	1,262	643	141.3%	94	
100.00 (Default)	551	–	97.8%	539	100.0%	69,986	77.3%	5,741	628	116.4%	379	
Total	8,557	36	99.2%	8,596	10.0%	701,235	73.8%	1,588	8,658	100.7%	625	(492)

The exposure weighted average risk weight associated with other retail exposures, primarily comprised of unsecured personal loans, decreased 8.6% to 92.1%. This was primarily driven by the sale of Portuguese and Italian businesses.

IFRS impairment

Tables 42 to 44 are presented using the IFRS consolidation rather than the regulatory consolidation basis. See pages 122 and 123 for background on impairment, and page 9 explaining the scope of regulatory consolidation.

Table 42: Analysis of impaired and past due exposures and allowance for impairment by exposure type
This table shows total loans and advances to customers and banks, past due balances and impaired loan balances, split by exposure type.

	Neither Past due nor Impaired £m	Past Due but not Impaired £m	Impaired Loans		Total £m	Allowance for Impairment £m
			Individually £m	Collectively £m		
As at 31 December 2016						
Traded loans	**2,975**	**–**	**–**	**–**	**2,975**	**–**
Financial assets designated at fair value	**10,448**	**71**	**–**	**–**	**10,519**	**–**
Loans and advances to banks	**43,093**	**158**	**–**	**–**	**43,251**	**–**
Home loans	**139,735**	**65**	**820**	**4,612**	**145,232**	**467**
Credit card, unsecured and other retail lending	**56,327**	**92**	**492**	**3,957**	**60,868**	**3,060**
Corporate loans[a]	**180,425**	**8,720**	**1,580**	**579**	**191,304**	**1,093**
Total[a]	**433,003**	**9,106**	**2,892**	**9,148**	**454,149**	**4,620**
As at 31 December 2015						
Traded loans	2,474	–	–	–	2,474	–
Financial assets designated at fair value	17,620	293	–	–	17,913	–
Loans and advances to banks	40,640	709	–	–	41,349	–
Home loans	149,431	140	648	6,162	156,381	518
Credit cards, unsecured and other retail lending	65,191	530	964	4,549	71,234	3,394
Corporate loans	167,430	6,763	1,786	544	176,523	1,009
Total	442,786	8,435	3,398	11,255	465,874	4,921

- **Total loans and advances** decreased by £11.7bn to £454.1bn driven by a £31bn decrease due to the reclassification of BAGL balances to held for sale and £9bn from the exit of other assets in Non-Core. This was offset by lending increase of £20bn driven by volume growth and foreign currency movement due to the appreciation of average USD and EUR against GBP. There was also a net £9bn increase in settlement and cash collateral balances.
- The decrease in both **Individually impaired loans** of £0.5bn to £2.9bn (2015: £3.4bn) and **Collectively impaired loans** of £2.1bn to £9.1bn (2015: £11.3bn) were driven by the transfer of BAGL balances now held for sale.
- **Allowance for impairment** decreased £0.3bn to £4.6bn (2015: £4.9bn) primarily due to the reclassification of BAGL balances now held for sale, partially offset by the impact of a management review of impairment modelling within the credit cards portfolios and increases within Barclays International due to volume growth, currency movements and increased impairment for a number of single name exposures.

Note:
a Excludes BAGL balances now held for sale

Table 43: Geographic analysis of impaired and past due exposures and allowance for impairment
This table shows past due and impaired loans and advances to customers and banks, split by geographic location of the counterparty.

	Past Due but not Impaired[a] £m	Impaired Loans		Allowance for Impairment £m
		Individually £m	Collectively £m	
As at 31 December 2016				
UK	**3,657**	**1,502**	**6,943**	**2,545**
Europe	**457**	**922**	**781**	**697**
Americas	**4,819**	**211**	**1,424**	**1,247**
Africa and Middle East	**59**	**172**	**–**	**88**
Asia	**114**	**85**	**–**	**43**
Total[a]	**9,106**	**2,892**	**9,148**	**4,620**
As at 31 December 2015				
UK	3,198	1,236	7,782	2,492
Europe	524	908	922	816
Americas	4,389	568	909	725
Africa and Middle East	241	603	1,602	839
Asia	83	83	40	49
Total	8,435	3,398	11,255	4,921

- UK and US Past due but not impaired increased £0.5bn to £3.7bn (2015: £3.2bn) and £0.4bn to £4.8bn (2015: £4.4bn) respectively driven by wholesale and corporate balances past due less than 60 days.
- The decrease in Africa and Middle East for both **Individually impaired loans** of £0.4bn to £0.2bn (2015: £0.6bn) and **Collectively impaired loans** of £1.6bn to nil were driven by the transfer of BAGL balances now held for sale.

Further analysis of impairment allowance is presented in Table 44.

Note:
a Excludes BAGL balances now held for sale

Table 44: Analysis of movement on impairment and amounts taken directly to profit and loss
This table shows the movement in the impairment allowance between 2015 and 2016 year end. Please refer to pages 122 to 123 of this document and Note 7 of the 2016 Annual Report for further information on impairment.

Impairment movement	Allowance for Impairment	
	Year ended 31 December 2016 £m	Year ended 31 December 2015 £m
Starting period	**4,921**	5,455
Acquisitions and disposals	**(5)**	–
Exchange and other adjustments[a]	**(736)**	(617)
Unwind of discount	**(75)**	(149)
Amounts written off	**(2,193)**	(2,277)
Recoveries	**365**	400
Total amounts charged against profit (see below)	**2,343**	2,109
Ending period[b]	**4,620**	**4,921**

Total Amounts charged against profit	P&L Impact	
	£m	£m
New and increased impairment allowances	**3,259**	3,056
Releases	**(551)**	(547)
Recoveries	**(365)**	(400)
Total amounts charged against profit[b]	**2,343**	**2,109**

Loan impairment increased by 11% to £2,343m, reflecting higher impairment charges in US and UK cards portfolios. This was partially offset by decrease within BAGL and Non-Core as a result of the reclassification of impairments held against the loans now held for sale.

Note:
a Exchange and other adjustments for 2016 primarily includes the reclassification of £762m related to BAGL balances now held for sale offset by currency movements due to the appreciation of average USD and EUR against GBP.
b 2016 excludes BAGL balances now held for sale.

Regulatory adjustments to statutory impairment

The IFRS impairment allowance is adjusted to reflect a regulatory view, which is used to calculate the provision misalignment adjustment to regulatory capital. The primary differences are detailed below:

- scope of consolidation - adjustments driven by differences between the IFRS and regulatory consolidation, as highlighted on page 9. These include, but are not exclusive to, associates and impairments relating to securitisation vehicles
- securitisation positions - expected loss is not calculated for securitisation positions. As such, impairments associated with these positions are removed from the regulatory view
- other regulatory adjustments - adjustments driven by differences between the IFRS and regulatory requirements. These include impairment relating to non-current assets held for sale.

Table 45: Regulatory adjustments to statutory impairment

As at 31 December 2016	£m
IFRS allowance for impairment	**4,620**
Regulatory adjustments	–
Scope of consolidation	**236**
AFS impairments	**48**
Other regulatory adjustments	**1,319**
Regulatory impairment allowance	**6,223**

The tables within this section are based on the regulatory consolidation.

Table 46: Analysis of regulatory impairment allowance by regulatory exposure class

Regulatory impairment allowance

	Impairment	
	As at 31 December 2016 £m	As at 31 December 2015 £m
Standardised approach		
Central governments or central banks	–	3
Regional governments or local authorities	–	–
Public sector entities	**2**	–
Multilateral development banks	–	–
International organisations	–	–
Institutions	–	4
Corporates	**276**	250
Retail	**569**	268
Secured by mortgages	–	–
Exposures in default	**1,881**	1,984
Items associated with high risk	**52**	118
Covered bonds	–	–
Securitisation positions	–	–
Collective investment undertakings	–	–
Equity positions	–	–
Other items	–	–
Total Standardised approach credit exposure	**2,780**	2,627
Advanced IRB approach		
Central governments or central banks	**1**	1
Institutions	**3**	4
Corporates	**821**	560
Retail	–	–
– Small and medium enterprises (SME)	**198**	187
– Secured by real estate collateral	**533**	465
– Qualifying revolving retail	**1,398**	1,252
– Other retail	**489**	492
Equity	–	–
Securitisation positions	–	–
Non-credit obligation assets	–	–
Total Advanced IRB approach credit exposure	**3,443**	2,961
Total credit exposures	**6,223**	5,588

Impairment allowance under the Standardised approach has increased by £0.2bn to £2.8bn. This was primarily driven by methodology change in Barclaycard US.

Impairment allowance under the Advanced IRB has increased by £0.4bn to £3.4bn. This was primarily driven by an increase in qualifying revolving retail exposures by £0.1bn to £1.4bn, driven by methodology change in Barclaycard UK.

Loss analysis – regulatory expected loss (EL) versus actual losses

The following table compares Barclays regulatory expected loss (EL) measure against the view of actual loss for those portfolios where credit risk is calculated using the IRB approach.

As expected loss best estimate (ELBE) represents a charge for assets already in default, it has been separately disclosed from total EL. This facilitates comparison of actual loss during the period to the expectation of future loss or EL, as derived by our IRB models in the prior period.

The following should be considered when comparing EL and actual loss metrics:

- the purpose of EL is not to represent a prediction of future impairment charges
- whilst the impairment charge and the EL measure respond to similar drivers, they are not directly comparable
- the EL does not reflect growth of portfolios or changes in the mix of exposures. In forecasting and calculating impairment, balances and trends in the cash flow behaviour of customer accounts are considered.

It should be noted that Barclays' EL models and regulatory estimations present a conservative view compared to actual loss.

Regulatory expected loss

EL is an input to the capital adequacy calculation which can be seen as an expectation of average future loss based on IRB models over a one-year period as follows:

- Non-defaulted assets: EL is calculated using probability of default, downturn loss given default estimates and exposures at default.
- Defaulted assets: EL is based upon an estimate of likely recovery levels for each asset and is generally referred to as ELBE.

Actual loss

Actual loss where subject to the IRB approach is the amount charged against profit.

Table 47: Analysis of expected loss versus actual losses for IRB exposures

IRB Exposure Class	EL £m	ELBE £m	Total expected loss at 31 December 2015 £m	Total actual loss at 31 December 2016 £m
Central governments or central banks	8	–	8	–
Institutions	25	3	28	–
Corporates	511	541	1,052	275
Retail	–	–	–	
– SME	101	81	182	35
– Secured by real estate collateral	274	322	596	153
– Qualifying revolving retail	735	1,109	1,844	889
– Other retail	246	379	625	219
Equity	–	–	–	–
Securitisation positions	–	–	–	–
Non-credit obligation assets	–	–	–	–
Total IRB	1,900	2,435	4,335	1,571

IRB Exposure Class	EL £m	ELBE £m	Total expected loss at 31 December 2014 £m	Total actual loss at 31 December 2015 £m
Central governments or central banks	7	–	7	–
Institutions	30	–	30	–
Corporates	567	621	1,188	271
Retail	–	–	–	
– SME	108	111	219	2
– Secured by real estate collateral	340	556	896	161
– Qualifying revolving retail	769	1,348	2,117	643
– Other retail	246	437	683	192
Equity	–	–	–	–
Securitisation positions	–	–	–	–
Non-credit obligation assets	–	–	–	–
Total IRB	2,067	3,073	5,140	1,269

Actual loss has increased by £0.3bn to £1.6bn. This was primarily driven by methodology change in Barclaycard UK.

Expected loss has decreased by £0.8bn to £4.3bn. This was primarily driven by the sale of the Spanish business and Barclaycard UK debt sale.

Non-trading book equity investments

This table shows the fair value of non-trading book equity positions subject to credit risk calculations, plus associated gains and losses.

Table 48: Fair value of, and gains and losses on equity investments

The holding of non-trading book equity positions is primarily related to the holding of investments by the Private Equity business.

Non-trading book equity positions	As at 31 December 2016		As at 31 December 2015	
	Fair value £m	RWAs £m	Fair value £m	RWAs £m
Exchange Traded	**252**	**371**	198	297
Private Equity	**1,486**	**2,552**	1,983	3,680
Other	**–**	**–**	–	–
Total	**1,738**	**2,923**	2,181	3,977
Realised gains/(losses) from sale and liquidations of equity investments	**622**		57	
Unrealised gains	**299**		685	
Unrealised gains included in PRA transitional CET1 Capital	**299**		685	

Non-trading book fair value equity balances decreased primarily due to the disposal of shares in Visa Europe Limited.

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 business segment, financial contract type, approach and notional value.

- Risk weighted assets for counterparty credit risk decreased 5.7% to £42.4bn, driven by reduction in CVA.
- Counterparty credit risk 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, in line with guidance received. It was previously reported as part of Market Risk RWAs.

Risk weighted assets for counterparty credit risk decreased in the year

-£2.6bn

Total RWA

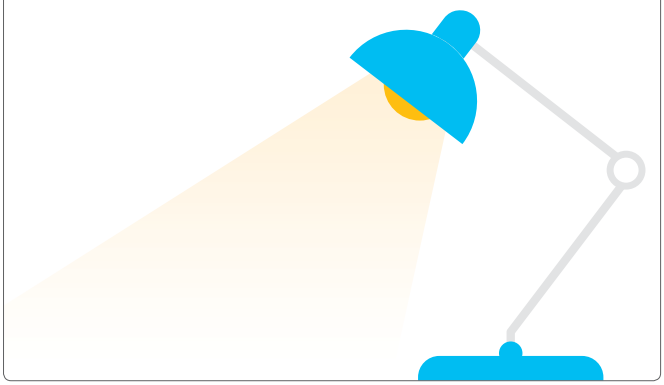
Driven by:

-£4.5bn

CVA reduction across CIB and Non-Core, primarily due to lower spot values in the averaging period, execution of hedging strategies and portfolios rundown

+£1.9bn

Increase in CCR RWAs primarily driven by SFT trading activity



Counterparty risk exposures

Counterparty credit risk (CCR) is the risk related to a counterparty defaulting before the final settlement of a transaction's cash flows. Barclays calculates CCR using three methods: Internal Model Method (IMM), Financial Collateral Comprehensive Method (FCCM), and Mark to Market Method (MTM).

The following tables analyse counterparty credit risk exposures and risk weighted assets.

Table 49: Exposure at default associated with counterparty credit risk by business

This table summarises EAD post-credit risk mitigation by business and exposure class for counterparty credit risk.

It should be noted that the disclosure below excludes CVA which is shown separately in Table 60.

Post-CRM EAD						
As at 31 December 2016	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Counterparty credit risk exposure class						
Standardised approach						
Central governments or central banks	–	4,364	7,515	11,879	3,140	15,019
Regional governments or local authorities	–	54	–	54	115	169
Public sector entities	–	40	–	40	868	908
Multilateral development banks	–	255	–	255	218	473
International organisations	–	20	–	20	1	21
Institutions	46	74	24	144	26	170
Corporates	–	24,822	109	24,931	2,057	26,988
Retail	–	–	–	–	–	–
Secured by mortgages	–	–	–	–	–	–
Exposures in default	–	–	–	–	–	–
Items associated with high risk	–	1,333	–	1,333	23	1,356
Covered bonds	–	–	–	–	–	–
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	–	–	–
Equity positions	–	–	–	–	–	–
Other items	–	–	–	–	–	–
Total Standardised approach credit risk exposure	46	30,962	7,648	38,656	6,448	45,104
Advanced IRB approach						
Central governments or central banks	–	5,589	22	5,611	38	5,649
Institutions	–	14,773	1,088	15,861	3,982	19,843
Corporates	–	36,699	1,433	38,132	10,505	48,637
Securitisation positions	–	26	–	26	1,145	1,171
Total Advanced IRB credit risk exposure	–	57,087	2,543	59,630	15,670	75,300
Default fund contributions	–	1,131	57	1,188	400	1,588
Total counterparty credit risk	46	89,180	10,248	99,474	22,518	121,992

Table 49: Exposure at default associated with counterparty credit risk by business continued

Post-CRM EAD

As at 31 December 2015	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Counterparty credit risk exposure class						
Standardised approach						
Central governments or central banks	–	2	–	2	–	2
Regional governments or local authorities	–	5	–	5	–	5
Public sector entities	–	77	–	77	623	700
Multilateral development banks	–	–	–	–	–	–
International organisations	–	14	–	14	–	14
Institutions	–	11,504	145	11,649	578	12,227
Corporates	26	6,475	11	6,512	1,293	7,805
Retail	–	–	–	–	–	–
Secured by mortgages	–	–	–	–	–	–
Exposures in default	–	–	–	–	–	–
Items associated with high risk	–	2,101	–	2,101	18	2,119
Covered bonds	–	–	–	–	–	–
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	–	–	–
Equity positions	–	–	–	–	–	–
Other items	–	–	–	–	–	–
Total Standardised approach credit risk exposure	26	20,178	156	20,360	2,512	22,872
Advanced IRB approach						
Central governments or central banks	–	7,809	35	7,844	2,770	10,614
Institutions	–	9,450	961	10,411	3,565	13,976
Corporates	–	33,371	504	33,875	12,043	45,918
Securitisation positions	–	26	–	26	1,033	1,059
Total Advanced IRB credit risk exposure	–	50,656	1,500	52,156	19,411	71,567
Default fund contributions	–	1,204	16	1,220	213	1,433
Total counterparty credit risk	26	72,038	1,672	73,736	22,136	95,872

Counterparty credit risk exposure post-CRM increased £26.1bn to £122.0bn, primarily due to:

- Barclays International increased £17.1bn to £89.2bn driven by SFT trading activities and fair value increases in derivative exposures, as well as the derecognition of excess margin collateral for prime brokerage
- Head Office increased by £8.6bn to £10.2bn primarily driven by change in treatment of SFTs pre-positioned for use against undrawn central bank lending facilities.

During the course of the year exposures to central counterparties (CCPs) were reclassified from institutions to corporate. This reclassification has no impact on Barclays' capital requirements.

Analysis of counterparty credit risk

Table 50: Risk weighted assets of counterparty credit risk exposures by business units

This table summarises risk weighted assets by business and exposure class for counterparty credit risk with the exclusion of CVA.

It should be noted that the disclosure below excludes CVA which is shown separately in Table 60.

Risk weighted assets

As at 31 December 2016	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Counterparty credit risk exposure class						
Standardised approach						
Central governments or central banks	–	10	–	10	–	10
Regional governments or local authorities	–	3	–	3	1	4
Public sector entities	–	10	–	10	190	200
Multilateral development banks	–	–	–	–	–	–
International organisations	–	–	–	–	–	–
Institutions	47	277	23	347	2	349
Corporates	–	10,274	7	10,281	525	10,806
Retail	–	–	–	–	–	–
Secured by mortgages	–	–	–	–	–	–
Exposures in default	–	–	–	–	–	–
Items associated with high risk	–	2,043	–	2,043	34	2,077
Covered bonds	–	–	–	–	–	–
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	–	–	–
Equity positions	–	–	–	–	–	–
Other items	–	–	–	–	–	–
Total Standardised approach credit risk exposure	47	12,617	30	12,694	752	13,446
Advanced IRB approach						
Central governments or central banks	–	1,145	9	1,154	12	1,166
Institutions	–	3,098	363	3,461	1,297	4,758
Corporates	–	9,463	785	10,248	4,381	14,629
Securitisation positions	–	–	–	–	391	391
Total Advanced IRB credit risk exposure	–	13,706	1,157	14,863	6,081	20,944
Default fund contributions	–	928	47	975	328	1,303
Total counterparty credit risk	47	27,251	1,234	28,532	7,161	35,693

Table 50: Risk weighted assets of counterparty credit risk exposures by business units continued

Risk weighted assets As at 31 December 2015	Barclays UK £m	Barclays International £m	Head Office £m	Total Core £m	Barclays Non-Core £m	Total £m
Counterparty credit risk exposure class						
Standardised approach						
Central governments or central banks	–	2	–	2	–	2
Regional governments or local authorities	–	5	–	5	–	5
Public sector entities	–	14	–	14	129	143
Multilateral development banks	–	–	–	–	–	–
International organisations	–	–	–	–	–	–
Institutions	–	414	33	447	23	470
Corporates	26	6,522	9	6,557	1,254	7,811
Retail	–	–	–	–	–	–
Secured by mortgages	–	–	–	–	–	–
Exposures in default	–	–	–	–	–	–
Items associated with high risk	–	3,106	–	3,106	72	3,178
Covered bonds	–	–	–	–	–	–
Securitisation positions	–	–	–	–	–	–
Collective investment undertakings	–	–	–	–	–	–
Equity positions	–	–	–	–	–	–
Other items	–	–	–	–	–	–
Total Standardised approach credit risk exposure	26	10,063	42	10,131	1,478	11,609
Advanced IRB approach						
Central governments or central banks	–	413	15	428	1,493	1,921
Institutions	–	2,459	268	2,727	1,733	4,460
Corporates	–	8,163	263	8,426	5,796	14,222
Securitisation positions	–	20	–	20	408	428
Total Advanced IRB credit risk exposure	–	11,055	546	11,601	9,430	21,031
Default fund contributions	–	916	12	928	176	1,104
Total counterparty credit risk	26	22,034	600	22,660	11,084	33,744

Counterparty credit risk weighted assets increased by £1.9bn to £35.7bn, primarily due to:

- Barclays International increased £5.2bn to £27.3bn primarily driven by SFT trading activities and fair value increases in derivative exposures, as well as the derecognition of excess margin collateral for prime brokerage
- Non-Core decreased by £3.9bn to £7.2bn primarily driven by a change in classification between Standardised and Advanced approaches during the year as a result of a change in treatment for sovereign exposures, as well as a decrease driven by portfolio disposals.

Analysis of counterparty credit risk

Table 51: Counterparty credit risk exposures by regulatory portfolio and risk weight under standardised approach

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

Exposures by regulatory portfolio and risk

	As at 31 December 2016	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others	Total	of which: unrated
1	Central governments or central banks	14,971	–	–	–	48	–	–	–	–	–	–	15,019	2,610
2	Regional governments or local authorities	159	–	–	–	8	–	–	–	2	–	–	169	18
3	Public sector entities	15	42	–	–	844	–	–	–	7	–	–	908	951
4	Multilateral development banks	473	–	–	–	–	–	–	–	–	–	–	473	514
5	International organisations	21	–	–	–	–	–	–	–	–	–	–	21	21
6	Institutions	8	–	–	–	129	2	–	–	16	–	15	170	55
7	Corporates	104	16,442	–	–	31	46	–	–	10,330	9	26	26,988	26,646
8	Retail	–	–	–	–	–	–	–	–	–	–	–	–	–
9	Secured by mortgages on immovable property	–	–	–	–	–	–	–	–	–	–	–	–	–
10	Exposures in default	–	–	–	–	–	–	–	–	–	–	–	–	–
11	Items associated with particularly high risk	–	–	–	–	–	–	–	–	–	1,356	–	1,356	1,356
12	Covered bonds	–	–	–	–	–	–	–	–	–	–	–	–	–
13	Claims on institutions and corporate with a short-term credit assessment	–	–	–	–	–	–	–	–	–	–	–	–	–
14	Claims in the form of CIU	–	–	–	–	–	–	–	–	–	–	–	–	–
15	Equity exposures	–	–	–	–	–	–	–	–	–	–	–	–	–
16	Other items	–	–	–	–	–	–	–	–	–	–	–	–	–
17	**Total**	15,751	16,484	–	–	1,060	48	–	–	10,355	1,365	41	45,104	32,171

Analysis of counterparty credit risk

Table 51: Counterparty credit risk exposures by regulatory portfolio and risk weight under standardised approach continued

Exposures by regulatory portfolio and risk

	As at 31 December 2015	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others	Total	of which: unrated
1	Central governments or central banks	–	–	–	–	–	–	–	–	2	–	–	2	2
2	Regional governments or local authorities	–	–	–	–	–	–	–	–	5	–	–	5	5
3	Public sector entities	–	20	–	–	668	10	–	–	2	–	–	700	671
4	Multilateral development banks	–	–	–	–	–	–	–	–	–	–	–	–	–
5	International organisations	14	–	–	–	–	–	–	–	–	–	–	14	14
6	Institutions	17	11,981	–	–	152	6	–	–	55	–	16	12,227	12,027
7	Corporates	58	–	–	–	93	279	–	–	7,303	22	50	7,805	7,305
8	Retail	–	–	–	–	–	–	–	–	–	–	–	–	–
9	Secured by mortgages on immovable property	–	–	–	–	–	–	–	–	–	–	–	–	–
10	Exposures in default	–	–	–	–	–	–	–	–	–	–	–	–	–
11	Items associated with particularly high risk	–	–	–	–	–	–	–	–	–	2,119	–	2,119	2,114
12	Covered bonds	–	–	–	–	–	–	–	–	–	–	–	–	–
13	Claims on institutions and corporate with a short-term credit assessment	–	–	–	–	–	–	–	–	–	–	–	–	–
14	Claims in the form of CIU	–	–	–	–	–	–	–	–	–	–	–	–	–
15	Equity exposures	–	–	–	–	–	–	–	–	–	–	–	–	–
16	Other items	–	–	–	–	–	–	–	–	–	–	–	–	–
17	**Total**	89	12,001	–	–	913	295	–	–	7,367	2,141	66	22,872	22,138

Standardised counterparty credit risk exposures increased by £22.2bn to £45.1bn, primarily driven by:

- 0% risk weighted exposures to central governments or central banks increased £15.7bn to £15.8bn, primarily driven by a change in the treatment for sovereign exposures and increases in securities pre-positioned for use against undrawn central bank lending facilities
- 2% risk weighted exposures increased £4.5bn to £16.5bn, primarily driven by an increase in trading activity with CCPs.

During the course of the year exposures to CCPs were reclassified from institutions to corporate. This reclassification has no impact on Barclays' capital requirements.

Analysis of counterparty credit risk

IRB obligor grade disclosure

The following tables show counterparty credit risk exposure at default post-CRM for the advanced 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 52), institutions (Table 53), corporates (Table 54) and corporates subject to slotting (Table 55).

Table 52: Counterparty credit risk exposures by portfolio and PD scale for central governments and central banks

Counterparty credit risk exposures by portfolio and PD scale for Advanced IRB

	EAD post CRM £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	Expected Loss £m	Value Adjustment and Provisions £m
As at 31 December 2016									
0.00 to < 0.15	**5,247**	**0.1%**	**61**	**61.6%**	**240**	**750**	**14.3%**	**2**	
0.15 to < 0.25	**31**	**0.2%**	**4**	**45.9%**	**579**	**15**	**48.7%**	**–**	
0.25 to < 0.50	**238**	**0.3%**	**6**	**52.7%**	**149**	**97**	**40.9%**	**–**	
0.50 to < 0.75	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
0.75 to < 2.50	**6**	**1.3%**	**3**	**45.3%**	**365**	**6**	**94.7%**	**–**	
2.50 to < 10.00	**127**	**7.5%**	**2**	**60.0%**	**365**	**298**	**235.0%**	**5**	
10.00 to < 100.00	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
100.00 (Default)	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
Total	**5,649**	**0.2%**	**76**	**61.0%**	**241**	**1,166**	**20.6%**	**7**	**–**
As at 31 December 2015									
0.00 to < 0.15	10,313	0.0%	128	45.2%	608	1,726	16.7%	3	
0.15 to < 0.25	85	0.2%	6	45.2%	35	13	15.4%	–	
0.25 to < 0.50	151	0.4%	12	47.1%	590	85	56.6%	–	
0.50 to < 0.75	3	0.7%	2	53.0%	1,092	2	75.0%	–	
0.75 to < 2.50	62	1.2%	1	45.0%	1,826	94	150.0%	–	
2.50 to < 10.00	–	6.3%	3	65.7%	365	–	194.0%	–	
10.00 to < 100.00	–	–	–	–	–	–	–	–	
100.00 (Default)	–	–	–	–	–	–	–	–	
Total	10,614	0.1%	152	45.2%	611	1,920	18.1%	3	–

The exposure weighted average risk weight associated with advanced IRB exposures to central governments and central banks increased 2.5% to 20.6%. This is primarily driven by a change in classification between Standardised and Advanced approaches during the year as a result of a change in treatment for sovereign exposures.

The impact of PMAs is reflected in the RWAs reported in this table; it has been proportionally allocated on a pre-PMA RWA basis. As a result, the allocation of PMA may be weighted towards higher quality default grades.

Analysis of counterparty credit risk

Table 53: Counterparty credit risk exposures by portfolio and PD scale for institutions

Counterparty credit risk exposures by portfolio and PD scale for Advanced IRB

	EAD post CRM £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	Expected Loss £m	Value Adjustment and Provisions £m
As at 31 December 2016									
0.00 to < 0.15	**18,883**	**0.0%**	**603**	**42.7%**	**669**	**4,082**	**21.6%**	**4**	
0.15 to < 0.25	**308**	**0.2%**	**93**	**46.8%**	**401**	**132**	**42.7%**	**–**	
0.25 to < 0.50	**342**	**0.4%**	**129**	**47.8%**	**522**	**236**	**69.1%**	**1**	
0.50 to < 0.75	**105**	**0.6%**	**23**	**44.5%**	**2,036**	**103**	**98.1%**	**–**	
0.75 to < 2.50	**158**	**1.1%**	**69**	**45.6%**	**447**	**139**	**88.1%**	**1**	
2.50 to < 10.00	**34**	**4.5%**	**54**	**45.2%**	**555**	**46**	**137.0%**	**1**	
10.00 to < 100.00	**13**	**12.6%**	**8**	**45.0%**	**1,363**	**20**	**157.1%**	**–**	
Total	**19,843**	**0.1%**	**979**	**42.9%**	**668**	**4,758**	**24.0%**	**7**	**–**
As at 31 December 2015									
0.00 to < 0.15	12,914	0.1%	547	45.7%	783	3,680	28.5%	4	
0.15 to < 0.25	493	0.2%	144	46.3%	569	240	48.6%	–	
0.25 to < 0.50	352	0.4%	134	47.5%	531	244	69.1%	1	
0.50 to < 0.75	67	0.7%	51	47.0%	1,052	67	99.1%	–	
0.75 to < 2.50	95	1.7%	56	47.5%	402	107	112.3%	1	
2.50 to < 10.00	30	4.4%	54	47.0%	915	52	176.5%	1	
10.00 to < 100.00	25	11.5%	11	45.2%	1,407	70	283.3%	2	
Total	13,976	0.1%	997	45.8%	769	4,460	31.9%	9	–

The exposure weighted average risk weight associated with advanced IRB exposures to institutions decreased 7.9% to 24.0%. This was primarily driven by an increase in trading activity with counterparties in higher quality default grades.

The impact of PMAs is reflected in the RWAs reported in this table; it has been proprtionally allocated on a pre-PMA RWA basis. As a result, the allocation of PMA may be weighted towards higher quality default grades.

Table 54: Counterparty credit risk exposures by portfolio and PD scale for corporates

Counterparty credit risk exposures by portfolio and PD scale for Advanced IRB

	EAD post CRM £m	Average PD %	Number of obligors	Average LGD %	Average Maturity	RWA £m	RWA Density %	Expected Loss £m	Value Adjustment and Provisions £m
As at 31 December 2016									
0.00 to < 0.15	**38,765**	**0.0%**	**6,090**	**45.6%**	**790**	**8,220**	**21.2%**	**9**	
0.15 to < 0.25	**4,578**	**0.2%**	**841**	**45.8%**	**784**	**2,094**	**45.7%**	**4**	
0.25 to < 0.50	**1,550**	**0.4%**	**697**	**47.1%**	**833**	**1,048**	**67.6%**	**3**	
0.50 to < 0.75	**690**	**0.6%**	**206**	**41.2%**	**719**	**459**	**66.5%**	**2**	
0.75 to < 2.50	**1,172**	**1.2%**	**783**	**41.7%**	**875**	**1,031**	**88.0%**	**5**	
2.50 to < 10.00	**803**	**4.8%**	**426**	**36.0%**	**921**	**879**	**109.4%**	**12**	
10.00 to < 100.00	**57**	**19.8%**	**106**	**39.8%**	**570**	**104**	**181.5%**	**4**	
100.00 (Default)	**50**	**100.0%**	**64**	**36.6%**	**871**	**104**	**208.0%**	**–**	
Total	**47,665**	**0.3%**	**9,213**	**45.3%**	**794**	**13,939**	**29.2%**	**39**	**–**
As at 31 December 2015									
0.00 to < 0.15	37,614	0.0%	6,199	47.2%	705	7,759	20.6%	9	
0.15 to < 0.25	3,705	0.2%	819	48.1%	752	1,862	50.3%	3	
0.25 to < 0.50	1,508	0.4%	605	50.5%	664	1,066	70.7%	3	
0.50 to < 0.75	403	0.6%	199	44.9%	949	330	81.8%	1	
0.75 to < 2.50	1,006	1.4%	780	47.2%	792	1,123	111.7%	7	
2.50 to < 10.00	635	3.9%	429	47.9%	646	954	150.2%	12	
10.00 to < 100.00	87	13.3%	75	47.5%	795	196	224.7%	5	
100.00 (Default)	48	100.0%	104	38.1%	1,036	231	476.8%	–	
Total	45,006	0.3%	9,210	47.4%	711	13,521	30.0%	40	–

The exposure weighted average risk weight associated with IRB exposure to corporates remained broadly stable at 29.2% (2015: 30.0%).

The impact of PMAs is reflected in the RWAs reported in this table; it has been proportionally allocated on a pre-PMA RWA basis. As a result, the allocation of PMA may be weighted towards higher quality default grades.

Analysis of counterparty credit risk

Table 55: Counterparty credit risk – Corporates specialised lending IRB

Exposures by portfolio and PD scale for specialised lending

Regulatory categories	Remaining maturity	On-balance sheet amount £m	Off-balance sheet amount £m	Risk weight %	Exposure amount £m	RWA £m	Expected losses £m
As at 31 December 2016							
Category 1	Less than 2.5 years			**50%**	**107**	**54**	**–**
	Equal to or more than 2.5 years			**70%**	**718**	**502**	**1**
Category 2	Less than 2.5 years			**70%**	**36**	**25**	**–**
	Equal to or more than 2.5 years			**90%**	**48**	**43**	**–**
Category 3	Less than 2.5 years			**115%**	**33**	**38**	**–**
	Equal to or more than 2.5 years			**115%**	**22**	**25**	**1**
Category 4	Less than 2.5 years			**250%**	**1**	**3**	**–**
	Equal to or more than 2.5 years			**250%**	**–**	**–**	**–**
Category 5	Less than 2.5 years			**0%**	**7**	**–**	**3**
	Equal to or more than 2.5 years			**0%**	**–**	**–**	**–**
Total	Less than 2.5 years				**184**	**120**	**3**
	Equal to or more than 2.5 years				**788**	**570**	**2**
As at 31 December 2015							
Category 1	Less than 2.5 years			50%	47	23	2
	Equal to or more than 2.5 years			70%	560	392	1
Category 2	Less than 2.5 years			70%	219	153	–
	Equal to or more than 2.5 years			90%	55	49	1
Category 3	Less than 2.5 years			115%	20	23	–
	Equal to or more than 2.5 years			115%	10	12	–
Category 4	Less than 2.5 years			250%	1	2	–
	Equal to or more than 2.5 years			250%	–	–	–
Category 5	Less than 2.5 years			0%	–	–	–
	Equal to or more than 2.5 years			0%	–	–	–
Total	Less than 2.5 years				287	201	2
	Equal to or more than 2.5 years				625	453	2

Counterparty credit RWAs subject to the slotting approach remained broadly stable at £0.7bn (2015: £0.7bn).

Analysis of counterparty credit risk

Table 56: Counterparty credit exposures analysed by financial contract type

This table shows the Group's counterparty credit risk exposure at default post-CRM analysed by the type of financial contract with the exclusion of CVA. The nature of the calculation of credit exposure under the Internal Model Method (IMM) precludes the identification of individual product exposures. As such, the split per financial contract type for IMM is not shown in the table below.

Financial contract type	EAD post-CRM under Internal Model Method £m	EAD post-CRM under other approaches £m	EAD post-CRM under Mark to Market approach £m
As at 31 December 2016			
Interest rate contracts		–	1,543
Foreign currency contracts		–	1,484
Equities contracts		–	2,122
Precious metal other than cold contracts		–	4
Commodities other than precious metal contracts		–	729
Securities financing transactions		20,909	309
Credit derivatives		–	1,317
Other		461	–
Total	91,526	21,370	7,508
As at 31 December 2015			
Interest rate contracts		–	2,027
Foreign currency contracts		–	996
Equities contracts		–	3,262
Precious metal other than cold contracts		–	10
Commodities other than precious metal contracts		–	746
Securities financing transactions		11,828	–
Credit derivatives		–	788
Other		930	2
Total	73,848	12,758	7,831

Exposures at Default under the IMM approach increased by £17.7bn to £91.5bn, primarily driven by:

- £9.6bn increase driven by changes in the fair value of derivative exposures
- £5.1bn increase in SFT trading activities.

Exposure under other approaches increased by £8.6bn to £21.4bn driven by an increase in SFT trading activities as well as the derecognition of excess margin collateral for prime brokerage.

Table 57: Counterparty credit exposure by approach

This table shows counterparty credit risk trading book exposures for derivative exposures with the exclusion of CVA. The population does not include CCR relating to securities financing or other categories.

Exposures reported under the Mark to Market (MTM) method refer to credit exposures arising from derivatives that are not measured using a modelled approach. Such exposures are subject to appropriate netting and collateral offsets and require adjustment for market driven movements that may lead to increased replacement cost at the time of default (potential future credit exposure).

Internal Model Method (IMM) is the most risk sensitive approach available for the calculation of CCR exposures. Please note that as the IMM method considers the interactions of different factors such as collateral and market movements within a statistical simulation across a range of asset classes, the output cannot be split across the categories shown in the columns below.

Outstanding amount of exposure held	Gross positive fair value of contracts £m	Potential future credit exposure £m	Netting benefits £m	Net current credit exposure £m	Collateral held £m	Net derivatives credit exposure £m
As at 31 December 2016						
Mark to Market Method	7,675	10,824	(9,736)	8,763	(1,255)	7,508
Internal Model Method	–	–	–	–	–	61,945
As at 31 December 2015						
Mark to Market Method	11,196	10,143	(12,313)	9,026	(1,195)	7,831
Internal Model Method	–	–	–	–	–	49,955

The IMM derivative exposure increased by £12.0bn to £61.9bn mainly driven by changes in the fair value of derivative exposures.

Exposure to the MTM method remained broadly stable at £7.5bn (2015: £7.8bn).

Credit derivative notionals

The following table shows the notional of the credit derivative transactions outstanding as at 31 December 2016.

Table 58: Notional exposure associated with credit derivative contracts

This table splits the notional values of credit derivatives, credit default swaps (CDS) and total return swaps (TRS), by two categories: own credit portfolio and intermediation activities.

Own credit portfolio consists of trades used for hedging and credit management. Intermediation activities cover all other credit derivatives.

Credit derivatives booked arising from clearing activities performed on behalf of external counterparties (for example within Barclays subsidiaries) are not reported in this table as the Group does not have any long/short exposures to the underlying reference obligations.

Own credit for the purposes of this note is different from own credit used for accounting disclosures purposes, which represents the change in fair value due to Barclays' own credit standing.

Outstanding amount of exposure held:

	Own credit portfolio		Intermediation activities	
Credit derivative product type As at 31 December 2016	**As protection purchaser £m**	**As protection seller £m**	**As protection purchaser £m**	**As protection seller £m**
Credit default swaps	**3,097**	**944**	**423,899**	**414,708**
Total return swaps	**–**	**–**	**9,552**	**–**
Total	**3,097**	**944**	**433,451**	**414,708**
Credit derivative product type As at 31 December 2015				
Credit default swaps	2,673	1,578	430,315	424,442
Total return swaps	–	–	18,577	–
Total	2,673	1,578	448,892	424,442

Notional from Intermediation activities, which mainly comprises derivatives used to manage the trading book, reduced by £25.2bn to £848.2bn, primarily driven by close out of positions and unwinding of bilateral trades.

Table 59: Notional value of credit derivative contracts held for hedging purposes

Risk methodology

	As at 31 December 2016 £m	As at 31 December 2015 £m
Notional value of credit derivative hedges for Mark to Market method	**2,174**	1,418
Notional value of credit derivative hedges under the Internal Model method	**786**	809
Total	**2,960**	2,227

The Notional value of credit derivatives hedges for Market to Market method has increased by £0.8bn to £2.2bn driven by the appreciation of the ZAR against GBP.

Credit value adjustments

The 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.

See page 7 for a high-level description of the approach, and page 13 for a description of the scope of our permissions.

Table 60: Credit valuation adjustment capital charge

Two approaches can be used to calculate the adjustment:

- Standardised approach: this approach takes account of the external credit rating of each counterparty, and incorporates the effective maturity and EAD from the calculation of the CCR
- Advanced approach: this approach requires the calculation of the charge as (a) a 10-day 99% Value at Risk (VaR) measure for the current one-year period and (b) the same measure for a stressed period. The sum of the two VaR measures is tripled to yield the capital charge.

