The Co-operative Bank Holdings Ltd
and The Co-operative Bank p.l.c.

Pillar 3 Disclosures 2018

The co-operative bank

Contents

The glossary for this document can be found at www.co-operativebank.co.uk/investorrelations/financialresults in the Annual Report and Accounts.

1. Overview

1.1 Background
The Co-operative Bank Holdings Limited (Holding Company) owns 100% of The Co-operative Bank plc (Bank Company). The Pillar 3 disclosures as at 31 December 2018 have been prepared on a basis to cover the reporting requirements for both the fully consolidated Holding Company and its controlled entities (Group) and Bank Company on an individual entity basis. The main part of the document covers the Group reporting. Where reference is made to the Bank this reflects the activities of the Bank and Group collectively, unless otherwise stated. Appendix 2 specifically covers the Bank Company individual entity reporting.

These disclosures have been prepared to give information on the basis of calculating capital requirements and on the management of risks faced by the Group in accordance with the rules laid out in the Capital Requirements Regulation (Part Eight) unless otherwise stated and should be read in conjunction with the Group and Bank's combined 2018 Annual Report and Accounts (ARA) and in particular the risk management section. This is available on the Investor Relations section of the Bank's website:
www.co-operativebank.co.uk/investorrelations/financialresults

The European Union Capital Requirements Directive (CRD) came into effect on 1 January 2007. Commonly referred to as Basel II, the legislative framework introduced capital adequacy standards and an associated supervisory framework in the European Union (EU). This was replaced by the Capital Requirements Regulation (CRR) and the Capital Requirements Directive (together collectively known as CRD IV) which came into force on 1 January 2014. CRD IV disclosures in this and related documents are based on the Bank's interpretation of final published rules, including related European Banking Authority (EBA) technical standards.

In the UK, implementation of the Directive has been through rules introduced by the Prudential Regulation Authority (PRA). These are known as Pillar 3 disclosures because they complement the minimum capital requirements in Pillar 1 and the supervisory review process in Individual Capital Requirements (ICR) and capital buffers. The Pillar 3 disclosures are aimed at promoting market discipline by providing information on risk exposures and the management of those risks. The Group is neither a Globally Systemically Important Institution (G-SII) nor an Other Systemically Important Institution (O-SII) so it has not adopted the additional Guidelines that apply to these larger organisations.

1.2 Basis and frequency of disclosures
In meeting these disclosure requirements, recommendations made by the Enhanced Disclosure Task Force (EDTF) which seeks to give enhanced information above and beyond the minimum Pillar 3 disclosure requirements have been considered. These are set out in more detail in section 2, Changes to disclosures.

Basel III was implemented in the UK from 1 January 2014, through both CRD IV and through the PRA's policy statement PS7/13
www.bankofengland.co.uk/prudential-regulation/publication/2013/strengthening-capital-standards-implementing-crd-4. The term CRD IV is used throughout these disclosures as a collective term for CRD IV, CRR and the PRA's policy statement.

These disclosures may differ from similar information in the 2018 Annual Report and Accounts prepared in accordance with International Financial Reporting Standards, with the information included in Pillar 3 being prepared in accordance with CRD IV; the information in these disclosures may therefore not be directly comparable with that information. All figures are as at 31 December 2018 unless otherwise stated.

Full disclosures are issued on an annual basis and published on the same day as publication of the Annual Report and Accounts.

1.3 Location and verification
This report was prepared and approved in line with the Group's Pillar 3 policy, which is updated on a yearly basis. No significant changes have been made to the Pillar 3 policy compared to the prior year.

Internal suppliers of data attest to its accuracy and at the same time consistency checks and reconciliations were performed with the 2018 Annual Report and Accounts and regulatory returns where applicable. The disclosures have been subject to internal verification and reviewed by the Audit Committee on behalf of the Board but have not been, and are not required to be, subject to independent external audit. The Pillar 3 report is published on the Bank's website: www.co-operativebank.co.uk/investorrelations/financialresults

1.4 Scope of disclosure

The Pillar 3 disclosures in this document relate to the Group, apart from Appendix 2 which sets out the disclosures required for the Bank Company on an individual basis (it should also be noted that the Bank Company is also required to report on Capital Buffers, Remuneration Policy and Credit Risk Mitigation (CRM); however these disclosures are the same for both the consolidated Group and the individual Bank Company, so the relevant sections should be read as applicable to both). Regulatory returns are made at both a consolidated Group level and an individual Bank Company level under the Bank Company's PRA firm reference number (121885).