Credit valuation adjustment capital charge

		Exposure value £m	RWA £m
As at 31 December 2016			
1	Total portfolios subject to the Advanced Method	**22,423**	**5,613**
2	(i) VaR component (including the 3x multiplier)		**1,258**
3	(ii) Stressed VaR component (including 3x multiplier)		**4,355**
4	All portfolios subject to the Standardised Method	**2,141**	**1,130**
5	**Total subject to the CVA capital charge**	**24,564**	**6,743**
As at 31 December 2015			
1	Total portfolios subject to the Advanced Method	19,332	10,487
2	(i) VaR component (including the 3x multiplier)		1,670
3	(ii) Stressed VaR component (including 3x multiplier)		8,817
4	All portfolios subject to the Standardised Method	1,755	781
5	**Total subject to the CVA capital charge**	21,087	11,268

CVA Advanced Risk Weighted Asset decreased by £4.5bn to £6.7bn across CIB and Non-Core, primarily driven by lower spot values in the averaging period, execution of hedging strategies and portfolios run down, as well as the implementation of new collateral modelling for mismatched FX collateral.

Analysis of market risk

This section contains key disclosures describing the Group's market risk profile, highlighting regulatory as well as management measures. This includes risk weighted assets by major business line, as well as Value at Risk measures.

- Risk weighted assets for market risk decreased 4.8% to £25.0bn, driven by risk reduction in Barclays International and Non-Core.
- Management Value at Risk increased 24% year on year, primarily due to volatility in credit spreads.
- Market risk RWAs are primarily generated by the following IFRS account classifications: Trading portfolio assets and liabilities; and derivative financial instruments and liabilities.

Risk weighted assets for market risk reduced in the year

-£1.3bn

Total RWAs

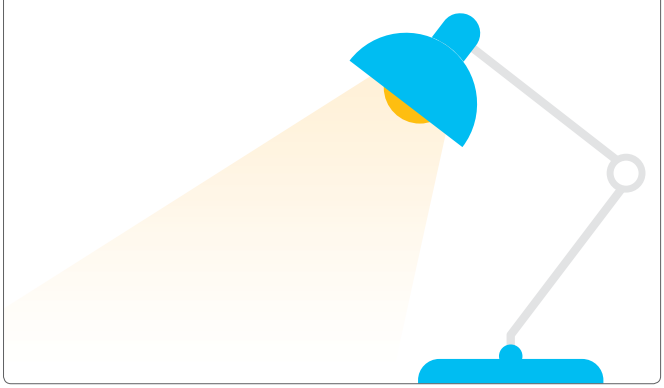
Driven by:

-£0.8bn

Reductions in Risks Not In VaR

24%

Increase in management Value at Risk



Market risk

Market risk is the risk of a reduction in earnings or capital due to volatility of the trading book positions or as a consequence of running a banking book balance sheet and liquidity funding pools.

All disclosures in this section pages 82 to 91 are unaudited unless otherwise stated.

Overview of market risk

This section contains key statistics describing the market risk profile of the Group. This includes risk weighted assets by major business line, as well as Value at Risk (VaR) and Annual Earnings at Risk (AEaR) measures. A distinction is made between regulatory and management measures within the section. The market risk management section on pages 138 to 145 provides descriptions of these metrics:

- page 82 provides a view of market risk in the context of the Group's balance sheet
- pages 140 to 145 cover the management of traded market risk. Management measures are shown from page 140 and regulatory equivalent measures are shown from page 142.
- non-traded market risk, arising from our banking books, is reviewed from page 156.

Measures of market risk in the Group and accounting measures

Traded market risk measures such as VaR and balance sheet exposure measures have fundamental differences:

- balance sheet measures show accruals-based balances or marked to market values as at the reporting date
- VaR measures also take account of current marked to market values, but in addition hedging effects between positions are considered
- market risk measures are expressed in terms of changes in value or volatilities as opposed to static values.

For these reasons, it is not possible to present direct reconciliations of traded market risk and accounting measures. The table 'Balance sheet view of trading and banking books', on page 82, helps the reader understand the main categories of assets and liabilities subject to regulatory market risk measures.

Summary of performance in the period

Overall, the Group has maintained a steady risk profile, with key movements outlined below:

- measures of traded market risk, such as Value at Risk (VaR), increased in the year mainly due to the underlying volatile movements to credit spreads and volatility in the cross currency markets driven by market structural changes
- market risk RWAs fell from 2015 levels due to the implementation of diversification of the general and specific market risk VaR charges, partially offset by the inclusion of cost of funding RNIV into VaR
- Annual Earnings at Risk (AEaR), is a key measure of interest rate risk volatility in the banking book (IRRBB). This sensitivity measure decreased in 2016, driven by two factors: the reduction in GBP base rate in August 2016 with the 0% model floor; and additional protection that the Group has put in place to reduce exposure to a possible further reduction in GBP base rate.
- Pension risks are disclosed from page 155 onwards.

Balance sheet view of trading and banking books

As defined by regulatory rules, a trading book consists of positions held for trading intent or to hedge elements of the trading book. Trading intent must be evidenced in the basis of the strategies, policies and procedures set up by the firm to manage the position or portfolio. The table below provides a Group-wide overview of where assets and liabilities on the Group's balance sheet are managed within regulatory traded and non-traded books.

The balance sheet split by trading book and banking books is shown on an IFRS accounting scope of consolidation. The reconciliation between the accounting and regulatory scope of consolidation is shown in table 1 on page 10.

Table 61: Balance sheet split by trading and banking books

As at 31 December 2016	Banking book[a] £m	Trading book £m	Total £m
Cash and balances at central banks	102,353	–	102,353
Items in course of collection from other banks	1,467	–	1,467
Trading portfolio assets	1,160	79,080	80,240
Financial assets designated at fair value	10,475	68,133	78,608
Derivative financial instruments	1,551	345,075	346,626
Financial investments	63,317	–	63,317
Loans and advances to banks	42,288	963	43,251
Loans and advances to customers	373,156	19,628	392,784
Reverse repurchase agreements and other similar secured lending	13,454	–	13,454
Prepayments, accrued income and other assets	2,893	–	2,893
Investments in associates and joint ventures	684	–	684
Property, plant and equipment	2,825	–	2,825
Goodwill and intangible assets	7,726	–	7,726
Current tax assets	561	–	561
Deferred tax assets	4,869	–	4,869
Retirement benefit assets	14	–	14
Non-current assets classified as held for sale	64,139	7,315	71,454
Total assets	692,932	520,194	1,213,126
Deposits from banks	46,905	1,309	48,214
Items in course of collection due to other banks	636	–	636
Customer accounts	408,434	14,744	423,178
Repurchase agreements and other similar secured borrowing	19,760	–	19,760
Trading portfolio liabilities	–	34,687	34,687
Financial liabilities designated at fair value:	5,059	90,972	96,031
Derivative financial instruments	883	339,604	340,487
Debt securities in issue	75,932	–	75,932
Subordinated liabilities	23,383	–	23,383
Accruals, deferred income and other liabilities	8,830	41	8,871
Provisions	4,134	–	4,134
Current tax liabilities	737	–	737
Deferred tax liabilities	29	–	29
Retirement benefit liabilities	390	–	390
Liabilities included in disposal groups classified as held for sale	60,703	4,589	65,292
Total liabilities	655,815	485,946	1,141,761

Included within the trading book are assets and liabilities which are included in the market risk regulatory measures. For more information on these measures (VaR, SVaR, IRC and Comprehensive Risk Measure) see the risk management section on page 142.

Note
a The primary risk factors for banking book assets and liabilities are interest rates and to a lesser extent, foreign exchange rates. Credit spreads and equity prices will also be factors where the Group holds debt and equity securities respectively, either as financial assets designated at fair value or as available for sale, shown in Note 15 and Note 17 of the Barclays PLC 2016 Annual Report.

Traded market risk review

Review of management measures
The following disclosures provide details on management measures of market risk. See the risk management section on page 140 for more detail on management measures and the differences when compared to regulatory measures.

The table below shows the total Management VaR on a diversified basis by risk factor. Total Management VaR includes all trading positions in Barclays International, Non-Core, BAGL and Head Office.

Limits are applied against each risk factor VaR as well as total Management VaR, which are then cascaded further by risk managers to each business.

Table 62: The daily average, maximum and minimum values of management VaR[a]

Management VaR (95%) (audited)

	2016			2015		
For the year ended 31 December	Average £m	High[b] £m	Low[b] £m	Average £m	High[b] £m	Low[b] £m
Credit risk	16	24	9	11	17	8
Interest rate risk	7	13	4	6	14	4
Equity risk	7	11	4	8	18	4
Basis risk	5	9	3	3	4	2
Spread risk	3	5	2	3	6	2
Foreign exchange risk	3	5	2	3	6	1
Commodity risk	2	4	1	2	3	1
Inflation risk	2	3	2	3	5	2
Diversification effect[b]	(24)	n/a	n/a	(22)	n/a	n/a
Total management VaR	**21**	**29**	**13**	17	25	12

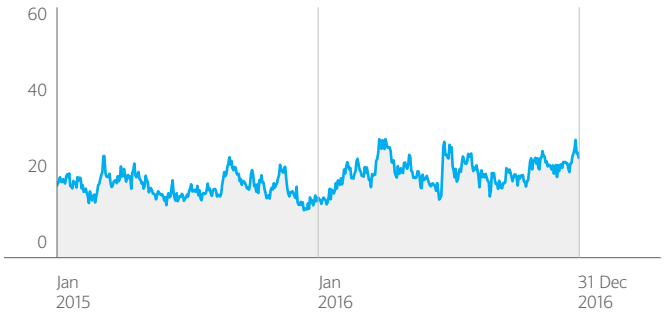
Average Credit risk VaR increased by £5m to £16m (2015: £11m) primarily due to the underlying volatile movements to credit spreads given own credit contribution.

Average Basis risk VaR increased by £2m to £5m (2015: £3m) primarily due to a combination of structural changes in the cross-currency markets that led to higher volatility and higher client activity in G10 cross currency basis.

Average Equity VaR decreased by £1m to £7m (2015: £8m) reflecting reduced cash portfolio activities and a conservative risk profile maintained in the derivatives portfolio.

Average Foreign Exchange Risk VaR remained stable as a result of maintaining a conservative risk profile in the derivatives portfolio.

Group Management VaR[a] (£m)



The daily VaR chart illustrates an average increasing trend in 2016. Intermittent VaR increases were due to increased client flow in periods of heightened volatility in specific markets and subsequent risk management of the position.

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, terrorist attacks, global recession, and a sharp increase in economic growth.

In 2016, the scenario analyses showed that the largest market risk related impacts would be due to a severe deterioration in financial liquidity and global recession.

Note
a Including BAGL.
b Diversification effects recognise that forecast losses from different assets or businesses are unlikely to occur concurrently, hence the expected aggregate loss is lower than the sum of the expected losses from each area. Historic correlations between losses are taken into account in making these assessments. The high and low VaR figures reported for each category did not necessarily occur on the same day as the high and low VaR reported as a whole. Consequently a diversification effect balance for the high and low VaR figures would not be meaningful and is therefore omitted from the above table.

Review of regulatory measures

The following disclosures provide details on regulatory measures of market risk. See pages 142 and 156 for more detail on regulatory measures and the differences when compared to management measures.

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

- the market risk of trading book positions are measured under a PRA approved internal models approach, including Regulatory VaR, Stressed Value at Risk (SVaR), Incremental Risk Charge (IRC) and Comprehensive Risk Measure as required
- trading book positions that do not meet the conditions for inclusion within the approved internal models approach. The capital requirement for these positions is calculated using standardised rules.

The table below summarises the regulatory market risk measures, under the internal models approach. See Table 65, on page 85 for a breakdown of capital requirements by approach.

Table 63: Analysis of Regulatory VaR, SVaR, IRC and Comprehensive Risk Measure[a]

	Year-end £m	Avg. £m	Max £m	Min £m
As at 31 December 2016				
Regulatory VaR (1-day)	**33**	**26**	**34**	**18**
Regulatory VaR (10-day)[b]	**105**	**84**	**108**	**57**
SVaR (1-day)	**65**	**56**	**75**	**34**
SVaR (10-day)[b]	**205**	**178**	**236**	**109**
IRC	**154**	**155**	**238**	**112**
Comprehensive Risk Measure	**2**	**5**	**12**	**2**
As at 31 December 2015				
Regulatory VaR (1-day)	26	28	46	20
Regulatory VaR (10-day)[b]	82	89	145	63
SVaR (1-day)	44	54	68	38
SVaR (10-day)[b]	139	171	215	120
IRC	129	142	254	59
Comprehensive Risk Measure	12	15	27	11

Overall, there was an increase in average IRC in 2016, with no significant movements in other internal model components:

- **Regulatory VaR/SVaR:** Remained broadly stable year on year
- **IRC:** Increased primarily due to positional increases in the third quarter of 2016
- **Comprehensive Risk Measure:** Reduced as a result of further reductions in a specific legacy portfolio.

Table 64: Breakdown of the major regulatory risk measures by portfolio[a]

As at 31 December 2016	Macro £m	Equities £m	Credit £m	Barclays International Treasury[c] £m	Banking[c] £m	Group Treasury £m	Barclays Non-Core £m
Regulatory VaR (1-day)	**14**	**12**	**6**	**14**	**12**	**5**	**6**
Regulatory VaR (10-day)	**44**	**38**	**20**	**45**	**40**	**15**	**21**
SVaR (1-day)	**22**	**43**	**7**	**30**	**18**	**9**	**22**
SVaR (10-day)	**69**	**137**	**24**	**95**	**58**	**30**	**69**
IRC	**220**	**8**	**146**	**196**	**25**	**10**	**18**
Comprehensive Risk Measure	**–**	**–**	**–**	**–**	**–**	**–**	**2**

The table above shows the primary portfolios which are driving the trading businesses' modelled capital requirement as at 2016 year end. The standalone portfolio results diversify at the total level and are not necessarily additive. Regulatory VaR, SVaR, IRC and Comprehensive Risk Measure in the prior table show the diversified results at a Group level.

Notes
a Excluding BAGL.
b The 10-day VaR is based on scaling of 1-day VaR model output. More information about Regulatory and Stressed VaR methodology is available on page 142.
c Following restructure, from 25 November 2016, the Client Capital Management (CCM) portfolio was split into Barclays International Treasury, Banking and Agency Derivative Services (ADS) & Financing. For the purposes of the disclosures, only material portfolios (Barclays International Treasury and Banking) have been included.

Capital requirements for market risk

The table below breaks down the elements of capital requirements and risk weighted assets under the market risk framework as defined in CRR. The Group is required to hold capital for the market risk exposures arising from regulatory trading books. Inputs for the modelled components include the measures on Table 63 'Analysis of regulatory VaR, SVaR, IRC and APR', using the higher of the end of period value or an average over the past 60 days (times a multiplier in the case of VaR and SVaR).

Table 65: Market risk own funds requirements

Market risk own funds requirements		RWA		Capital requirements	
		As at December 2016 £m	As at December 2015 £m	**As at December 2016 £m**	As at December 2015 £m
1	Internal models approach	**14,711**	15,778	**1,177**	1,262
2	VaR	**3,519**	3,884	**282**	311
3	SVaR	**6,634**	6,864	**531**	548
4	Incremental risk charge	**2,089**	1,611	**167**	129
5	Comprehensive risk measure	**39**	144	**3**	12
6	Risks not in VaR	**2,430**	3,275	**194**	262
7	Standardised approach	**10,302**	10,486	**824**	839
8	Interest rate risk (general and specific)	**5,036**	5,549	**403**	444
9	Equity risk (general and specific)	**4,103**	3,654	**328**	292
10	Foreign exchange risk	**230**	201	**18**	16
11	Commodity risk	**–**	–	**–**	–
12	Specific interest rate risk of securitisation position	**933**	1,082	**75**	87
13	**Total**	**25,013**	26,264	**2,001**	2,101

Overall Market Risk RWA has been stable with a decrease of £1.3bn to £25.0bn primarily due to reduction in risk not in VaR.

Refer to Tables 68 and 69 for detailed movement analysis on the Internal Model Approach and Standardised approach.

Table 66: Market risk under standardised approach

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

		RWA		Capital requirements	
		As at December 2016 £m	As at December 2015 £m	**As at December 2016 £m**	As at December 2015 £m
	Outright products				
1	Interest rate risk (general and specific)	**5,036**	5,549	**403**	444
2	Equity risk (general and specific)	**3,610**	2,663	**289**	213
3	Foreign exchange risk	**230**	201	**18**	16
4	Commodity risk	**–**	–	**–**	–
	Options				
5	Simplified approach	**–**	–	**–**	–
6	Delta-plus method	**387**	846	**31**	68
7	Scenario approach	**106**	145	**8**	12
8	**Securitisation (Specific Risk)**	**933**	1,082	**75**	86
9	**Total**	**10,302**	10,486	**824**	839

Overall STD Market Risk Weighted Asset remained broadly stable at £10.3bn (2015 £10.5bn).

Table 67: Market risk under internal models approach
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.

Market risk under internal models approach		RWA		Capital requirements	
		As at December 2016 £m	As at December 2015 £m	As at December 2016 £m	As at December 2015 £m
1	VaR (higher of values a and b)	**3,519**	3,884	**282**	311
(a)	Previous day's VaR (Article 365(1) (VaRt-1))			**138**	128
(b)	Average of the daily VaR (Article 365(1)) on each of the preceding sixty business days (VaRavg) x multiplication factor ((mc) in accordance with Article 366)			**282**	311
2	SVaR (higher of values a and b)	**6,634**	6,864	**531**	548
(a)	Latest SVaR (Article 365(2) (sVaRt-1))			**497**	269
(b)	Average of the SVaR (Article 365(2) during the preceding sixty business days (sVaRavg) x multiplication factor (ms) (Article 366)			**531**	549
3	Incremental risk charge – IRC (higher of values a and b)	**2,089**	1,611	**167**	129
(a)	Most recent IRC value (incremental default and migration risks section 3 calculated in accordance with Section 3 articles 370/371)			**154**	129
(b)	Average of the IRC number over the preceding 12 weeks			**167**	119
4	Comprehensive Risk Measure (higher of values a, b and c)	**39**	144	**3**	12
(a)	Most recent risk number for the correlation trading portfolio (article 377)			**2**	12
(b)	Average of the risk number for the correlation trading portfolio over the preceding 12 weeks			**3**	11
(c)	8 % of the own funds requirement in SA on most recent risk number for the correlation trading portfolio (Article 338(4))			**1**	5
5	Other	**2,430**	3,275	**194**	262
6	**Total**	**14,711**	15,778	**1,177**	1,262

Modelled Market Risk RWAs decreased £1.1bn to £14.7bn, mainly driven by a decrease in Risks Not In VaR due to a reduction in tail risks and exposures.

Non-traded market risk

Overview
The non-traded market risk framework covers exposures in the banking book, mostly consisting of exposures relating to accrual accounted and Available for Sale instruments. The potential volatility of the net interest income of Barclays is measured by an Annual Earnings at Risk (AEaR) metric that is monitored regularly and reported to Senior Management and the Board Risk Committee as part of the limit monitoring framework.

Net interest income sensitivity
The table below shows a sensitivity analysis on pre-tax net interest income for non-trading financial assets and financial liabilities, including the effect of any hedging. The sensitivity has been measured using the Annual Earnings at Risk (AEaR) methodology as described on page 156. Note that this metric assumes an instantaneous parallel change to interest rate forward curves. The model floors shocked market rates at zero; changes in net interest income (NII) sensitivity are only observed where forward rates are greater than zero. The main model assumptions are: (i) one year time horizon; (ii) balance sheet is held constant; (iii) balances are adjusted for assumed behavioural profiles (i.e. considers that customers may remortgage before the contractual maturity); and (iv) behavioural assumptions are kept unchanged in all rate scenarios.

Table 68: Net interest income sensitivity (AEaR) by business unit[a,b,c]

	Barclays UK £m	Barclays International £m	Barclays Non-Core £m	Total £m
As at 31 December 2016				
+25bps	**5**	**16**	**1**	**22**
-25bps	**(130)**	**(90)**	**–**	**(220)**
As at 31 December 2015				
+25bps	16	21	5	42
-25bps	(50)	(41)	–	(91)

The income sensitivity to falling rates has increased compared to 2015 as a result of the lower GBP rate environment and subsequent deposit re-pricing.

Notes
a The investment banking part of Barclays International has been excluded.
b Excludes Treasury operations, which are driven by the firm's investments in the liquidity pool, which are risk managed using value-based risk measures described on page 88. Treasury's NII (AEaR) sensitivity to a +25/-25bps move is £(39)m/£36m respectively.
c Excluding BAGL.

Table 69: Net interest income sensitivity (AEaR) by currency[a,b]

As at 31 December 2016	+25 basis points £m	-25 basis points £m
GBP	9	(215)
USD	3	(5)
EUR	7	1
Other currencies	3	(1)
Total	22	(220)
As percentage of net interest income	0.21%	(2.09%)

Economic capital by business unit

Barclays measures some non-traded market risks using an economic capital (EC) methodology. EC is predominantly calculated using a daily VaR model scaled to a 99% confidence interval (a 99.98% confidence interval, as previously reported, is considered to be a very extreme shock i.e. a 1 in 5,000 event. A 99% confidence interval is considered more appropriate and also aligns to other regulatory submissions). For more information on definitions of prepayment, recruitment and residual risk, and on how EC is used to manage market risk, see the market risk management section on page 157.

Table 70: Economic capital for non-traded risk by business unit[b]

	Barclays UK £m	Barclays International[c] £m	Barclays Non-Core[d] £m	Total £m
As at 31 December 2016				
Prepayment risk	27	8	–	35
Recruitment risk	18	1	1	20
Residual risk	1	23	12	36
Total	46	32	13	91
As at 31 December 2015				
Prepayment risk	20	7	–	27
Recruitment risk	39	4	4	46
Residual risk	2	26	3	31
Total	62	36	7	105

Total Economic Capital has decreased by £14m to £91m (2015: £105m), mainly driven by recruitment risk in Barclays UK which decreased by £21m due to a reduction in market rates and volatility.

Analysis of equity sensitivity

Equity sensitivity table measures the overall impact of a +/- 25bps movement in interest rates on retained earnings, Available for Sale and cash flow hedge reserves. This data is captured using DV01 metric which is an indicator of the shift in value for a 1 basis point in the yield curve.

Table 71: Analysis of equity sensitivity[b]

	2016		2015	
As at 31 December	+25 basis points £m	-25 basis points £m	+25 basis points £m	-25 basis points £m
Net interest income	22	(220)	42	(91)
Taxation effects on the above	(7)	66	(13)	27
Effect on profit for the year	15	(154)	29	(64)
As percentage of net profit after tax	0.54%	(5.45%)	4.72%	(10.22%)
Effect on profit for the year (per above)	15	(154)	29	(64)
Available for Sale reserve	(154)	114	(180)	248
Cash flow hedge reserve	(732)	692	(754)	694
Taxation effects on the above	222	(207)	280	(261)
Effect on equity	(649)	466	(625)	545
As percentage of equity	(0.91%)	0.65%	(0.95%)	0.83%

As discussed in relation to the net interest income sensitivity table on page 86, the impact of a 25bps movement in rates is largely driven by Barclays UK.

The change in available for sale reserve sensitivities was driven by a reduction in interest rate risk in the liquidity pool in the year. Note that the movement in the available for sale reserve would impact CRD IV fully loaded CET1 capital, but the movement in the cash flow hedge reserve would not impact CET1 capital.

Notes
a Includes Barclays UK, Barclays International (excluding investment banking) and Non-Core sensitivity. Treasury excluded.
b Excluding BAGL.
c 2016 Residual risk figure for Barclays International includes Barclays Delaware products to align with NII disclosure. Prior period restated on the same basis for consistency.
d Only the retail exposures within Non-Core are captured in the measure.

Volatility of the Available for Sale portfolio in the liquidity pool
Changes in value of available for sale exposures flow directly through capital via the Available for Sale reserve. The volatility of the value of the Available for Sale investments in the Liquidity pool is captured and managed through a value measure rather than an earnings measure, i.e. the non-traded market risk VaR.

Although the underlying methodology to calculate the non traded VaR is identical to the one used in Traded Management VaR, the two measures are not directly comparable. The Non-Traded VaR represents the volatility to capital driven by the Available for Sale exposures. These exposures are in the banking book and do not meet the criteria for trading book treatment.

Volatility of the AFS portfolio in Liquidity Pool

Analysis of Volatility of the Available for Sale portfolio in Liquidity Pool

For the year ended 31 December	2016			2015		
	Average £m	High £m	Low £m	Average £m	High £m	Low £m
Non-traded market Value at Risk (daily, 95%)	40	46	32	42	49	37

The Non-Traded VaR is mainly driven by volatility of interest rates in developed markets as shown in the chart above. The sharp reduction in Available for Sale VaR at the end of September was driven by a reduction in outright interest rate risk taken in the liquidity pool, which was re-established in early October.

Foreign exchange risk

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

a) Transactional foreign currency exposure
Transactional foreign exchange 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 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 functions 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, EUR and ZAR. 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 using the CET1 capital movements to broadly match the revaluation of the Group's foreign currency RWA exposures.

The economic hedges primarily represent the USD and EUR preference shares and Additional Tier 1 (AT1) instruments that are held as equity, accounted for at historic cost under IFRS and do not qualify as hedges for accounting purposes.

Table 72: Functional currency of operations

Functional currency of operations (audited)

	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	Economic hedges £m	Remaining structural currency exposures £m
As at 31 December 2016						
USD	**29,460**	**12,769**	**–**	**16,691**	**7,898**	**8,793**
EUR	**2,121**	**363**	**–**	**1,758**	**2,053**	**(295)**
ZAR	**3,679**	**–**	**2,571**	**1,108**	**–**	**1,108**
JPY	**438**	**209**	**224**	**5**	**–**	**5**
Other	**2,793**	**–**	**1,318**	**1,475**	**–**	**1,475**
Total	**38,491**	**13,341**	**4,113**	**21,037**	**9,951**	**11,086**
As at 31 December 2015						
USD	24,712	8,839	1,158	14,715	7,008	7,707
EUR	2,002	630	14	1,358	1,764	(406)
ZAR	3,201	4	99	3,098	–	3,098
JPY	383	168	205	10	–	10
Other	2,927	–	1,294	1,633	–	1,633
Total	33,225	9,641	2,770	20,814	8,772	12,042

During 2016, total structural currency exposure net of hedging instruments decreased by £1.0bn to £11.1bn (2015: £12.0bn). The decrease was broadly driven by an increase in ZAR hedges following Barclays' announcement to reduce the Group's interest in BAGL. Foreign currency net investments increased by £5.3bn to £38.5bn (2015: £33.2bn) driven predominantly by the appreciation of USD against GBP. The hedges associated with these investments increased by £5.0bn to £17.5bn (2015: £12.4bn).

Pension risk review

The UK Retirement Fund (UKRF) represents approximately 96% (2015: 92%) of the Group's total retirement benefit obligations globally. As such, this risk review section will focus exclusively on the UKRF. Note that 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 estimated market value of the pension fund assets might decline, or investment returns might reduce; or the estimated value of the pension liabilities might increase.

See page 155 for more information on how pension risk is managed.

Assets

The Trustee Board of the UKRF defines an overall long-term investment strategy for the UKRF, with investments across a broad range of asset classes. This ensures an appropriate mix of return seeking assets as well as liability matching assets to better match the future pension obligations. The main market risks within the asset portfolio are against interest rates and equities, and the split of scheme assets is shown within Note 35 to the Barclays PLC financial statements. The fair value of the UKRF assets was £31.8bn as at 31 December 2016.

Liabilities

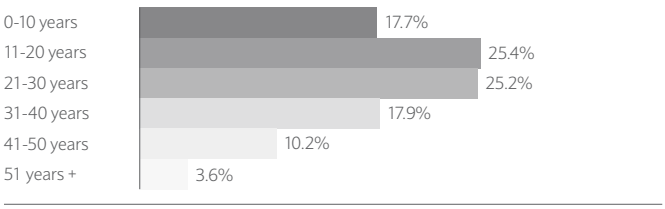
The UKRF retirement benefit obligations are a series of future cash flows with relatively long duration. On an IAS19 basis these cash flows are sensitive to changes in the expected long-term price inflation rate (RPI) and the discount rate (AA corporate bond yield curve):

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

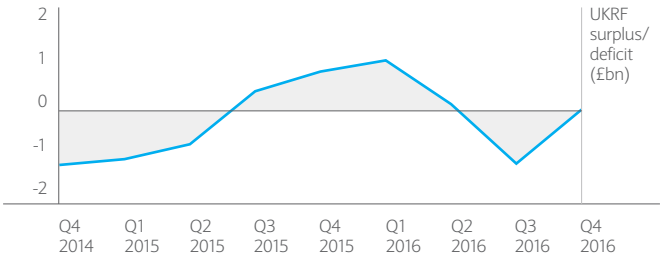
Pension risk is generated through the Group's defined benefit schemes and this risk is set to reduce over time as our main defined benefit scheme is closed to new entrants. The chart below outlines the shape of the UKRF's liability cash flow profile (as at 31 December 2016) that takes account of future inflation indexing of payments to beneficiaries, with the majority of the cash flows (approximately 83%) falling between 0 and 40 years, peaking within the 11 to 20 year band and reducing thereafter. The shape may vary depending on changes in inflation expectation and mortality.

For more detail on the UKRF's financial and demographic assumptions see Note 35 to the financial statements of the Barclays PLC Annual Report.

Proportion of liability cash flows



Net IAS19 position



The graph above shows the UKRF's net IAS19 pension position for each quarter-end for the past two years. The volatility shown by the fluctuation in the net IAS19 pension position is reflective of the movements observed in the market.

In Q2 2016, the UKRF IAS19 position deteriorated as the AA discount rate moved lower, driven by both a decrease in long-dated government bond yields as well as tightening in credit spreads.

During H2 2016, this trend continued driven by the outcome of the EU Referendum in June as well as the Bank of England's announcement on quantitative easing in August. These events drove significant market moves adversely affecting the UKRF AA discount rate. For example, the market index IBOXX £-Corp AA yield was 53bps lower between June and September.

Gilt yields reverted higher in the months following September which was also reflected in higher AA discount rate. As a result, the net IAS19 position reverted close to zero at YE2016.

Please see Note 35 of the Barclays PLC Annual Report for the sensitivity of the UKRF to change in key assumptions.

Analysis of market risk

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 positions on a total portfolio level. This ensures that the risks, diversification and liability matching characteristics of the UKRF obligations and investments are adequately captured. VaR is measured and monitored on a monthly basis. Risks are reviewed and reported regularly at forums including Market Risk Committee, Group Risk Committee, Pensions Management Group and Pension Executive Board. The VaR model takes into account the valuation of the liabilities based on an IAS19 basis (see Note 35 to the Barclays PLC financial statements). The Trustee receives quarterly VaR measures on a funding basis.

The pension liability is also sensitive to post-retirement mortality assumptions, which is also reviewed regularly. See Note 35 to the financial statements of the Barclays PLC Annual Report for more details.

In addition to this, 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 included as part of the regulatory stress tests.

Barclays' defined benefit pension schemes affects capital in two ways:

- an IAS19 deficit is treated as a liability on the Group's balance sheet. Movements in a deficit due to re-measurements, including actuarial losses, are recognised immediately through Other Comprehensive Income and as such reduces shareholders' equity and CET1 capital. An IAS19 surplus is treated as an asset on the balance sheet and increases shareholders' equity, but is then deducted for the purposes of determining CET1 capital.
- for the Group's statutory balance sheet, an IAS19 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 any 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 regulatory minimum requirement for CET1 capital, tier 1 capital and total capital. More detail on minimum regulatory requirements can be may be found in the Treasury and Capital Risk section on page 155.

Analysis of securitisation exposures

This section shows the credit, counterparty credit and market risk arising from securitisation positions. These are already included in previous related sections.

Securitisation positions are subject to a distinct risk weighted assets calculation framework and are therefore disclosed separately.

Securitisation exposures have increased by 60.7% to £31.9bn, primarily driven by Barclays obtaining tranched credit protection on £7.8bn of existing Corporate and SME loans and £2.2bn of existing commercial mortgages. The transactions involved Barclays transferring a significant portion of the credit risk on the underlying assets to external counterparties.

Banking book exposures have increased by

£11.9bn

Trading book exposures have increased by

£0.1bn

Analysis of securitisation exposures

For regulatory disclosure purposes, 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 undertaken for a variety of reasons including the transfer of risk for Barclays or on behalf of a client.

The tables below detail exposures from securitisation trades entered into by the Group and cover banking and trading book exposures. Only transactions that achieved significant risk transfer (SRT) are included in these tables. Where securitisations do not achieve SRT (for instance when they are entered into for funding purposes), the associated exposures are presented alongside the rest of the banking book or trading book positions in other sections of the Pillar 3 report. In line with prior year disclosures, CCR securitisation disclosures are part of banking book tables.

Please see page 147 for further details on Barclays' securitisation activities.

Barclays completes the Pillar 3 disclosures in accordance with the Basel framework and CRD IV, which prescribes minimum disclosure requirements. The following quantitative disclosures are not applicable or result in a nil return for the current and prior reporting period.

Securitised facilities subject to an early amortisation period – there were no securitisation positions backed by revolving credit exposures, where Barclays acted as the originator and capital relief was sought.

Re-securitisation exposures subject to hedging insurance or involving financial guarantors – there were no such exposures in the current or prior reporting period.

A separate table for capital deduction is no longer applicable, in line with CRD IV.

Barclays PLC Balance sheet – statutory versus regulatory view for securitisation exposures

Table 1 shows a reconciliation between Barclays Plc balance sheet for statutory purposes versus a regulatory view. Specifically for securitisation positions, the regulatory balance sheet will differ from the statutory balance sheet due to the following:

- deconsolidation of certain securitisation entities that are considered for accounting purposes, but not for regulatory purposes (refer to page 149 for a summary of accounting policies for securitisation activities)
- securitised positions are treated in accordance with the Group's accounting policies, as set out in the 2016 Annual Report. Securitisation balances will therefore be disclosed in the relevant asset classification according to their accounting treatment
- some securitisation positions are considered to be off balance sheet and relate to undrawn liquidity lines to securitisation vehicles, market risk derivative positions and where Barclays is a swap provider to a Special Purpose Vehicle (SPV). These balances are disclosed in Table 77.

Location of securitisation risk disclosures

As securitisation exposures are subject to a distinct risk weighted asset framework, additional securitisation disclosures are provided separate to the credit, counterparty and market risk disclosures.

This table shows a reconciliation of securitisation exposures in the following section and where the balance can be found in the relevant credit, counterparty and market risk sections.

Table 73: Reconciliation of exposures and capital requirements relating to securitisations

As at 31 December 2016	Table number in this document	Exposure value £m	RWAs £m	Capital requirement £m
Banking book				
Standardised approach				
Credit risk	Tables 19, 20, 21	–	–	–
Total Standardised approach		–	–	–
Advanced IRB				
Credit risk	Tables 19, 20, 21	29,131	3,546	284
Counterparty credit risk	Tables 49, 50	1,171	391	31
Total IRB		30,302	3,937	315
Total banking book		30,302	3,937	315
Trading book				
Trading book – specific interest rate market risk				
Standardised approach	Table 65	1,485	933	75
Total trading book		1,485	933	75

Analysis of securitisation exposures

Table 74: Securitisation activity during the year

This table discloses a summary of the securitisation activity during 2016, including the amount of exposures securitised and recognised gain or loss on sale in the banking book and trading book. Barclays is involved in the origination of traditional and synthetic securitisations. A securitisation is considered to be synthetic where the transfer of risk is achieved through the use of credit derivatives or guarantee and the exposure remains on Barclays' balance sheet. A securitisation is considered to be traditional where the transfer of risk is achieved through the actual transfer of exposures to an SPV.

	Banking book				Trading book			
	Traditional £m	Synthetic £m	Total banking book £m	Gain/loss on sale £m	Traditional £m	Synthetic £m	Total trading book £m	Gain/loss on sale £m
As at 31 December 2016								
Originator								
Residential Mortgages	–	–	–	–	–	–	–	–
Commercial Mortgages	**4,629**	–	**4,629**	**36**	–	–	–	–
Credit Card Receivables	–	–	–	–	–	–	–	–
Leasing	–	–	–	–	–	–	–	–
Loans to Corporates or SMEs	**245**	**8,687**	**8,932**	**15**	–	–	–	–
Consumer Loans	–	–	–	–	–	–	–	–
Trade Receivables	–	–	–	–	–	–	–	–
Securitisations/Re-securitisations	–	–	–	–	–	–	–	–
Other Assets	–	–	–	–	–	–	–	–
Total	**4,874**	**8,687**	**13,561**	**51**	–	–	–	–
As at 31 December 2015								
Originator								
Residential Mortgages	–	–	–	–	–	–	–	–
Commercial Mortgages	3,536	–	3,536	47	–	–	–	–
Credit Card Receivables	–	–	–	–	–	–	–	–
Leasing	–	–	–	–	–	–	–	–
Loans to Corporates or SMEs	277	–	277	7	–	–	–	–
Consumer Loans	–	–	–	–	–	–	–	–
Trade Receivables	–	–	–	–	–	–	–	–
Securitisations/Re-securitisations	30	–	30	–	945	–	945	1
Other Assets	–	–	–	–	–	–	–	–
Total	3,843	–	3,843	54	945	–	945	1

The value of assets securitised in the banking book increased by £9.7bn to £13.6bn:

Synthetic

- Barclays synthetically securitised £8.7bn Loans to Corporates or SMEs and retained the senior and mezzanine tranches.

Traditional

- Barclays increased its Commercial Mortgages traditional securitisation activity by £1.1bn. Barclays' role in these transactions is to contribute the underlying mortgage loans to the securitisation and to act as lead manager, book runner or underwriter to distribute the issued securities. The amount shown in the above table represents Barclays' share of assets contributed to the securitisation, and is subject to ongoing regulatory discussion. Barclays contributed £4.6bn for securitisation of Commercial Mortgages in 2016, of which £2.2bn of the senior and mezzanine tranches were retained.
- As part of these transactions, Barclays held these assets on its balance sheet prior to securitisation.
- Barclays was also involved in European and US CLO transactions where it provided tranched limited recourse financing and contributed a portion of the underlying loan assets that had been previously held on Barclays' balance sheet. The value of assets contributed during 2016 was £245m to Loans to Corporates or SMEs.
- Barclays may participate in secondary trading of these positions in its trading book. As at 31 December 2016, the exposure value of positions held was £0.1m. These are not reflected in the above table as for trading book purposes, Barclays is considered to be an investor.

Barclays did not issue any trading book traditional Securitisation/Re-securitisation in 2016.

Analysis of securitisation exposures

Table 75: Assets awaiting securitisation

This table discloses the value of assets held on the balance sheet at year end and awaiting securitisation.

Exposure type	Banking book £m	Trading book £m
As at 31 December 2016		
Originator		
Residential Mortgages	–	–
Commercial Mortgages	240	–
Credit Card Receivables	–	–
Leasing	–	–
Loans to Corporates or SMEs	–	–
Consumer Loans	–	–
Trade Receivables	–	–
Securitisations/Re-securitisations	–	–
Other Assets	–	–
Total	240	–
As at 31 December 2015		
Originator		
Residential Mortgages	–	–
Commercial Mortgages	354	–
Credit Card Receivables	–	–
Leasing	–	–
Loans to Corporates or SMEs	–	–
Consumer Loans	–	–
Trade Receivables	–	–
Securitisations/Re-securitisations	–	–
Other Assets	–	–
Total	354	–

Banking book assets awaiting securitisation have remained materially consistent year on year.

Analysis of securitisation exposures

Table 76: Outstanding amount of exposures securitised – Asset value and impairment charges

This table presents the asset values and impairment charges relating to securitisation programmes where Barclays is the originator or sponsor. For programmes where Barclays contributed assets to a securitisation alongside third parties, the amount represents the entire asset pool. Barclays is considered a sponsor of a multi-seller asset-backed commercial paper (ABCP) conduit - Sheffield Receivables Corporation. Please note that Table 76 will not reconcile to Table 74, as Table 76 shows outstanding amount of exposure for the positions held/retained by Barclays. Table 74 shows the total position originated by Barclays in 2016.