As the effect of the transitional period for mitigating the impact of the introduction of IFRS 9 on own funds is not material the template under the transitional guidelines on uniform disclosures under Article 473a of Regulation (EU) No 575/2013 has not been disclosed.

1.5 Non-disclosure

In accordance with EBA guidelines on materiality, proprietary and confidentiality and on disclosure frequency, the following disclosures have not been included on the grounds that the Group considers them to be immaterial:

- CRR Article 442(d),(h) split of geographical exposures. The Group's exposures are predominantly within the UK and therefore the geographical split has not been disclosed;
- CRR Article 447 regarding equity disclosures (Exposure At Default (EAD) of £26.4m as at 31 December 2018 and £32.6m as at 31 December 2017).

No disclosures have been omitted on the grounds of proprietary or confidential information.

1.6 Pillar 3 requirements disclosed in the 2018 Annual Report and Accounts

1.6.1 Management body recruitment (Article 435 (2) (a-c))

The number of directorships held by members of the management body, their actual knowledge, skills and expertise have been disclosed in the 2018 Annual Report and Accounts, corporate governance section, while the policy on diversity with regard to selection of members of the management body and recruitment policy has been disclosed in the 2018 Annual Report and Accounts, nomination committee report.

1.6.2 Risk governance and information flow (Article 435 (2) (d-e))

Details of the number of times the Risk Committee has met in the year have been disclosed in the 2018 Annual Report and Accounts, corporate governance report, and an overview of the committee structure that facilitates information flow on risk to the management body has been disclosed in the 2018 Annual Report and Accounts, risk management section (1.5 governance).

1.6.3 Remuneration (Article 450)

Disclosures on remuneration to satisfy the requirements of CRD IV and the PRA Remuneration Code have been set out in the 2018 Annual Report and Accounts, directors' report on remuneration.

1.7 Regulatory position

An updated Total Capital Requirement (TCR) letter was received from the PRA in October 2018, which sets out the Group's capital requirements, these being a Pillar 1 requirement equivalent to 8.0% of total Risk Weighted Assets (RWAs) and an Individual Capital Requirement equivalent to 8.69% of total RWAs (for a combined 16.69% of total RWAs). As at 31 December 2018, the Group's Common Equity Tier (CET1) resources post regulatory deduction were £1,128.0m against a TCR requirement of £843.4m; a surplus of £284.6m.

In addition to the TCR requirement, the Group has a CRD IV buffer requirement of 2.875% of RWAs or £145.3m above the TCR amount, thus having a surplus of £139.3m as at 31 December 2018. The Group remains in a deficit position to its total capital buffers.

There are no current or foreseen material restrictions or legal impediments to the movement of capital or to the repayment of liabilities between UK based consolidated entities, with the exception of:

- Securitisation vehicles and covered bond LLP with assets being ring-fenced within such entities; and
- FCA regulated entities where minimum capital requirements apply.

1.8 Summary of key capital ratios

Key capital ratios are included below:

Table 1 - CRD IV key capital ratios

	2018	2017
Common Equity Tier 1 ratio	**22.3%**	24.7%
Total capital ratio	**22.3%**	24.7%
Risk Weighted Assets (£m)	**5,053.5**	5,085.6
Leverage ratio	**4.7%**	4.9%

Further details on capital and leverage positions can be found in section 3 of this document.

2. Changes to disclosures

The Group has continued to review its disclosures in line with EDTF recommendations. For 2018 no new sections have been included in the main Pillar 3 document. However, for encumbrance reporting (section 5.3.1 asset encumbrance) the templates are now aligned to the EBA mandatory templates as published in the official journal of the European Union (published 13 December 2017 following EBA/RTS/2017/03).