	Banking book					Trading book
As at 31 December 2016	Traditional £m	Synthetic £m	Total banking book £m	Of which past due £m	Recognised losses £m	Traditional £m
Originator						
Residential Mortgages	3,218	–	3,218	659	–	–
Commercial Mortgages	7,070	–	7,070	18	–	–
Credit Card Receivables	–	–	–	–	–	–
Leasing	–	–	–	–	–	–
Loans to Corporates or SMEs	433	9,507	9,940	45	–	–
Consumer Loans	–	–	–	–	–	–
Trade Receivables	–	–	–	–	–	–
Securitisations/Re-securitisations	955	–	955	–	–	–
Other Assets	1,640	–	1,640	–	–	–
Total (Originator)	13,316	9,507	22,823	722	–	–
Sponsor						
Residential Mortgages	871	–	871	–	–	–
Commercial Mortgages	–	–	–	–	–	–
Credit Card Receivables	–	–	–	–	–	–
Leasing	1,020	–	1,020	8	–	–
Loans to Corporates or SMEs	182	–	182	–	–	–
Consumer Loans	4,999	–	4,999	61	–	–
Trade Receivables	473	–	473	1	–	–
Securitisations/Re-securitisations	–	–	–	–	–	–
Other Assets	96	–	96	–	–	–
Total (Sponsor)	7,641	–	7,641	70	–	–
Total	20,957	9,507	30,464	792	–	–

Analysis of securitisation exposures

Table 76: Outstanding amount of exposures securitised – Asset value and impairment charges continued

	Banking book					Trading book
As at 31 December 2015	Traditional £m	Synthetic £m	Total banking book £m	Of which past due £m	Recognised losses £m	Traditional £m
Originator						
Residential Mortgages	3,075	–	3,075	655	–	–
Commercial Mortgages	3,521	–	3,521	72	–	–
Credit Card Receivables	–	–	–	–	–	–
Leasing	–	–	–	–	–	–
Loans to Corporates or SMEs	1,216	1,164	2,380	85	–	–
Consumer Loans	–	–	–	–	–	–
Trade Receivables	–	–	–	–	–	–
Securitisations/Re-securitisations	1,012	–	1,012	–	–	–
Other Assets	268	–	268	–	–	–
Total (Originator)	9,092	1,164	10,256	812	–	–
Sponsor						
Residential Mortgages	889	–	889	–	–	–
Commercial Mortgages	–	–	–	–	–	–
Credit Card Receivables	–	–	–	–	–	–
Leasing	1,056	–	1,056	15	–	–
Loans to Corporates or SMEs	704	–	704	3	–	–
Consumer Loans	3,554	–	3,554	43	–	–
Trade Receivables	492	–	492	2	–	–
Securitisations/Re-securitisations	–	–	–	–	–	–
Other Assets	74	–	74	–	–	–
Total (Sponsor)	6,769	–	6,769	63	–	–
Total	15,861	1,164	17,025	875	–	–

Banking book securitised assets where Barclays is considered to be the originator or sponsor has increased by £13.4bn to £30.5bn, primarily driven by:

Originator

- Barclays synthetically securitised £8.7bn Loans to Corporates or SMEs and retained the senior and mezzanine tranches partially offset by £0.4bn amortisation of existing synthetic structure.
- Barclays originated a traditional securitisation of a £2.2bn portfolio of Commercial Mortgages and retained the senior and mezzanine tranches. The remaining year on year increase of £1.3bn is driven by programme balances associated with retained collectively immaterial positions.
- The increase in Other Assets of £1.4bn is driven by programme balances associated with retained collectively immaterial positions.

Sponsor

- Barclays continues to sponsor and provide liquidity and programme-wide credit enhancement to its conduit - Sheffield Receivables Corporation.
- There has been an overall increase of £0.8bn sponsored facilities for clients during the year.

Analysis of securitisation exposures

Table 77: Securitisation exposures – by exposure class

The table below discloses the aggregate amount of securitisation exposures held, which is consistent with Table 78, 80 and 81.

For originated positions, the table below reflects Barclays retained exposure in the securitisation programmes also disclosed in Table 76. For clarity, Table 76 discloses the underlying asset value of these programmes.

For invested and sponsored positions, the table below presents the aggregate amount of positions purchased.

	Banking book*[a,b]				Trading book*[a,b]		
As at 31 December 2016	Originator £m	Sponsor £m	Investor £m	Total banking book £m	Originator £m	Investor £m	Total trading book £m
On-balance sheet							
Residential Mortgages	21	–	795	816	–	602	602
Commercial Mortgages	2,171	–	2	2,173	–	20	20
Credit Card Receivables	–	–	367	367	–	103	103
Leasing	–	–	2	2	–	–	–
Loans to Corporates or SMEs	8,636	–	103	8,739	–	408	408
Consumer Loans	–	–	3,984	3,984	–	132	132
Trade Receivables	–	–	113	113	–	–	–
Securitisations/Re-securitisations	–	–	–	–	–	88	88
Other Assets	–	–	668	668	–	127	127
Total On-balance sheet	10,828	–	6,034	16,862	–	1,480	1,480
Off-balance sheet							
Residential Mortgages	494	634	2,222	3,350	–	5	5
Commercial Mortgages	147	–	262	409	–	–	–
Credit Card Receivables	–	–	387	387	–	–	–
Leasing	–	–	92	92	–	–	–
Loans to Corporates or SMEs	17	–	619	636	–	–	–
Consumer Loans	–	5,706	2,112	7,818	–	–	–
Trade Receivables	–	20	25	45	–	–	–
Securitisations/Re-securitisations	–	–	8	8	–	–	–
Other Assets	–	122	573	695	–	–	–
Total Off-balance sheet	658	6,482	6,300	13,440	–	5	5
Total	11,486	6,482	12,334	30,302	–	1,485	1,485

Analysis of securitisation exposures

Table 77: Securitisation exposures – by exposure class continued

	Banking book[a,b]				Trading book[a,b]		
As at 31 December 2015	Originator £m	Sponsor £m	Investor £m	Total banking book £m	Originator £m	Investor £m	Total trading book £m
On-balance sheet							
Residential Mortgages	140	–	1,886	2,026	–	633	633
Commercial Mortgages	24	–	–	24	–	15	15
Credit Card Receivables	–	–	108	108	–	72	72
Leasing	–	–	–	–	–	–	–
Loans to Corporates or SMEs	1,626	–	413	2,039	–	322	322
Consumer Loans	–	–	3,276	3,276	–	90	90
Trade Receivables	–	–	–	–	–	–	–
Securitisations/Re-securitisations	–	–	418	418	–	77	77
Other Assets	–	–	1,018	1,018	–	127	127
Total On-balance sheet	1,790	–	7,119	8,909	–	1,336	1,336
Off-balance sheet							
Residential Mortgages	265	594	841	1,700	–	19	19
Commercial Mortgages	63	–	204	267	–	–	–
Credit Card Receivables	–	–	419	419	–	–	–
Leasing	–	–	76	76	–	–	–
Loans to Corporates or SMEs	18	–	192	210	–	–	–
Consumer Loans	–	4,962	1,462	6,424	–	–	–
Trade Receivables	–	–	–	–	–	–	–
Securitisations/Re-securitisations	–	–	13	13	–	–	–
Other Assets	1	19	388	408	–	–	–
Total Off-balance sheet	347	5,575	3,595	9,517	–	19	19
Total	2,137	5,575	10,714	18,426	–	1,355	1,355

The total amount of securitisation positions in the banking book has increased by £11.9bn to £30.3bn, primarily driven by:

- increase in Commercial Mortgages driven by originated traditional securitisation programme where £2.2bn notes have been retained across senior and mezzanine tranches
- increase in Loans to Corporate or SMEs due to Barclays synthetically securitising £8.7bn portfolio and retaining £7.8bn notes in the senior and mezzanine tranches partially offset by £0.4bn amortisation of existing synthetic structure
- sponsored and invested positions in Consumer Loans increased by £1.7bn driven by client facilitation activity
- increase of £1.6bn in off balance sheet investor positions in Residential Mortgages driven by a new securitisation commitment.

Notes
a The exposure type is based on the asset class of underlying positions.
b Off-balance sheet relates to liquidity lines to securitisation vehicles, market risk derivative positions and where the Group is a swap provider to a SPV.

Analysis of securitisation exposures

Table 78: Securitisation exposures – by capital approach

This table discloses the total exposure value and associated capital requirement of securitisation positions held by the approach adopted in accordance with the Basel framework. Barclays has approval to use, and therefore applies the IRB approach for the calculation of its RWAs. The total population is as per Tables 77, 80 and 81.

	Exposure values				Capital requirements			
	Originator £m	Sponsor £m	Investor £m	Total £m	Originator £m	Sponsor £m	Investor £m	Total £m
As at 31 December 2016								
Banking book								
IRB approach								
Ratings Based Approach								
<= 10%	**9,544**	**1,602**	**5,493**	**16,639**	**57**	**10**	**34**	**101**
> 10% <= 20%	**928**	**223**	**3,805**	**4,956**	**12**	**2**	**39**	**53**
> 20% <= 50%	**682**	**54**	**1,006**	**1,742**	**19**	**1**	**19**	**39**
> 50% <= 100%	**144**	**–**	**241**	**385**	**7**	**–**	**14**	**21**
>100% <= 650%	**181**	**–**	**107**	**288**	**17**	**–**	**10**	**27**
> 650% < 1250%	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
= 1250% / Look through	**7**	**–**	**1,682**	**1,689**	**7**	**–**	**31**	**38**
Internal Assessment Approach	**–**	**4,603**	**–**	**4,603**	**–**	**36**	**–**	**36**
Supervisory Formula Method	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Total IRB	**11,486**	**6,482**	**12,334**	**30,302**	**119**	**49**	**147**	**315**
Standardised approach	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Total banking book	**11,486**	**6,482**	**12,334**	**30,302**	**119**	**49**	**147**	**315**
Trading book								
IRB approach								
Ratings Based Approach								
<= 10%	**–**	**–**	**780**	**780**	**–**	**–**	**5**	**5**
> 10% <= 20%	**–**	**–**	**161**	**161**	**–**	**–**	**2**	**2**
> 20% <= 50%	**–**	**–**	**278**	**278**	**–**	**–**	**6**	**6**
> 50% <= 100%	**–**	**–**	**120**	**120**	**–**	**–**	**6**	**6**
>100% <= 650%	**–**	**–**	**43**	**43**	**–**	**–**	**8**	**8**
> 650% < 1250%	**–**	**–**	**12**	**12**	**–**	**–**	**7**	**7**
= 1250% / Look through	**–**	**–**	**91**	**91**	**–**	**–**	**41**	**41**
Total trading book	**–**	**–**	**1,485**	**1,485**	**–**	**–**	**75**	**75**
As at 31 December 2015								
Banking book								
IRB approach								
Ratings Based Approach								
<= 10%	946	1,315	4,977	7,238	6	8	31	45
> 10% <= 20%	434	180	2,669	3,283	4	2	28	35
> 20% <= 50%	712	47	1,374	2,133	18	1	26	45
> 50% <= 100%	26	–	134	160	1	–	8	9
>100% <= 650%	13	–	25	38	5	–	4	8
> 650% < 1250%	–	–	2	2	–	–	1	1
= 1250% / Look through	6	–	1,533	1,539	4	–	108	112
Internal Assessment Approach	–	4,033	–	4,033	–	31	–	31
Supervisory Formula Method	–	–	–	–	–	–	–	–
Total IRB	2,137	5,575	10,714	18,426	38	42	206	286
Standardised approach	–	–	–	–	–	–	–	–
Total banking book	2,137	5,575	10,714	18,426	38	42	206	286
Trading book								
IRB approach								
Ratings Based Approach								
<= 10%	–	–	378	378	–	–	2	2
> 10% <= 20%	–	–	118	118	–	–	1	1
> 20% <= 50%	–	–	570	570	–	–	12	12
> 50% <= 100%	–	–	135	135	–	–	7	7
>100% <= 650%	–	–	75	75	–	–	13	13
> 650% < 1250%	–	–	25	25	–	–	14	14
= 1250% / Look through	–	–	54	54	–	–	38	38
Total trading book	–	–	1,355	1,355	–	–	87	87

Analysis of securitisation exposures

Table 78: Securitisation exposures – by capital approach continued

Risk Weighted Band	IRB S&P Equivalent Rating	STD S&P Equivalent Rating
<= 10%	AAA to A+ (Senior Position Only)	N/A
> 10% <= 20%	A to A- (Senior Position Only) / AAA to A+ (Base Case)	N/A
> 20% <= 50%	A to A- (Base Case)	AAA to AA-
> 50% <= 100%	BBB+ to BBB (Base Case)	A+ to A-
> 100% <= 650%	BBB- (Base Case) to BB (Base Case)	BBB+ to BBB-
> 650% < 1250%	BB- (Base Case)	BB to BB-
= 1250% / deduction	Below BB-	Below BB-

The securitisation positions in the banking book increased by £11.9bn to £30.3bn, primarily driven by:

Increase in the <=10% band:
- £7.3bn increase in synthetically securitised Loans to Corporates or SMEs with the Bank retaining the senior tranche.
- £1.7bn increase in traditionally securitised Commercial Mortgages with the Bank retaining the senior tranche.
- £1.3bn increase in Residential Mortgages positions driven by new securitisation commitment.

Increase in the > 10% <= 20% band:
- £0.3bn increase in synthetically securitised Loans to Corporates or SMEs with the Bank retaining the mezzanine tranche.
- £0.3bn increase in traditionally securitised Commercial Mortgages with the Bank retaining the mezzanine tranche.
- £1.0bn increase in traditional securitisation driven by client facilitation activity during the year.
- £0.1bn increase in Residential Mortgages positions is driven by a new securitisation positions.

Other movements:
- £0.2bn increase of synthetically securitised retained mezzanine tranches for Loans to Corporates or SMEs spread across multiple bands.
- £0.2bn increase of traditionally securitised retained mezzanine tranches for Commercial Mortgages spread across multiple bands.
- £0.2bn increase in Residential Mortgages positions is driven by a new securitisation positions.

Partially offset by £0.4bn amortisation of existing synthetic structure spread across multiple bands.

Table 79: Re-securitisation exposures – by risk weight band

This table is a subset of Table 78 and discloses Barclays exposures to re-securitisations by capital approach. For the purposes of the table below, a re-securitisation is defined as a securitisation where at least one of the underlying exposures is a securitisation position. This is in line with Basel capital requirements.

For securitisations with mixed asset pools (e.g. certain collateralised loan obligations), the exposure class disclosed in Tables 77, 80 and 81 represents the exposure class of the predominant underlying asset class.

	Exposure values				Capital requirements			
As at 31 December 2016	Originator £m	Sponsor £m	Investor £m	Total £m	Originator £m	Sponsor £m	Investor £m	Total £m
Banking book								
IRB approach								
Ratings Based Approach								
<= 10%	–	–	–	–	–	–	–	–
> 10% <= 20%	–	–	–	–	–	–	–	–
> 20% <= 50%	84	–	1	85	2	–	–	2
> 50% <= 100%	–	–	7	7	–	–	1	1
>100% <= 650%	–	–	–	–	–	–	–	–
> 650% < 1250%	–	–	–	–	–	–	–	–
= 1250% / Look through	–	–	–	–	–	–	–	–
Internal Assessment Approach	–	–	–	–	–	–	–	–
Supervisory Formula Method	–	–	–	–	–	–	–	–
Total IRB	84	–	8	92	2	–	1	3
Standardised approach	–	–	–	–	–	–	–	–
Total banking book	84	–	8	92	2	–	1	3
Trading book								
IRB approach								
Ratings Based Approach								
<= 10%	–	–	–	–	–	–	–	–
> 10% <= 20%	–	–	–	–	–	–	–	–
> 20% <= 50%	–	–	59	59	–	–	2	2
> 50% <= 100%	–	–	45	45	–	–	2	2
>100% <= 650%	–	–	–	–	–	–	–	–
> 650% < 1250%	–	–	–	–	–	–	–	–
= 1250% / Look through	–	–	–	–	–	–	–	–
Total trading book	–	–	104	104	–	–	4	4

Analysis of securitisation exposures

Table 79: Re-securitisation exposures – by risk weight band continued

	Exposure values				Capital requirements			
As at 31 December 2015	Originator £m	Sponsor £m	Investor £m	Total £m	Originator £m	Sponsor £m	Investor £m	Total £m
Banking book								
IRB approach								
Ratings Based Approach								
<= 10%	–	–	–	–	–	–	–	–
> 10% <= 20%	–	–	–	–	–	–	–	–
> 20% <= 50%	369	–	419	788	8	–	7	15
> 50% <= 100%	–	–	6	6	–	–	–	–
>100% <= 650%	–	–	–	–	–	–	–	–
> 650% < 1250%	–	–	–	–	–	–	–	–
= 1250% / Look through	–	–	334	334	–	–	67	67
Internal Assessment Approach	–	–	–	–	–	–	–	–
Supervisory Formula Method	–	–	–	–	–	–	–	–
Total IRB	369	–	759	1,128	8	–	74	82
Standardised approach	–	–	–	–	–	–	–	–
Total banking book	369	–	759	1,128	8	–	74	82
Trading book								
IRB approach								
Ratings Based Approach								
<= 10%	–	–	–	–	–	–	–	–
> 10% <= 20%	–	–	–	–	–	–	–	–
> 20% <= 50%	–	–	67	67	–	–	2	2
> 50% <= 100%	–	–	42	42	–	–	2	2
>100% <= 650%	–	–	2	2	–	–	–	–
> 650% < 1250%	–	–	–	–	–	–	–	–
= 1250% / Look through	–	–	–	–	–	–	–	–
Total trading book	–	–	111	111	–	–	4	4

Decrease in the banking book > 20% <= 50% and 1250% / Look through bands were primarily driven by £0.9bn disposal of Non Core exposures.

Analysis of securitisation exposures

Table 80: Aggregate amount of securitised positions retained or purchased by geography – banking book
This table presents total banking book securitised exposure type by geography, based on location of the counterparty.

Exposure type	United Kingdom £m	Europe £m	Americas £m	Africa and Middle East £m	Asia £m	Total £m
As at 31 December 2016						
Residential Mortgages	**3,660**	**122**	**15**	**199**	**170**	**4,166**
Commercial Mortgages	**2,582**	**–**	**–**	**–**	**–**	**2,582**
Credit Card Receivables	**–**	**–**	**754**	**–**	**–**	**754**
Leasing	**2**	**–**	**92**	**–**	**–**	**94**
Loans to Corporates or SMEs	**3,857**	**2,050**	**3,468**	**–**	**–**	**9,375**
Consumer Loans	**879**	**792**	**10,066**	**–**	**65**	**11,802**
Trade Receivables	**138**	**–**	**20**	**–**	**–**	**158**
Securitisations/Re-securitisations	**–**	**–**	**8**	**–**	**–**	**8**
Other Assets	**–**	**1**	**1,359**	**–**	**3**	**1,363**
Total	**11,118**	**2,965**	**15,782**	**199**	**238**	**30,302**
As at 31 December 2015						
Residential Mortgages	1,641	21	1,827	132	106	3,727
Commercial Mortgages	86	–	205	–	–	291
Credit Card Receivables	–	–	527	–	–	527
Leasing	–	–	76	–	–	76
Loans to Corporates or SMEs	460	122	1,667	–	–	2,249
Consumer Loans	1,221	628	7,943	–	–	9,792
Trade Receivables	–	–	–	–	–	–
Securitisations/Re-securitisations	202	128	101	–	–	431
Other Assets	–	–	1,178	19	136	1,333
Total	3,610	899	13,524	151	242	18,426

Banking book exposures increased by £11.9bn to £30.3bn, primarily driven by increases in United Kingdom and Americas:

United Kingdom: increased by £7.5bn primarily driven by
- Increase in Commercial Mortgages driven by originated traditional securitisation programme where £2.2bn notes have been retained across senior and mezzanine tranches.
- Increase in Loans to Corporate or SMEs due to Barclays synthetically securitising and retaining £3.7bn in the senior and mezzanine tranches.
- Increase of £1.6bn in Residential Mortgages driven by a new securitisation commitment.

Americas: increased by £2.3bn primarily driven by
- Increase in loans to Corporate or SMEs due to Barclays synthetically securitising and retaining £2.4bn of senior and mezzanine tranches, partially offset by £0.4bn amortisation of existing synthetic structure.
- Consumer Loans increase by £1.7bn for on- and off-balance sheet driven by client facilitation activity during the year.
- Residential Mortgages £0.4bn decrease driven by reduction in client activity.

Europe: increased by £2.1bn primarily driven by
- Increase in Loans to Corporate or SMEs due to Barclays synthetically securitising and retaining £1.7bn of senior and mezzanine tranches.

Analysis of securitisation exposures

Table 81: Aggregate amount of securitised positions retained or purchased by geography – trading book

This table presents total trading book securitised exposure type by geography. The country is based on the country of operation of the issuer.

Exposure type	United Kingdom £m	Europe £m	Americas £m	Africa and Middle East £m	Asia £m	Total £m
As at 31 December 2016						
Residential Mortgages	**591**	**1**	**15**	**–**	**–**	**607**
Commercial Mortgages	**–**	**–**	**20**	**–**	**–**	**20**
Credit Card Receivables	**–**	**–**	**103**	**–**	**–**	**103**
Leasing	**–**	**–**	**–**	**–**	**–**	**–**
Loans to Corporates or SMEs	**16**	**157**	**235**	**–**	**–**	**408**
Consumer Loans	**–**	**–**	**132**	**–**	**–**	**132**
Trade Receivables	**–**	**–**	**–**	**–**	**–**	**–**
Securitisations/Re-securitisations	**88**	**–**	**–**	**–**	**–**	**88**
Other Assets	**52**	**–**	**75**	**–**	**–**	**127**
Total	**747**	**158**	**580**	**–**	**–**	**1,485**
As at 31 December 2015						
Residential Mortgages	561	1	90	–	–	652
Commercial Mortgages	–	–	15	–	–	15
Credit Card Receivables	16	–	56	–	–	72
Leasing	–	–	–	–	–	–
Loans to Corporates or SMEs	161	8	153	–	–	322
Consumer Loans	4	–	86	–	–	90
Trade Receivables	–	–	–	–	–	–
Securitisations/Re-securitisations	77	–	–	–	–	77
Other Assets	97	–	30	–	–	127
Total	916	9	430	–	–	1,355

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 2016.

Key metrics

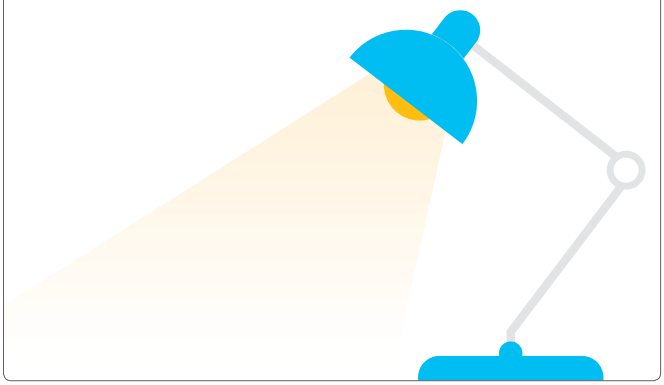
£56.7bn RWA

Operational risk RWAs remained unchanged during the year

- Barclays' operational risk RWA requirement has remained unchanged at £56.7bn.
- Disposal of Non-Core businesses has resulted in the reallocation of operational risk RWAs from Non-Core to Head Office

For the purpose of risk weighted assets, conduct risk remediation provisions have been included within this operational risk section.

Conduct risk is a separate principal risk and is covered more fully on page 164 and page 165.



Analysis of operational risk

Operational risk weighted assets

Operational risks are inherent in the Group's business activities and it is not always cost effective or possible to attempt to eliminate all operational risk. The operational risk management framework is therefore focussed on ensuring operational risks are identified, assessed and mitigated within the Group's approved risk appetite. More material losses are less frequent and the Group seeks to reduce the likelihood of these in accordance with its risk appetite.

The Operational principal risk comprises the following risks: financial reporting, fraud, information, payments process, people, premises and security, supplier, tax, technology (including cyber) and transaction operations. In 2016 legal risk and financial crime risk was managed as part of operational risk.

Conduct risk is a separate principal risk but for the purpose of deriving risk weighted assets for operational risk, conduct risk remediation provisions are included.

For definitions of these risks see page 159. In order to ensure complete coverage of the potential adverse impacts on the Group arising from operational risk, the operational risk taxonomy extends beyond the operational risks listed above to cover areas included within conduct and legal risk.

The following table details the Group's operational risk RWAs. Barclays has approval from the PRA to calculate its operational risk capital requirement using an Advanced Measurement Approach (AMA), although recently acquired businesses are excluded from this approval. Barclays uses the Basic Indicator Approach (BIA) to calculate capital for these businesses.

See pages 158 to 161 for information on operational risk management.

Table 82: Risk weighted assets for operational risk

	Barclays UK £m	Barclays International £m	Head Office[a] £m	Total Core £m	Barclays Non-Core £m	Total £m
As at 31 December 2016						
Operational risk						
Basic Indicator Approach	**790**	**1,527**	**639**	**2,956**	**296**	**3,252**
Standardised Approach	**–**	**–**	**–**	**–**	**–**	**–**
Advanced Measurement Approach	**11,503**	**26,011**	**11,517**	**49,031**	**4,377**	**53,408**
Total operational risk RWAs	**12,293**	**27,538**	**12,156**	**51,987**	**4,673**	**56,660**
As at 31 December 2015						
Operational risk						
Basic Indicator Approach	1,000	1,995	639	3,634	74	3,708
Standardised Approach	–	–	–	–	–	–
Advanced Measurement Approach	11,174	25,662	7,364	44,200	8,752	52,952
Total operational risk RWAs	12,174	27,657	8,003	47,834	8,826	56,660

Barclays' operational risk RWA requirement has remained static at £56.7bn, pending regulatory approval for AMA model enhancements. Barclays currently holds sufficient operational risk capital to cover the range of potential extreme operational risks the Group faces.

Disposal of Non-Core businesses has resulted in the reallocation of AMA RWAs of £4.4bn from Non-Core to Head Office.

Note
a Includes BAGL

Operational risk profile

During 2016, total operational risk losses decreased to £221.7m (2015: £324.3m) with a 6% reduction in the number of recorded events compared to prior year. The loss for the year was primarily driven by a limited number of events in execution, delivery and process management categories and external fraud.

Within operational risk, a high proportion of risk events have a low associated financial cost and a very small proportion of operational risk events will have a material impact on the financial results of the Group. In 2016, 90.6% of the Group's net reportable operational risk events had a value of £50,000 or less (2015: 87.9%) and accounted for 25.5% (2015: 14.1%) of the Group's total net loss impact.

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

- Execution, delivery and process management impacts increased to £131.9m (2015: £122.0m) and accounted for 59.5% (2015: 37.6%) of overall 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. The increases in impacts were largely driven by limited number of events with higher loss values.
- External fraud (62.0%) is the category with the highest frequency of events where high volume, low value events are also consistent with industry experience, driven by debit and credit card fraud. This accounted for 27.4% of overall operational risk losses in the year from 20.5% last year.

The Group's operational risk profile is informed by bottom-up risk assessments undertaken by each business unit and top-down qualitative review from the operational risk management for each risk type. External fraud and technology are highlighted as key operational risk exposures. The operational risk profile is also informed by a number of risk themes: change, resilience and cyber security. These represent material risk to Barclays but have scope which sits across multiple risk types, and therefore require a risk management approach which is integrated within relevant risk and control frameworks.

Investment continues to be made in new and enhanced fraud prevention systems and tools to combat the increasing level of fraud attempts being made and to minimise any disruption to genuine transactions. Fraud remains an industry-wide threat and the Bank continues to work closely with external partners on various prevention initiatives. Technology, resilience and cyber security risks evolve rapidly so the Bank maintains continued focus and investment in our control environment to manage these risks, and actively partners with peers and relevant organisations to understand and disrupt threats originating outside the Bank.

For further information see Operational Risk Management section (pages 158 to 161).

Operational risk events by risk category
% of total risk events by count

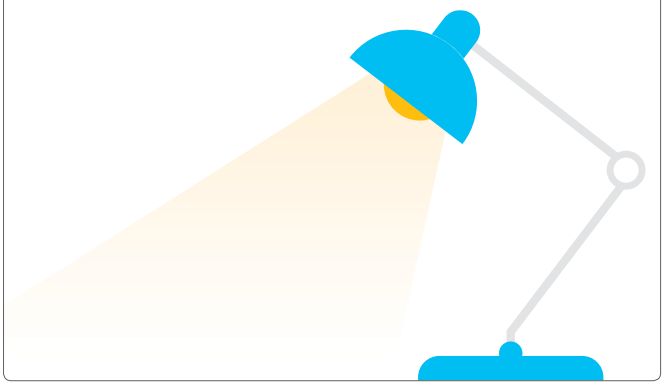
Operational risk events by risk category
% of total risk events by value

Note
a The data disclosed include operational risk losses for reportable events (including Africa) having impact of > £10,000 and exclude events that are conduct risk, aggregate and boundary events. A boundary event is an operational risk event that results in a credit risk impact. Legal Risk Events are included. Due to the nature of risk events that keep evolving, prior year losses are updated.

Barclays' approach to managing risks

Contents

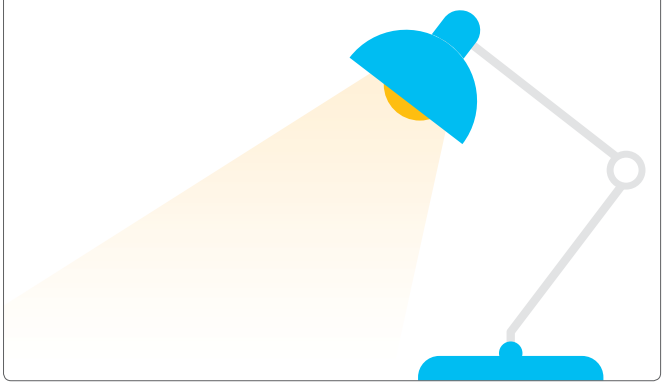
Barclays' approach to managing risks



Risk management strategy, governance and risk culture

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

- A discussion of how our risk management strategy is designed to foster a strong risk culture is contained on pages 113 to 114.
- A governance structure, encompassing the organisation of the function as well as executive and Board committees, supports the continued application of the Enterprise Risk Management Framework (ERMF). This is discussed in pages 111 to 113.
- The ERMF sets out the tools, techniques and organisational arrangements to ensure all material risks are identified and understood (see pages 110).
- Pages 114 to 117 describe Group-wide risk management tools that support risk management, ExCo and the Board in discharging their responsibilities, and how they are applied in the strategic planning cycle.



Introduction

Barclays engages in activities which entail risk taking, every day, throughout its business. This section introduces these risks, and outlines key governance arrangements for managing them. These include roles and responsibilities, frameworks, policies and standards, assurance and lessons learned processes. The Group's approach to fostering a strong Risk Culture is also described.

Enterprise Risk Management Framework (ERMF)

The Group has clear risk management objectives and a strategy to deliver them through core risk management processes. The ERMF sets the strategic direction by defining clear standards, objectives and responsibilities for all areas of Barclays. It supports the CEO and CRO in embedding effective risk management and a strong Risk Culture.

The ERMF sets out:

- Principal Risks faced by the Group
- Risk Appetite requirements
- Roles and responsibilities for risk management
- Risk Committee structure.

A revised ERMF was approved by the Board in December 2016. This includes a revised risk taxonomy comprising eight Principal Risks. Credit, market, funding, operational and conduct risk have been aligned to this new taxonomy and the management of these risks has not materially changed. Model risk, reputation risk and legal risk are newly classified as Principal Risks in the latest version of the ERMF, reflecting the heightened importance of these risk types in the current environment. In 2016, Model risk was managed in accordance with dedicated policies linked to the ERMF. These policies supplemented the key risk control frameworks underlying the financial risk types and applied to all businesses and functions in which financial risks were incurred or managed. Reputation risk was considered as part of conduct risk and legal risk was included as a sub-risk type under operational risk. In this report, the Risk Management sections (page 110 to 169) follows the new Principal Risk taxonomy of eight risks, reflecting our current approach to risk management. The Risk Performance sections (page 32 to 107) follow the Principal Risk taxonomy (of five risks) which prevailed during 2016. Information on reputation risk performance is included as part of the Conduct Risk section of the Barclays PLC 2016 Annual Report (pages 227 to 228). Information on legal risk performance can be found in the Material Existing and Emerging Risks section in the Barclays PLC 2016 Annual Report (pages 136 to 144), the Supervision and Regulation section (Barclays PLC 2016 Annual Report pages 229 to 236) and Note 29 to the Financial Statements (Barclays PLC 2016 Annual Report page 331). The definition of the Three Lines of Defence and associated responsibilities were also revised. The ERMF also contains a revised governance structure, including new Group and Business Risk committees, with representation from the First and Second Lines of Defence.

Principal Risks

The ERMF identifies Principal Risks and sets out responsibilities and risk management standards. Note that Legal, Reputation and Model risks are Principal Risks from January 2017 following Board approval in December 2016.

Financial Principal Risks:

- Credit risk: The risk of loss to the firm from the failure of clients, customers or counterparties, including sovereigns, to fully honour their obligations to the firm, 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 firm'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: This comprises:
  - Liquidity risk: The risk that the firm 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 firm 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 includes the risk from the firm's pension plans
  - Interest rate risk in the banking book: The risk that the firm is exposed to capital or income volatility because of a mismatch between the interest rate exposures of its (non-traded) assets and liabilities.

Non-financial Principal Risks:

- Operational risk: The risk of loss to the firm 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.
- Model risk: The risk of the potential adverse consequences from financial assessments or decisions based on incorrect or misused model outputs and reports
- Reputation risk: The risk that an action, transaction, investment or event will reduce trust in the firm's integrity and competence by clients, counterparties, investors, regulators, employees or the public
- Conduct risk: The risk of detriment to customers, clients, market integrity, competition or Barclays from the inappropriate supply of financial services, including instances of wilful or negligent misconduct
- Legal risk: The risk of loss or imposition of penalties, damages or fines from the failure of the firm to meet its legal obligations including regulatory or contractual requirements.

Risk appetite for the Principal Risks

Risk Appetite is defined as the level of risk which the firm is prepared to accept in the conduct of its activities. The Risk Appetite of the firm:

- specifies the level of risk we are willing to take and why, to enable specific risk taking activities
- considers all Principal Risks individually and, where appropriate, in aggregate
- communicates the acceptable level of risk for different risk types; this may be expressed in financial or non-financial terms, and is measured and effectively monitored
- describes agreed parameters for the firm's performance under varying levels of financial stress with respect to profitability
- is considered in key decision-making processes, including business planning, mergers and acquisitions, new product approvals and business change initiatives.

Risk Appetite is approved and disseminated across legal entities and businesses, including by use of Mandate and Scale limits to enable and control specific activities that have material concentration risk implications for the firm. These limits also help reduce the likelihood and size of one-off losses. The Risk Appetite must be formally reviewed on at least an annual frequency in conjunction with the Medium Term Planning (MTP) process and approved by the Board.

Roles and responsibilities in the management of risk – the Three Lines of Defence

All colleagues have a responsibility to contribute to the risk management of the group. These responsibilities are set out in the "Three Lines of Defence". In 2016 these definitions were simplified. Regardless of their function, all teams who manage processes in the firm are responsible for designing, implementing, remediating, monitoring and testing the controls for those processes.

First Line of Defence:
The First Line comprises all employees engaged in the revenue generating and client facing areas of the firm and all associated support functions, including Finance, Treasury, Technology and Operations, Human Resources etc. Employees in the First Line are responsible for:

- identifying all the risks in the activities in which they are engaged, and developing appropriate policies, standards and controls to govern their activities
- operating within any and all limits which the Risk and Compliance functions establish in connection with the Risk Appetite of the firm
- escalating risk events to senior managers and Risk and Compliance.

Internal controls are critical to running a cost-effective and stable business. To ensure these controls remain strong, sustainable, and efficient the new strategic position of Chief Controls Officer has been created. The Chief Controls Office will help to maintain and enhance an effective and consistent control framework across the organisation.

The first line must establish their own policies and controls (subject to the Controls Framework of the firm), particularly with respect to operational activities, and require their colleagues to manage all controls to specified tolerances. These control-related activities are also considered First Line and are permitted so long as they are within any applicable limits established by Risk or Compliance. All activities in the First Line are subject to oversight from the relevant parts of the Second and Third Lines.

Second Line of Defence:
Employees of Risk and Compliance comprise the Second Line of Defence. The role of the Second Line is to establish the limits, rules and constraints under which First Line activities shall be performed, consistent with the Risk Appetite of the firm, and to monitor the performance of the First Line against these limits and constraints.

The Second Line may not establish limits for all First Line activities, especially those related to Operational Risk. The controls for these will ordinarily be established by Controls Officers operating within the Controls Framework of the firm, under the oversight of the Second Line.

The Second Line can also undertake certain additional activities if, in the judgement of the Group CRO, this will reduce the firm's exposure to risk.

Third Line of Defence:
Employees of Internal Audit comprise the Third Line of Defence. They provide independent assurance to the Board and Executive Management over the effectiveness of governance, risk management and control over current, systemic and evolving risks.

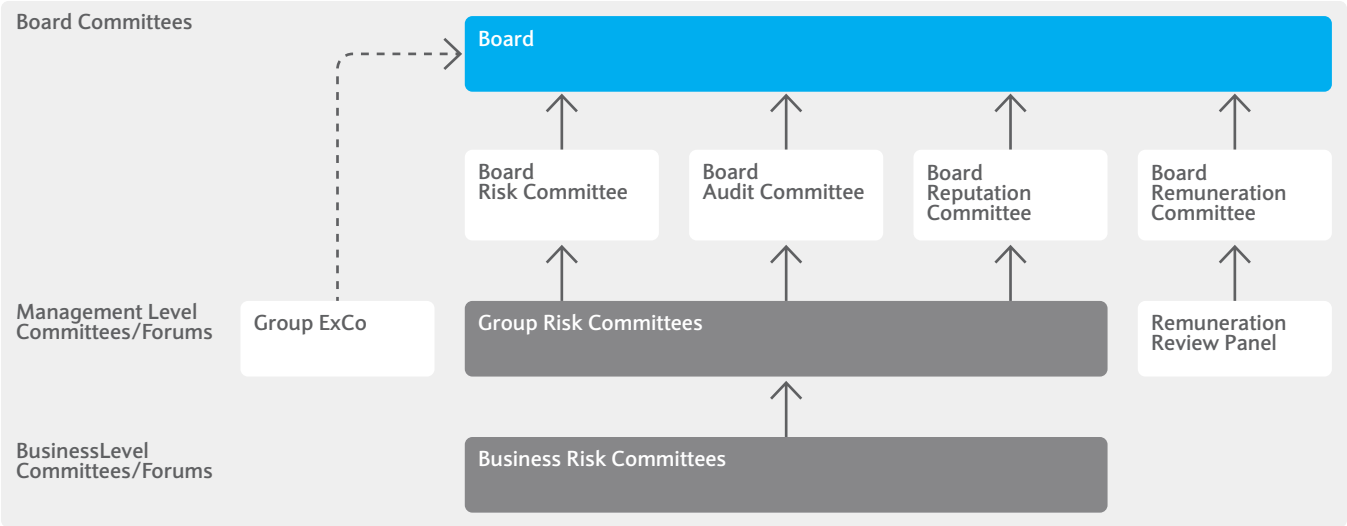
The Legal department does not sit in any of the three lines, but supports them all. The Legal department is, however, subject to oversight from Risk and Compliance, with respect to Operational and Conduct Risks.

Roles and responsibilities in the management of risk – risk committees

Business Risk Committees consider risk matters relevant to their business, and escalate as required to the Group Risk Committee (GRC), whose Chairman in turn escalates to Board Committees and the Board.

There are five Board-level for which review and monitor risk across the Group. These are: the main Board, the Board Risk Committee, the Board Audit Committee, the Board Reputation Committee and the Board Remuneration Committee.

The Chairman of each Committee prepares a statement each year on the committee's activities, which is included in the Annual Report from page 54 to 76.



The Board
One of the Board's (Board of Directors of Barclays PLC) responsibilities is the approval of Risk Appetite (see the Risk Management and Strategy section on page 114), which is the level of risk the Group chooses to take in pursuit of its business objectives. The Group CRO (GCRO) regularly presents a report to the Board summarising developments in the risk environment and performance trends in the key portfolios. The Board is also responsible for the ERMF. It oversees the management of the most significant risks through regular review of risk exposures. Executive management responsibilities relating to this are set out in the ERMF.

The Board Risk Committee (BRC)
The BRC monitors the Group's risk profile against the agreed financial appetite. Where actual performance differs from expectations, the actions taken by management are reviewed to ensure that the BRC is comfortable with them. After each meeting, the Chairman of the BRC prepares a report for the next meeting of the Board. All members are independent executive directors. The Group Finance Director (GFD) and the GCRO attend each meeting as a matter of course.

The BRC also considers the Group's risk appetite statement for operational risk and evaluates the Group's operational risk profile and operational risk monitoring.

The BRC receives regular and comprehensive reports on risk methodologies, the effectiveness of the risk management framework, and the Group's risk profile, including the key 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 CRO or senior risk managers in the businesses.

The Board Reputation Committee (RepCo)
The RepCo reviews management's recommendations on conduct and reputational risk and the effectiveness of the processes by which the Group identifies and manages these risks. It also reviews and monitors the effectiveness of Barclays' Citizenship strategy, including the management of Barclays' economic, social and environmental contribution.

In addition, the Board Audit and Board Remuneration Committees receive regular risk reports to assist them in the undertaking of their duties.

The 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). It also receives a quarterly review of the adequacy of impairment allowances, which it reviews relative to the risk inherent in the portfolios, the business environment, the Group's policies and methodologies and the performance trends of peer banks. The Chairman of the BAC also sits on the BRC.