Further information regarding the EDTF recommendations can be found at www.fsb.org/2014/09/r_140930a/

Table 2 - EDTF disclosure

The table below provides an index to the disclosures in accordance with the EDTF's recommendations either within the 2018 Annual Report and Accounts or Pillar 3 disclosures.

Type of risk	Recommendation	Disclosure	Section in Pillar 3	Section in Risk Management within the 2018 ARA	Related sections of the ARA 2018
General	1	Risks to which the business is exposed	5	1. Risk Management objectives and policies	Strategic Report
	2	Definition of risk terminology, principles and appetite	5		
	3	Top and emerging risks and the changes during the reporting period	5		
	4	Analysis of future regulatory developments affecting our business model and profitability	See ARA		
Risk governance and risk management	5	Risk management organisation, process and key functions	4	1. Risk Management objectives and policies	Corporate Governance
	6	Risk culture, governance and ownership	4		
	7	Key risks, risk appetite and risk management	4, 5		DFR – Capital and liquidity
	8	Stress testing and the underlying assumptions	3		
Capital adequacy	9	Minimum Pillar 1 disclosure requirements and application of counter-cyclical and capital conservation buffers	3	1. Risk Management objectives and policies	DFR – Capital and liquidity
	10	Reconciliation of accounting balance sheet to regulatory balance sheet	3		
	11	Flow statement of movements in regulatory capital since the previous reporting period including changes in Common Equity Tier 1, Tier 1 and Tier 2 Capital	3		
	12	Discussion of targeted level of capital and how this will be established	See ARA		
	13	Analysis of Risk Weighted Assets	3		
	14	Analysis of capital requirements for each Basel asset class	3		
	15	Analysis of credit risk for each Basel asset class	3, 5		
	16	Flow statements reconciling the movements in Risk Weighted Assets for each Risk Weighted Asset type	3		
	17	Discussion of Basel credit risk model performance	5		
Liquidity and funding	18	Analysis of liquid reserves and management of liquidity risk	See ARA	5. Liquidity and Funding Risk	DFR – Capital and liquidity
	19	Encumbered and unencumbered assets analysed by balance sheet category	5		
	20	Consolidated total assets, liabilities and off-balance sheet commitments analysed by remaining contract maturity at the balance sheet date	See ARA		
	21	Analysis of sources of funding	5		
Market risk	22[1]	Relationship between the market risk measures for trading and non-trading portfolios and the balance sheet	See ARA	4. Market Risk	
	23	Discussion of significant trading and non-trading market risk factors	5		
	24[1]	Value at Risk (VaR) assumptions, limitations and validation	See ARA		
	25	Description of the primary risk management techniques employed	5		
Credit risk	26	Analysis of the aggregate credit risk exposures	3, 5	3. Credit Risk	Note 13: loans and advances to banks Note 14: loans and advances to customers Note 15: investment securities Note 16: derivative financial instruments
	27	Describe the policies for identifying impaired and non-performing loans	5		
	28	Reconciliation of the opening and closing balances of non-performing or impaired loans in the period	See ARA		
	29	Analysis of counterparty credit risk that arises from derivative transactions	5		
	30	Discussion of credit risk mitigation, including collateral held for all sources of risk	5		

Type of risk	Recommendation	Disclosure	Section in Pillar 3	Section in Risk Management within the 2018 ARA	Related sections of the ARA 2018
Other risks	31	Description of other risks	5	1. Risk Management objectives and policies	Note 26: Provisions for liabilities and charges
	32	Discussion of publicly known risk events	5		Note 29: Contingent liabilities

1. Disclosures are not provided for these recommendations as the Group does not have a trading book.

3. Capital adequacy

3.1 Assessing the adequacy of internal capital

Capital resources are held to protect depositors, to cover inherent risks, to absorb unexpected losses, and to support the development of the business. The Group manages and calculates its capital adequacy in accordance with CRD IV.

Financial planning and stress testing are used to assess capital adequacy within:

- The financial planning process;
- The Internal Capital Adequacy Assessment Process (ICAAP); and
- Forecasting exercises.

The financial planning process is completed annually, with regular updates throughout the year to assess capital resources and requirements on a forward looking basis. This process takes into consideration strategic direction and its impact on both resources and requirements.

The ICAAP is completed annually, analysing the major drivers of risks to the business and the amounts and types of capital that should be held to ensure that the Group is able to continue to meet its liabilities as they fall due.

Stress testing is embedded within the financial planning process, with stressed scenarios and sensitivities applied to the latest forecasts at least on an annual basis or more frequently where required. This enables senior management and the Board to assess the latest plan or forecast under adverse scenarios to ensure the Group remains within risk appetite. Where outcomes fall outside of risk appetite, either management actions are identified and embedded to bring the position back within the risk appetite, or the risk is accepted.

3.2 Capital adequacy

Compliance with Pillar 1, ICR and capital buffers requirements is discussed in section 1.7 Regulatory position.

The Group's CET1 ratio has decreased to 22.3% as at 31 December 2018 (2017: 24.7%), the total capital ratio also decreased to 22.3% (2017: 24.7%) and the leverage ratio to 4.7% (2017: 4.9%). This was driven predominantly by the losses for the year.

The Group is not currently subject to a minimum leverage ratio requirement as it has retail deposit levels below £50bn, the threshold at which it becomes a binding requirement.

Total RWAs have slightly declined by £32.1m from £5,085.6m in 2017 to £5,053.5m in 2018 primarily due to additional growth in the retail secured mortgage book being offset by a continued decline in the corporate and retail unsecured books.

3.3 Capital ratios

Table 3 - Capital ratios

	2018	2017
Common Equity Tier 1 ratio	**22.3%**	24.7%
Tier 1 ratio	**22.3%**	24.7%
Total capital ratio	**22.3%**	24.7%

The minimum CET1 ratio is 4.5%, minimum Tier 1 (T1) ratio is 6.0% and minimum total capital ratio is 8.0%, all of which the Group is in excess of at 31 December 2018. The Group has no Additional Tier (AT1) or Tier 2 (T2) capital in issue as at 31 December 2018 and thus meets its minimum total capital ratio of 8.0% requirement purely out of CET1 resources. However, there is an intention to raise Tier 2 capital as part of the MREL requirements in 2019 and to augment our capital structure.

3.4 Capital buffers

The Group is not classified as a Global Systemically Important Institution (G-SII), and hence does not have a requirement to hold a G-SII buffer. The Group is also not defined as an Other Systemically Important Institution (O-SII) by the PRA and hence does not have a requirement to hold an O-SII buffer; furthermore HM Treasury has also confirmed that it will set the UK O-SII buffer at 0%.

The capital conservation buffer introduced from 1 January 2016 includes a transitional requirement and increases by 0.625% per annum until the final requirement of 2.5% is reached from 1 January 2019. The capital conservation buffer was 1.875% as at 31 December 2018.

The Group is required to calculate its institution specific countercyclical buffer dependent upon the geographic location of obligors. The European Commission published a regulatory technical standard (EU Regulation No 1152/2014) in 2014 to define the location of obligor. Under this methodology, the Group's exposures can all be classified as UK. The UK countercyclical buffer rate is therefore directly applicable to the Group. The rate at 31 December 2018 was 1% (2017: 0%) and the change was implemented in November 2018.

The table below shows the countercyclical capital buffer requirement, referenced to exposures calculated under the Standardised Approach (SA) and the Internal Ratings Based Approach (IRB).

Table 4 - Countercyclical capital buffer

	General credit exposures		**Trading book exposures**		**Securitisation exposures**		**Own funds requirements - Of which exposures:**					
Country:	SA £m	IRB £m	SA £m	Internal models £m	SA £m	IRB £m	General credit £m	Trading book £m	Securi-tisation £m	Total £m	**Own fund weight %**	**CCyB %**
All individual countries greater than or equal to 2% own funds requirement weighting												
UK	630.1	19,760.3	-	-	-	492.0	333.9	-	9.6	343.5	100%	1%
Total	**630.1**	**19,760.3**	-	-	-	**492.0**	**333.9**	-	**9.6**	**343.5**	**100%**	**1%**

Amount of institution specific countercyclical capital buffer	
Total risk exposure amount	20,882.4
Countercyclical buffer rate	1%
Countercyclical buffer requirement	-

3.5 Capital resources

The following table shows the capital resources of the Group.