The Board Remuneration Committee (RemCo)
The RemCo receives a detailed report on risk management performance from the BRC, regular updates on the risk profile and proposals on an ex-ante and ex-post risk adjustments to variable remuneration. These inputs are considered in the setting of performance incentives.

Summaries of the relevant business, professional and risk management experience of the Directors of the Board are presented in the Board of Directors section on pages 51 to 52 of the 2016 Annual Report. 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 at: home.barclays/about-barclays/barclays-corporate-governance/board-committees.html

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 chairman. Topics that are regularly covered include:

- Financial and Operational risk profile
- Risk perspective on medium-term plans and strategy
- Risk Appetite
- Results of stress tests, including CCAR
- Risk inputs into remuneration decisions
- Other technical topics, e.g. Model risk.

In addition to regular topics, committees consider ad hoc papers on current risk topics, such as:

- Political events and their potential impacts on Barclays and its customers
- Economic developments in major economies or sectors
- Impacts of key market developments on the risk management of the firm.

Reports are generally presented by CROs or other accountable executives. Occasionally subject matter experts are delegated to present specific topics of interest. Report presenters are responsible for ensuring the processes for creating reports include appropriate controls and that these are operated effectively.

Roles and responsibilities in the management of risk – senior management

Certain roles within Barclays carry specific responsibilities and accountabilities with respect to risk management and the ERMF.

Group CEO Officer (CEO)
The CEO is accountable for leading the development of Barclays' strategy and business plans that align to our Goal, Purpose and Values within the approved Risk Appetite, and for managing and organising executive management to ensure these are executed. Managing Barclays' financial and operational performance within the approved Risk Appetite is ultimately the CEO's responsibility.

Specifically a crucial role of the CEO is to appoint the most senior Risk owners at the executive level including the Chief Risk Officer, Chief Compliance Officer and Group General Counsel, and all Chief Executive officers of business units. He must work with them to embed a strong Risk Culture within the firm, with particular regard to the identification, escalation and management of risk matters.

Group Chief Risk Officer (CRO)
The Group CRO leads the Risk Function across Barclays. His responsibilities include developing and maintaining the ERMF and to clearly articulate Risk Culture objectives. Specific accountabilities include:

- preparing and recommending the firm's Risk Appetite to the Board Risk Committees
- developing, operating and maintaining a comprehensive risk management framework for Barclays to monitor and manage the risk profile of the firm against the approved Risk Appetite
- providing accurate, transparent and timely reporting to the Board that compares the Risk Appetite set for Barclays and the businesses (by risk type and in aggregate where appropriate), against the actual Risk Profile of the firm under normal and stressed scenarios
- defining the risk taxonomy (Principal Risks) and ensuring it remains relevant and comprehensive
- bringing a risk perspective to compensation decisions
- reporting to the Group Risk Committee, the Group Executive Committee, the Board and its relevant committees including the Board Risk Committee, regulators and other stakeholders on Barclays' risk positions, adherence to Risk Appetite and enterprise-wide risk and control.

Chief Compliance Officer
The Chief Compliance Officer is accountable to the Group CEO for the oversight of regulated activities undertaken by the Group, and leads the Compliance Function across Barclays. Specific accountabilities include:

- ensuring the Group's Conduct and Reputation Risks are effectively managed and escalated to the Board where appropriate
- setting minimum standards through compliance policies applicable globally and monitoring breaches, specially for Conduct and Reputation Risks and Financial Crime
- inputting into compensation structures, objectives and performance management of employees who can expose Barclays to significant risk
- ensuring there is a robust whistleblowing process in place on an enterprise-wide basis and for ensuring it is effectively managed
- using mandate to access any part of the organisation 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 or that could materially violate approve Risk Appetite guidelines.

Group General Counsel
The Group General Counsel is required to:

- develop and maintain the Legal Risk Framework
- define the Legal Risk Policies
- develop the Group-wide and Business Risk Appetite for Legal Risk.

Senior Managers Regime
A number of Members of the Board, the majority of the 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:

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

The SMR applies to specific legal entities. Within Barclays, the legal entities which are subject to the SMR are Barclays Bank PLC, Barclays Capital Securities Limited and Barclays Bank Trust Company Limited and the reference to "firm" above should be construed accordingly.

Frameworks, Policies and Standards

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

- frameworks cover the management processes for a collection of related activities and define the associated policies used to govern them
- policies set out control objectives, principles and other core requirements for the activities of the firm. Policies describe "what" must be done
- standards set out the key controls that ensure the objectives set out in the Policy are met, and who needs to carry them out. Standards describe "how" controls should be undertaken.

Frameworks, Policies and Standards are owned by the area responsible for performing the described activity. In particular, frameworks, policies and standards associated with the Principal Risks are owned and written by the Second Line of Defence.

The Group CRO is accountable for ensuring that frameworks, policies and associated standards are developed and implemented for each of the Financial Principal Risks, Operational Risk and Model Risk and that they are subject to limits, monitored, reported on and escalated as required. The Chief Compliance Officer is likewise accountable for Conduct Risk and Reputation Risk, and the Group General Counsel for Legal Risk. The Group CRO and Group Chief Compliance Officer have the right to require amendments to any Frameworks, Policies or Standards in the firm, for any reason, including inconsistencies or contradictions among them.

Frameworks, Policies and Standards are subject to minimum annual review, and challenge by the Risk and/or Compliance functions, unless explicitly waived by the relevant heads of those functions. Principal Risk Frameworks are subject to approval by relevant committees of the Board.

Assurance

Assurance is undertaken to assess the control environment and to independently assess the ERMF, which includes testing specific elements of the control environment documented in standards and checking that control testing activities are reliable, to provide confidence to the Board in the risk and control framework.

The Credit Risk Review Group (CRRG) provides an independent review and monitoring of the quality and condition of all the wholesale loan and derivative portfolios through a review of the overall credit sanctioning process. CRRG has a mandate from the CRO and has direct access to the CRO and to the BRC.

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 BAC 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 embedding of the ERMF is monitored by executive and Board committees as described above. 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 these arrangements are appropriate given the risk profile of the Group.

Learning from our mistakes

Learning from mistakes is central to the Group's culture and values, demonstrating a commitment to excellence, service and stewardship 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; operational excellence and to meet commitments to stakeholders, including colleagues, customers, shareholders and regulators.

Barclays has implemented an updated Group Lessons Learnt Standard as part of the ERMF, setting out requirements for completing Lessons Learnt Assessments in response to significant events. The approach to Lessons Learnt has been further enhanced with the implementation of a new process and system of record during 2016 and fulfils the Group's Salz commitments by ensuring a consistent and effective approach applicable to all Principal Risks. The approach is directly aligned to the Three Lines of Defence model (see page 111), with businesses and functions accountable for undertaking Lessons Learnt Assessments; the Second Line providing input, oversight and challenge; with independent review by Internal Audit.

Core components of the Lessons Learnt approach include:

- defined triggers for when Lessons Learnt Assessments must be completed
- requirements and guidance for root cause analysis to identify the causes of events within the Group
- templates to ensure conclusions are reported consistently throughout management committees
- a central system to record completed Lessons Learnt Assessments and to facilitate sharing across the Group.

Barclays' Risk Culture

Barclays defines Risk Culture as "norms, attitudes and behaviours related to risk awareness, risk taking and risk management". At Barclays this is reflected in how we identify, escalate and manage risk matters.

Our Code of Conduct – the Barclays Way
Globally, all colleagues must attest to the "Barclays Way", our Code of Conduct, and all frameworks, policies and standards applicable to their roles. The Code of Conduct outlines the Purpose and Values which govern our Barclays Way of working across our business globally. It constitutes a reference point covering all aspects of colleagues' working relationships, specifically (but not exclusively) with other Barclays employees, customers and clients, governments and regulators, business partners, suppliers, competitors and the broader community.

Definition of Risk Culture and its determinants
We review our culture through the lens of four "determinants", associated with desired outcomes:

- **management and governance:** Consistent tone from the top; responsibilities are clear to enable identification and challenge
- **motivation and incentives:** The right behaviours are rewarded and modelled
- **competence and effectiveness:** Colleagues are enabled to identify, coordinate, escalate and address risk and control matters
- **integrity:** Colleagues are willing to meet their risk management responsibilities; colleagues escalate issues on a timely basis.

The rest of this section sets out key elements of our approach to embedding a strong Risk Culture.

Management and governance
Leaders must demonstrate through their everyday behaviours the importance of strong risk management and ensure that their teams have sufficient resource and capability to manage the risk environment.

The simplification of the three lines of defence, as well as the reorganisation of business and risk committees with First and Second Lines of Defence representation promote ownership and accountabilities for risk management.

Motivation and incentives
Barclays seeks to ensure that compensation and promotion decisions take account of risk behaviours.

Management of risk and control is assessed as part of the annual performance appraisal process for all colleagues globally. Positive risk management behaviours will be rewarded and considered as part of promotion decisions, particularly to Managing Director.

Competence and effectiveness
A risk capability scorecard was developed for the Board Risk Committee to monitor and measure capability, and to identify any areas for improvement. Barclays has also appointed a Chief Risk Officer for Treasury and Capital and a Head of Model Risk Management.

Integrity
The "Being Barclays" global induction supports new colleagues in understanding how risk management culture and practices support how the Group does business and the link to Barclays' values. The Leadership Curriculum covers building, sustaining and supporting a trustworthy organisation and is offered to colleagues globally.

The continued promotion and reinforcement of Barclays' Values, as well as the Barclays Way was reflected in the near-perfect rate of completion of related training by employees. Messages and communications from the Chief Risk Officer emphasise the importance of early escalation of risk issues.

Group-wide risk management tools

To support the 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 the Group-wide risk management tools used as part of this process.

Risk Appetite
Risk appetite is defined as the level of risk which the firm is prepared to accept in the conduct of its activities.

Risk appetite sets the 'tone from the top' and 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.

The Risk Appetite Framework is intended to achieve the following objectives:

- specify the level of risk we are willing to take and why, to enable specific risk taking activities
- consider all Principal Risks individually and in aggregate
- consistently communicate the acceptable level of risk for different risk types; this may be expressed in financial or non-financial terms, and should be measured, as applicable, and effectively monitored
- describe agreed parameters for the firm's performance under financial stress with respect to profitability:
  - Profitability and loss metrics
  - Capital ratios
- be considered in key decision-making processes, including business planning, mergers and acquisitions, and business change initiatives.

The risk appetite for financial risks is set by the Board on the basis of "adverse" stress tests, as it is during periods of macro-economic stress that these losses materialise. In order to articulate the risk appetite for the firm, the Board first defines the deterioration in the firm's performance it is willing to accept under stressed macroeconomic conditions. The acceptable deterioration is defined through a set of financial constraints which are reviewed by the Board on an annual basis. For 2017 these constraints are summarised in the following table.

Measure relevant to strategy and risk	Link between strategy and risk profile
Profit after tax	Fundamental performance of the Bank and underpins the firm's capacity to make capital distributions.
Common Equity Tier 1 (CET1)	Monitor capital adequacy in relation to capital plan, targets and regulatory hurdle rates.

Barclays' businesses run the stress test(s) as a fully integrated part of the annual Medium Term Planning (MTP) process, to ensure that the risk appetite businesses demand is based on the businesses' most recent strategic plans. The deterioration of financial performance as a result of the stress test is subsequently compared to the tolerances agreed by the Board. With Board approval the risk appetite is allocated back to individual businesses and utilisation is monitored regularly and reported to Board on a quarterly basis. This approach ensures that businesses' risk appetite proposals are based on their latest strategic plans and allows the Board to allocate risk appetite such that it fully supports the firm's chosen strategy within acceptable boundaries of risk taking.

Mandate and scale
Mandate and scale is a risk management approach that seeks to formally review and control business activities to ensure 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 extensive system of limits. Using limits and triggers helps mitigate the risk of concentrations which would be out of line with expectations, and which may lead to unexpected losses of a scale that would be detrimental to the stability of the relevant business line or the Group.

For example, for leveraged finance and commercial property finance portfolios, there are a comprehensive series of limits in place to control exposure within each business and geographic sector. To ensure that limits are aligned 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 mandate and scale framework is used to:

- limit concentration risk
- keep business activities within Group and individual business mandate
- ensure activities remain of an appropriate scale relative to the underlying risk and reward
- ensure risk taking is supported by appropriate expertise and capabilities.

The most material mandate and scale limits are designated as A-level (Board level) and B-level (Group-level). Group limits are approved by the appropriate risk committee (e.g. Wholesale Credit Risk Management Committee) and are subject to additional escalation and governance requirements.

Further limits are set by risk managers within each business, covering

particular portfolios. Unapproved excesses of limits will result in performance management and disciplinary consequences. Business limits are approved by the relevant business risk team and reportable to the relevant risk committee.

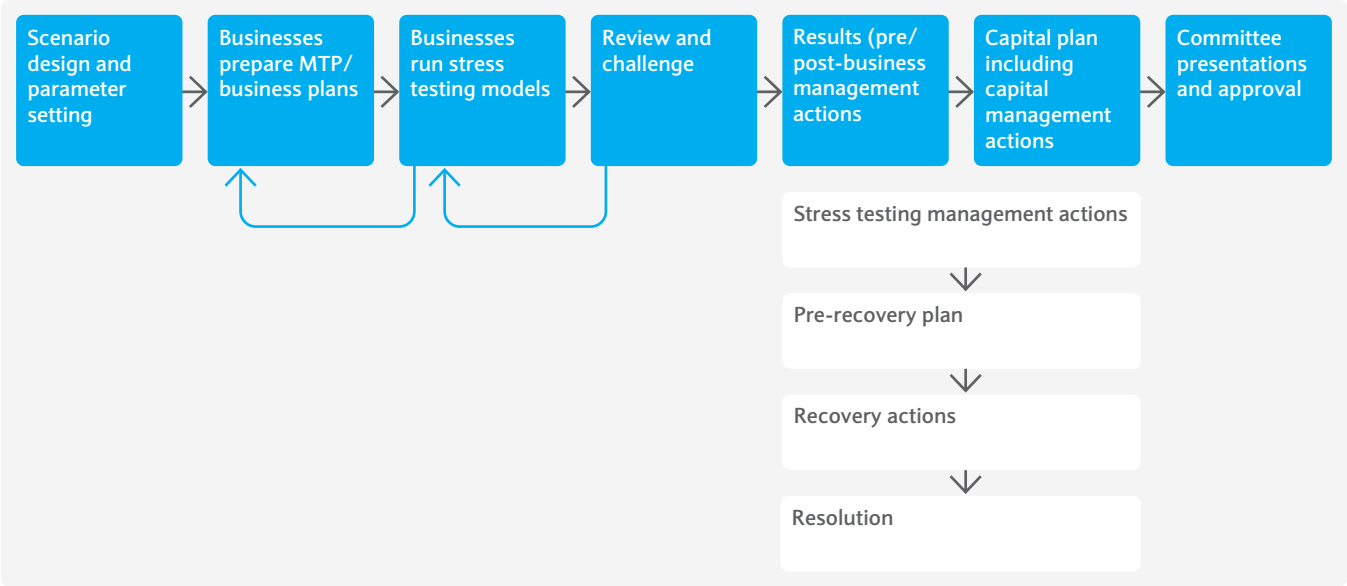
Limits reflect the nature of the risk being managed and controlled and are measured by total financing limits, LGD, stress loss or other metrics as appropriate. There is explicit identification of the exposures that are captured by limits and any material exclusion must be agreed. Limits are reviewed at least annually. The factors taken into consideration when setting the limit will include:

- Group Risk Appetite
- current exposure/MTP forecasts
- risk return considerations
- senior risk management judgement.

Stress testing

Group-wide stress tests are an integral part of the MTP process and annual review of risk appetite. They aim to ensure that the Group's financial position and risk profile provide sufficient resilience to withstand the impact of severe economic stress. The 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 our internal capital adequacy assessment process (ICAAP) submission to the PRA.

The following diagram outlines the key steps in the Group-wide stress testing process, which are described below.



The Group-wide stress testing process begins with a detailed scenario setting process, with the GRC and BRC agreeing the range of scenarios 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 is detailed and comprehensive, 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 on page 116. 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.

There is robust governance in place with detailed review of stress testing methodology and results both within businesses (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 the Group-wide stress testing results.

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

Summary of methodologies for Group-wide stress testing by risk type

Principal Risk	Stress testing approach
Credit risk	▪ **Credit risk impairment:** For retail portfolios businesses use regression models to establish a relationship between arrears movements and key macroeconomic parameters such as interest rates, inflation and unemployment, incorporating roll-rate analysis to estimate stressed levels of arrears by portfolio. In addition, house price reductions (for mortgages) and increased customer drawdowns (for revolving facilities) lead to higher LGDs 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 macroeconomic parameters such as GDP, inflation and interest rates. ▪ **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. ▪ **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.
Market risk	▪ **Trading book losses:** All market risk factors on the balance sheet are stressed using specific market risk shocks (and are 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.
Treasury and Capital risk	**Interest Rate Risk in the Banking Book and Liquidity Risk:** ▪ The risk of a mismatch between assets and liabilities, leading to funding difficulties, is assessed. Businesses apply scenario variables to forecasts of customer loans and advances and deposits levels, taking into account management actions to mitigate the impact of the stress which may impact business volumes. The Group funding requirement under stress is then estimated and takes into account lower availability of funds in the market. ▪ The analysis of funding risk also contributes to the estimate of stressed income and costs: – stress impact on non-interest income is primarily driven by lower projected business volumes and hence lower income from fees and commissions – 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 – the impact on costs is mainly driven by business volumes and management actions to partly offset profit reductions (due to impairment increases and decreases in income) such as headcount reductions and lower performance costs. **Capital Risk:** ▪ Capital risk is assessed by taking all key risks (as listed above) into consideration when assessing Barclays' 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. ▪ The funding 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.
Operational risk and Conduct risk	▪ Operational risk is generally not impacted as there is no direct link to the stress economic scenario. However, it is included as part of the reverse stress testing framework that incorporates assessment of idiosyncratic operational risk events.

In 2016, the internal Group-wide stress testing exercise was run as part of the MTP process, where the Group assessed the impact of an "Adverse" global recession scenario. This was used for the MTP Risk Review and risk appetite setting process.

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 identify appropriate mitigating actions. Examples include extreme macroeconomic downturn ('severely adverse') 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 United Kingdom home loans business, affordability thresholds incorporate stressed estimates of interest rates. In the investment banking, 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 Group-wide stress tests, the Group also runs regulatory stress tests.

In 2016, the PRA ran its annual concurrent stress testing of the major UK banks, which was based on the Bank of England (BoE) stress scenario. The results of the stress test were published in November 2016, and support the BoE's aim for increased transparency as part of its stress testing framework.

Additionally, in 2016, the European Banking Authority ran a stress test across the major European banks. The results were published in July.

The firm is also subject to stress testing run by non-UK regulators e.g. the Federal Reserve, which are typically focused at the local legal entity level.

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 Medium Term Plan (MTP), performed annually. The MTP embeds the 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 the Group's risk profile and setting of risk appetite.

- The MTP risk review process includes a review of the proposed risk appetite by the business, including assessment of business plans under stress which is used to inform the MTP.
- If the businesses' plans entail too high a level of risk, management will challenge the plans. This assessment is based on a comparison of businesses' own risk appetite assessment 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 the Group.
- Businesses may be asked to update their business plans to ensure the bottom-up risk appetite is within top-down appetite. There is also a detailed review of the stressed estimates and methodology used to translate the economic scenario to stressed estimates, as well as the management actions included in businesses' results to ensure that these are appropriate and realistic in a stressed environment.
- Risk review meetings are held with the CEO, CFO, CRO and Treasurer of each business, where they present their business plans to the Group CRO and the findings from the risk reviews are discussed, including the risk appetite proposals and stress testing results. Businesses may be required to change their business plans as a result of these meetings.

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

Barclays' approach to managing risks

Management of credit risk and the internal ratings-based approach

This section discusses the organisation specific to 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.

- Page 119 covers the aspects of the Group's risk management framework specific to credit risk, including committees and the Group reporting structure.
- As 66% of our regulatory capital is for credit risk, we devote pages 126 to 133 to detailing how we approach the internal ratings models, and how the framework supports risk differentiation and management.

Credit risk

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

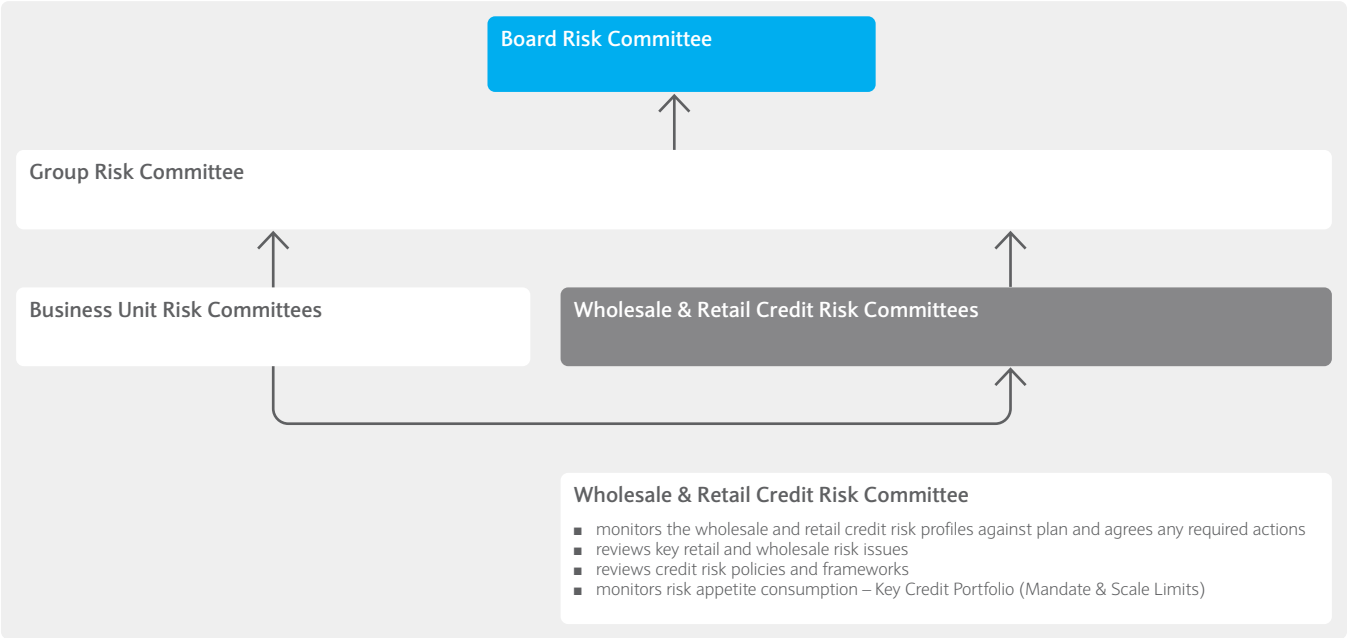
Overview

The granting of credit is one of the Group's major sources of income and, as a Principal Risk, the Group dedicates considerable resources to its control. The credit risk that the Group faces arises mainly from wholesale and retail loans and advances together with the counterparty credit risk arising from derivative contracts with clients. Other sources of credit risk arise from trading activities, including: debt securities, settlement balances with market counterparties; available for sale assets; and reverse repurchase loans.

Credit risk management objectives are to:

- maintain a framework of controls to ensure credit risk-taking is based on sound credit risk management principles
- 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
- ensure that risk-reward objectives are met
- More information of the reporting of credit risk can be found on page 120.

Board oversight and flow of risk related information



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 larger in number but smaller in value and are, therefore, managed on a homogenous portfolio basis.

Credit risk management responsibilities have been structured so that decisions are taken as close as possible to the business, while ensuring robust review and challenge of performance, risk infrastructure and strategic plans. The credit risk management teams in each business are accountable to the relevant Business CRO who, in turn, reports to the Group CRO.

Roles and responsibilities

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 policies for approval of transactions (principally retail); setting risk appetite; monitoring risk against limits and other parameters; 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 review and validation of credit risk measurement models.

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 entrusted with 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 the Group Senior Credit Officer (GSCO), the Group's most senior credit risk sanctioner. For exposures in excess of the GSCO's authority, approval by Group CRO is required. In the wholesale portfolios, credit risk managers are organised in sanctioning teams by geography, industry and/or product.

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

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
- raising 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 guidelines to individual counterparties. Excesses are reported to the BRC.

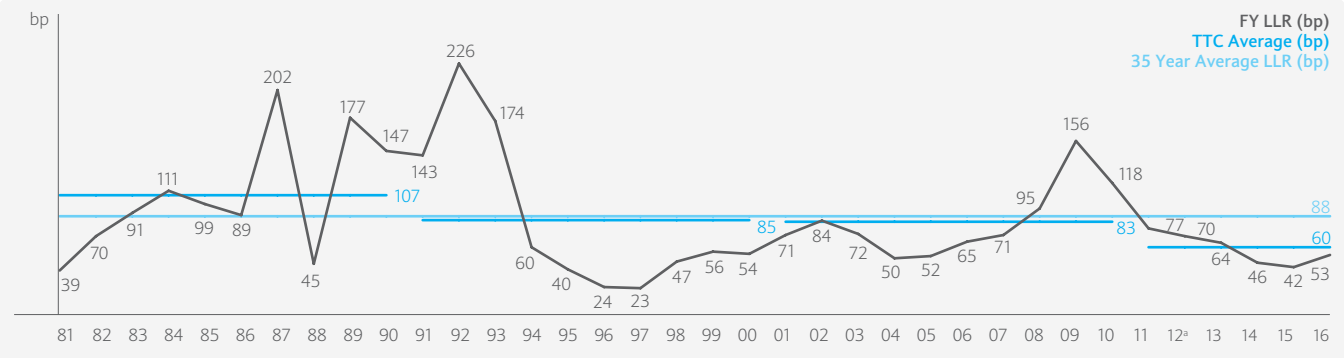
Monitoring performance and asset quality

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 175 to 178 in the 2016 Annual Report.

Loan loss rate (bps) – Longer-term trends



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 2015 and 2016 figures exclude Africa.

From a full year peak of 156bps at 31 December 2009, the LLR has been on an improving trend. By the end of 2011, the LLR of 77bps had returned to pre-crisis levels and was lower than the long-term average. The LLR fell from 2012 to 2014 and remained at a low level in 2015, increasing slightly in 2016 to 53bps.

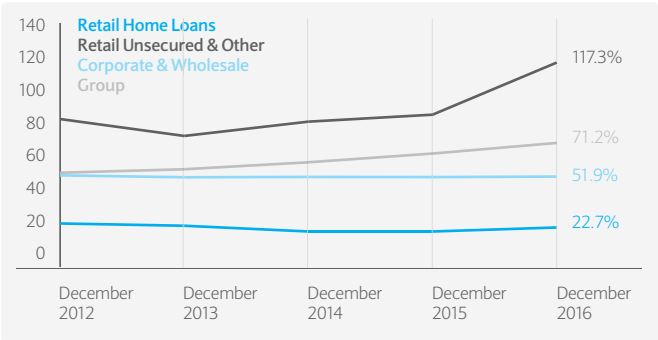
Coverage ratios

The impairment allowance is the aggregate of the identified and unidentified impairment (UI) balances. Impairment allowance coverage, or the coverage ratio, is reported at two levels:

- credit risk loans (CRLs) coverage ratio, calculated as impairment allowances as a percentage of CRL balances
- potential credit risk loans coverage ratio (impairment allowances as a percentage of total CRL and Potential Problem Loan balances).

See identifying potential credit risk loans on page 122 for more information for the criteria for these categories.

CRL coverage



Notes
a Some Non-core exposures are not reported as CRLs following the introduction of IFRS10, which accounts for these balances at fair value.
b All historical figures exclude Africa.

Appropriate coverage ratios will vary according to the type of product but can be broadly shown to have typical severity rates based upon historic analysis:

- secured Retail home loans: 10%-25%
- credit cards, unsecured and other personal lending products: 65%-85%

- corporate facilities: 30%-50%.

CRL coverage ratios would therefore be expected to be at or around these levels over a defined period of time.

Higher coverage in Retail unsecured and other is primarily driven by cards portfolio particularly in the UK and US, reflecting higher provisions pending full implementation of newly developed and independently approved models with enhanced methodology, following an impairment policy revision in Q3 2016.

In principle, a number of factors may affect the Group's overall coverage ratios, including:

The mix of products within total CRL balances: coverage ratios will tend to be lower when there is a high proportion of secured Retail and corporate balances within total CRLs. 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 moved to CRL categories. As such balances attract a lower impairment requirement, the CRL coverage ratio will be lower.

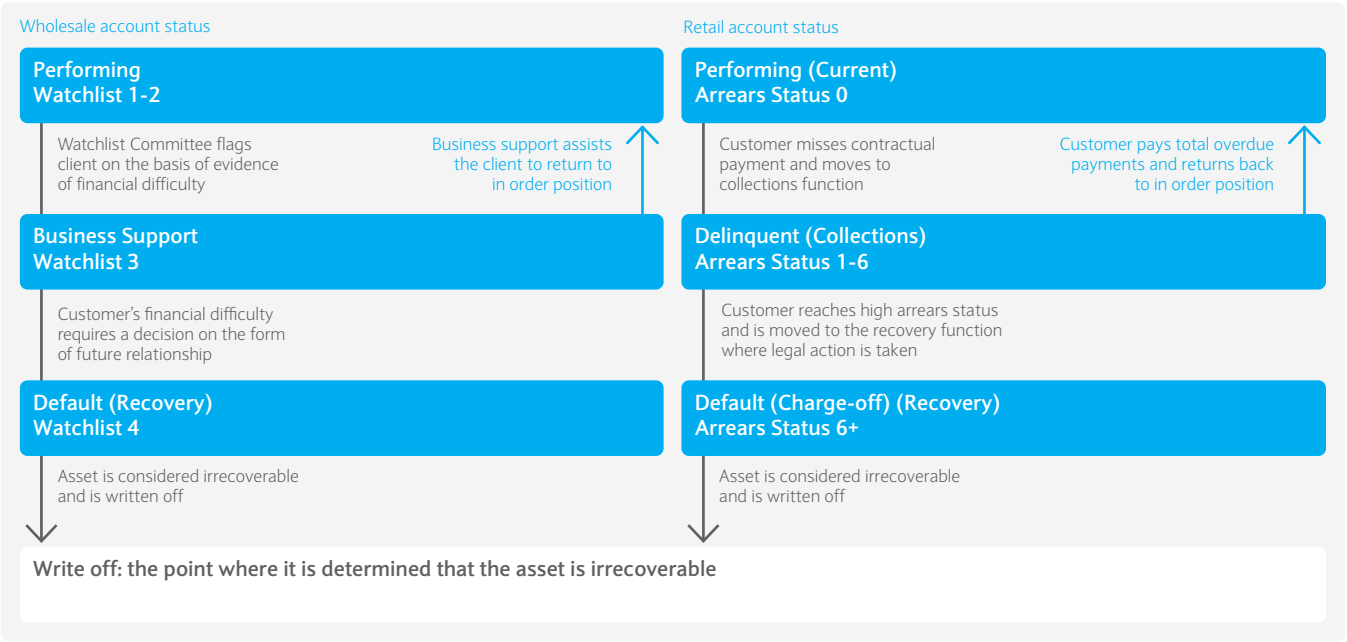
The balance of PPLs to CRLs: the impairment requirements for PPLs are lower than for CRLs, so the greater the proportion of PPLs, the lower the PCRL coverage ratio.

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 of PCRL categories 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 175 in the 2016 Annual Report.

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 Wholesale counterparties are subject to a review on, at least, an annual basis, even when they are performing satisfactorily.



Wholesale portfolios[1]

Within the Wholesale portfolios, the Basel definitions of default are used as default indicators which have been aligned to the IAS 39 objective evidence of impairment. A default is triggered if individual identified impairment is recognised. Group definitions of default used are:

- bank puts the credit obligation on a non-accrued status
- bank makes a charge-off or account specific identified impairment resulting from a significant perceived decline in credit quality
- bank sells the credit obligation at a material credit-related economic loss
- bank consents to a distressed restructuring of the credit obligation where this is likely to result in a diminished financial obligation caused by the material forgiveness or postponement of principal, interest or fees
- bank triggers a petition for obligor's bankruptcy or similar order
- bank 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 banking group
- bank 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
- obligor past due more than 90 days on any material credit obligation to the Group.

Wholesale accounts that are deemed to contain heightened levels of risk are recorded on graded watch lists (WL) comprising three 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. Should an account become impaired, it will normally, but not necessarily, have passed through each of the three categories, which reflects the

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

need for increasing caution and control. 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 counterparties in higher levels of WL, default, collection or insolvency. Their mandate is to maximise shareholder value, ideally via working intensively with the counterparty to help them to either return to financial health or, in the cases of insolvency, obtain the orderly and timely recovery of impaired debts. 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. The approach is consistent with the Group's policy of raising a collective impairment allowance as soon as objective evidence of impairment is identified. 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 and goes into default when it moves into recovery, normally 180 days. Impairment is considered at all stages of the customer's outstanding obligations.

The probability of default increases with the number of contractual payments missed, thus raising the associated impairment requirement.

Once a loan has passed through a prescribed number of cycles, normally six, 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. This will typically occur after an account has been treated by a collections function. However, in certain cases, an account may be charged off directly from a performing status, such as in the case of insolvency or death.

The timings of the charge-off points are established based on the type of loan. For the majority of products, the standard period for charging off accounts is six cycles (180 days past due date of contractual obligation). Early charge-off 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.

Identifying potential credit risk loans

The Group reports potentially and actually impaired loans as PCRLs. PCRLs comprise two categories of loans: PPLs and CRLs.

PPLs are loans that are currently complying with repayment terms but where serious doubt exists as to the ability of the borrower to continue to comply with such terms in the near future. If the credit quality of a Wholesale loan on a WL deteriorates to the highest category, or a Retail loan deteriorates to delinquency cycle 2, consideration is given to including it within the PPL category.

Should further evidence of deterioration be observed, a loan may move to the CRL category. Events that would trigger the transfer of a loan from the PPL to the CRL category include a missed payment or a breach of covenant. CRLs comprise three classes of loans:

Impaired loans: comprise loans where an individually identified impairment allowance has been raised and also include loans which are fully collateralised or where indebtedness has already been written down to the expected realisable value. This category includes all Retail loans that have been charged off to legal recovery. The category may include loans, which, while impaired, are still performing.

Accruing past due 90 days or more: comprises loans that are 90 days or more past due with respect to principal or interest. An impairment allowance will be raised against these loans if the expected cash flows discounted at the effective interest rate are less than the carrying value.

Impaired and restructured loans: comprises loans not included above where, for economic or legal reasons related to the debtor's financial difficulties, a concession has been granted to the debtor that would not otherwise be considered. Where the concession results in the expected cash flows discounted at the effective interest rate being less than the loan's carrying value, an impairment allowance will be raised. See Forbearance and other concession programmes below for more detail.

Allowances for impairment and other credit provisions

The Group establishes, through charges against profit, impairment allowances and other credit provisions for the incurred loss inherent in the lending book. Under IFRS, impairment allowances are recognised where there is objective evidence of impairment as a result of one or more loss events that have occurred after initial recognition, and where these events have had an impact on the estimated future cash flows of the financial asset or portfolio of financial assets. Impairment of loans and receivables is measured as the difference between the carrying amount and the present value of estimated future cash flows discounted at the financial asset's original effective interest rate. If the carrying amount is less than the discounted cash flows, then no further allowance is necessary.

As one of the controls to ensure that adequate impairment allowances are held, movements in impairment to individual names with a total impairment allowance of £10m or more are presented to the GSCO for approval.

Individually assessed impairment

Impairment allowances are measured individually for assets that are individually significant, and collectively where a portfolio comprises homogenous assets and where appropriate statistical techniques are available. In terms of individual assessment, the principal trigger point for impairment is the missing of a contractual payment which is evidence that an account is exhibiting serious financial problems, and where any further deterioration is likely to lead to failure. Details of other trigger points can be found above. Two key inputs to the cash flow calculation are the valuation of all security and collateral, as well as the timing of all asset realisations, after allowing for all attendant costs. This method applies mainly in the Wholesale portfolios.

Collectively assessed impairment

For collective assessment, the principal trigger point for impairment is the missing of a contractual payment, which is the policy consistently adopted across all credit cards, unsecured loans, mortgages and most other Retail lending. The calculation methodology relies on the historical experience of pools of similar assets; hence the impairment allowance is collective. The impairment calculation is typically based on a roll-rate approach, where the percentage of assets that move from the initial delinquency to default is derived from statistical probabilities based on historical experience. Recovery amounts are calculated using a weighted average for the relevant portfolio. This method applies mainly to the Retail portfolios and is consistent with Group policy of raising an allowance as soon as impairment is identified. Unidentified impairment is also included in collective impairment.

Impairment for losses incurred but not specifically identified

Unidentified impairment allowances are also raised to cover losses which are judged to be incurred but not yet specifically identified in customer exposures at the balance sheet date, and which, therefore, have not been specifically reported. The incurred but not yet reported calculation is based on the asset's probability of moving from the performing portfolio to being specifically identified as impaired within the given emergence period and then on to default within a specified period, termed as the outcome period. This is calculated on the present value of estimated future cash flows discounted at the financial asset's effective interest rate. The emergence and outcome periods vary across products.

Wholesale portfolios

Impairment in the Wholesale portfolios is generally calculated by valuing each impaired asset on a case by case basis, i.e. on an individual assessment basis. A relatively small amount of Wholesale impairment relates to unidentified or collective impairment; in such cases, impairment is calculated using modelled Probability of Default (PD) x Loss Given Default (LGD) x Exposure at Default (EAD) adjusted for an emergence period.

Retail portfolios

For Retail portfolios, the impairment allowance is mainly assessed on a

collective basis and is based on the drawn balances adjusted to take into account the likelihood of the customer defaulting at a particular point in time (PDpit) and the amount estimated as not recoverable (LGD). The basic calculation is:

Impairment allowance = Total outstandings x PDpit x LGD

The PDpit increases with the number of contractual payments missed thus raising the associated impairment requirement.

In Retail, the current policy also incorporates a high risk segment which is included in the unidentified impairment calculation. High risk segments are those which can be demonstrated to experience higher levels of loss within the performing segment. This segmentation allows for earlier identification of potential loss in a portfolio. Unidentified impairment is also referred to as collective impairment. This is to reflect the impairment that is collectively held against a pool of assets where a loss event has occurred, but has not yet been captured.

Sensitivity of the impairment to key assumptions

Wholesale portfolios

Impairment in the Wholesale portfolios is generally calculated by valuing each impaired asset on a case by case basis, and is not therefore primarily model-driven. As such, the key assumptions that would have the most impact on impairment provisions in the Wholesale portfolios are the valuations placed upon security and collateral held and the timing of asset realisations.

When calculating impairment, estimated future cash flows are discounted at the financial asset's original effective interest rate. At present, in Wholesale portfolios, the impact of discounting is relatively small in itself but would rise with reference rates. In addition, to the extent that a rise in interest rates impacted economic growth and/or serviceability of Wholesale clients and customers, this would be expected to feed through in future impairment numbers.

Retail portfolios

For Retail portfolios, impairment is calculated predominantly using models. The models are developed using historical data and include explicit and implicit assumptions such as debt sale estimates, house price valuations and the distribution of accounts. Model monitoring and validation are undertaken regularly, at least annually, to ensure that models are fit for purpose. Further to this, the Group accounts for the impact of changes in the economic environment and lags resulting from the design of the models to ensure overall impairment adequacy. See Management adjustments to Models for Impairment in the 2016 Annual Report for more information on key management judgements in 2016. See stress testing (page 115) for further information.

Emergence and outcome periods

To develop models to calculate the allowance for impairment it is first necessary to estimate the time horizons of these models. These time horizons are called the emergence and outcome periods. Emergence Period relates to the time between a loss event occurring and that event becoming apparent via the account becoming delinquent and attracting identified impairment. Outcome is an analytically derived period taken to capture lifetime defaults associated with the observed loss event.

This methodology ensures that the Group captures the loss incurred at the correct balance sheet date. These impairment allowances are reviewed and adjusted at least quarterly by an appropriate charge or release of the stock of impairment allowances based on statistical analysis and management judgement. Where appropriate, the accuracy of this analysis is periodically assessed against actual losses. For further detail, see modelling of risk on pages 126 to 133.

Wholesale portfolios

For Wholesale portfolios in corporate banking and investment banking, the emergence period is portfolio specific and is based on the anticipated length of time from the occurrence of a loss event to identified impairment being incurred. The emergence period in corporate banking is derived from actual case file review. This is periodically benchmarked against the time taken to move between risk grades in internal watch lists, from WL1 or 2 into WL3, which is the level of risk that will attract a collective impairment allowance. Both methodologies produce similar results for the emergence period, which is currently six months. Within Corporate Banking, post model adjustments can be made to increase the emergence period for certain industry sectors to reflect, for example, a benign environment. The average life of the investment banking portfolio is estimated to be 18 months, during which time Investment Bank is exposed to losses on the portfolio. However, it is expected that incurred losses would become apparent within six months, therefore the investment banking portfolio also uses a six-month emergence period.