Table 5 - Total capital resources

	2018 £m	2017 £m
Common Equity Tier 1 (CET1): instruments and reserves		
Permanent share capital and the related share premium account	**314.7**	314.7
Retained earnings	**(1,092.8)**	(1,315.1)
Fair value through other comprehensive income, available for sale and cash flow hedge reserves	**33.9**	55.0
Defined benefit pension reserve	**415.5**	70.8
Other reserves[1]	**2,147.5**	2,147.5
Independently reviewed profits net of any foreseeable charge or dividend	**-**	232.7
CET1 before regulatory adjustments	**1,818.8**	1,505.6
CET1: regulatory adjustments		
Prudent valuation	**(2.4)**	(1.5)
Intangible assets (net of related tax liability)	**(72.4)**	(81.5)
Defined benefit pension asset net of associated deferred tax liabilities	**(467.7)**	(118.3)
Deferred tax assets not arising from temporary differences	**(37.1)**	(4.2)
Cash flow hedge reserves	**(20.0)**	(29.9)
Expected loss shortfall	**(22.5)**	(14.5)
Losses for the year	**(68.7)**	-
Total regulatory adjustments to CET1	**(690.8)**	(249.9)
CET1	**1,128.0**	1,255.7
Additional Tier 1 (AT1) capital: instruments		
Total regulatory adjustments to AT1 capital	**-**	-
Total Tier 1 capital (T1 = CET1 +AT1)	**1,128.0**	1,255.7
Tier 2 (T2) capital: instruments and provisions		
Capital instruments	**-**	-
Credit risk adjustments	**-**	-
T2 capital before regulatory adjustments	**-**	-
Total regulatory adjustments to T2 capital	**-**	-
T2 capital	**-**	-
Total capital (TC = T1 + T2)	**1,128.0**	1,255.7

1. Other reserves include the capital redemption reserve and capital re-organisation reserve created as a result of the Group's liability management exercise in 2013 and the Restructuring and Recapitalisation in 2017 respectively. The capital re-organisation reserve reflects the difference in the consideration paid by the Holding Company for the Bank and the share capital and share premium held by the Bank.

Table 6 - Movement in capital resources during the year

The following table is a flow statement of movements in the Group's available capital resources detailing the change between opening and closing position for the year.

	2018 £m	2017 £m
CET1 capital after regulatory adjustments at the beginning of the year	**1,255.7**	736.9
Permanent share capital	**-**	(21.7)
Retained earnings[1]	**(10.4)**	-
Profit/(loss) for the year	**(68.7)**	232.7
Capital re-organisation reserve	**-**	1,737.5
Share premium account	**-**	(1,423.1)
Defined benefit pension reserve	**(4.7)**	(41.7)
Deferred tax assets not arising from temporary differences	**(32.9)**	(4.2)
Intangible assets	**9.1**	18.6
Available for sale and cash flow hedge reserves	**(11.2)**	(13.1)
Expected loss shortfall	**(8.0)**	29.9
Prudent valuation	**(0.9)**	3.9
CET1 capital after regulatory adjustments at the end of year	**1,128.0**	1,255.7
AT1 capital after regulatory adjustments at the beginning of the year	**-**	-
Minority interest	**-**	-
AT1 capital after regulatory adjustments at the end of year	**-**	-
Total Tier 1 after regulatory adjustments at the end of year	**1,128.0**	1,255.7
T2 capital after regulatory adjustments at the beginning of the year	**-**	447.0
Paid up capital instruments and subordinated loans	**-**	(447.0)
T2 capital after regulatory adjustments at the end of year	**-**	-
Total capital resources at the end of year	**1,128.0**	1,255.7