Retail portfolios

During 2016, the Retail Impairment Policy was strengthened and required enhancements to modelling approaches to both emergence and outcome periods across the credit card portfolios, notably UK and US. Emergence periods at a product level, are shown in the table below.

Emergence Periods

	Emergence period (months)	
Product Type	2016	2015
Credit cards	3-3.5	2
Current Accounts	4	4
Unsecured Loans	4	4
Secured Loans	6	6

Businesses undertake regular analysis, at least annually, to validate that the minimum emergence periods above continue to reflect the actual observed time between the occurrence of a loss event and entry to an impaired state, in order to ensure they remain appropriate and provide sufficient coverage of future losses.

Where any shortfalls are identified at a business or portfolio level, the prescribed minimum emergence periods are increased to reflect our most up-to-date experience of customer behaviour.

The final approved emergence periods are incorporated within the rates used as part of the overall UI assessment, which now encompasses total outstanding balances on all accounts that are in order, and for which no identified impairment allowances are held.

Individual evidence based outcome periods are also derived at a business/portfolio level, Businesses are required to capture lifetime defaults allowing consideration to cure rates and future events, subject to a minimum floor of 80%.

Final outcome periods adopted are re-evaluated on an annual basis to ensure they continue to reflect the actual time elapsing from the initial indication of potential default to the default event.

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 banking to return an account to performing status may only be taken by the credit risk team, while within the investment banking, the decision can only be taken by the Barclays International Watch List Committee.

Retail portfolios

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

- all arrears (both capital and interest) have been cleared and payments have returned to original contractual payments
- for revolving products, a re-age event (see page 126) has occurred, when the customer is returned to an up-to-date status without having cleared the requisite level of arrears
- for amortising products, which are performing on a programme of forbearance and meet the following criteria may be returned to the performing book classified as High Risk[1]:
  - no interest rate concessions must have been granted

Note
1 The identification and subsequent treatment of up-to-date customers who, either through an event or observed behaviour exhibit potential financial difficulty. High Risk includes customers who have suffered recent financial dislocation, i.e. prior forbearance or re-age.

– restructure must remain within original product parameters (original term + extension)
– twelve consecutive payments at the revised contractual payment amount must have been received post the restructure event.

For 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. For the majority of products, the standard period for charging off accounts is six missed contractual payments (180 days past due date of contractual obligation) 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. See recovery information included in Analysis of Specific Portfolio and Asset Types section in the 2016 Annual Report.

Foreclosures in process and properties in possession
Foreclosure is the process where the bank initiates legal action against a customer, with the intention of terminating the loan agreement whereby the bank may repossess the property subject to local law and recover amounts it is owned. This process can be initiated by the bank 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 bank.

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 bank 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.

Held as 'other real estate owned' (South Africa) refers to properties where the bank has taken legal ownership of the title as a result of purchase at an auction or similar and treated as 'other real estate owned' within other assets on the bank's balance sheet.

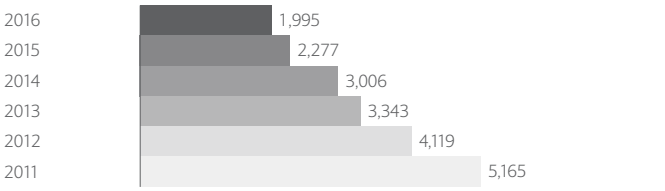
Writing off assets
Write-off refers to the point where it is determined that the asset is irrecoverable, it is no longer considered economically viable to try and recover the asset, it is deemed immaterial, or full and final settlement is reached and a shortfall remains. In the event of write-off, the 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 ensure 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 unsecured, assets in the recoveries book will be written-off if the required qualifying repayments are not made within a rolling twelve-month period. For secured loans, the shortfall after the receipt of the proceeds from the disposal of the collateral is written off within three months of that date if no repayment schedule has been agreed with the borrower. 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 2016, total write-offs of impaired financial assets decreased 12% to £2.0bn (2015: £2.28bn).

Total write-offs of financial assets (£m)[a]



Note
a 2016 figure excludes Africa

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. The 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, the bank 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.

Forbearance occurs when, for reasons relating to the actual or perceived financial difficulty of an obligor, a concession is granted below the Group's current standard rates (i.e. lending criteria below the Group's current lending terms), that would not otherwise be considered. This includes all troubled debt restructures granted below our standard rates.

Forbearance would typically be evident where the concession(s) agreed impact the ability to repay debt or avoid recognising a default with a lack of appropriate commercial balance and risk mitigation/structural enhancement of benefit to the Group in return for concession(s).

The following list is not exhaustive but provides some examples of instances that would typically be considered to be evidence of forbearance:

- a reduction of current contractual interest rate for the sole purpose of maintaining performing debt status, with no other improvement to terms of benefit to the Group
- non-enforcement of a material covenant breach impacting the counterparty's ability to repay
- converting a fully or partially amortising facility to a bullet repayment at maturity, with no other improvement to terms of benefit to the Group, for the sole purpose of avoiding a payment default due to a customer's inability to meet amortisation
- extension in maturity date for a project finance facility that gives an effective contractual term longer than the underlying project contract being financed
- any release of a material security interest without receiving appropriate value by way of repayment/alternate security offered or other improvement in terms available to the Group commensurate with the value of the security released.

Where a concession is granted that is not a result of financial difficulty

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

The following list (not exhaustive) gives some examples of instances that would not typically be considered to be forbearance:

- temporary/permanent waivers/resets of covenants agreed in line with our current terms
- amending contractual maturity to meet current lending terms that results in a previously amortising facility having a bullet repayment as a consequence of shorter maturity date
- equity/warrants taken to increase return to the Group without compromising contractual interest
- extension of maturity date where the extension is within the normally granted terms for the type of facility in question
- release of a material security interest where commensurate value is received by way of repayment/other security offered.

Cases where a technical default may have occurred, the Group has decided to reserve its position but does not consider the default to be sufficient to impact the counterparty's ability to pay, would not typically be considered forbearance (as the counterparty would continue to meet its payment obligations under existing terms).

The Troubled Assets Policy requires that a permanent record is retained of all individual cases of forbearance, and upon granting forbearance the counterparty is placed on WL. The counterparty then remains on WL and is flagged as being in forbearance for a minimum of 12 months from the date forbearance is applied. Counterparties may be removed from WL status within 12 months in exceptional circumstances, e.g. full repayment of facilities or significant restructuring. Counterparties placed on WL status are subject to increased levels of credit risk oversight.

Counterparties who have been granted forbearance are classified as a Basel 'unlikeliness' to pay default for capital purposes, with PD of 1 throughout the period that they remain classified as being in forbearance. This is on the basis that, without intervention by the Group, the counterparties are unlikely to meet their obligations in full which would lead to default.

Impairment is assessed on an individual basis and recognised where relevant impairment triggers have been reached including where counterparties are in arrears and require renegotiation of terms. Forbearance is considered to be an indicator that impairment may be present and an impairment test is performed for all cases placed in forbearance.

Given that these loans have already been assessed for impairment at the point of being classified as being in forbearance, the Group does not have additional procedures to evaluate the likelihood that these loans would default within the loss emergence and confirmation periods.

A control framework exists along with regular sampling to ensure policies for watch list and impairment are enforced as defined and to ensure that 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. Short-term solutions focus on temporary reductions to contractual payments and may change from capital and interest payments to interest only. For loan customers with longer-term financial difficulties, term extensions may be offered, which may include interest rate concessions, For credit card customers with longer-term financial difficulties, a switch to a fully amortising plan may be offered, which may include an interest rate concession.

When an account is placed into a programme of forbearance, the asset will be classified as such for the remainder of its term, unless after 12 months it qualifies for reclassification, upon which it will be returned to the up-to-date book and classified as high risk for a further 12-month period. When the Group agrees to a forbearance programme with a customer, the impairment allowance recognises the impact on cash flows of the agreement to receive less than the original contractual payments. The Retail Impairment Policy prescribes the methodology for impairment of forbearance assets, which is measured by comparing the debt outstanding to the revised expected repayment. This results in higher impairment, in general, than for fully performing assets, reflecting the additional credit risk attached to loans subject to forbearance.

Barclays has continued to assist customers in financial difficulty through the use of forbearance programmes. However, the extent of forbearance offered by the 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.

Please see the credit risk performance section on pages 182 to 185 of the 2016 Annual Report for details of principal Wholesale and Retail assets currently in forbearance.

Impairment of loans under forbearance

Loans under forbearance programmes are subject to Group policy. In both Retail and Wholesale portfolios, identified impairment is raised for such accounts, recognising the agreement between the Group and customer to pay less than the original contractual payment and is measured using a future discounted cash flow approach comparing the debt outstanding to the expected repayment on the debt. This results in higher impairment, in general, being held for loans under forbearance than for fully performing assets, reflecting the additional credit risk attached to loans subject to forbearance.

Sustainability of loans under forbearance

The Group monitors the sustainability of loans for which forbearance has been granted.

Wholesale portfolios

In the Wholesale portfolios, counterparties that have been granted forbearance are placed on WL and therefore are subject to increased levels of credit risk oversight. Counterparties then remain on WL and are classified as being in forbearance with a PD of 1 for capital purposes for a minimum of 12 months from the date forbearance is applied until satisfactory performance is evidenced. Forbearance status and the related default treatment for capital can be removed after 12 months from being applied if any of the following criteria is met:

- the counterparty no longer benefits from a concession below our current market rates or reverts back to their original lending terms (prior to the concession being applied)
- the counterparty ceases to have any actual or perceived financial stress
- a significant restructure takes place which leads to a significant improvement in the credit profile of the counterparty.

Counterparties may only be removed from being classified as being in forbearance with a PD of 1 for capital purposes within 12 months in exceptional circumstances, e.g. full repayment of facilities or significant restructuring that materially improves credit quality. Counterparties

continuing to benefit from a concession below current market can be removed from WL and no longer be classified as in forbearance provided they do not meet any of the WL criteria and can evidence consistent satisfactory performance throughout the minimum 12-month period.

Retail portfolios

In Retail portfolios, the type of forbearance programme offered should be appropriate to the nature and the expected duration of the customer's financial distress. 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. Before any permanent programme of forbearance is granted, an affordability assessment is undertaken to ensure suitability of the offer. When customers exit forbearance, the accounts are ring-fenced as a High Risk segment within the up-to-date book for a period of at least twelve months.

For disclosure on the Group's accounting policy with respect to impairment, see pages 122 to 124 – and Note 7 of the 2016 Annual Report.

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 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 the 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), a fraud 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 must have been on book at least nine months (i.e. nine months prior to the three-month qualification period)
- no account should be re-aged more than once within any 12-month period, or more than twice in a 5-year period.

Assets are considered to belong to a separate High Risk pool. Under High Risk, the performance of the assets is a risk characteristic and results in a higher probability of default being assigned to them in impairment models which meet the requirement of IAS 39, AG87-88. 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 agreements (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.

Please refer to the maturity analysis for UK CRE and customers with interest-only home loans in the credit risk performance section in the 2016 Annual Report for more information.

Environmental risk

The Group has a dedicated Environmental Risk Management team, as part of the central Credit Risk Management function, recognising that environment is a mainstream credit risk issue. Environmental issues are required considerations in credit risk assessment, and environmental risk standards are included in the Wholesale Credit Risk Control Framework.

The Group's approach to environmental credit risk management addresses risk under three categories, namely Direct risk and Indirect risk, which are covered below, and Reputation risk, on which more detail may be found on page 166.

Direct risk can arise when the Group takes commercial land as collateral. In many jurisdictions, enforcement of a commercial mortgage by the bank, leading to possession, potentially renders the Group liable for the costs of remediating a site if deemed by the regulator to be contaminated, including for pre-existing conditions. In the UK, the Group's approach requires commercial land, if being pledged as collateral, to be subject to a screening mechanism. Where required further assessment of the commercial history of a piece of land and its potential for environmental contamination helps ensure any potential environmental degradation is reflected in the value ascribed to that security. It also identifies potential liabilities which may be incurred by the Group, if realisation of the security were to become a possibility.

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. 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. Environmental considerations affecting our clients can be varied. The bank has developed a series of environmental risk briefing notes, covering 10 broad industry headings ranging from Agriculture and Fisheries to Oil and Gas, from Mining and Metals to Utilities and Waste Management. These briefing notes are available to colleagues in business development and credit risk functions across the organisation, outlining the nature of environmental and social risks of which to be aware, as well as the factors which mitigate those risks.

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): Barclays 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, Barclays 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 (the Capital Requirements Regulation) does not use these terms.

The IRB calculation for credit risk

For both OEIRB and SIRB approaches, Barclays 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 home loans 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. Barclays now employs a 21-point scale of default probabilities. These are shown in Table 32 on page 51.
- **risk-reward and pricing:** PD, LGD and CF estimates are 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 114.
- **impairment calculation:** under IAS 39, many collective impairment estimates incorporate the use of PD and LGD models. See page 122.
- **collections and recoveries:** model outputs are used to identify segments of the portfolio where collection and recovery efforts should be prioritised
- **economic capital (EC) calculation:** most EC calculations use similar inputs as the regulatory capital (RC) process
- **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 report 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, corporates, specialised lending, purchased corporate receivables and equity exposures, Barclays 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. Barclays has 144 internally approved Wholesale models, of which 38 are used to calculate regulatory capital for credit exposures.

Wholesale PD models

Barclays 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
- 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 to ensure 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 to ensure 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. Barclays has 233 internally approved retail models, of which 25 are used to calculate regulatory capital for credit exposures.

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

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 has been identified as a risk to be managed under the ERMF. Consequently, the GMRP 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 Model Risk Policy cover:

- model governance is anchored in assigning accountabilities and responsibilities to each of the main stakeholders:
  - model owner – each model must have a model owner who has overall accountability for the model
  - model developers – support the model owner and drive development according to model owner 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 review by the model owner and periodic validation and approval by IVU
- all models must be recorded in the Group Models Database (GMD), which records model owners and developers
- model owners must ensure there is 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.

The Independent Validation Unit (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 Barclays' Chief Risk Officer. The model development teams have separate reporting lines to the Barclays UK and Barclays International Chief Risk Officers, who in turn report to the Barclays Chief Risk Officer.

Under the Three Lines of Defence approach stated in ERMF, the actions of all parties with responsibilities under the Group Model Risk Policy are subject to independent audit 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 remediations 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 Independent Validation Unit 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.

Mobility metric and population stability index is 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 Barclays' recover 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 Spearmans 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 then 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 Independent Validation Unit produces migration indices to investigate relevant grade migration.

To assess model calibration, the Independent Validation Unit 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 ensure 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).

The primary validation tests are performed on facility-weighted rather then 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 ensure 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 then exposure-weighted basis, however, in line with the relevant regulations.

Table 83 for credit risk model characteristics shows modelled variables to calculate RWA (PD, LGD) 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 Group's AIRB credit risk models which are used to calculate RWAs, with their significance in terms of RWAs, model methodology or approach, numbers of years of data used, Basel asset class of the customer or client, and any regulatory thresholds applied. RWAs have been reported with the BUK and BI split. Please note that RWAs reported are as of September 2016 since complete reconciled information was not published for December 2016 at the time of reporting.

- PD models listed in the table account for £106bn of total AIRB approach RWAs
- LGD models listed in the table account for £119bn of total AIRB approach RWAs

Table 83: IRB credit risk models' selected features

Component modelled	Portfolio	Size of associated portfolio (RWAs) BUK (£m)	Size of associated portfolio (RWAs) BI (£m)	Model description and methodology	Number of years loss data	Basel asset classes measured	Applicable industry-wide regulatory thresholds
PD	Publicly traded corporate	121	28,104	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	11	27,009	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	Corporate and SME customers with turnover < £20m	4,977	4,548	Statistical models that uses regression techniques to derive relationship between observed default experience and a set of behavioral variables.	6-10 Years	Corporate, Corporate SME.	PD floor of 0.03%
PD	Corporate customers with turnover >= £20m	221	10,618	Statistically derived models sourced from an external vendor (Moody's RiskCalc)	6-10 Years	Corporate	PD floor of 0.03%
PD	Home Finance	16,043	–	Statistical scorecards estimated using regression techniques, segmented along arrears status and portfolio type.	6-10 Years	Secured By Real Estate (residential and buy-to-let mortgages)	PD floor of 0.03%
PD	Barclaycard UK	15,110	–	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%

Table 83: IRB credit risk models' selected features continued

Component modelled	Portfolio	Size of associated portfolio (RWAs) BUK (£m)	Size of associated portfolio (RWAs) BI (£m)	Model description and methodology	Number of years loss data	Basel asset classes measured	Applicable industry-wide regulatory thresholds
LGD	Corporate and Financial Institutions	–	53,992	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)	4,938	29,292	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	16,043	–	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	15,110	–	Statistical models combining segmented regression and other forecasting techniques	6-10 Years	Qualifying Revolving Retail (QRRE)	–

Credit Risk IRB models performance back testing – estimated versus actual

The following tables compare the PDs and LGDs estimated by the Group's IRB models with the actual default and loss 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.

Back testing results are reported within each IRB exposure class at overall Group level both for Retail and Wholesale excluding Africa, as the historical Barclays UK and Barclays International split is not available for the Wholesale obligors. The Barclays UK and Barclays International classification has been initiated from 2016 and we intend to report back testing results at Barclays UK and Barclays International level from next year onwards.

Risk models are subject to the Group 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 through appropriately 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 and loss rates for LGD 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 162.

PD measures

- The model estimated PIT PDs are compared with the actual default rates by PD ranges within each IRB exposure class. PD ranges, estimated PDs and actual default rates are based on the existing models default definitions. UK Cards is the only CRD IV compliant portfolio for the reporting period, for the remaining portfolios CRD IV compliant models are either under implementation or currently under development/approval as per the CRD IV roll-out plan agreed with the PRA.
- The estimated PDs are forward-looking average PD by the model at the beginning of the 12-month period, i.e. average PD of the November 2015 non-defaulted obligors including inactive and non-borrowers. Both EAD weighted and simple average PDs have been reported.
- The estimated PDs are compared with the simple average of historical annual default rates over the past 5 years, starting November 2011.
- The PIT PD is used as a predicted measure in internal monitoring and annual validation of the models. In contrast, the capital calculation uses 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.
- A mapping has been provided between external ratings and internal PD ranges based on the published reports from 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 clients graded by the IRB model suite, which may include some clients that have either zero exposure or zero limits marked at the time of calculation.

LGD measures

- The model estimated LGDs, unadjusted for regulatory floors and for downturn adjustments, are compared with the actual LGDs within each IRB exposure class.
- The estimated LGDs are derived from a simple average of LGDs at the time of default for the set of cases closed over the previous 12 months.
- The actual LGD rate is the simple average observed loss rate for the set of cases closed over the previous twelve months, regardless of the time of default.
- The LGD measures are used as a predicted measure in internal monitoring and annual validation of the models. The capital calculation uses Downturn LGDs with additional adjustments and regulatory floors where modelled outputs display evidence of risk understatement.

Table 84: Analysis of expected performance versus actual results

This table provides an overview of credit risk model performance, assessed by the analysis of average PDs and average LGDs.

The table compares the raw model output to the actual experience in our portfolios. Such analysis is used to assess and enhance the adequacy and accuracy of models. The raw outputs are subject to a number of adjustments before they are used in the calculation of capital, for example to allow for the position in the credit cycle and the impact of stress on recovery rates.

Asset Class										
		External Ratings Equivalent		Weighted Average PD	Arithmetic Average PD by obligors	Number of obligors		Defaulted obligors in the year	of which: new defaulted in the year	Average historical annual default
Wholesale	EBA PD Range (%)	Moody's	S&P	%	%	As at November 2015	As at November 2016			%
Central governments or central banks	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.02%	0.03%	132	97	–	–	0.00%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.18%	0.22%	6	7	–	–	0.00%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.36%	0.37%	7	8	–	–	0.00%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.00%	0.65%	3	1	–	–	0.00%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	0.86%	1.39%	11	10	–	–	0.00%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	0.00%	6.58%	6	7	–	–	0.00%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	0.00%	23.24%	4	4	–	–	0.00%
	100.00 (default)	D	D	100.00%	100.00%	–	–	–	–	0.00%
Institutions	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.03%	0.03%	7,098	8,661	–	–	0.00%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.20%	0.19%	731	880	–	–	0.00%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.37%	0.39%	320	386	–	–	0.00%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.61%	0.65%	123	111	–	–	0.00%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.53%	1.34%	264	222	–	–	0.00%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	6.42%	5.26%	191	141	–	–	0.00%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	17.64%	25.21%	98	72	2	–	0.46%
	100.00 (default)	D	D	100.00%	100.00%	47	15	–	–	0.00%
Corporate	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.04%	0.05%	1525	1383	–	–	0.00%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.20%	0.20%	300	364	–	–	0.03%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.36%	0.38%	713	636	4	–	0.25%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.61%	0.62%	398	297	2	–	0.13%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.25%	1.32%	1,109	841	4	–	0.35%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	4.57%	4.78%	845	1,263	29	–	1.85%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	23.94%	21.88%	323	247	18	–	3.99%
	100.00 (default)	D	D	100.00%	100.00%	311	276	–	–	0.00%
Corporate SME	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.07%	0.08%	964	748	–	–	0.06%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.19%	0.19%	1,310	1,508	–	–	0.20%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.36%	0.36%	2,826	2,904	4	–	0.13%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.64%	0.64%	2,056	2,194	2	1	0.22%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.28%	1.35%	4,146	4,405	19	1	0.51%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	5.24%	4.96%	3,698	4,719	72	5	3.60%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	23.28%	23.01%	732	528	48	1	10.18%
	100.00 (default)	D	D	100.00%	100.00%	214	134	–	–	0.00%
Specialist Lending	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.07%	0.07%	30	29	–	–	0.00%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.19%	0.19%	107	35	–	–	0.00%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.37%	0.37%	180	145	–	–	0.00%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.61%	0.64%	137	169	–	–	0.76%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.18%	1.29%	142	218	–	–	0.00%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	5.02%	5.09%	152	135	1	–	2.43%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	28.12%	25.71%	14	12	1	–	13.96%
	100.00 (default)	D	D	100.00%	100.00%	69	60	–	–	0.00%

Table 84: Analysis of expected performance versus actual results continued

Asset Class

Retail	EBA PD Range (%)	External Ratings Equivalent: Moody's	External Ratings Equivalent: S&P	Weighted Average PD %	Arithmetic Average PD by obligors %	Number of obligors: As at November 2015	Number of obligors: As at November 2016	Defaulted obligors in the year	of which: new defaulted in the year	Average historical annual default %
SME[a]	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.04%	0.06%	33,578	34,933	21	1	0.04%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.20%	0.20%	23,989	25,288	28	1	0.07%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.37%	0.37%	54,759	57,747	69	4	0.07%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.64%	0.64%	43,467	61,414	99	6	0.13%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.48%	1.54%	210,081	172,631	448	83	0.19%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	4.68%	5.54%	305,063	313,511	1,374	288	0.43%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	20.67%	23.61%	303,665	339,375	7,206	1,136	3.46%
	100.00 (default)	D	D	100.00%	100.00%	5,606	5,097	–	–	0.00%
Secured by Real Estate	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.09%	0.09%	700,161	745,590	510	–	0.08%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.19%	0.19%	191,114	137,113	314	–	0.15%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.33%	0.33%	105,224	60,859	365	–	0.29%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.63%	0.62%	17,538	12,575	145	–	0.69%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.23%	1.25%	21,316	18,452	450	–	2.03%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	5.12%	5.05%	6,085	5,467	465	–	7.06%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	38.18%	37.73%	6,102	5,270	2,024	–	49.52%
	100.00 (default)	D	D	100.00%	100.00%	11,983	11,694	–	–	–
Qualifying Revolving Retail	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.07%	0.05%	10,391,483	10,551,296	3,453	893	0.04%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.20%	0.20%	1,927,465	1,814,853	3,015	682	0.18%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.36%	0.36%	2,244,780	2,166,187	6,625	1,038	0.34%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.62%	0.61%	1,158,422	1,140,628	6,018	564	0.60%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.44%	1.38%	2,652,087	2,703,357	31,720	1,293	1.29%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	4.88%	4.81%	1,499,071	1,591,182	71,475	1,470	4.70%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	25.47%	28.16%	433,988	494,297	129,694	96	28.13%
	100.00 (default)	D	D	100.00%	100.00%	591,116	476,487	–	–	0.00%
Other Retail	0.00 to <0.15	Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1	AAA, AA+, AA, AA-, A+, A, A-, BBB+	0.13%	0.12%	351	60	2	–	0.58%
	0.15 to <0.25	Baa1, Baa2	BBB+, BBB	0.21%	0.21%	2,259	1,958	5	–	0.56%
	0.25 to <0.50	Baa3, Ba1	BBB-, BB+	0.41%	0.40%	19,001	46,054	66	–	0.58%
	0.50 to <0.75	Ba1, Ba2	BB+, BB	0.64%	0.64%	38,663	87,272	155	–	0.64%
	0.75 to <2.50	Ba2, Ba3, B1, B2	BB, BB-, B+, B	1.58%	1.54%	326,841	335,910	2,784	–	1.30%
	2.50 to <10.00	B1, B2, B3	B+, B, B-	3.99%	3.98%	161,800	124,689	6,406	–	4.47%
	10.00 to <100.00	Caa1, Caa2, Caa3, Ca, C	CCC+, CCC, CCC-, CC, C	45.12%	41.24%	18,055	25,917	8,251	–	35.54%
	100.00 (default)	D	D	100.00%	100.00%	59,108	43,731	–	–	0.00%

Asset Class

	Number of resolved cases over last one year (December 2015 to November 2016)	Predicted LGD (Simple Average) %	Actual LGD (Simple Average) %
Wholesale			
Investment Bank	19	30%	11%
Corporate Bank	89	42%	22%
Retail			
SME	2,116	82%	67%
Secured by Real Estate	4,168	4%	4%
Qualifying Revolving Retail	357,342	74%	72%
Other retail	36,968	79%	77%

Note
a Refer to the notes below for an explanation of data limitations relating to the Retail SME figures presented in this table.

2016 AIRB models back testing summary

Section below provides AIRB model performance summary based on the above back testing results, along with the remediation plans.

Wholesale

- The Wholesale book continues to maintain low default rates across IRB exposure classes, with no defaults observed for 'Central Governments or Central Banks'. The estimated PDs are higher (conservative) compared to actual default rates for most PD ranges within each exposure class.
- There are two key LGD models used for the Wholesale IRB exposures. Both the LGD models overestimate (conservative) on a PIT basis.
- A new set of replacement models are currently under development to comply with CRD IV requirements for the material portfolios, and are scheduled to be submitted to the PRA over 2017-18.

Retail SME

- The estimated PDs rank order the actual default experience for the UK SME book, i.e. higher PDs implying higher actual default rates.
- The estimated PDs and LGD are much higher (conservative) compared to the actual default rates and LGD. The actual PD is low due to the inclusion of immaterial and dormant customers in the denominator. In addition, there was a temporary default identification issue during the reporting period, which has now been rectified, though the retrospective identification was not possible. The LGD model is benchmarked to the Corporate LGD model.
- A new set of CRD IV compliant models have been approved by the PRA in 2016 and are currently under implementation.

Secured by Real Estate

- This covers mortgage portfolios for UK and Italy. Rank ordering is maintained across PD ranges.
- For UK Mortgages, the PD model is accurate, slightly conservative at an overall level (0.34% expected vs. 0.31% actual). The portfolio maintains low LGD and the model overestimates (2.2% estimated vs. 1.0% actual). The new CRD IV compliant model suite is awaiting PRA approval.
- For Italy Mortgages, both the PIT PD and LGD models underestimate (non-conservative) primarily due to a decrease in the House Price Index (HPI). The portfolio has observed significant losses in recovery as a result of the lengthening of the auction process and general collateral devaluation driven by a depressed housing market. In addition, the market at origination when appraisals of the collateral values were carried out was significantly optimistic. A new set of CRD IV compliant models are currently under development, and are due for PRA submission by December 2017. Interim Post Model Adjustments (PMA) are in place to address existing models deficiencies.

Qualifying Revolving Retail

- This constitutes UK Cards, Germany Cards and UK Current Account portfolios. The estimated PDs rank order well across all three portfolios and at an overall level.
- For UK Cards, a slight underestimation is observed in the PD model driven by the high risk bands; 1.9% estimated vs. 2.1% actual at an overall level. The LGD model is accurate (69.9% estimated vs. 69.5% actual). The existing CRD IV model suite is currently under recalibration to further improve its accuracy.
- For Germany Cards, a slight overestimation in the PD estimates is driven by in-order population; 1.5% estimated vs. 1.4% actual at an overall level. The overestimation in the LGD model (84% estimated vs. 75% actual), is primarily driven by debt sale at a better price. New CRD IV models are currently under development, and are due for PRA submission in H1 2017.
- For UK Current Accounts, PD model overestimates are primarily due to a decrease in actual default rates over the last year (0.73% estimated vs. 0.57% actual). The LGD model is accurate (84% estimated vs. 80% actual). New CRD IV compliant model suites are currently under internal review; to be submitted to the PRA by Q1 2017.

Other Retail

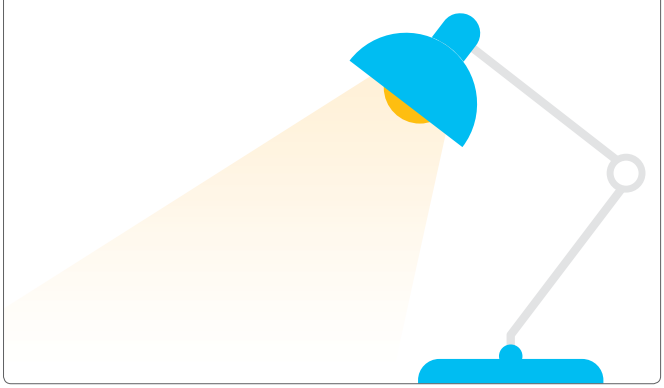
- This covers UK Barclayloan portfolio. The PD rank ordering holds except for the low PD ranges, which have a low number of defaults.
- The current portfolio default rate and estimated PD is lower compared to the historical average default rate due to an improvement in the portfolio quality. However, both PD (3.4% estimated vs. 3.1% actual) and LGD (79% expected vs. 77% actual) models are accurate at an overall level based on a comparison over past one year.
- New CRD IV compliant capital suite has been submitted to the PRA in December 2016.

Barclays' approach to managing risks

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.

- A general discussion of credit risk mitigation (covering traditional credit risks) is included from page 135.
- Mitigation techniques specific to counterparty credit risk are also discussed.



Credit risk mitigation

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

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

The Group has detailed policies in place to ensure that credit risk mitigation is appropriately recognised and recorded. The recognition of credit risk mitigation is subject to a number of considerations, including ensuring legal certainty of enforceability and effectiveness, ensuring the valuation and liquidity of the collateral is adequately monitored, and ensuring 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 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 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.

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 by 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 (CSA)) 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.

For details of the fair value of collateral held, please refer to maximum exposure table in the credit risk performance section of the 2016 Annual Report.

In exposure terms, the main portfolios that the Group takes collateral for are home loans and reverse repurchase agreements with financial institutions.

Floating charges over receivables

The Group may also obtain collateral in the form of floating charges over receivables and inventory of corporate and other business customers. The value of this collateral varies from period to period depending on the level of receivables and inventory. It is impracticable to provide an estimate of the amount (fair value or nominal value) of this collateral. The Group may in some cases obtain collateral and other enhancements at a counterparty level, which are not specific to a particular class of financial instrument. The fair value of the credit enhancement gained has been apportioned across the relevant asset classes.

Collateral for derivative contracts

The collateral obtained for derivatives is predominantly cash or government bonds (G7 and other highly rated governments). Appropriate haircuts may be applied to non-cash collateral, which are agreed when the margin agreement (e.g. CSA) is negotiated.

Valuation of collateral and impact of market moves

Typically, assets other than cash are subject to regular revaluation (for example via physical review, linking to an external index or depreciation of the asset), to ensure they continue to achieve appropriate mitigation of risk. Customer agreements often include requirements for provision of additional collateral, should valuations decline or credit exposure increase, for example due to market moves impacting a derivative exposure.

The carrying value of non-cash collateral reflects the fair value of the physical assets, limited to the carrying value of the asset where the exposure is over-collateralised. In certain cases, where active markets or recent valuations of the assets are not available, estimates are used. For assets collateralised by residential or commercial property (and certain other physical assets), where it is not practicable to assess current market valuations of each underlying property, values reflect historical fair values updated for movements in appropriate external indices. For further information on LTV ratios in principal home loans portfolios, see the Credit Risk review section on page 176 to 177 of the 2016 Annual Report.

Liens over fluctuating assets such as inventory and trade receivables, known as floating charges, over the assets of a borrower are monitored annually. The valuation of this type of collateral takes into account the ability to establish objectively a price or market value, the frequency with which the value can be obtained (including a professional appraisal or valuation), and the volatility or a proxy for the volatility of the value of the collateral.

For assets collateralised by traded financial instruments, values reflect MTM or mark to model values of those assets, applying a haircut where appropriate. 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.

Valuation of collateral – property

When property is taken as collateral, it is monitored to establish whether the current value is less than its value at origination. Monitoring is undertaken annually for commercial property or via linking to an external index for residential property. More frequent monitoring may be carried

out where the property sector is subject to significant deterioration.

Deterioration is monitored principally by geography. Specific exercises to monitor property values may be undertaken where the property sector in a given geography has been subject to significant deterioration and where the Group has a material concentration of property collateral.

Monitoring may be undertaken either at a portfolio level (typically retail) or at an individual level (typically wholesale).

In retail businesses, monitoring on a portfolio level refers to a more frequent process of indexing collateral values on each individual loan, using a regional or national index, and updating LGD values. This monitoring may be a desk top assessment and need not necessarily include physical assessment of properties. In the event of charge-off, an individual valuation of the property is undertaken within three months of the charge-off event and subsequently undertaken at least every six months whilst in charge-off.

In wholesale, monitoring is undertaken by individuals who are not part of the sales/relationship part of the business. Where an appropriate local index is not available, property values are monitored on an individual basis as part of the annual review process for the loan. For larger loans, in addition to the regular annual review, the property value is reviewed by an independent valuer at least once every three years. This review is a more detailed assessment than the standard property monitoring review, and may include a fresh professional valuation. In addition, an independent valuer reviews the property valuation where information indicates that the value of the property may have declined materially relative to general market prices. In addition, trigger points are defined under which property values must be reviewed.

Valuation of collateral – distressed assets

The net realisable value from a distressed sale of collateral obtained by the Group upon default or insolvency of counterparty will in some cases be lower than the carrying value recognised. Assets obtained are normally sold, generally at auction, or realised in an orderly manner for the maximum benefit of the Group, the borrower's other creditors and the borrower, in accordance with the relevant insolvency regulations. For business customers, in some circumstances, where excess funds are available after repayment in full of the outstanding loan, they are offered to any other, lower ranked, secured lenders. Any additional funds are returned to the borrower. The Group does not occupy repossessed properties for its business use or use assets obtained in its operations.

Additional revaluations are usually performed when a loan is moved to WL. Exceptions to this may be considered where it is clear a revaluation is not necessary, for instance where there is a very high margin of security or a recent valuation has been undertaken. Conversely, a material reduction in the value of collateral held represents an increase in credit risk and will often cause a loan to be placed on the WL.

Any one of the above events may also trigger a test for impairment, depending on individual circumstances of the loan. When calculating impairment, the difference between an asset's carrying amount and the present value of all estimated cash flows discounted at the original effective interest rate will be recognised as impairment. Such cash flows include the estimated fair value of the collateral, which reflects the results of the monitoring and review of collateral values as detailed above and valuations undertaken as part of the Group's impairment process.

Whether property values are updated as part of the annual review process, or by indexation of collateral values, the updated collateral values feed into the calculation of risk parameters which, in turn, feed into identified and unidentified impairment calculations at each balance sheet date.

Trends in LLRs incorporate the impact of any decrease in the fair value of collateral held.

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 credit worthy 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 Regulations Requirement (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 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.

Counterparty credit risk

Derivative counterparty credit exposures

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 (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 trading 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.

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.

Derivative netting and collateral arrangements
Credit risk from derivatives is mitigated where possible through netting agreements whereby derivative assets and liabilities with the same counterparty can be offset. 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.

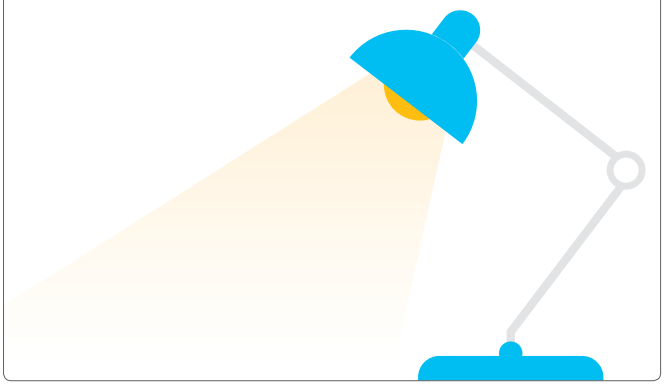
Collateral is obtained against derivative assets, depending on the creditworthiness of the counterparty and/or nature of the transaction. Any collateral taken in respect of OTC trading exposures will be subject to a 'haircut', which is negotiated at the time of signing the collateral agreement. A haircut 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 Barclays the power to realise any collateral placed with it in the event of the failure of the counterparty.

Barclays' approach to managing risks

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 risk, the risk of the Group being impacted by changes in the level or volatility of positions in the trading book, is covered on pages 138 to 145. Measurement techniques such as VaR, are discussed, as well as techniques applied when statistical techniques are not appropriate.
- The governance structure specific to market risks is discussed on pages 139 to 140.



Market risk

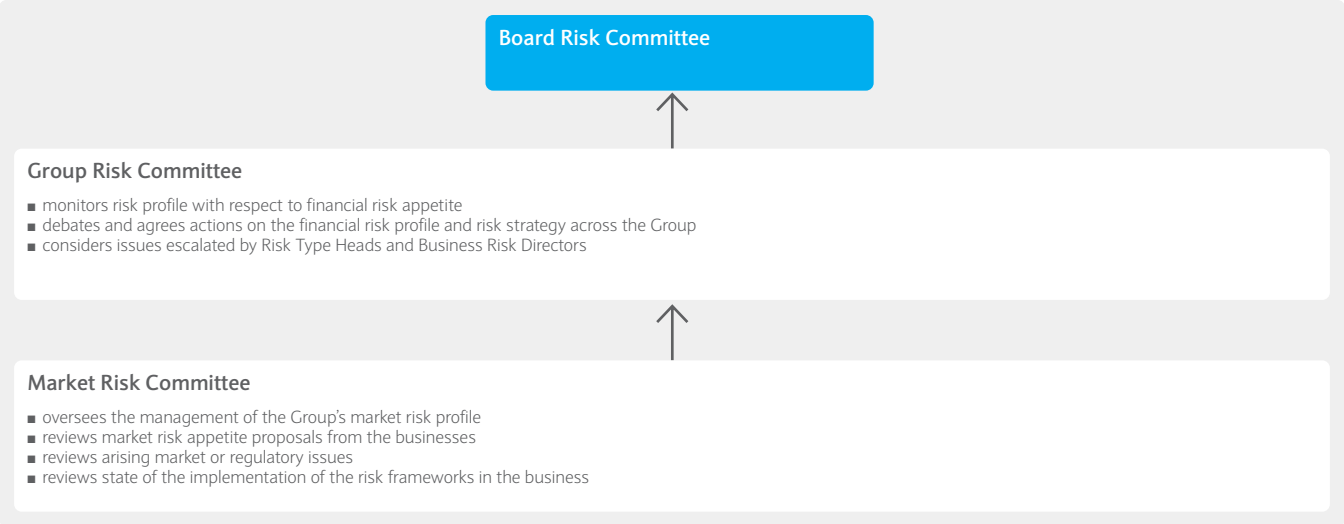
The risk of loss arising from potential adverse changes in the value of the firm's assets and liabilities from fluctuation in market variables including, but not limited to, interest rates, foreign exchange, equity prices, commodity prices, credit spreads, implied volatilities and asset correlations

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.

Market risk in the businesses resides primarily in Barclays International, Group Treasury and Non-Core. These businesses have the mandate to incur market risk.

Organisation and structure



Roles and responsibilities

The objectives of market risk management are to:

- understand and control market risk by robust measurement, limit setting, reporting and oversight
- facilitate business growth within a controlled and transparent risk management framework
- ensure that market risk in the businesses is controlled according to the allocated appetite
- support the Non-Core strategy of asset reductions by ensuring that market risk remains within agreed risk appetite.

To ensure the above objectives are met, a well established governance structure is in place to manage these risks consistent with the ERMF. See page 110 on risk management strategy, governance and risk culture.

The BRC recommends market risk appetite to the Board for their approval. The Market Risk Principal Risk Officer (MRPRO) is responsible for the Market Risk Control Framework and, under delegated authority from the CRO, agrees with the BCROs a limit framework within the context of the approved market risk appetite.

Across the Group, market risk oversight and challenge is provided by business committees, Group committees, including the Market Risk Committee.

The Market Risk Committee approves and makes recommendations concerning the Group-wide market risk profile. This includes overseeing the operation of the Market Risk Framework and associated standards and policies; reviewing arising market or regulatory issues, limits and utilisation; and risk appetite levels to the Board. The Committee is chaired by the MRPRO and attendees include the business heads of market risk, business aligned market risk managers and Internal Audit.

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.

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 ensure 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 117 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 Group-wide risk appetite.

See pages 113 to 114 for more detail on risk culture.

Management of traded market risk, mitigation and hedging policies
The governance structure helps ensure all market risks that the Group is exposed to are well managed and understood.

Traded market risk is generated primarily as a result of market making activities, syndications and providing risk management solutions to clients. 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.

Traded market risk measurement – management view
Market risk management measures
A range of complementary approaches to measure traded market risk are used which aim to capture the level of losses that the bank is exposed to due to unfavourable changes in asset prices. The primary tools to control the firm's exposures are:

Measure	Description
Management Value at Risk (VaR)	An estimate of the potential loss arising from unfavourable market movements, if the current positions were to be held unchanged for one business day.
Primary stress tests	An estimate of potential losses that might arise from severe market moves or scenarios impacting key liquid market risk exposures.
Secondary stress tests	Modelled losses from unfavourable market movements to illiquid market risk exposures.
Business scenario stresses	Multi asset scenario analysis of severe, but plausible events that may impact the market risk exposures of the investment banking.

The use of Management VaR for traded market risk is broader than the application for use of VaR for regulatory capital, and captures standardised, advanced and certain banking books where traded market risks are deemed to exist. The wider scope of Management VaR is what the 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 142) 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, confidence level and horizon
- back testing is performed to ensure 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 two-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:

Risk factor	Description
Interest rate	Changes in the level or shape of interest rate expectations can impact prices of interest rate sensitive assets, such as bonds and derivatives instruments, such as interest rate swaps.
Spread	Difference between bond yields and swaps rates that arises when a business has positions in both bonds and interest rate/inflation derivatives instruments. Both assets may trade at different levels but are fundamentally exposed to similar risk.
Foreign exchange	The impact of changes in foreign exchange rates and volatilities.
Equity	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.
Commodity	Arises primarily from providing hedging solutions to clients and access to financial investors via financially-settled energy derivatives exposed to changes in the level of energy spot or forward prices and their volatilities.
Inflation	Arises from the impact of changes in inflation rates and volatilities on cash instruments and derivatives. This arises as part of market marking activities, whereby the Group may be exposed to changes in inflation rates, for example, market making syndications for inflation linked securities.
Traded credit	Arises from the uncertainty of credit quality impacting prices of assets, for example positions such as corporate bonds, securitised products and credit based derivative instruments, including credit default swaps.
Basis	The impact of changes in interest rate tenor basis (e.g. the basis between swaps vs 3-month LIBOR and swaps vs 6-month LIBOR) and cross-currency basis and is primarily generated as a result of market making activities.

In some instances, historical data is not available for particular market risk factors for the entire look-back period, for example, complete historical data would not be available for our equity security following an initial public offering. In these cases, market risk managers will proxy the unavailable market risk factor data with available data for a related market risk factor.

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 two years 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.


See page 83 for a review of Management VaR in 2016.

Primary stress tests

- Key tool 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

- Key tool used by management to measure illiquid market risks from extreme market movements or scenarios in each major trading 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.

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 firm 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

- Key tool 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 impact 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 such as 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, and the impact of a large financial institution collapse, a disorderly exit of quantitative easing programmes, including unexpected rapid and continuous interest rate rises as a result.


See page 83 for a review of business scenario stresses in 2016.

Traded 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 ('CRD IV') and Regulation. 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 Capital Requirements Regulation (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.

Page 320 of the Annual Report sets out the valuation control framework for accounting valuations and the related responsibilities of the Finance-product control valuations function and the Valuation Committee. This function and committee are also responsible for the oversight of the PVA and ensuring compliance with article 105 of the CRR.

Regulatory measures for traded market risk

There are a number of regulatory measures which the Group has permission to use in calculating regulatory capital (internal models approval). These are listed below:

Measure	Definition
Regulatory Value at Risk (VaR)	An estimate of the potential loss arising from unfavourable market movements calibrated to 99% confidence interval 10-day holding period.
Stressed Value at Risk (SVaR)	An estimate of the potential loss arising from a twelve-month period of significant financial stress calibrated to 99% confidence interval 10-day holding period.
Incremental Risk Charge (IRC)	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.
Comprehensive Risk Measure	An estimate of all the material market risk, including rating migration and default for the correlation trading portfolio.

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
Confidence interval	99%	95%
Scope	As approved by the regulator (PRA)	Management view of market risk exposures. Includes trading books and banking books exposed to price risk
Look-back period	2 years	2 years
Liquidity Horizon (holding period)	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. Regulatory VaR levels contribute to the calculation of the market risk RWAs.

Management VaR allows the bank to supervise the total market risk across the Group, including all trading books and some banking books.

Management VaR is also utilised for internal capital model (economic capital).

Regulatory VaR is fundamentally the same as the Management VaR (see page 140), with the key differences listed above.

The model is complemented with RNIVs, as described on page 145.

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 Stressed VaR ('SVaR') capital requirement is added to the market risk capital requirement arising from regulatory VaR, the Incremental Risk Charge and the Comprehensive Risk Measure 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 the sum of general market risk Regulatory VaR and specific market risk Regulatory VaR for positions in scope of regulatory approval. The SVaR period is reviewed on a quarterly 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 two-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.

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.

Comprehensive Risk Measure

- Captures all market risks affecting the correlation trading portfolio.

Comprehensive Risk Measure covers the correlation trading portfolio and is intended to adequately capture all risk factors relevant to corporate Nth-to-default (on a basket of referenced names) and tranched credit derivatives. The capital requirement is based on a 99.9% confidence interval over a one-year holding period. The model generates a scenario based on a Monte Carlo simulation and revalues the portfolio under the simulated market scenario.

The model captures the following risk factors in the correlation trading portfolio:

- default and ratings migration over a one-year time horizon
- credit spread volatility
- recovery risk: uncertainty of the recoverable value under default
- correlation risk
- basis risk: basis between credit indices and its underlying constituents
- hedge slippage: portfolio rebalancing assumption.

The Group's Comprehensive Risk Measure model is based on the IRC model but also captures market risks not related to transition or default events, such as movements in credit spreads or correlations. These risk factors are included as part of the Monte Carlo simulation using distributions calibrated to historically observed moves.

Table 85: 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; £3.5bn	Equally-weighted historical simulation of potential daily P&L arising from market moves	Regulatory VaR is computed with 10-day holding period and 99% confidence level
SVaR	1 model; £6.6bn	Same methodology as used for VaR model, but using a different time series	Regulatory SVaR is computed with 10-day holding period and 99% confidence level
IRC	1 model; £2.1bn	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
Comprehensive Risk Measure	1 model; £0.4bn	Same approach as IRC, but it incorporates market-driven movements in spreads and correlations for application to correlation trading portfolios	Comprehensive Risk Measure is computed with one-year holding period and 99.9% confidence level. As required in CRD IV, the Comprehensive Risk Measure charge is subject to a floor set with reference to standard rules charge

See page 84 for a review of regulatory measures in 2016.

Regulatory back testing

Back testing is the method by which the 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 back testing 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. net trading P&L loss in one trading day is greater than the estimated VaR for the same trading day. The 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).

Back testing 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 the Group's regulatory VaR model. Regulatory back testing 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 and Barclays Capital Securities Ltd is the highest level of consolidation for the VaR models that are used in the calculation of regulatory capital.

A back testing 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 back testing exceptions in a 12-month period. Back testing counts the number of days when a loss exceeds the corresponding VaR estimate, measured at the 99% regulatory confidence level. For the investment banking regulatory DVaR model at the consolidated legal entity level, green model status was maintained for 2016.

Back testing is also performed on management VaR to ensure it remains reasonable and fit for purpose.

The table below shows the VaR back testing exceptions on legal entities aligned to the Group's business as at 31 December 2016. A back testing exception is generated when a loss is greater than the VaR for a given day. Exceptions are shown by legal entity rather than asset class as in prior disclosures. Model performance at a legal entity level determines regulatory capital within those entities. Legal entity disclosure also reflects the management perspective as Barclays moves forward with structural change, where VaR and model performance of VaR for a legal entity across asset class becomes more relevant than asset class metrics across legal entity.

For the investment banking regulatory DVaR model at the consolidated legal entity level, green model status was maintained for 2016.

	Actual P&L		Hypo P&L	
Legal entity	Total Exceptions	Status†	Total Exceptions	Status†
BBPlc Trading and BCSL	2	G	2	G
BBPlc Trading	1	G	2	G
BSCL	6	A	1	G
BBSA	3	G	–	G
BCI*	2	G	3	G
IHC	–	G	1	G

* BCI back testing has been replaced by IHC back testing from 1 July 2016 (both are included below for their respective periods). Please note that IHC back testing is performed for hypo P&L only as per US regulatory requirements.
† RAG status is accurate as of year-end.

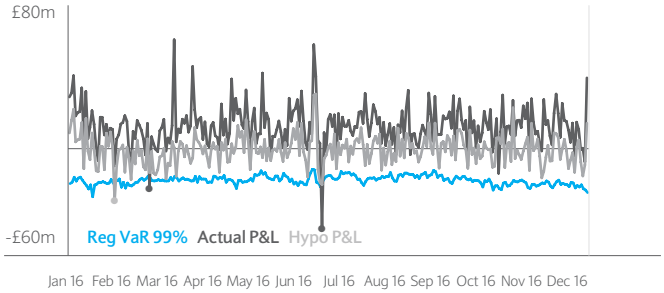
Management of market risk

The charts below show VaR for the Group's regulatory portfolios aligned to legal entity where at least one exception has occurred during 2016. The dark blue and grey points on the charts indicate losses on the small number of days on which actual and hypo P&L respectively exceeded the VaR amount.

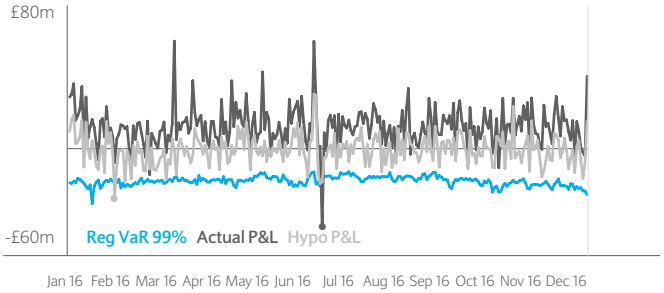
Backtesting exceptions are caused when realised volatility exceeds the 99% percentile predicted by VaR. In addition to being driven by market moves in excess of the 99% confidence level, exceptions can be caused by risks that impact P&L that are not captured directly in the VaR itself but that are separately captured through VaR and non-VaR-type Risks Not in VaR (RNIVs).

Exceptions are reported to internal management and regulators on a regular basis and exceptions are investigated to ensure the model performs as expected. Overall back testing for the consolidated legal entity remains in the green zone, suggesting that the VaR remains fit for purpose.

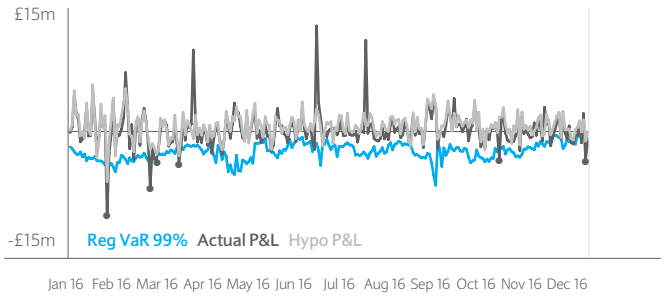
BBPlc Trading and BCSL



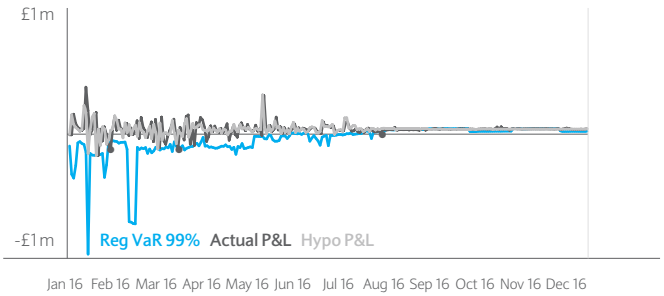
BBPlc Trading



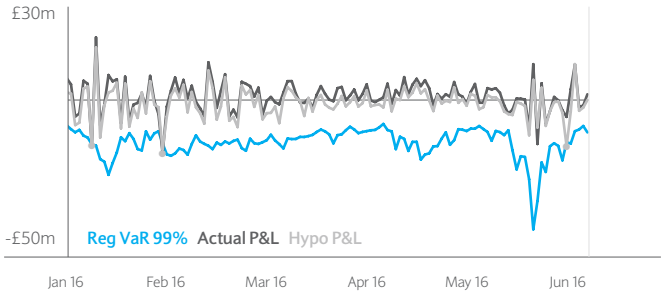
BCSL



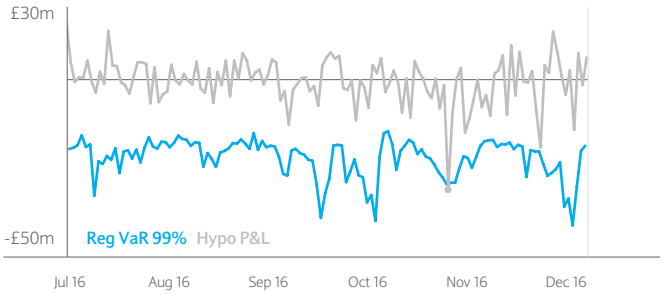
BBSA



BCI



IHC



Management of risks not fully captured in models, including Risks not in VaR (RNIVs)

The 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 ensure risk coverage, the range of core risks is identified following either market convention, regulatory guidance, or the specific historical experience of the Group, and is considered as part of the new product processes.

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, the Group has policies to ensure that add-ons are applied 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
- potential losses in excess of fair valuation adjustments taken in line with the Valuation Control Framework. Please see note 18 in the 2016 Annual Report 'Fair value of assets and liabilities' for more details on 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 APR 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.

Traded 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 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.

Firm-wide limits are reported to the BRC and are termed A-level limits for total management VaR, asset class VaR, primary stress and secondary stresses and business scenarios. These are then cascaded down by risk managers in order to meet the firm-wide risk appetite.

Each A-level limit is set after consideration is given to 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 Group Market Risk.

Throughout 2016, 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.

Traded market risk reporting

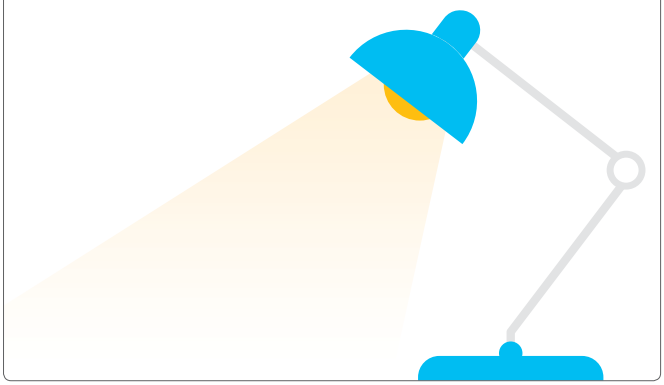
Trading businesses market risk managers produce a number of detailed and summary market risk reports daily, weekly, fortnightly and monthly for business and risk managers. Where relevant on a Group-wide basis, these are sent to Group Market Risk for review and a risk summary is presented at the Group 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.

Barclays' approach to managing risks

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 147.
- A description of the risks incurred in the course of securitisation activities, and how we manage them, is contained on page 148.



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 93 to 104, 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 93 to 104) as they do not fall under the regulatory securitisation framework (defined under Part Three, Title II, Chapter 5 of the CRR, part of the CRD IV package). 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 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 the Group in securitisations in 2016

The Group adopts the following roles in the securitisation processes in which it is involved:

Originator of assets prior to 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 securitises assets otherwise originated in the ordinary course of business including corporate loans, consumer loans and commercial mortgage loans. The Group also provides derivative transactions to securitisations sponsored by itself and third parties. These transactions 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, 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 collateralized 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 bank makes secondary market in CLOs and acts as arranger on behalf of clients to structure and place arbitrage CLOs. The bank can also create re-securitisations of real estate mortgage investment conduits (Re-REMICs) of mortgage backed securities.

Purchaser of third party securitisations to support client franchise
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). In such transactions the Group would not be defined as an originator or sponsor for regulatory purposes.

Sponsoring conduit vehicles
The Group acts as managing agent and administrative agent of a multi-seller asset backed commercial paper (ABCP) conduit, Sheffield Receivables Corporation (Sheffield), through which interests in securitisations of third party originated assets are funded via the issuance of ABCP.

From a regulatory perspective, Barclays acts as a sponsor of Sheffield. In relation to such conduit activity, the Group provides all or a portion of the backstop liquidity to the commercial paper, programme-wide credit enhancement and, as appropriate, interest rate and foreign currency hedging facilities. The Group receives fees for the provision of these services.

Sheffield holds securities classified as available for sale, measured at fair value with changes in fair value recognised through other comprehensive income (OCI) and non-securities classified as loans and receivables, measured at amortised cost on its standalone financial statements. It funds the assets through the issuance of ABCP. Note that Sheffield is 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. In 2016, the Group raised £0.4bn term funding through public securitisation.

While Barclays has a number of outstanding securitisation transactions to provide term or contingent liquidity, the Group currently manages four key, on-balance sheet asset backed funding programmes to obtain term financing for mortgage and credit card lendings. These programmes also support retained issuances for the Group to access central bank 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) for the purposes of the transfer of credit risk to third party investors. The regulatory capital requirements of these transactions fall under CRD IV.

Securitisation risks, monitoring and hedging policies

Capital requirements against securitisation exposures are subject to a separate framework under CRD IV (see CRR article 449) 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, servicer 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 principal committee responsible for the monitoring of the credit risk arising from securitisations is Wholesale Credit Risk Management Committee (WCRMC). Executive responsibility rests with the Regional Heads of Financial Institutions Credit Risk.

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 is 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, we incur potential contingent operational risks related to representations and warranties should we need to foreclose on the line and it be later 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, ECAIs and RWA calculations

RWAs reported for securitised and re-securitised banking book and trading book assets at 31 December 2016 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 (ECAIs) 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 internal rating standard which is compliant with both CRR and European Credit Rating Agency regulation. The ECAIs nominated by the Group for this purpose are Standard & Poor's, Moody's, Fitch and DBRS.

As required by CRR, the Group uses credit ratings issued by these ECAIs 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.

For Sheffield, the Internal Assessment Approach (IAA) framework mirrors the ECAI methodology, which also includes Moody's and Fitch, who rate the Sheffield programme. Under the IAA framework, the securitisation exposure must be internally rated, and the bank's 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.

Typically, assets that are awaiting securitisation on the Group balance sheet are measured at fair value through P&L, using the appropriate method for the asset class as they are classified as held for trading or are designed at fair value through profit and loss, under the IAS 39 fair value option. However some non-derivative assets held prior to securitisation may qualify as loans and receivables and are measured at amortised cost. When securitised assets have been included on the Group balance sheet it is necessary to consider whether those assets may be removed from the Group balance sheet. Assets which have been transferred to third parties (i.e. an unconsolidated Group entity), will remain on the Group balance sheet, and 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
- if a significant portion, but not all, of the risks and rewards have been transferred, the asset is derecognised entirely if the transferee has the ability to sell the financial asset, otherwise the asset continues to be recognised only to the extent of the Group's continuing involvement.

Any financial support or contractual arrangements provided to unconsolidated entities, over securitised assets, would be recognised as a liability on balance sheet if it met the relevant IFRS criteria, or gave rise to a provision under IAS 37, and have to be disclosed (see Note 39 in the 2016 Annual Report). 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 securitisation 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 sale treatment to the extent the Group has no continuing involvement. Where the Group has continuing involvement the assets will continue to be recognised to the extent of the continuing involvement. Gains are recognised to the extent that proceeds that can be measured using observable market data exceed the 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 2016 Annual Report. 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.

Barclays' approach to managing risks

Management of Treasury and Capital Risk

This section provides an analysis of the management of liquidity, capital and Interest rate risk in the banking risk.

- Liquidity risk, with a focus on how it is managed to ensure that resources are adequate at all times including under stress, is discussed on pages 152 to 153.
- Capital risk, including how the risk of insufficient capital and leverage ratios and pension risk are managed, is discussed on pages 154 to 155.
- The management of Interest rate risk in the banking book is discussed on pages 156 to 157.

Treasury and capital risk

The risk that the Group may not achieve its business plans because of the availability of planned liquidity, a shortfall in capital or a mismatch in the interest rate exposures of its assets and liabilities. The Treasury and Capital Risk function is an independent risk function with responsibility for oversight of the following risks:

- **Liquidity risk:** The risk that the firm 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 firm 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 includes the risk from the firm's pension plans
- **Interest rate risk in the banking book:** The risk that the firm is exposed to capital or income volatility because of a mismatch between the interest rate exposures of its (non-traded) assets and liabilities.

Overview

Barclays Treasury manages treasury and capital risk on a day-to-day basis with the Treasury Committee acting as the principal management body. To ensure effective oversight and segregation of duties and in line with the ERMF, the Treasury and Capital Risk function is responsible for oversight key capital and liquidity risk management activities.

To ensure effective oversight and segregation of duties and in line with the ERMF, the Treasury and Capital Risk function is responsible for oversight key capital, liquidity, non-traded market risk (NTMR) and pension risk management activities. The following describes the structure and governance associated with the risk types within the Treasury and Capital Risk function.

Organisation and structure

Board Risk Committee

- approve Risk Appetite
- review material issues impacting Treasury and Capital Risk
- approve the ICAAP and ILAAP

Group Risk Committee

- review and recommend Risk Appetite to the BRC for approval
- escalation of material issues impacting Treasury and Capital Risk to the BRC
- review and recommend the ICAAP and ILAAP to the BRC for approval

Treasury & Capital Risk Committee

- manage Treasury and Capital Risk Appetite
- monitor the Treasury and Capital Risk Profile
- monitor the Treasury and Capital Risk Control Environment
- recommend Risk Appetite to the GRC and BRC for approval by the BRC
- escalation of material issues impacting Treasury and Capital Risk to the GRC and BRC

Liquidity risk management

Overview

The efficient management of liquidity is essential to the Group in retaining the confidence of the financial markets and ensuring that the business is sustainable. There is a control framework in place for managing liquidity risk and this is designed to meet the following objectives:

- To maintain liquidity resources that are sufficient in amount and quality and a funding profile that is appropriate to meet the liquidity risk appetite as expressed by the Board
- To maintain market confidence in the Group's name.

This is achieved via a combination of policy formation, review and governance, analysis, stress testing, limit setting and monitoring. Together, these meet internal and regulatory requirements.

Roles and responsibilities

The Treasury and Capital Risk function is responsible for the management and governance of the liquidity risk mandate defined by the Board. Treasury has the primary responsibility for managing liquidity risk within the set risk appetite.

Liquidity risk management

A control framework is in place for Liquidity Risk under which the Treasury function operates. The control framework describes liquidity risk management processes, associated policies and controls that the Group has implemented to manage liquidity risk within the Liquidity Risk Appetite (LRA) and is subject to annual review.

The Board sets the LRA over Group stress tests and is represented as the level of risk the Group chooses to take in pursuit of its business objectives and in meeting its regulatory obligations. The approved LRA is implemented in line with the control framework and policy for liquidity risk.

Control framework

Barclays has a comprehensive control framework for managing the Group's liquidity risk. It is designed to deliver the appropriate term and structure of funding consistent with the LRA 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 and contingent liabilities and a Contingency Funding Plan. Limit setting and transfer pricing are tools that are designed to control the level of liquidity risk taken and drive the appropriate mix of funds. Together, these tools reduce the likelihood that a liquidity stress event could lead to an inability to meet the Group's obligations as they fall due.

The stress tests assess the potential contractual and contingent stress outflows under a range of scenarios, which are then used to determine the size of the liquidity pool that is immediately available to meet anticipated outflows if a stress occurs.

The Group maintains a Contingency Funding Plan which details how liquidity stress events of varying severity would be managed. Since the precise nature of any stress event cannot be known in advance, the plans 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. Barclays also maintains Recovery Plans which consider actions to generate additional liquidity in order to facilitate recovery in a severe stress.

Ongoing business management	Early signs/ Mild stress	Severe stress	Recovery	Resolution
■ Stress testing and planning ■ Liquidity limits ■ Early warning indicators	■ Monitoring and review ■ Management actions not requiring business rationalisation	■ Activate Contingency Funding Plan ■ Management actions with a positive impact on the franchise	■ Activate appropriate recovery options to restore the capital and/or liquidity position of the Group	■ Ensure an orderly resolution can be carried out if necessary, without adverse systemic risk or exposing the public funds to loss

Risk Appetite and planning

Barclays has established a LRA over Group stress tests and is represented as the level of liquidity risk the Group chooses to take in pursuit of its business objectives and in meeting 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 stressed net contractual and contingent outflows for each of five stress scenarios. Barclays has defined both internal short-term and long-term LRA stress test metrics.

The LRA for internal stress tests 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 Individual Liquidity Adequacy Assessment Process (ILAAP).

Statement of Liquidity Risk Appetite: 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 a period of time (minimum buffer duration):

- 30 days in a Barclays specific stress
- 90 days in a market wide stress
- 30 days in a combined stress
- LCR 30 days minimum ratio 100% (Pillar 1 basis)
- LCR 30 days minimum ratio 80% (Pillar 2 basis)
- Long-term LRA 80% LCR (Pillar 2).

The stress outflows are used to determine the size of the Group Liquidity Pool, which represents those resources immediately available to meet outflows in a stress. In addition to the liquidity pool, the control framework and policy provides for other management actions, including generating liquidity from other liquid assets on the Group's balance sheet in order to meet additional stress outflows, or to preserve or restore the Liquidity Pool in the event of a liquidity stress.

Management of Treasury and Capital Risk

Liquidity limits

Barclays manages limits on a variety of on- and off-balance sheet exposures, a sample of which is shown in the table below. These limits serve to control the overall extent and composition of liquidity risk taken by managing exposure to the cash outflows.

Examples of Liquidity limits			
Gross Repo limits	FX Cashflow limits	Concentration limits	Minimum Cash Requirement
Secured Mismatch limits	Debt Buyback limits	Off-Balance Sheet commitment limits	Ratings Downgrade limits

Early warning indicators

Barclays monitors a range of market indicators for early signs of liquidity risk either in the market or specific to Barclays, a sample of which are shown in the table below. These are designed to immediately identify the emergence of increased liquidity risk to maximise the time available to execute appropriate mitigating actions. Early warning indicators are used as part of the assessment of whether to invoke the Group's Contingency Funding Plan, which provides a framework for how the liquidity stress would be managed.

Examples of Early Warning Indicators		
Change in composition of deposits	Deterioration in stress test surplus	Rising funding costs
Widening CDS spreads	Change in maturity profile	Stress in financial markets

Contingency funding plan and recovery & resolution planning

Barclays maintains a Contingency Funding Plan (CFP) which is designed to provide a framework where a liquidity stress could be effectively managed. The CFP is proportionate to the nature, scale and complexity of the business and is tested to ensure that it is operationally robust. The CFP details the circumstances in which the plan could be invoked, including as a result of adverse movements in liquidity early warning indicators. As part of the plan, the Barclays Treasurer has established a Liquidity Management Committee (LMC). On invocation of the CFP by the Executive Committee, the LMC would meet to identify the likely impact of the event on the Group and determine the appropriate response for the nature and severity of the stress.

The CFP provides a communication plan and includes management actions to respond to liquidity stresses of varying severity. This could include monetising the liquidity pool, slowing the extension of credit, increasing the tenor of funding and securitising or selling assets.

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

Primary objectives	Core practices
Ensure the Group and legal entities maintain adequate capital to withstand the impact of the risks that may arise under the stressed conditions analysed by the Group.	■ Meet minimum regulatory requirements in all jurisdictions ■ Maintain capital buffers over regulatory minimums ■ Perform Group-wide internal and regulatory stress tests ■ Develop contingency plans for severe and extreme stresses, which include stress management actions and recovery actions.
Support a strong credit rating.	Maintain capital ratios aligned with rating agency expectations.
Maintain adequate capital to cover the Group's current and forecast business needs and associated risks in order to provide a viable and sustainable business offering.	Maintain a capital plan on a short-term and medium-term basis aligned with the Group's strategic objectives, balancing capital generation of the business with business growth and shareholder distributions.

Organisation and structure

The management of capital risk is integral to the Group's approach to financial stability and sustainability management, and is embedded in the way businesses and legal entities operate.

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 and regulatory stress tests, and the Group recovery plan. The 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 Board Risk Committee 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 ensures compliance with an entity's minimum regulatory capital requirements by reporting to local Asset and Liability Committees with oversight by the Group's Treasury Committee, as required.

Roles and responsibilities

Treasury has the primary responsibility for managing and monitoring capital and reports to the Group Finance Director. The Treasury and Capital Risk function contains a Capital Risk Oversight team, and is an independent risk function that reports to the Group CRO and is responsible for oversight of capital risk.

Capital risk management

The Group's capital management strategy is driven by the strategic aims of the Group and the risk appetite set by the Board. The Group's objectives are achieved through well embedded capital management practices.

Capital planning and allocation

The Group assesses its capital requirements on multiple bases, with the Group's capital plan set in consideration of the Group's risk profile and appetite, strategic and performance objectives, regulatory requirements, 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 of ensuring that the Group maintains an adequate level of capital to support its capital requirements.

The PRA determines the regulatory capital requirements for the consolidated Group. Under these regulatory frameworks, capital requirements are set in consideration of the level of risk that the firm is exposed to and the factors above, and are measured through both risk-based RWAs and leverage-based metrics. An internal assessment of the Bank's capital adequacy is undertaken through the Internal Capital Adequacy Assessment Process ('ICAAP') and is used to inform the capital requirements of the firm.

The Group expects to meet the minimum requirements for capital and leverage both during the transition period and upon full implementation, and also holds an internal buffer sized according to the firm's assessment of capital risk.

Through the capital planning process, capital allocations are approved by the Group Executive committee, taking into consideration the risk appetite and strategic aims of the 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 ensure that Barclays' capital plans remain appropriate and that risks to the plans are considered.

Limits are in place to support alignment with the capital plan and adherence to regulatory requirements, and are monitored through appropriately governed forums. Capital risks against firm-specific and macroeconomic early warning indicators are monitored and reported to the Treasury Committee, with clear escalation channels to senior management. 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 the 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.

The 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 the Group capital plan to ensure 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, the Group Recovery Plan defines the actions and implementation strategies available to the Group to increase or preserve capital resources in the situation that a stress occurs that is more severe than anticipated.

Regulatory and accounting developments
Further changes to capital requirements are expected due to continued regulatory focus on the risk weighting of assets, including Basel Committee on Banking Supervision (BCBS) proposals on fundamental review of the trading book, revisions to standardised rules for credit risk, counterparty credit risk, CVA volatility risk and operational risk, application of an RWA floor based on the standardised approach to limit the use of internal models in certain areas as well as the impact of IFRS 9 on the firm's capital position.

Additional capital requirements are also expected from other regulatory reforms, including UK, EU and US proposals on bank structural reform and current European Banking Authority (EBA) proposals for 'Minimum Requirement for own funds and Eligible Liabilities (MREL) under the EU Bank Recovery and Resolution Directive (BRRD)'. Included within these reforms are the Bank of England final rules on MREL requirements for UK banks which were published on 31 October 2016. The Bank of England has stated that the bank's final MREL requirements will be subject to a review in 2020.

Many of the expected regulatory proposals are still subject to finalisation, with calibration and timing of implementation still to be determined and the potential for the impacts to be different from those originally expected when in final form. For further information see 'Funding Risk' in the Material Risks section and 'Regulatory Developments' in the Supervision and Regulation section.

Transferability of capital
Surplus capital held in Group entities is required to be repatriated to Barclays Bank PLC 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 redeployment of capital across legal entities. Pre and post the implementation of ring-fencing, capital is managed for the Group as a whole as well as its operating subsidiaries to ensure fungibility and redeployment of capital while meeting relevant internal and regulatory targets at entity levels.

Foreign exchange risk
The Group has capital resources and RWAs 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, the Group's regulatory capital ratios are sensitive to foreign currency movements.

The Group's capital ratio management strategy is to minimise the volatility of the capital ratios caused by foreign exchange rate movements. To achieve this, the Group aims to maintain the ratio of foreign currency CET1, Tier 1 and Total capital resources to foreign currency RWAs the same as the Group's consolidated capital ratios.

The Group's investments in foreign currency subsidiaries and branches, to the extent that they are not hedged for foreign exchange movements, translate into GBP upon consolidation creating CET1 capital resources sensitive to foreign currency movements. Changes in the GBP value of the investments due to foreign currency movements are captured in the currency translation reserve, resulting in a movement in CET1 capital.

To create foreign currency Tier 1 and Total Capital resources additional to the CET1 capital resources, the Group issues debt capital in non-Sterling currencies, where possible. This is primarily achieved through the issuance of debt capital from Barclays PLC or Barclays Bank PLC in US Dollar and Euro, but can also be achieved by subsidiaries issuing capital in local currencies.

Management of pension risk

The Group maintains a number of defined benefit pension schemes for past and current employees. The ability of the pension fund to meet the projected pension payments is maintained principally through investments.

Pension risk arises because the estimated market value of the pension fund assets might decline; investment returns might reduce; or the estimated value of the pension liabilities might increase as a result of changes to the market process. The Group monitors the market risks arising from its defined benefit pension schemes, and works with the 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.

Many of the Group's defined benefit (DB) 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:

- investment strategy including asset allocation and performance of assets
- assessing the level of technical provision required
- ensuring any minimum funding objectives is met
- complying with local legislation.

The legal structure of Barclays' DB pension funds and the role of the Trustees mean that Pension Risk is not part of the Bank's risk appetite assessment used to manage other key risks.

Pension Forums
The Pension Executive Board (PEB) has accountability for the effective operation of pensions across Barclays Group. It is the most senior executive body for pensions in Barclays.

The Pension Management Group (PMG) is accountable for oversight and workflow management of the group's responsibilities of the pension arrangements operated by Barclays PLC and its subsidiaries globally. 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 pension risk in a wider context as other relevant stakeholders from HR, Legal, Treasury and Finance are also represented at these meetings.

Key Pension Risk control and governance include:
Annual review, challenge and proposal of the IAS 19 market driven assumptions used for the calculation of the pension scheme 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 plan and Stress Test exercise.
- Provide independent oversight of the Pension risk profiles from the Bank's perspective.
- Coordinates response to regulatory initiatives, developments and proposals on Pension, which may include inputs from material overseas schemes such as in the US, Europe and Africa.

Interest rate risk in the banking book management

Overview

Banking book operations generate non-traded market risk, primarily through interest rate risk arising from the sensitivity of net interest margins to changes in interest rates. To manage interest rate risk within its defined risk appetite, the principal banking businesses engage in internal derivative trades with Treasury. However, the businesses remain susceptible to market risk from six key sources:

- **direct risk:** the mismatch between the run-off of product balances and the associated interest rate hedge, given that the balance sheet is held static
- **structural risk:** the impact of the rate shock on the rolling hedge replenishment rate on non-maturity products, given that the balance sheet is held static
- **prepayment risk:** balance run-off may be faster or slower than expected, due to customer behaviour in response to general economic conditions or interest rates. This can lead to a mismatch between the actual balance of products and the hedges executed with Treasury based on initial expectations
- **recruitment risk:** the volume of new business may be lower or higher than expected, requiring the business to unwind pre-hedging or execute hedging transactions with Treasury at different rates than expected
- **residual risk and margin compression:** the business may retain a small element of interest rate risk to facilitate the day-to-day management of customer business. Additionally, in the current low rate environment, deposits on which the Group sets the interest rate are exposed to margin compression. This is because for any further fall in base rate the Group must absorb an increasing amount of the rate move in its margin
- **lag risk:** the risk of being unable to re-price products immediately after a change in interest rates due to both mandatory notification periods and operational constraints in large volume mailings. This is highly prevalent in managed rates savings product (e.g. Every Day Saver) where customers must be informed in writing of any planned reduction in their savings rates.

Non-traded market risk also arises from the Liquidity Buffer investment portfolio, which is managed to a defined risk appetite. Investments in the liquidity buffer are generally subject to available for sale accounting rules; changes in the value of these assets impact capital via the available for sale reserve.

Roles and responsibilities

The Treasury Market Risk team:

- Provides risk management oversight and monitoring of all traded and non-traded market risk in Treasury, which specifically includes risk management of the liquidity buffer, funding activities, asset and liability management hedging, residual interest rate risk from the hedge accounting solution and foreign exchange translation hedging.
- Sets and monitors risk limits to ensure non-traded market risk taken in Treasury and the customer banking book adheres to agreed Risk Appetite.

The Interest Rate Risk in the Banking Book team:

- Assesses interest rate risk in the banking book, particularly as it relates to customer banking book and Treasury.
- Acts as review and challenge of the first line's risk management practices and decisions including the hedging activity performed by Treasury on behalf of the business.
- Acts as review and challenge for the behavioural assumptions used in hedging and transfer pricing.

Management of non-traded market risk, mitigation and hedging policies

Barclays actively seeks to minimise interest risk in the banking book by actively hedging this risk with the use of interest rate products. At the same time Barclays actively manages the potential asset and liability mismatches and changes to interest rates that could reduce the value of our investment portfolios.

Non-traded risk measurement

Barclays uses a range of complementary technical approaches to measure non-traded market risk.

Summary of measures for non-traded market risk

Measure	Definition
Annual earnings at risk	Impact on earnings of a parallel (upward or downward) movement in interest rates.
Economic value of equity (EVE)	Change in the present value of the banking book of a parallel (upward or downward) interest rate shock.
Economic capital	Economic Capital (EC) is held to protect against unexpected loss (in excess of expected loss) and calculated over a one-year time horizon.
Value at risk (VaR)	An estimate of the potential loss arising from unfavourable market movements, if the current positions were to be held unchanged for a set period of time.
Stress testing	Scenario based stress testing using a variety of economic parameters to quantify the impact to P&L and the balance sheet under various levels of stress.

The risk in each business is measured and controlled using both an income metric (Annual Earnings at Risk) and value metrics (Economic Value of Equity, Economic Capital and VaR).

Annual Earnings at Risk (AEaR)

AEaR measures the sensitivity of net interest income over the next one-year period. It is calculated as the difference between the estimated income using the expected base rate forecast and the lowest estimated income following a parallel increase or decrease in interest rates (200bps), subject to a minimum interest rate of 0%. 200bp shocks are consistent with industry best practice and supported by banking regulators.

The main model assumptions are:

- The balance sheet is kept at the current level, i.e. no growth is assumed
- Balances are adjusted for an assumed behavioural profile. This includes the treatment of fixed rate loans including mortgages.

AEaR is applied to the entire banking book, including the liquidity buffer and internal trades with the trading book to hedge against interest rate risk in the banking book exposures. The metric provides a measure of how interest rate risk may impact the Group's earnings, providing a simple comparison between risk and returns. The main disadvantage of the metric is its short-term focus, as it only measures the impact on a position in the first 12 months. In order to counter this, the Group has implemented additional economic value risk metrics.

See pages 86 to 87 for a review of AEaR in 2016.

Economic Value of Equity (EVE)

EVE calculates the change in the present value of the non-traded exposure for a parallel upward and downward interest rate (200bps) shock. This shock is useful for drawing comparisons across portfolios, and is also a regulatory reporting requirement. Note that the EVE calculation measures sensitivity in terms of present value, while AEaR measures income sensitivity.

The EVE measure is applied to the entire banking book, that is, the same coverage as AEaR, and covers the full life of transactions and hedges ensuring the risk over the whole life of positions are considered. The main weaknesses of this model stem from its simplicity. In particular, it does not capture the impact of business growth or of management actions, and is based on the balance sheet as at the reporting date.

Economic Capital (EC, for recruitment, prepayment and residual risk)

EC consistent models, based on DVaR methodologies, are used to measure unexpected losses to a 99.98% confidence interval over a one-year period. Within non-traded risk, this measure aims to capture recruitment risk, prepayment risk and residual risk for banking book products. EC metrics typically measure variations in economic value from specific sources of risk, for example, prepayment risk EC for fixed rate mortgages predicts the cost of hedging to reduce any mismatch exposure resulting from the impact of an interest rate shock on customer prepayment levels.

EC is used in the active management of the banking book. Limits are set against EC metrics and breaches trigger mitigating actions to reduce exposure to appropriate levels. EC modelling is typically applied only to fixed rate products and the majority of variable rate and administered rate portfolios are not subject to an EC measure.