1. The movement in retained earnings represents the IFRS9 opening balance adjustments.

Table 7 - Reconciliation of capital resources to statutory balance sheet

Balance sheet presentation	Balance per accounts £m	Regulatory presentation	Regulatory balance treatment £m	Cash flow hedge reserve £m	Defined benefit pension asset[1] £m	Expected losses £m	Prudent valuation £m	Capital resources £m
		Equity						
Ordinary share capital	**0.9**	Paid up capital instruments	0.9	-	-	-	-	**0.9**
Share premium account	**313.8**	Share premium	313.8	-	-	-	-	**313.8**
Retained earnings	**(1,161.5)**	Retained earnings	(1,092.8)	-	-	-	-	**(1,092.8)**
		Regulatory loss for the year	(68.7)	-	-	-	-	**(68.7)**
Available for sale reserve	**13.9**	Available for sale reserve	13.9	-	-	-	-	**13.9**
Cash flow hedging reserve	**20.0**	Cash flow hedging reserve	20.0	(20.0)	-	-	-	**-**
Defined benefit pension reserve	**415.5**	Defined benefit pension reserve	415.5	-	(467.7)	-	-	**(52.2)**
Capital redemption reserve	**410.0**	Other reserves	2,147.5	-	-	-	-	**2,147.5**
Capital re-organisation reserve	**1,737.5**							
		Total equity	**1,750.1**	**(20.0)**	**(467.7)**	**-**	**-**	**1,262.4**
		Non-equity						
Intangible assets	**(72.4)**	Intangible assets (net of related tax liability)	(72.4)	-	-	-	-	**(72.4)**
Deferred tax assets	**(2.9)**	Deferred tax assets not arising from temporary differences	(2.9)	-	(34.2)	-	-	**(37.1)**
Credit risk adjustment[2]	**45.6**	Expected loss shortfall	45.6	-	-	(68.1)	-	**(22.5)**
		Prudent valuation		-	-	-	(2.4)	**(2.4)**
		Total non-equity	**(29.7)**	**-**	**(34.2)**	**(68.1)**	**(2.4)**	**(134.4)**
		Total balances subject to own funds calculations	**1,720.4**	**(20.0)**	**(501.9)**	**(68.1)**	**(2.4)**	**1,128.0**

1. Net of associated deferred tax liabilities
2. Credit risk adjustment is made up of impairment provision and credit related fair value adjustments, specifically for exposures calculated under the IRB approach to credit risk which are applicable for the calculation of expected loss shortfall per CRR. Therefore the impairment provision number included in the table above relates to IRB exposures only, and is a subset of the Group's total impairment.

Issued capital resources defined in the above table comprises share premium of £313.8m attributable to the issuance of the ordinary shares. Further details including any specific terms of the ordinary shares can be found in Appendix 3. Full details of the terms and conditions of the ordinary shares can be found in the Articles of the Association on the Bank's website: www.co-operativebank.co.uk/investorrelations

3.6 Pillar 1 capital requirements and Risk Weighted Assets

The Group has a PRA permission to use the IRB approach to credit risk. This allows the calculation of capital requirements for the retail, corporate and treasury assets classes using internal developed models that reflect the credit quality of the assets. The table below illustrates the portfolios where the Group is using the IRB approaches.

Business segment	Portfolio	IRB exposure classes	CRD approach
Retail	Mortgages (including Buy to Let Mortgages)	Retail secured by immovable property	Advanced IRB
	Credit cards/Overdrafts	Qualifying revolving retail exposures	Advanced IRB
	Loans (excluding PCDL)	Retail other non-SME	Advanced IRB
Corporate	Large corporates	Corporates - other	Foundation IRB
	Corporate SME (Business Banking)	Corporates - other	Foundation IRB
	Registered Social Landlords (RSL)	Corporates - other	Foundation IRB
	Private Finance Initiative (PFI)	Corporates - specialised lending	Foundation IRB (slotting approach)
	Property Investment	Corporates - specialised lending	Foundation IRB (slotting approach)
Treasury	Financial institutions	Institutions	Foundation IRB
	Securitisation positions	Securitisation positions	Foundation IRB (securitisation ratings based method)
Other	Non-credit obligation (NCOs)	Other non-credit obligation assets	Foundation IRB (NCOs)