Advantages of EC are that it can calculate unexpected losses to an appropriate degree of confidence given the nature of the risks, and that it covers sources of loss beyond the scope of other models (AEaR only covers income changes over a one-year period; EVE only considers existing business and does not include any dynamic customer behaviour assumptions). The main weaknesses come from necessary simplifying assumptions. In the case of models based on statistical confidence intervals, the choice of the statistical distribution may drive under-prediction of very extreme events (i.e. the real distribution may be fat-tailed). To mitigate this, the Group continues to improve its models using long time series of historical data to capture extreme effects.

See pages 87 for a review of EC in 2016.

Value at Risk (VaR)

VaR is an estimate of the potential loss arising from unfavourable market movements, if the current positions were to be held unchanged for a set period. For internal market risk management purposes, a historical simulation methodology is used with a two-year equally weighted historical period, at the 95% confidence level for banking book portfolios covered by the measure. This calculation is a present value sensitivity while AEaR is an income sensitivity.

Daily VaR is used to measure residual interest and foreign exchange risks within certain banking book portfolios.

Quarterly scaled VaR is used to measure risk in the Liquidity Buffer Investment Portfolio. The calculation uses a five-year historical period, a 95% confidence level and is scaled from daily to quarterly by an approved constant factor.

Stress testing

Stress losses are calculated for the liquidity buffer portfolio, but not subject to controlled limits.

All non-traded market risk positions are subject to the Group's annual stress testing exercise, where scenarios based on economic parameters are used to determine the potential impact of the positions on results and the balance sheet.

Non-traded market risk control

Non-traded market risk is controlled through the use of limits on many of the above risk measures. Limits are set at the total business level and then cascaded down. The total business level limits are owned by the BCROs, while the overall Group AEaR limit is agreed with Group Market Risk and approved by the BRC. Compliance with limits is monitored by the respective business market risk team with oversight provided by Group Market Risk.

Businesses manage their interest rate risk exposures by transferring this risk to Group Treasury, who then mitigate this risk using external markets if appropriate to keep the overall exposure within the agreed risk appetite. Group policy prevents non-trading businesses to run trading books; this is only permitted for investment banking portfolios, Group Treasury, Barclays Non-Core and Africa Banking.

Non-traded market risk reporting

Businesses market risk managers produce a number of detailed and summary market risk reports monthly. Where relevant on a Group-wide basis, these are sent to Group Market Risk for review and a risk summary is presented at the Group Market Risk Committee and the various market risk committees at business level. The overall market risk profile is also presented to BRC on a regular basis.

Barclays' approach to managing risks

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 page 159.
- Governance, management and measurement techniques are covered on pages158 to 161.

Operational risks

The risk of loss to the firm 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 two key objectives:

- minimise the impact of losses suffered, both in the normal course of business (small losses) and from extreme events (large losses)
- improve the effective management of the Group and strengthen its brand and external reputation.

The Group is committed to the management and measurement of operational risk and was granted a waiver by the FSA (now the PRA) to operate an Advanced Measurement Approach (AMA) for operational risk, which commenced in January 2008. The majority of the Group calculates regulatory capital requirements using AMA (94% of capital requirements), except for small parts of the organisation acquired since the original permission (6% of capital requirements) using the Basic Indicator Approach (BIA). The Group works to benchmark its internal operational risk management and measurement practices with peer banks and to drive the further development of advanced techniques.

The Group is committed to operating 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. The Group has an overarching framework that sets out the approach to internal governance. This guide establishes the mechanisms and processes by which the Board directs the organisation, through setting the tone and expectations from the top, delegating authority and monitoring compliance.

Organisation and structure

Operational Risk comprises a number of specific risks defined as follow:

- **external supplier:** inadequate selection and ongoing management of external suppliers
- **financial reporting:** reporting mis-statement or omission within external financial or regulatory reporting
- **fraud:** dishonest behaviour with the intent to make a gain or cause a loss to others
- **information:** inadequate protection of the Group's information in accordance with its value and sensitivity
- **payments process:** failure in operation of payments processes
- **people:** inadequate people capabilities, and/or performance/reward structures, and/or inappropriate behaviours
- **premises and security:** unavailability of premises (to meet business demand) and/or safe working environments, and inadequate protection of physical assets, employees and customers against external threats
- **taxation:** failure to comply with tax laws and practice which could lead to financial penalties, additional tax charges or reputational damages
- **technology (including cyber security):** failure to develop and deploy secure, stable and reliable technology solutions which includes risk of loss or detriment to the Group's business and customers as a result of actions committed or facilitated through the use of networked information systems
- **transaction operations:** failure in the management of critical transaction processes.

In order to ensure complete coverage of the potential adverse impacts on the Group arising from operational risk, the operational risk taxonomy extends beyond the operational risks listed above to cover areas included within conduct risk. For more information on conduct risk please see pages 164 to 165.

These risks may result in financial and/or non-financial impacts including legal/regulatory breaches or reputational damages.

The Group also recognises that there are certain threats/risk drivers that are more thematic and have the potential to impact the bank's strategic objectives. These are Enterprise Risk Themes and require an overarching and integrated management approach. These include:

- **change:** risk of failure in delivering change appropriately
- **cyber:** any cyber attack that disrupts the ability of networks, infrastructures, or applications to perform their intended functions
- **resilience:** characteristic of an organisation, whereby it is able to survive and prosper in its commercial endeavours regardless of the impact of adverse events, shocks and chronic or incremental changes.

Roles and responsibilities

The prime responsibility for the management of operational risk and the compliance with control requirements rests with the 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 governance, risk and control. Businesses 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.

Operational risk management acts in a second line of defence capacity, and is responsible for implementation of the framework and monitoring operational risk events and risk exposures Key indicators (KIs) allow the Group to monitor its operational risk profile and alert management when risk levels exceed acceptable ranges or risk appetite levels and drive timely decision making and actions. Through attendance at business GRC meetings, operational risk management provides specific risk input into the issues highlighted and the overall risk profile of the business. 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 BRC or the BAC.

Specific reports are prepared by businesses, Key Risk Officers and Group Operational Risk on a regular basis for BRC and BAC.

Operational Risk Framework

The Operational Risk Framework comprises a number of elements which allow the Group to manage and measure its operational risk profile and to calculate the amount of operational risk capital that the Group needs to hold to absorb potential losses. The minimum, mandatory requirements for each of these elements are set out in the Group Operational Risk Framework and supporting policies and standards. This framework is implemented across the Group with all businesses required to implement and operate an Operational Risk Framework that meets, as a minimum, the requirements detailed in the operational risk policies.

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

The Group identifies and assesses all material risks within each business and evaluates the key controls in place to mitigate those risks. Managers in the businesses use self-assessment techniques to identify risks, evaluate the effectiveness of key controls in place and assess whether the risks are being effectively managed. The businesses are then able to make decisions on what action, if any, is required to reduce the level of risk to the Group. These risk assessments are monitored on a regular basis to ensure that each business continually understands the risks it faces.

Risk events

An operational risk event is any circumstance where, through the lack or failure of a control, the Group has actually, or could have, made a loss. The definition includes situations in which the 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 the 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 learnt.

The Group also maintains a record of external risk events which are publicly available and is a member of the Operational Riskdata 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 Group's approach to determining its operational risk appetite combines both quantitative measures and qualitative judgement, in order to best reflect the nature of non-financial risks.

The monitoring and tracking of operational risk measures is supplemented with qualitative review and discussion at senior management executive committees on the actions being taken to improve controls and reduce risk to an acceptable level.

Operational risk appetite is aligned to the Group's Risk Appetite Framework. The BRC considers, and recommends to the Board for approval, the Group's risk appetite statement for operational risk based on performance in the current year and the projections for financial volatility the following year.

Key indicators

Key indicators (KIs) are metrics which allow the Group to monitor its operational risk profile. KIs include measurable thresholds that reflect the risk appetite of the business and are monitored to alert management when risk levels exceed acceptable ranges or risk appetite levels and drive timely decision making and actions.

Risk scenarios

Risk scenarios are a summary of the extreme potential risk exposure for each risk in each business and function, and include an assessment of the potential frequency of risk events, the average size of losses and three extreme scenarios. The risk scenario assessments are a key input to the Advanced Measurement Approach calculation of regulatory and 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 risk information. The businesses and functions analyse potential extreme scenarios, considering the:

- circumstances and contributing factors that could lead to an extreme event
- potential financial and non-financial impacts (for example reputational damage)
- 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 may then conclude whether the potential risk is acceptable (within appetite) or whether changes in risk management control or business strategy are required.

The risk scenarios are regularly reassessed, taking into account trends in risk factors such as mis-selling, conduct and financial crime risks.

Management of operational risk

Reporting

The ongoing monitoring and reporting of operational risk is a key component of the Operational Risk Framework. Reports are used by the operational risk function and by business management to understand, monitor, manage and control operational risks and losses.

The operational risk profile is reviewed by senior management at the Businesses GRC meetings as well as Operational Risk Review Forum and BRC, BAC and the Board.

Operational risk measurement

The Group assesses its operational risk capital requirements using an Advanced Measurement Approach. The approach involves estimating the potential range of losses that could be incurred in a year from operational risk events, using statistical distributions. Regulatory capital requirements are set to cover 99.9% of the estimated losses. The Group also assesses its economic capital requirements to cover 99.98% of the estimated losses that exceed the typical losses (diversified across all risk classes).

The potential frequency and severity of losses is estimated for each Key Risk (within the Operational Risk and Conduct Risk categories) across the Group's businesses and functions. The potential range of individual loss severities is represented by a statistical distribution, estimated from the average loss size and three extreme scenarios (from Risk Assessments), as well as loss data from the Operational Riskdata eXchange (ORX).

The capital calculation also takes into account the possibility of dependences between operational risk losses occurring in a year (between businesses and functions and between risks).

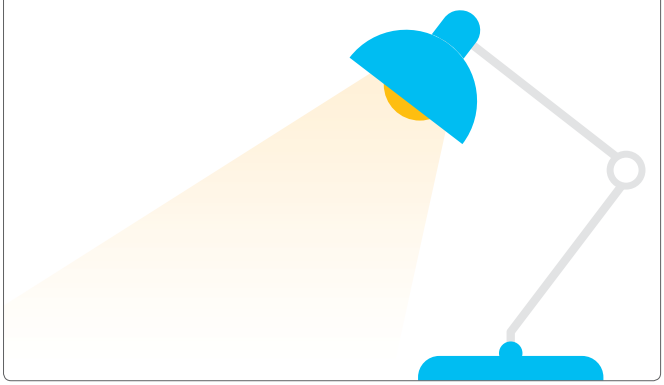
In certain joint ventures and associates, the Group uses the Basic Indicator Approach to determine the capital requirements: some Africa Retail Banking, including Barclays Bank Mozambique and National Bank of Commerce (Tanzania); the business activities acquired from Lehman Brothers; and the portfolios of assets purchased from Woolworths Financial Services in South Africa, Standard Life Bank, ING Direct, MBNA Corporate Cards, Upromise, RCI, Egg Cards, EdCon, Sallie Mae, Ameriprice, Hawaiian Airlines, JetBlue and US Airways.

Barclays' approach to managing risks

Management of model risk

The sources of model risks, and how those risks are managed, are detailed in this section.

Governance, management and measurement techniques are covered on pages 162 to 163.



Management of model risk

Model risk

The risk of the potential adverse consequences from financial assessments or decisions based on incorrect or misused model outputs and reports.

Overview

Barclays 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.

Because models are imperfect and incomplete representations of reality, they may be subject to errors affecting the accuracy of their output.

Model errors 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.

Errors and misuse are the primary sources of model risk.

Robust model risk management is crucial to ensuring that model risk is assessed and managed 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

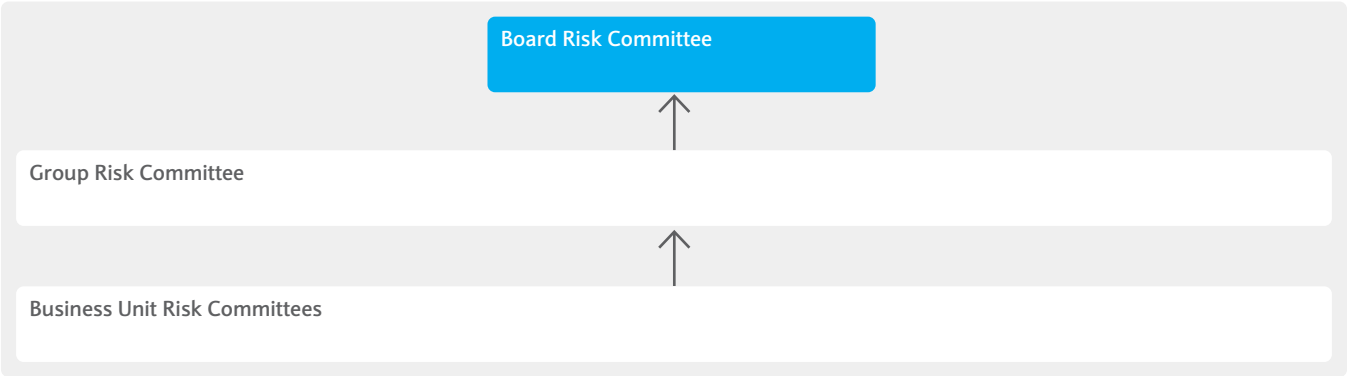
Barclays allocates substantial resources to identify and record models and their usage, document and monitor the performance of models, validate models and ensure that model limitations are adequately addressed.

Barclays has a dedicated Model Risk Management (MRM) function that consists of two main units: the Independent Validation Unit (IVU), responsible for model validation and approval, and Model Governance and Controls (MGC), covering model risk governance, controls and reporting, including ownership of model risk policy.

The model risk policy prescribes Group-wide, end to end requirements for the identification, measurement and management of model risk, covering model documentation, development, implementation, monitoring, annual review, independent validation and approval, change and reporting processes. The Policy is supported by global standards covering model inventory, documentation, validation, complexity and materiality, testing and monitoring, overlays, as well as vendor models and CCAR benchmarking.

Barclays is continuously enhancing model risk management. MRM reports to the Group Chief Risk Officer and operates a global framework. Implementation of best practice standards is a central objective of the Group. Large new model development programmes are currently in motion to implement the model requirements of UK structural reform, CCAR, FRTB and IFRS 9.

Organisation and structure



Roles and responsibilities

The key model risk management activities include:

- ensuring that models are correctly identified across all relevant areas of the firm, and recorded in the Group Models Database (GMD), the Group-wide model inventory. The heads of the relevant areas (typically, the Business Chief Risk Officers, Business Chief Executive Officers, the Treasurer, the Chief Financial Officer etc) annually attest to the completeness and accuracy of the model inventory. MGC undertakes regular conformance reviews on the model inventory. These activities are detailed in the Model Inventory, Workflow and Taxonomy Standard
- ensuring 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 ensure that the model presented to IVU is and remains fit for purpose, in accordance with the Model Documentation Standard, and the Model Testing, Monitoring and Annual Review Standard
- ensuring that every model is subject to validation and approval by IVU, prior to being implemented and on a continual basis, in accordance with the Model Validation and Approval Standard. 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
- specific Standards cover model risk management activities relating to CCAR benchmarking and challenger modelling, model overlays, vendor models, and model complexity and materiality.

Barclays' approach to managing risks

Management of conduct risk

This section provides an analysis of the management of conduct risk.

Conduct risk is the risk that detriment is caused to our customers, clients, counterparties or the Group and its employees because of inappropriate judgement in the execution of our business activities (see pages 164 to 165).

Management of conduct risk

Conduct risk

The risk of detriment to customers, clients, market integrity, competition or Barclays from the inappropriate supply of financial services, including instances of wilful or negligent misconduct.

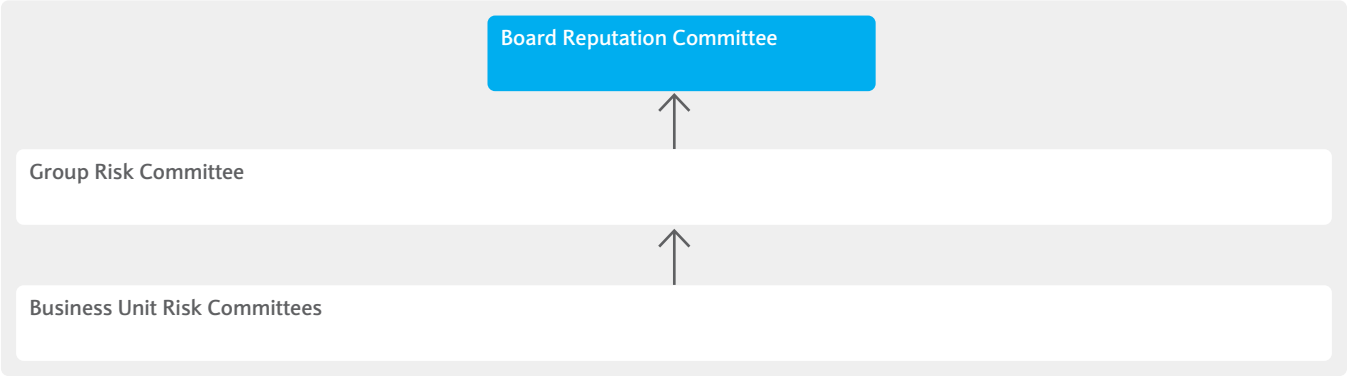
Overview

The Group defines, manages and mitigates conduct risk with the goals of providing positive customer and client outcomes and protecting market integrity. This includes taking reasonable steps to ensure our culture and strategy are appropriately aligned to these goals; our products and services are reasonably designed and delivered to meet the needs of our customers and clients as well as promoting the fair and orderly operation of the markets in which we do business.

As part of the Enterprise Risk Management Framework (ERMF) refresh (see page 110), Reputation risk has been designated as a Principal Risk and Financial Crime has been designated as a Risk Category under Conduct Risk.

Organisation and structure

The Group Risk Committee (GRC) is the most senior Executive body responsible for reviewing and monitoring the effectiveness of Barclays' management of conduct risk.



Roles and responsibilities

The Conduct PRF comprises a number of elements that allow the Group to manage and measure its conduct risk profile.

The PRF is implemented vertically across the Group through an organisational structure that requires all businesses to implement and operate their own conduct risk frameworks that meet the requirements within the ERMF.

The primary responsibility for managing conduct risk and compliance with control requirements sits with the business where the risk arises. The Conduct Risk Accountable Executive for each business is responsible for ensuring the implementation of, and adherence to the PRF.

The Conduct Risk Lead is responsible for owning and maintaining an appropriate Group-wide Conduct Risk PRF and for overseeing Group-wide conduct risk management.

Businesses are required to report their conduct risks on both a quarterly and an event-driven basis. The quarterly reports detail conduct risks inherent within the business strategy and include forward looking horizon scanning analysis as well as backward looking evidence-based indicators from both internal and external sources. For details please refer to the Risk Review, Conduct Risk Performance section of the 2016 Annual Report (see pages 227 to 228).

Barclays' approach to managing risks

Management of reputation risk

This section provides an analysis of the management of reputation risk.

Reputation risk is the risk of damage to the Barclays brand arising from association, action or inaction which is perceived by stakeholders to be inappropriate or unethical (see pages 166 to 167).

Management of reputation risk

Reputation risk

The risk that an action, transaction, investment or event will reduce trust in the firm's integrity and competence by clients, counterparties, investors, regulators, employees or the public.

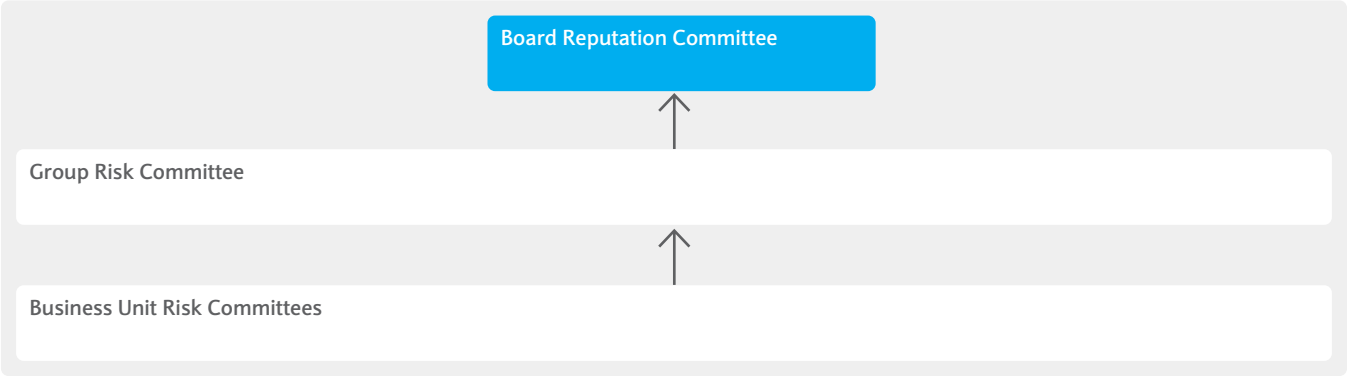
Overview

A reduction of trust in Barclays' integrity and competence may reduce the attractiveness of Barclays 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.

With effect from 2017, Reputation Risk has been redesignated as a Principal Risk within the Enterprise Risk Management Framework.

Organisation and structure

The Group Risk Committee (GRC) is the most senior Executive body responsible for reviewing and monitoring the effectiveness of Barclays' management of Reputation Risk.



Roles and responsibilities

The Chief Compliance Officer is accountable for ensuring that a Reputation Principal Risk Framework and policies are developed and that they are subject to limits, monitored, reported on and escalated, as required.

Reputation risk it is by nature pervasive and can be difficult to quantify, requiring more subjective judgement than many other risks. The Reputation Principal Risk Framework sets out what is required to ensure reputation risk is managed effectively and consistently across the bank.

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.

Each business is required to operate within established reputation risk appetite and to submit quarterly reports to the Group Reputation Management team, 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 the Group Risk Committee and the Board Reputation Committee.

Barclays' approach to managing risks

Management of legal risk

This section provides an analysis 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 firm to meet its legal obligations including regulatory or contractual requirements (see pages 168 to 169).

Legal risk

The risk of loss or imposition of penalties, damages or fines from the failure of the firm to meet its legal obligations including regulatory or contractual requirements.

Overview

With effect from 2017, legal risk, which was previously a Key Risk under operational risk, has been redesignated as a Principal Risk within the Enterprise Risk Management Framework.

The Legal Risk Framework prescribes Group-wide requirements for the identification, measurement and management of legal risk, covering assessment, risk appetite, key indicators and governance. The Group General Counsel (GCC) is the Legal Principal Risk Officer and owns the Legal Risk Framework and the associated legal policies.

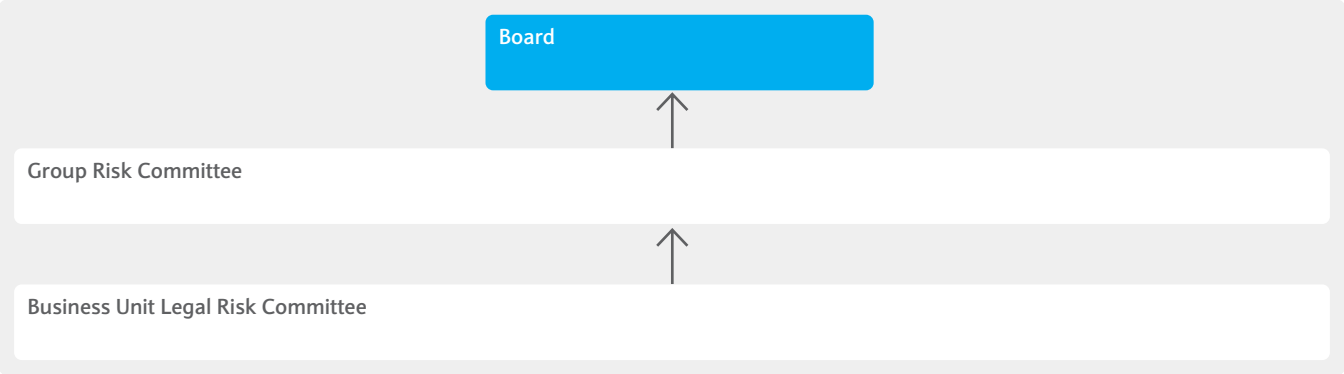
Legal risk is defined by the five respective Legal Policies:

- **Contractual arrangements** – failure to have enforceable contracts in place or for contracts to be enforceable as intended
- **Litigation management** – failure to adequately manage litigation involving Barclays as either claimant or defendant
- **Intellectual property (IP)** – failure to protect the Group's IP assets or Barclays infringing IP rights of third parties
- **Competition/antitrust law** – failure to follow competition/antitrust law or failure to manage relationships with competition and antitrust authorities
- **Use of law firms** – failure to control instruction of an external law firm.

Group-wide and Business/Function specific Standards may be put in place to support the implementation of the legal policies. The standards are aligned to one of the policies and are implemented by Businesses/Functions.

Organisation and structure

The Group Risk Committee (GRC) is the most senior executive body responsible for reviewing and monitoring the effectiveness of Barclays' management of legal risk. Escalation paths from this forum exist to the Board of Barclays PLC.



Roles and responsibilities

The Legal Risk Framework sets out what is required to ensure legal risk is managed effectively and consistently across the bank.

The primary responsibility for managing legal risk and adherence to the control requirements sits with the business where the risk arises.

On behalf of the businesses, the aligned General Counsel or Legal Senior Management, will undertake legal risk appetite assessments and provide advice and guidance on legal risk management. The legal risk assessment includes both quantitative and qualitative criteria including:

- knowledge of legal risk material control issues or weaknesses
- emerging risks resulting from upcoming changes in the control environment, systems, or internal organisational structures
- potential implications on Barclays of forthcoming changes in the external legal and regulatory environment and/or prevailing decisions from courts and enforcing authorities as they relate to defined legal risks
- the Legal Principal Risk Officer is responsible for owning and maintaining an appropriate Legal Risk Framework and for overseeing Group-wide legal risk management.

Appendices

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Appendices

Appendix A

PD, LGD, RWA and exposure by country

The following tables show IRB data for countries in which Barclays is active where the IRB RWA amount is more than 1% of the Group total for any asset class. The countries are shown in descending order of aggregated total RWAs for all asset classes.

Table 86: PD, LGD, RWA and exposure values by country for IRB – all asset classes

Asset Class – all asset classes

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	2.73%	31.6%	88,342	278,570	Cayman Islands	0.30%	43.0%	1,007	3,227
United States	0.82%	37.7%	23,470	99,491	Spain	1.76%	44.1%	964	1,543
South Africa	6.59%	31.5%	23,114	51,071	India	0.34%	48.0%	700	982
Italy	6.42%	25.1%	4,087	11,235	Australia	0.25%	46.0%	626	2,648
Japan	0.07%	45.8%	3,179	17,405	Brazil	0.87%	46.7%	621	629
Germany	1.92%	59.2%	3,143	9,018	Egypt	7.38%	59.9%	301	130
Netherlands	1.01%	44.6%	2,439	4,854	China	0.05%	47.5%	220	1,266
Ireland	2.59%	43.7%	2,181	5,656	Israel	0.36%	47.9%	204	442
France	0.33%	33.0%	1,616	8,330	Singapore	0.10%	47.6%	199	1,741
Canada	0.94%	41.6%	1,564	4,206	Korea	0.05%	46.2%	172	1,437
Luxembourg	2.48%	44.9%	1,552	4,001	Taiwan	0.37%	46.0%	104	263
Jersey	0.95%	37.3%	1,177	1,896	Portugal	1.01%	44.8%	67	94
Switzerland	0.02%	45.1%	1,085	19,759	Ghana	19.45%	39.7%	39	28

Table 86a: PD, LGD, RWA and exposure values by country for IRB – central governments and central banks

Asset class – central governments and central banks

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	0.07%	24.6%	64	857	Cayman Islands	–	–	–	–
United States	–	45.0%	1,183	31,356	Spain	–	–	–	–
South Africa	0.14%	42.4%	1,827	4,933	India	0.38%	45.0%	239	407
Italy	0.23%	45.0%	26	83	Australia	0.01%	45.0%	40	641
Japan	0.05%	45.0%	1,548	10,134	Brazil	0.83%	45.0%	116	152
Germany	–	–	–	–	Egypt	7.50%	60.0%	297	127
Netherlands	–	–	–	–	China	0.04%	53.0%	52	407
Ireland	0.04%	50.0%	58	455	Israel	0.03%	45.0%	15	72
France	–	–	–	–	Singapore	0.01%	47.3%	93	1,463
Canada	0.03%	54.0%	8	74	Korea	0.03%	45.0%	47	567
Luxembourg	–	–	–	–	Taiwan	–	–	–	–
Jersey	–	–	–	–	Portugal	0.36%	50.0%	16	24
Switzerland	0.01%	45.0%	607	17,399	Ghana	5.40%	45.0%	31	22

Table 86b: PD, LGD, RWA and exposure values by country for IRB – institutions

Asset class – institutions

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	1.27%	41.7%	4,525	15,174	Cayman Islands	1.52%	45.0%	2	2
United States	0.61%	43.9%	1,003	3,442	Spain	0.11%	45.5%	277	638
South Africa	0.70%	42.5%	539	1,281	India	0.51%	47.8%	165	177
Italy	0.31%	45.2%	108	179	Australia	0.04%	45.2%	174	866
Japan	0.06%	47.0%	1,043	5,272	Brazil	0.92%	45.0%	450	426
Germany	0.11%	45.6%	385	1,335	Egypt	0.83%	59.9%	2	1
Netherlands	0.02%	43.0%	149	857	China	0.05%	44.9%	167	858
Ireland	0.15%	46.6%	110	347	Israel	0.03%	45.0%	17	121
France	0.04%	26.7%	548	4,878	Singapore	0.03%	45.3%	20	150
Canada	0.06%	45.2%	216	641	Korea	0.03%	45.0%	77	558
Luxembourg	0.02%	47.9%	62	500	Taiwan	0.16%	45.0%	23	63
Jersey	0.10%	49.2%	2	7	Portugal	1.11%	45.6%	4	5
Switzerland	0.02%	45.2%	159	1,368	Ghana	–	–	–	–

Appendix A

PD, LGD, RWA and exposure by country

Table 86c: PD, LGD, RWA and exposure values by country for IRB – corporates

Asset class – corporates

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	2.55%	36.5%	40,894	79,006	Cayman Islands	0.30%	43.0%	1,005	3,225
United States	1.23%	33.8%	21,283	64,689	Spain	2.89%	43.1%	687	904
South Africa	3.38%	34.2%	10,477	19,720	India	0.21%	51.2%	296	398
Italy	0.95%	42.7%	432	887	Australia	0.56%	47.2%	412	1,140
Japan	0.14%	46.8%	587	2,000	Brazil	0.50%	66.2%	56	50
Germany	0.26%	45.8%	1,286	4,185	Egypt	3.70%	53.1%	2	2
Netherlands	1.22%	45.0%	2,290	3,996	China	0.04%	45.0%	–	1
Ireland	3.00%	42.9%	2,013	4,854	Israel	0.62%	50.2%	172	249
France	0.77%	41.9%	1,068	3,451	Singapore	1.09%	53.7%	86	127
Canada	1.13%	40.7%	1,340	3,491	Korea	0.10%	50.7%	47	312
Luxembourg	2.83%	44.5%	1,490	3,501	Taiwan	0.43%	46.3%	81	200
Jersey	0.95%	37.3%	1,175	1,888	Portugal	1.25%	42.9%	47	64
Switzerland	0.19%	47.0%	318	987	Ghana	65.34%	22.5%	7	7

Table 86d: PD, LGD, RWA and exposure values by country for IRB – SME retail

Asset class – SME retail

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	9.38%	34.3%	3,280	7,378	Cayman Islands	–	–	–	–
United States	–	–	–	–	Spain	–	–	–	–
South Africa	4.68%	49.7%	964	1,737	India	–	–	–	–
Italy	–	–	–	–	Australia	1.04%	11.7%	–	1
Japan	–	–	–	–	Brazil	–	–	–	–
Germany	–	–	–	–	Egypt	–	–	–	–
Netherlands	–	–	–	–	China	–	–	–	–
Ireland	4.08%	33.1%	–	1	Israel	–	–	–	–
France	–	–	–	–	Singapore	–	–	–	–
Canada	–	–	–	–	Korea	–	–	–	–
Luxembourg	–	–	–	–	Taiwan	–	–	–	–
Jersey	–	–	–	–	Portugal	–	–	–	–
Switzerland	–	–	–	–	Ghana	–	–	–	–

Table 86e: PD, LGD, RWA and exposure values by country for IRB – secured retail

Asset class – secured retail

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	1.70%	11.3%	16,048	130,924	Cayman Islands	–	–	–	–
United States	20.62%	31.6%	1	3	Spain	–	–	–	–
South Africa	10.04%	12.5%	4,012	15,227	India	–	–	–	–
Italy	7.06%	23.0%	3,520	10,087	Australia	–	–	–	–
Japan	–	–	–	–	Brazil	–	–	–	–
Germany	2.67%	24.6%	–	1	Egypt	–	–	–	–
Netherlands	19.96%	27.4%	1	1	China	–	–	–	–
Ireland	–	–	–	–	Israel	–	–	–	–
France	0.66%	22.7%	–	1	Singapore	–	–	–	–
Canada	–	–	–	–	Korea	–	–	–	–
Luxembourg	–	–	–	–	Taiwan	–	–	–	–
Jersey	–	–	–	–	Portugal	–	–	–	–
Switzerland	8.74%	24.6%	1	5	Ghana	–	–	–	–

Appendix A

PD, LGD, RWA and exposure by country

Table 86f: PD, LGD, RWA and exposure values by country for IRB – revolving retail

Asset class – revolving retail

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	5.15%	76.4%	17,052	39,245	Cayman Islands	–	–	–	–
United States	–	–	–	–	Spain	–	–	–	–
South Africa	12.72%	58.0%	1,799	3,332	India	–	–	–	–
Italy	–	–	–	–	Australia	–	–	–	–
Japan	–	–	–	–	Brazil	–	–	–	–
Germany	4.58%	80.4%	1,472	3,497	Egypt	–	–	–	–
Netherlands	–	–	–	–	China	–	–	–	–
Ireland	–	–	–	–	Israel	–	–	–	–
France	–	–	–	–	Singapore	–	–	–	–
Canada	–	–	–	–	Korea	–	–	–	–
Luxembourg	–	–	–	–	Taiwan	–	–	–	–
Jersey	–	–	–	–	Portugal	–	–	–	–
Switzerland	–	–	–	–	Ghana	–	–	–	–

Table 86g: PD, LGD, RWA and exposure values by country for IRB – other retail exposures

Asset class – other retail exposures

Country	PD %	LGD %	RWA £m	Exposure £m	Country	PD %	LGD %	RWA £m	Exposure £m
United Kingdom	7.70%	89.0%	6,479	5,986	Cayman Islands	–	–	–	–
United States	–	–	–	–	Spain	–	–	–	–
South Africa	13.49%	41.4%	3,496	4,841	India	–	–	–	–
Italy	–	–	–	–	Australia	–	–	–	–
Japan	–	–	–	–	Brazil	–	–	–	–
Germany	–	–	–	–	Egypt	–	–	–	–
Netherlands	–	–	–	–	China	–	–	–	–
Ireland	–	–	–	–	Israel	–	–	–	–
France	–	–	–	–	Singapore	–	–	–	–
Canada	–	–	–	–	Korea	–	–	–	–
Luxembourg	–	–	–	–	Taiwan	–	–	–	–
Jersey	–	–	–	–	Portugal	–	–	–	–
Switzerland	–	–	–	–	Ghana	–	–	–	–

Appendix B

Countercyclical buffer

Table 87: Countercyclical capital buffer

This table shows the geographical distribution of credit exposures relevant to the calculation of the countercyclical buffer in line with CRR Article 440.

	General credit exposures		Trading book exposures		Securitisation exposures		Own funds requirements					
Breakdown by country	Exposure Value for SA £m	Exposure Value for IRB £m	Sum of long and short positions for trading book exposures for SA £m	Value of trading book exposures for internal models £m	Exposure Value for SA £m	Exposure Value for IRB £m	Of which: General credit exposures £m	Of which: Trading book exposures £m	Of which: Securitisation exposures £m	Total £m	Own funds requirements weights £m	Countercyclical capital buffer rate £m
Hong Kong	669	245	23	(2)	–	–	33	2	–	35	0.18%	0.625%
Norway	383	593	17	(57)	–	–	50	1	–	51	0.27%	1.50%
Sweden	568	449	31	(167)	–	455	42	3	5	51	0.26%	1.50%
Total (countries with existing CCyB rate)	1,620	1,287	71	(226)	–	455	125	6	5	137	0.71%	
United Kingdom	33,531	263,430	1,104	(149)	–	9,542	8,451	32	108	8,591	44.31%	n/a
United States	43,913	69,446	9,171	(5,256)	–	17,477	4,453	394	160	5,008	25.83%	n/a
South Africa	778	46,255	1,000	395	–	199	1,804	42	2	1,848	9.53%	n/a
Germany	4,764	8,328	183	(309)	–	5	439	15	–	455	2.35%	n/a
Italy	1,411	10,977	37	124	–	6	420	6	1	427	2.20%	n/a
France	4,512	3,646	227	(450)	–	393	288	18	3	310	1.60%	n/a
Ireland	1,136	3,353	98	(55)	–	3	204	5	1	210	1.08%	n/a
Netherlands	1,029	3,067	143	(82)	–	1	183	13	–	195	1.01%	n/a
Total (countries with own funds requirements weights 1% or above)	91,074	408,502	11,963	(5,782)	–	27,626	16,242	525	275	17,044	87.90%	
Total (countries with own funds requirements weights below 1% and without an existing CCyB rate)	20,754	18,659	1,403	(283)	–	646	2,084	106	18	2,208	11.39%	n/a
Total	113,448	428,448	13,437	(6,291)	–	28,727	18,451	637	298	19,389	100.00%	

Appendix C

Disclosure on asset encumbrance

Asset encumbrance arises from collateral pledged against secured funding and other collateralised obligations. Barclays funds a portion of trading portfolio assets and other securities via repurchase agreements and other similar borrowing and pledges a portion of customer loans and advances as collateral in securitisation, covered bond and other similar structures. Barclays monitors the mix of secured and unsecured funding sources within the Group's funding plan and seeks to efficiently utilise available collateral to raise secured funding and meet other collateral requirements. The encumbered assets below will not agree to those disclosed in the 2016 Annual Report on page 216. The assets below are disclosed on a median quarterly basis and include Barclays Africa. The Annual Report disclosure is reported as at year end and excludes BAGL. There will also be a difference due to the differences in consolidation between the Annual Report (IFRS consolidation) and the Pillar 3 (regulatory consolidation).

Template A – Assets

		Carrying amount of encumbered assets 010 £bn	Fair value of encumbered assets 040 £bn	Carrying amount of non-encumbered assets 060 £bn	Fair value of non-encumbered assets 090 £bn
010	**Assets of the institution**	**179.3**		**1,063.6**	
030	Equity instruments	**23.1**	**23.1**	**17.9**	**17.9**
040	Debt securities	**46.0**	**46.0**	**75.5**	**75.5**
120	Other assets	**–**		**456.0**	

Template B – Collateral received

		Fair value of encumbered collateral received or own debt securities issued 010 £bn	Fair value of collateral received or own debt securities issued available for encumbrance 040 £bn
130	**Collateral received by the institution**	**340.1**	**47.1**
150	Equity instruments	**57.4**	**13.1**
160	Debt securities	**282.1**	**33.9**
240	**Own debt securities issued other than own covered bonds or ABSs**	**–**	**0.2**

Template C – Encumbered assets/collateral received and associated liabilities

		Matching liabilities, contingent liabilities or securities lent 010 £bn	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered 030 £bn
010	**Carrying amount of selected financial liabilities**	**186.9**	**339.1**

The Group's median asset encumbrance for 2016 was £179.3bn, which primarily related to firm financing of trading portfolio assets and other securities, cash collateral and secured funding against loans and advances to customers. Encumbered assets have been identified in a manner consistent with the Group's reporting requirements under CRR. Securities and commodity 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.

Appendix D

Disclosures on remuneration

Remuneration

The following tables show the remuneration awards made to Barclays' Material Risk Takers (MRTs) in respect of the 2016 performance year. Information on decision-making policies for remuneration and the links between both pay and performance and Barclays' remuneration policy and process (including information on remuneration design, performance measurement and risk adjustment, deferral and vesting, fixed to variable remuneration ratio and variable remuneration and benefits policy) is contained in the Remuneration report, which can be found on pages 99 to 133 of the 2016 Annual Report.

The disclosures below are made in accordance with Article 450 of the Capital requirements regulation (CRR) in relation to employees who have been identified as MRTs and to the extent it is applicable to the 2016 performance year.

MRTs

MRTs are the members of the Barclays PLC Board and Barclays' employees whose professional activities could have a material impact on the Group's risk profile. A total of 1,561 individuals were MRTs in 2016 (2015: 1,523).

'Senior management' means members of the Barclays PLC Board (executive Directors and non-executive Directors) and members of the Barclays Group Executive Committee in accordance with Article 3.1(9) of CRD IV.

Remuneration by business

	Barclays International £m	Barclays UK £m	Group Functions £m	Barclays Non-Core £m	Barclays Africa £m
2016	**931**	**28**	**247**	**37**	**37**
2015	–[a]	–[a]	199	34	28

Remuneration awarded during the financial year

	2016		2015	
	Senior management	Other MRTs	Senior management	Other MRTs
Fixed pay				
Number of individuals	**27**	**1,534**	29	1,494
Total fixed remuneration (£m)	**25**	**612**	27	602
– Current year cash (£m)	**19**	**607**	16	597
– Current year shares (£m)	**6**	**5**	11	5
Variable remuneration[b]				
Number of individuals	**12**	**1,333**	14	1,246
Total variable remuneration (£m)	**24**	**620**	22	573
– Current year cash bonus (£m)	**2**	**137**	3	49
– Current year share bonus (£m)	**2**	**127**	3	39
– Deferred cash bonus (£m)	**7**	**178**	7	242
– Deferred share bonus (£m)	**8**	**178**	7	243
– Long-term incentive award (£m)[c]	**5**	**–**	2	–
Total remuneration (£m)	**49**	**1,232**	49	1,175

Deferred remuneration

	2016		2015	
	Senior management £m	Other MRTs £m	Senior management £m	Other MRTs £m
Awarded in year[d]	**29**	**593**	27	684
Paid in year[e]	**13**	**548**	40	793
Reduced through				
– ex post explicit adjustments[f]	**(2)**	**(3)**	(9)	(7)
– ex post implicit adjustments[g]	**(6)**	**(116)**	(12)	(153)
Outstanding at 31 December, of which:[h]	**54**	**1,383**	50	1,317
– vested	**1**	**10**	–	6
– unvested	**53**	**1,373**	50	1,311

Notes

a Due to the business restructuring in 2016, prior year comparators for Barclays International and Barclays UK are not available. The 2015 numbers based on the previous business structure are Investment Bank £842m, Personal and Corporate Banking £103m and Barclaycard £18m.
b Variable remuneration takes the form of cash and/or shares. There are no other forms of variable remuneration.
c Face value at grant. Outcome contingent on future performance.
d Valued at grant price.
e Valued at date of vesting.
f Total reduction due to direct adjustments such as malus, clawback and non-achievement of LTIP performance conditions. Valued at date of adjustment of the relevant year.
g Total reduction due to reductions in share price during the year. Valued at date of vesting.
h All outstanding awards are exposed to ex post adjustment.

Appendix D
Disclosures on remuneration

Joining and severance payments

	2016		2015	
	Senior management	Other MRTs	Senior management	Other MRTs
Sign-on awards				
Number of beneficiaries	–	1	–	3
Made during the year (£m)	–	–	–	1
Buy-out awards				
Number of beneficiaries	2	15	1	9
Made during the year (£m)	13	16	2	5
Severance awards				
Number of beneficiaries	–	21	–	14
Made during the year (£m)	–	3	–	1
Highest individual award (£m)	–	–	–	–

Number of MRTs by band[a]

	2016	2015
Remuneration band	Number of MRTs	Number of MRTs
€1,000,001 to €1,500,000	262	291
€1,500,001 to €2,000,000	118	119
€2,000,001 to €2,500,000	55	69
€2,500,001 to €3,000,000	45	56
€3,000,001 to €3,500,000	10	16
€3,500,001 to €4,000,000	13	19
€4,000,001 to €4,500,000	8	14
€4,500,001 to €5,000,000	13	10
€5,000,001 to €6,000,000	4	4
€6,000,001 to €7,000,000	7	8
€7,000,001 to €8,000,000	3	3
€8,000,001 to €9,000,000	2	1
€9,000,001 to €10,000,000	1	–
€10,000,001 to €11,000,000	–	1
€11,000,001 to €12,000,000	–	–
€12,000,001 to €13,000,000	–	–
€13,000,001 to €14,000,000	–	1

Note
a The table is prepared in euros in accordance with Article 450 of the CRR. Data has been converted into euros using the rates published by the European Commission for financial programming and budget for December of the reported year.

Appendix E

CRD IV reference

Table 88: CRD IV reference

CRR ref.	High-level summary	Compliance reference
Scope of disclosure requirements		
431 (1)	Requirement to publish Pillar 3 disclosures	Barclays publishes Pillar 3 disclosures
431 (2)	Firms with permission to use specific operational risk methodologies must disclose operational risk information.	The Operational Risk section on page 158 contains a description of the operational risk framework, and required Pillar 3 disclosures.
431 (3)	Institution must have a policy covering frequency of disclosures. Their verification, comprehensiveness and overall appropriateness.	Barclays has a dedicated Pillar 3 policy.
431 (4)	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.
Non-material, proprietary or confidential information		
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 (1) and (2) apply this must be stated in the disclosures, and more general information must be disclosed.	This table specifies where disclosures are omitted.
432 (4)	Use of 432 (1) or (2) is without prejudice to scope of liability for failure to disclose material information	
Frequency of disclosure		
433	Disclosures must be published once a year at a minimum, and more frequently if necessary.	Compliance with this provision is covered by Barclays' policy. See under "Basis of preparation" (page 5).
Means of disclosures		
434 (1)	To include of disclosures in one appropriate medium, or provide clear cross-references.	Most disclosures are contained within this document. Signposting directs the reader to other publications where appropriate. Note that remuneration disclosures are contained in a dedicated publication.
434 (2)	Disclosures made under other requirements (e.g. accounting) can be used to satisfy Pillar 3 if appropriate.	Any cross-references to accounting or other disclosures are clearly signposted in this document. In particular, see page 187 for "Location of Risk Disclosures".
Risk management objectives and policies		
435 (1) (a)	Disclose information on strategies and processes; organisational structure, reporting systems and risk mitigation/hedging.	Risk management strategy: pages 108-117
435 (1) (b)		Credit Risk: pages 118-133
435 (1) (c)		Counterparty Credit Risk: pages 134-137
435 (1) (d)		Market Risk: pages 138-145
		Securitization Exposures: pages 146-149
		Treasury and Capital Risk: pages 150 to 157
		Operational Risk: pages 158-161
		Model Risk: pages 162-163
		Conduct Risk: pages 164-165
		Reputation Risk: pages 166-167
		Legal Risk: pages 168-169
435 (1) (e)	Inclusion of a declaration approved by the Board on adequacy of risk management arrangements.	See page 113 of the Barclays PLC 2016 Pillar 3 Report. This statement covers all Principal Risks.
435 (1) (f)	Inclusion of a concise risk statement approved by the Board.	See page 113 of the Barclays PLC 2016 Pillar 3 Report. This statement covers all Principal Risks.
435 (2)	Information on governance arrangements, including information on Board composition and recruitment, and risk committees.	See page 111 for a description of the risk committees. Page 51-52 of the Annual Report contains information on Board composition, experience and recruitment.
435 (2) (a)	Number of directorships held by directors.	Please see pages 51-52 of the 2016 Annual Report.
435 (2) (b)	Recruitment policy of Board members, their experience and and expertise.	Please see pages 51-52, 54-55 of the 2016 Annual Report.
435 (2) (c)	Policy on diversity of Board membership and results against targets.	Please see pages 54-55 of the 2016 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 68-72 of the 2016 Annual Report.
435 (2) (e)	Description of information flow on risk to Board.	Figure on page 119 in the risk management strategy section illustrates the reporting structure to Board committees.

Table 88: CRD IV reference continued

CRR ref.	High-level summary	Compliance reference
Scope of application		
436 (a)	Name of institution	See under "Scope of consolidation" (page 9).
436 (b)	Difference in basis of consolidation for accounting and prudential purposes, naming entities that are:	Figure 1: Summary of regulatory scope of consolidation as at 31.12.16
436 (b) (i)	Fully consolidated;	
436 (b) (ii)	Proportionally consolidated;	
436 (b) (iii)	Deducted from own funds;	
436 (b) (iv)	Neither consolidated nor deducted.	
436 (c)	Impediments to transfer of funds between parent and subsidiaries	See page 155.
436 (d)	Capital shortfalls in any subsidiaries outside of scope of consolidation	Entities outside the scope of consolidation are appropriately capitalised
436 (e)	Making use of articles on derogations from a) prudential requirements or b) liquidity requirements for individual subsidiaries/entities	Barclays makes use of these provisions accoriding to its waiver from the PRA.
Own funds		
437 (1)	Requirements regarding capital resources table	Page 16/Table 5: Capital resources Page 4/Table : Summary of movements in capital resources Page 20-22/Table 8: Summary of terms and conditions of capital resources
437 (1) (a)		
437 (1) (b)		
437 (1) (c)		
437 (1) (d) (i)		
437 (1) (d) (ii)		
437 (1) (d) (iii)		
437 (1) (e)		
437 (1) (f)		
437 (2)	EBA to publish implementation standards for points above.	Barclays follows the implementation standards.
Capital requirements		
438 (a)	Summary of institution's approach to assessing adequacy of capital levels.	Discussions of capital calculations are contained in each risk type management section (credit, market and operational). General discussion on capital planning is on pages 154-155 of the 2016 Annual Report.
438 (b)	Result of ICAAP on demand from authorities.	Barclays has not received this request from its regulator.
438 (c)	Capital requirement amounts for credit risk for each Standardised Approach exposure class.	Pages 33-34/Table 19: Minimum capital requirements and exposure for credit risk. Various other tables contain capital requirements throughout the report.
438 (d)	Capital requirements amounts for credit risk for each Internal Ratings Based Approach exposure class.	Pages 33-34/Table 19: Minimum capital requirements and exposure for credit risk
438 (d) (i)		
438 (d) (ii)		
438 (d) (iii)		
438 (d) (iv)		
438 (e)	Capital requirements amounts for market risk or settlement risk, or large exposures where they exceed limits.	Capital requirements for market risk are disclosed in Page 85/Table 65: Market risk own funds requirements.
438 (f)	Capital requirement amounts for operational risk, separately for the basic indicator approach, the standardised approach, and the advanced measurement approaches as applicable.	Page 106/Table 82: Risk weighted assets for operational risk
438 (endnote)	Requirement to disclose specialised lending exposures and equity exposures in the banking book falling under the simple risk weight approach.	Specialised lending exposures: Page 56/Table 37: Corporate exposures subject to the slotting approach Equity exposures under the Simple Approach: Nil return for equity investments in 2016.

Table 88: CRD IV reference continued

CRR ref.	High-level summary	Compliance reference
Exposure to counterparty credit risk (CCR)		
439 (a)	Description of process to assign internal capital and credit limits to CCR exposures.	Pages 136-137
439 (b)	Discussion of process to secure collateral and establishing reserves.	Pages 135-136
439 (c)	Discussion of management of wrong-way exposures.	Page 137
439 (d)	Disclosure of collateral to be provided (outflows) in the event of a ratings downgrade.	See the liquidity risk management section, Appendix pages 152-153.
439 (e)	Derivation of net derivative credit exposure.	Page 77/Table 57: Counterparty credit exposure by approach
439 (f)	Exposure values for mark-to-market, original exposure, standardised and internal model methods.	Page 77/Table 56: Counterparty credit exposures analysed by financial contract type
439 (g)	Notional value of credit derivative hedges and current credit exposure by type of exposure.	Page 78/Table 59: Notional value of credit derivative contracts held for hedging purposes
439 (h)	Notional amounts of credit derivative transactions for own credit, intermediation, bought and sold, by product type.	Page 78/Table 58: Notional exposure associated with credit derivative contracts
439 (i)	Estimate of alpha, if applicable.	The alpha used by Barclays is 1.4. See page 7.
Capital buffers		
440 (1) (a)	Geographical distribution of relevant credit exposures.	Barclays' countercyclical capital buffer is currently set at 0% for UK exposures. In other jurisdictions where CCyB is being applied, Barclays does not have material relevant exposures. See Table 87 for geographic distribution of relevant exposures.
440 (1) (b)	Amount of the institution specific countercyclical capital buffer.	
440 (2)	EBA will issue technical implementation standards related to 440 (1)	Barclays will comply with the standards once applicable.
Indicators of global systemic importance		
441 (1)	Disclosure of the indicators of global systemic importance	Discussed on page 8.
441 (2)	EBA will issue technical implementation standards related to 441 (1)	Barclays will comply with the standards once applicable.
Credit risk adjustments		
442 (a)	Disclosure of bank's definitions of past due and impaired.	Impairment on AR page 291; online glossary for "Past Due". Pages 120-126 provide a complete description of credit quality measures.
442 (b)	Approaches for calculating credit risk adjustments.	Pages 122-126
442 (c)	Disclosure of pre-CRM EAD by exposure class.	See points 442 (d), (e), (f) below which break down this total.
442 (d)	Disclosures of pre-CRM EAD by geography and exposure class.	Pages 41-42/Table 24: Geographic analysis of credit exposure
442 (e)	Disclosures of pre-CRM EAD by industry and exposure class.	Pages 43-44/Table 25: Industry analysis of credit exposure
442 (f)	Disclosures of pre-CRM EAD by residual maturity and exposure class.	Pages 45-46/Table 26: Residual maturity analysis credit exposures
442 (g)	Breakdown of impaired, past due, specific and general credit adjustments, and impairment charges for the period, by exposure class or counterparty type.	Page 61/Table 42: Analysis of impaired and past due exposures and allowance for impairment by exposure type
442 (g) (i)		
442 (g) (ii)		
442 (g) (iii)		
442 (h)	Impaired, past due exposures, by geographical area, and amounts of specific and general impairment for each geography.	Page 62/Table 43: Geographic analysis of impaired and past due exposures and allowance for impairment
442 (i)	Reconciliation of changes in specific and general credit risk adjustments.	Page 63/Table 44: Analysis of movement on impairment and amounts taken directly to profit and loss Page 64/Table 45: Regulatory adjustments to statutory impairment
442 (i) (i)		
442 (i) (ii)		
442 (i) (iii)		
442 (i) (iv)		
442 (i) (v)		
442 endnote	Specific credit risk adjustments recorded to income statement are disclosed separately.	Page 63/Table 44: Analysis of movement on impairment and amounts taken directly to profit and loss
Unencumbered assets		
443	Disclosures on unencumbered assets	Page 175

Table 88: CRD IV reference continued

CRR ref.	High-level summary	Compliance reference
Use of ECAIs		
444 (a)	Names of the ECAIs used in the calculation of Standardised Approach RWAs, and reasons for any changes	Page 48
444 (b)	Exposure classes associated with each ECAI	Page 48
444 (c)	Explanation of the process for translating external ratings into credit quality steps	Page 48
444 (d)	Mapping of external rating to credit quality steps	Page 48/Table 28: Relationship of long-term external credit ratings to credit quality steps under the standardised approach Page 48/Table 29: Credit quality steps and risk weights under the standardised approach
444 (e)	Exposure value pre- and post-credit risk mitigation, by credit quality step.	Page 49/Table 30: Analysis of exposure by asset classes and risk weight pre-CCF and -CRM under the Standardised approach Page 50/Table 31: Analysis of exposure by asset classes and risk weight post-CCF and -CRM under the Standardised approach
Exposure to market risk		
445	Disclosure of position risk, large exposures exceeding limits, FX, settlement and commodities risk.	Page 85/Table 65: Market risk own funds requirements
Operational risk		
446	Disclosure of the scope of approaches used to calculate operational risk, discussion of advanced methodology and external factors considered.	Page 106 and 160-161
Exposure in equities not included in the trading book		
447 (a)	Differentiation of exposures based on objectives	Page 66/Table 48: Fair value of, and gains and losses on equity investments
447 (b)	Recorded and fair value, and actual prices of exchange traded equity where it differs from fair value.	
447 (c)	Types, nature and amounts of the relevant classes of equity exposures.	
447 (d)	Realised cumulative gains and losses on sales over the period.	
447 (e)	Total unrealised gains/losses, latent revaluation gains/losses, and amounts included within Tier 1 capital.	
Exposure to interest rate risk on positions not included in the trading book		
448 (a)	Nature of risk and key assumptions in measurement models.	Model assumptions on pages 156-157.
448 (b)	Variation in earnings or economic value, or other measures used by the bank from upward and downward shocks to interest rates, by currency.	Page 86/Table 68: Net interest income sensitivity (AEaR) by business unit Page 87/Table 69: Net interest income sensitivity (AEaR) by currency
Exposure to securitisation positions		
449	Exposure to securitisations positions.	
449 (a)	Objectives in relation to securitisation activity.	Page 147

Table 88: CRD IV reference continued

CRR ref.	High-level summary	Compliance reference
449 (b)	Nature of other risks in securitised assets, including liquidity.	Pages 147-148
449 (c)	Risks in re-securitisation activity stemming from seniority of underlying securitisations and ultimate underlying assets.	Page 148
449 (d)	The roles played by institutions in the securitisation process.	Page 147
449 (e)	Indication of the extent of involvement in these roles.	Page 147
449 (f)	Processes in place to monitor changes in credit and market risks of securitisation exposures, and how the processes differ for re-securitisation exposures.	Pages 147-148
449 (g)	Description of the institution's policies with respect to hedging and unfunded protection, and identification of material hedge counterparties.	Page 148
449 (h)	Approaches to calculation of RWA for securitisations mapped to types of exposures.	Pages 148 "Rating methodologies, ECAIs and RWA calculations"
449 (i)	Types of SSPEs used to securitise third-party exposures, and list of SSPEs.	Page 147 "Sponsoring conduit vehicles"
449 (j)	Summary of accounting policies for securitisations:	Page 149 "Summary of the accounting policies for securitisation activities"
449 (j) (i)	Treatment of sales or financings;	
449 (j) (ii)	Recognition of gains on sales;	
449 (j) (iii)	Approach to valuing securitisation positions;	
449 (j) (iv)	Treatment of synthetic securitisations;	
449 (j) (v)	Valuation of assets awaiting securitisations;	
449 (j) (vi)	Recognition of arrangements that could require the bank to provide support to securitised assets.	
449 (k)	Names of ECAIs used for securitisations.	Page 148
449 (l)	Full description of Internal Assessment Approach.	Page 48/Table 28 "Relationship of long-term external credit ratings to credit quality steps under the standardised approach"
449 (m)	Explanation of changes in quantitative disclosures.	Satisfied throughout; we comment on every quantitative table in the securitisation section.
449 (n)	Banking and trading book securitisation exposures:	
449 (n) (i)	Amount of outstanding exposures securitised;	Pages 96-97/Table 76: Outstanding amount of exposures securitised – Asset value and impairment charges
449 (n) (ii)	On balance sheet securitisation retained or purchased, and off-balance sheet exposures;	Pages 98-99/Table 77: Securitisation exposures – by exposure class
449 (n) (iii)	Amount of assets awaiting securitisation;	Page 95/Table 75: Assets awaiting securitisation
449 (n) (iv)	Early amortisation treatment; aggregate drawn exposures, capital requirements;	There is no applicable data to be published in respect of this table. See page 93.
449 (n) (v)	Deducted or 1250%-weighted securitisation positions;	See page 93.
449 (n) (vi)	Amount of exposures securitised and recognised gains or losses on sales.	Page 94/Table 74: Securitisation activity during the year
449 (o)	Banking and trading book securitisations by risk band:	
449 (o) (i)	Retained and purchased exposure and associated capital requirements, broken down by risk-weight bands;	Pages 100-101/Table 78: Securitisation exposures – by capital approach Pages 101-102/Table 79: Re-securitisation exposures – by risk weight band
449 (o) (ii)	Retained and purchased re-securitisation exposures before and after hedging and insurance; exposure to financial guarantors broken down by guarantor credit worthiness.	There is no applicable data to be published in respect of this table. See page 93.
449 (p)	Impaired assets and recognised losses related to banking book securitisations, by exposure type	Pages 96-97/Table 76: Outstanding amount of exposures securitised – Asset value and impairment charges
449 (q)	Exposure and capital requirements for trading book securitisations, separately into traditional	
449 (r)	Whether the institution has provided financial support to securitisation vehicles	There is no applicable data to publish in respect of this table – no support was provided in 2016.
Remuneration disclosures		
450	Remuneration	Appendix D contains the remuneration awards made to Barclays' Material Risk Takers. See the Directors' remuneration report (DRR) of the 2016 Annual Report for other remuneration disclosures.
Leverage		

Table 88: CRD IV reference continued

CRR ref.	High-level summary	Compliance reference
451 (1) (a)	Leverage ratio, and breakdown of total exposure measure, including reconciliation to financial statements, and derecognised fiduciary items	Page 28/Table 15: Leverage ratio
451 (1) (b)		Page 28/Table 15: Leverage ratio
451 (1) (c)		Page 28/Table 15: Leverage ratio
451 (1) (d)	Description of the risk management approach to mitigate excessive leverage, and factors that impacted the leverage ratio during the year.	See page 154, management of capital risk.
451 (1) (e)		
451 (2)	EBA to publish implementation standards for points above.	Barclays follows the implementation standards.
Use of the IRB approach to credit risk		
452 (a)	Permission for use of the IRB approach from authority	Pages 12-13
452 (b)	Explanation of:	
452 (b) (i)	Internal rating scales, mapped to external ratings;	Page 51/Table 32: Internal default grade probabilities and mapping to external ratings
452 (b) (ii)	Use of internal ratings for purposes other than capital requirement calculations;	Page 127 "Applications of internal ratings"
452 (b) (iii)	Management and recognition of credit risk mitigation;	Pages 134-137 "Management of credit risk mitigation techniques and counterparty credit risk"
452 (b) (iv)	Controls around ratings systems.	Pages 128-129. "Management of model risk within Barclays – the control mechanisms for the rating system"
452 (c)	Description of ratings processes for each IRB asset class, provided separately	Page 128. Separate descriptions apply to retail and wholesale classes collectively; hence this is not repeated for each separate class. Pages 129-130/Table 83: IRB credit risk models selected features.
452 (c) (i)		
452 (c) (ii)		
452 (c) (iii)		
452 (c) (iv)		
452 (c) (v)		
452 (d)	Exposure values by IRB exposure class, separately for Advanced and Foundation IRB.	This is shown throughout the report.
452 (e)	For wholesale exposure classes, disclosed separately by obligor grade:	
452 (e) (i)	Total exposure, separating loans and undrawn exposures where applicable;	Page 52/Table 33: Credit risk exposure by exposure class and PD range for central governments & central banks
452 (e) (ii)	Exposure-weighted average risk weight;	Pages 53/Table 34: Exposure by exposure class and PD range for institutions
452 (e) (iii)	Undrawn commitments and average exposure values by asset class.	Pages 54/Table 35: Credit risk exposure by exposure class and PD range for corporates
452 (f)	For retail exposure classes, same disclosures as under 452 (e), by risk grade or EL grade.	Page 57/Table 38: Credit risk exposure by exposure class and PD range for SME Page 58/Table 39: Credit risk exposure by exposure class and PD range for secured retail Page 59/Table 40: Credit risk exposure by exposure class and PD range for revolving retail Pages 60/Table 41: Credit risk exposure by exposure class and PD range for other retail exposures
452 (g)	Actual specific risk adjustments for the period and explanation of changes.	Page 65/Table 47: Analysis of expected loss versus actual losses for IRB exposures
452 (h)	Commentary on drivers of losses in preceding period.	
452 (i)	Disclosure of predicted against actual losses for sufficient period, and historical analysis to help assess the performance of the rating system over a sufficient period.	Pages 65/Table 47: Analysis of expected loss versus actual losses for IRB exposures Pages 131-132/Table 84: Analysis of expected performance versus actual results
452 (j)	For all IRB exposure classes:	
452 (j) (i)	Where applicable, PD and LGD by each country where the bank operates	Appendix A, Pages 171-173/Table 86: PD, LGD, RWA and Exposure by country.
452 (j) (ii)		
Use of credit risk mitigation techniques		
453 (a)	Use of on- and off-balance sheet netting	Pages 135-137
453 (b)	How collateral valuation is managed	Pages 135-137
453 (c)	Description of types of collateral used by Barclays	Pages 135-137
453 (d)	Types of guarantor and credit derivative counterparty, and their creditworthiness	Pages 135-137
453 (e)	Disclosure of market or credit risk concentrations within risk mitigation exposures	Pages 135-137
453 (f)	For exposures under either the Standardised or Foundation IRB approach, disclose the exposure value covered by eligible collateral	Page 47/Table 27: Collateral and guarantees for IRB approach

Table 88: CRD IV reference continued

CRR ref.	High-level summary	Compliance reference
453 (g)	Exposures covered by guarantees or credit derivatives	Page 47/Table 27: Collateral and guarantees for IRB approach
Use of the Advanced Measurement Approaches to operational risk		
454	Description of the use of insurance or other risk transfer mechanisms to mitigate operational risk	Pages 160-161
Use of internal market risk models		
455 (a) (i)	Disclosure of the characteristics of the market risk models.	Page 143/Table 85: Market risk models selected features
455 (a) (ii)	Disclosure of the methodology and description of comprehensive risk measure and incremental risk charge.	Pages 142-143
455 (a) (iii)	Descriptions of stress tests applied to the portfolios.	Page 141
455 (a) (iv)	Methodology for back-testing and validating the models.	Pages 143-144
455 (b)	Scope of permission for use of the models.	Page 13/Table 4: 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 141-142
455 (d)	High/Low/Mean values over the year of VaR, sVaR, comprehensive risk measure and incremental risk charge.	Page 84/Table 63: Analysis of regulatory VaR, SVaR, IRC and All Price Risk Measure Page 83/Table 62: The daily average, maximum and minimum values of management VaR
455 (d) (i)		
455 (d) (ii)		
455 (d) (iii)		
455 (e)	The elements of the own fund calculation.	Page 85/Table 65: Market risk own funds requirements
455 (f)	Weighted average liquidity horizons of portfolios covered by models.	Disclosed in model discussions on page 142.
455 (g)	Comparison of end-of-day VaR measures compared with one-day changes in portfolio's value.	Pages 143-144

Appendix F

EBA reference

This Appendix outlines new tables included in the 2016 Pillar 3 report, adopted under the following guidance received from the EBA:

- RWA and exposures: 'Guidelines on disclosure requirements under Part Eight of Regulation (EU)'
- Leverage exposures: 'Implementing Technical Standards (ITS) on disclosure for leverage ratio'
- Countercyclical buffer: 'EBA Final draft Regulatory Technical Standards on disclosure of information in relation to the compliance of institutions with the requirement for a countercyclical capital buffer under Article 440 of Regulation (EU) No 575/2013'

Table	High-level summary	Compliance reference	Page
Table 10	Overview of risk weighted assets by risk type and capital requirements	Template EU OV1 RWAs and minimum capital requirements under Part Three, Title I, Chapter 1 of the CRR. In accordance with Article 438(c) to (f) in the CRR.	24
Table 12	Flow statement explaining variations in the credit risk RWA under an IRB approach and the corresponding capital requirements	Template EU CR8 Present a flow statement explaining variations in the credit RWAs of exposures for which the risk-weighted amount is determined in accordance with Part Three, Title II, Chapter 3 of the CRR and the corresponding capital requirement as specified in Article 92(3)(a).	25
Table 13	Flow statement explaining variations in the counterparty credit risk RWA under the IMM approach and the corresponding capital requirements	Template EU CCR7 Present a flow statement explaining changes in the CCR RWAs determined under the IMM for CCR (derivatives and SFTs) in accordance with Part Three, Title II, Chapter 6 of the CRR.	26
Table 14	Flow statement explaining variations in the market risk RWA under the IMA approach and the corresponding capital requirements	Template EU MR2-B Present a flow statement explaining variations in the market RWAs (as specified in Article 92(4)(b)) determined under an Part Three, Title IV, Chapter 5 of the CRR (IMA).	26
Table 16	Summary reconciliation of accounting assets and leverage ratio exposures	Template LRSum Reconcilation of the total leverage exposure and comprises of total IFRS assets used for statutory purposes, regulatory consolidation and other leverage adjustments (as per Commission implementing regulation-EU 2016/200).	30
Table 17	Leverage ratio common disclosure	Template LRCom Leverage ratio calculation and includes additional breakdowns for the leverage exposure measure (as per Commission implementing regulation-EU 2016/200).	30
Table 18	Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)	Template LRSpl Breakdown of the on-balance sheet exposures excluding derivatives, SFTs and exempted exposures, by asset class as per row 1 on LRCom (as per Commission implementing regulation-EU 2016/200).	31
Table 22	Impact of CRM and CCF on exposure values, broken down by credit exposure classes	Template EU CR4 Paragraph 99 of the guidelines requires institutions to show the effect of all CRM techniques applied in accordance with Part Three, Title II, Chapter 4 of the CRR, including the financial collateral simple method and the financial collateral comprehensive method in the application of Article 221 and Article 22 of the same regulation on standardised approach capital requirements' calculations.	39
Table 30	Analysis of credit risk exposures by asset classes and risk weight before the application of CCF and CRM under the standardised approach	Template EU CR5 Regulatory exposure values broken down by risk weights. Institutions should disclose exposures pre conversion factor and pre risk mitigation techniques. The risk weight used for the breakdown corresponds to the different credit quality steps applicable in accordance with Article 113 to Article 134 in Part Three, Title II, Chapter 2 of the CRR.	49
Table 31	Analysis of credit risk exposures by asset classes and risk weight after the application of CCF and CRM under the standardised approach	Template EU CR5 Regulatory exposure values broken down by risk weights. Institutions should disclose exposures post conversion factor and post risk mitigation techniques. The risk weight used for the breakdown corresponds to the different credit quality steps applicable in accordance with Article 113 to Article 134 in Part Three, Title II, Chapter 2 of the CRR.	50
Table 33-36, 38-41	Analysis of credit risk exposures by exposure classes and PD grades under the advanced approach	Template EU CR6 In the application of Article 452(e) and (g), this template applies to institutions included in paragraph 7 of these guidelines using either the FIRB approach or the AIRB approach for some or all of their exposures in accordance with Part Three, Title II, Chapter 3 of the CRR.	52-55, 57-60
Table 37	Quantitative disclosure of credit risk specialised lending and equity exposures using the simple risk weight approach.	Template EU CR10 The template applies to all institutions using one of the approaches included in the template in accordance with Article 153(5) or Article 155(2) of the CRR.	56

Appendix F

EBA reference

Table	High-level summary	Compliance reference	Page
Table 51	Analysis of counterparty credit risk exposures by regulatory portfolio and risk weight under standardised approach	Template EU CCR3 This applies to institution using the credit risk standardised approach to compute RWAs for CCR exposures in accordance with Article 107 in the CRR, irrespective of the approach used to determine EAD in accordance with Part Three, Title II, Chapter 6 of the same regulation.	72-73
Table 52-54	Analysis of counterparty credit risk exposures by exposure classes and PD grades under advanced approach	Template EU CCR4 RWAs and parameters used in RWA calculations for exposures subject to the CCR framework (excluding CVA charges or exposures cleared through a CCP) and where the credit risk approach used (in accordance with Article 107 in the CRR) to compute RWAs is an IRB approach.	74-75
Table 55	Quantitative disclosure of counterparty credit risk specialised lending and equity exposures using the simple risk weight approach.	Template EU CR10 (CCR) The template applies to all institutions using one of the approaches included in the template in accordance with Article 153(5) or Article 155(2).	76
Table 60	CVA regulatory calculations (with a breakdown by standardised and advanced approaches).	Template EU CCR2 The template applies to all institutions with exposures subject to CVA capital charges in accordance with Part Three, Title VI, Article 382 in the CRR.	79
NA	Comparison of the results of estimates from the regulatory VaR model	Template EU MR4 Present a comparison of the results of estimates from the regulatory VaR model approved in the application of Part Three, Title IV, Chapter 5 of the CRR with both hypothetical and actual trading outcomes, in order to highlight the frequency and the extent of the backtesting exceptions and to give an analysis of the main outliers in backtested results.	144
Table 63	Outputs of internal models approved for use for regulatory capital purposes at the group level	Template EU MR3 Display the values (maximum, minimum, average and the ending for the reporting period) resulting from the different types of models approved to be used for computing the regulatory capital charge at the group level, before any additional capital charge is applied on the value in accordance with Article 365 in Part Three, Title V, Chapter 5 of the CRR.	84
Table 66	Market risk RWAs and capital requirements under standardised approach	Template MR1 Capital requirements and RWAs under Standardised approach (as specified in Article 92(4)(b) in the CRR).	85
Table 67	Market risk RWAs and capital requirement under internal models approach	Template MR2-A Capital requirements and RWAs under IMA (as specified in Article 92(4)(b) of the CRR).	86
Table 84	Modelling parameters used in IRB calculation	Template EU CR9 Provide backtesting data to validate the reliability of PD calculations. In particular, the template compares the PD used in IRB capital calculations with the effective default rates of institutions obligors. A minimum 5-year average annual default rate is required to compare the PD with a 'more stable' default rate, although an institution may use a longer historical period that is consistent with its actual risk management practices.	131-132
Table 87	Provide a geographical distribution of credit exposures by country that are subject to countercyclical buffer calculation	CCyB Template requires institutions to disclose the geographical distribution by country of credit exposures of an institution that are relevant for the calculation of its CCyB in accordance with Article 140(4) of the CRD and Article 440 of CRR.	174

Appendices

Location of risk disclosures

		Annual Report	Pillar 3 Report
Material existing and emerging risks			
Insight into the level of risk across our business and portfolios, the material existing and emerging risks and uncertainties we face and the key areas of management focus.	▪ Material existing and emerging risks potentially impacting more than one Principal Risk	137	n/a
	▪ Credit risk	139	n/a
	▪ Market risk	141	n/a
	▪ Treasury and capital risk	141	n/a
	▪ Operational risk	*142*	n/a
	▪ Model risk	*143*	n/a
	▪ Conduct risk	*143*	n/a
	▪ Reputation risk	144	n/a
	▪ Legal risk	144	n/a
Risk management			
Overview of Barclays' approach to risk management. A detailed overview together with more specific information on policies that the Group determines to be of particular significance in the current operating environment can be found in Barclays PLC 2016 Pillar 3 Report or at Barclays.com.	▪ Risk management strategy	146	110
	▪ Credit risk management	149	119
	▪ Management of credit risk mitigation techniques and counterparty credit risk	150	135
	▪ Market risk management	151	138
	▪ Management of securitisation exposures	n/a	146
	▪ Treasury and capital risk management	152	150
	▪ Operational risk management	157	158
	▪ Model risk management	159	162
	▪ Conduct risk management	160	164
	▪ Reputation risk management	161	166
	▪ Legal risk management	162	168
Risk performance			
Credit risk: The risk of suffering financial loss should the Group's customers, clients or market counterparties fail to fulfil their contractual obligations.	▪ Credit risk overview	166	32
	▪ Analysis of the balance sheet	166	n/a
	▪ Analysis of maximum exposure and collateral and other credit enhancement held	167	47
	▪ The Group's approach to manage and represent credit quality	169	48, 51
	▪ Analysis of the concentration of credit risk	171	41, 43
	▪ Exposure to Eurozone countries	172	n/a
	▪ Loans and advances to customers and banks	175	n/a
	▪ Analysis of specific portfolios and asset types	176	n/a
	▪ Analysis of problem loans	180	61
	▪ Forbearance	182	n/a
	▪ Impairment	186	61
Market risk: The risk of a reduction to earnings or capital due to volatility of the trading book positions or an inability to hedge the banking book balance sheet.	▪ Market risk overview and measures in the Group	191	81
	▪ Balance sheet view of trading and banking books	192	82
	▪ Traded market risk	193	83
	▪ Business scenario stresses	194	83
	▪ Review of regulatory measures	194	84
	▪ Capital requirements for market risk	n/a	85
	▪ Non-traded market risk	195	86
	▪ Economic capital	196	87
	▪ Foreign exchange risk	197	88
	▪ Pension risk review	198	90
Funding risk – Capital: The risk that the Group is unable to maintain appropriate capital ratios.	▪ Capital risk overview and regulatory minimum capital and leverage requirements	202	n/a
	▪ Capital resources	203	16
	▪ Risk weighted assets	205	23
	▪ Leverage ratio and exposures	206	28
Funding risk – Liquidity: The risk that the firm, although solvent, either does not have sufficient financial resources available to enable it to meet its obligations as they fall due, or can secure such resources only at excessive cost.	▪ Liquidity risk overview and stress testing	209	152
	▪ Liquidity pool	211	152
	▪ Funding structure and funding relationships	212	n/a
	▪ Deposit funding	*212*	n/a
	▪ Wholesale funding Group	213	n/a
	▪ Term financing	215	n/a
	▪ Encumbrance	215	175
	▪ Credit ratings	219	n/a
	▪ Liquidity management at BAGL Group	220	n/a
	▪ Contractual maturity of financial assets and liabilities	220	n/a

Risk performance continued

		Annual Report	Pillar 3 Report
Operational risk: The risk of direct or indirect impacts resulting from human factors, inadequate or failed internal processes and systems or external events.	▪ Operational risk overview	226	105
	▪ Summary of performance in the period	226	106
	▪ Operation risk profile	226	107
Conduct risk: The risk that detriment is caused to our customers, clients, counterparties or Barclays and its employees because of inappropriate judgement in the execution of our business activities.	▪ Conduct risk overview	228	n/a
	▪ Summary of performance	228	n/a
	▪ Conduct reputation measure	17, 227	n/a
Supervision and regulation: The Group's operations, including its overseas offices, subsidiaries and associates, are subject to a significant body of rules and regulations that are a condition for authorisation to conduct banking and financial services business.	▪ Supervision of the Group	229	n/a
	▪ Global regulatory developments	230	n/a
	▪ Regulation in the EU and UK	230	n/a
	▪ Regulation in the United States	233	n/a
	▪ Regulatory developments in the US	235	n/a
	▪ Structural reform developments	236	n/a

Pillar 3 Report

Contains extensive information on risk as well as capital management.	▪ High level summary of risk and capital profile	n/a	3
	▪ Notes on basis of preparation	n/a	5
	▪ Scope of application of Basel rules	n/a	6
Risk and capital position review: Provides a detailed breakdown of Barclays' regulatory capital adequacy and how this relates to Barclays' risk management.	▪ Group capital resources, requirements and CRD IV comparatives	n/a	15
	▪ Analysis of credit risk	n/a	32
	▪ Analysis of counterparty credit risk	n/a	67
	▪ Analysis of credit value adjustment	n/a	79
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	▪ Analysis of operational risk	n/a	105

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Notes

The term Barclays or Group refers to Barclays PLC together with its subsidiaries. The abbreviations '£m' and '£bn' represent millions and thousands of millions of Pounds Sterling respectively; the abbreviations '$m' and '$bn' represent millions and thousands of millions of US Dollars respectively; and the abbreviations '€m' and '€bn' represent millions and thousands of millions of Euros respectively.

Comparatives have been restated to reflect the implementation of the Group business reorganisation. These restatements were detailed in our announcement on 14 April 2016, accessible at home.barclays/results.

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/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. These 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. Examples of forward-looking statements include, among others, statements or guidance regarding the Group's future financial position, income growth, assets, impairment charges, provisions, notable items, business strategy, structural reform, capital, leverage and other regulatory ratios, payment of dividends (including dividend pay-out ratios and expected payment strategies), projected levels of growth in the banking and financial markets, projected costs or savings, original and revised commitments and targets in connection with the strategic cost programme and the Group Strategy Update, rundown of assets and businesses within Barclays Non-Core, sell down of the Group's interest in Barclays Africa Group Limited, estimates of capital expenditures and plans and objectives for future operations, projected employee numbers and other statements that are not historical fact. By their nature, forward-looking statements involve risk and uncertainty because they relate to future events and circumstances. These may be affected by changes in legislation, the development of standards and interpretations under International Financial Reporting Standards, evolving practices with regard to the interpretation and application of accounting and regulatory standards, the outcome of current and future legal proceedings and regulatory investigations, future levels of conduct provisions, future levels of notable items, the policies and actions of governmental and regulatory authorities, geopolitical risks and the impact of competition. In addition, factors including (but not limited to) the following may have an effect: capital, leverage and other regulatory rules (including with regard to the future structure of the Group) applicable to past, current and future periods; UK, US, Africa, Eurozone and global macroeconomic and business conditions; the effects of continued volatility in credit markets; market related risks such as changes in interest rates and foreign exchange rates; effects of changes in valuation of credit market exposures; changes in valuation of issued securities; volatility in capital markets; changes in credit ratings of any entities within the Group or any securities issued by such entities; the potential for one or more countries exiting the Eurozone; the implications of the results of the 23 June 2016 referendum in the United Kingdom and the disruption that may result in the UK and globally from the withdrawal of the United Kingdom from the European Union; the implementation of the strategic cost programme; and the success of future acquisitions, disposals and other strategic transactions. A number of these influences and factors are beyond the Group's control. As a result, the Group's actual future results, dividend payments, and capital and leverage ratios may differ materially from the plans, goals, expectations and 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 our filings with the SEC (including, without limitation, our annual report on form 20-F for the fiscal year ended 31 December 2016), which are available on the SEC's website at www.sec.gov.

Subject to our obligations under the applicable laws and regulations of the United Kingdom and the United States 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.

Registered office: 1 Churchill Place, London E14 5HP
Registered in England. Registered No: 48839

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