The CRD approaches referred to in the above table are defined as follows:

- Advanced IRB - internal calculations of Probability of Default (PD), Loss Given Default (LGD) and EAD are used to model risk exposures;
- Foundation IRB - uses internal calculation of PD, but standardised regulatory defined LGD and Credit Conversion Factor (CCFs);
- Foundation IRB (slotting approach) - exposures are modelled and mapped to five supervisory categories from strong to default (slotting categories 1-5 respectively) with regulatory prescribed risk weights and expected losses;
- Foundation IRB (securitisation ratings based approach) - external credit ratings are used to map exposures to regulatory defined risk weights;
- Foundation IRB (NCOs) - exposures risk-weighted reflecting the asset category.

For other exposures and risk areas, the Standardised Approach is adopted, which uses capital risk weighting percentages set by regulatory defined requirements.

The following table analyses the Pillar 1 capital requirement by approach and exposure class. In the table below and throughout the document, unless otherwise stated, the documented exposures are reported as EAD (see Table 11). For IRB exposures, EAD is defined as the amount estimated to be outstanding at the time of default in a downturn, including additional exposures resulting on currently undrawn commitments. For standardised exposures, EAD includes undrawn commitments post CCF defined in CRR Article 111 and is net of eligible provisions.

Table 8 - Pillar 1 capital requirements

2018 IRB exposure class	Capital requirement £m	RWA £m	EAD £m	Average risk weight %	Average EAD[1] £m
Institutions	12.8	159.8	314.0	51%	397.1
Corporates - specialised lending	44.5	556.0	742.6	75%	806.7
Corporates - other	26.4	329.9	535.3	62%	634.5
Retail secured by immovable property	176.6	2,207.5	16,971.0	13%	16,265.2
Qualifying revolving retail exposures	29.7	370.7	1,614.3	23%	1,705.7
Retail other non-SME	4.7	58.2	67.5	86%	99.6
Securitisation positions	9.6	119.5	492.0	24%	752.4
Non-credit obligation[2]	8.6	107.0	121.1	88%	24.2
Total IRB	**312.9**	**3,908.6**	**20,857.8**	**19%**	**20,685.4**
Standardised exposure class					
Central government or central banks	-	-	2,931.3	-	4,102.7
Regional governments or local authorities	-	0.5	2.5	20%	2.4
Public sector entities	0.2	2.1	56.5	4%	30.4
Multilateral development banks	-	-	435.7	-	393.7
Institutions	4.0	50.5	71.4	71%	75.8
Corporates	6.3	79.2	93.4	85%	115.6
Retail exposures	3.5	44.3	59.0	75%	60.2
Secured by mortgages on immovable property[3]	-	0.1	0.1	35%	0.1
Exposures in default	0.4	5.6	5.3	104%	7.8
Equity exposures	2.1	26.4	26.4	100%	29.4
Other items[4]	31.1	389.3	263.9	148%	418.0
Total Standardised	**47.6**	**598.0**	**3,945.5**	**15%**	**5,236.1**
Total credit risk	**360.5**	**4,506.6**	**24,803.3**	**18%**	**25,921.5**
Total market risk[5]	**-**	**-**	**N/A**	**N/A**	**N/A**
Operational risk	**43.8**	**546.9**	**N/A**	**N/A**	**N/A**
Total Pillar 1	**404.3**	**5,053.5**	**N/A**	**N/A**	**N/A**

2017 IRB exposure class	Capital requirement £m	RWA £m	EAD £m	Average risk weight %	Average EAD[1] £m
Institutions	21.2	264.6	426.6	62%	569.8
Corporates - specialised lending	54.4	680.4	883.8	77%	971.5
Corporates - other	32.1	400.5	686.9	58%	832.4
Retail secured by immovable property	141.1	1,763.9	15,646.9	11%	16,003.7
Qualifying revolving retail exposures	28.0	350.4	1,773.7	20%	1,852.9
Retail other non-SME	9.6	119.9	133.4	90%	159.9
Securitisation positions	13.2	165.3	923.5	18%	1,914.7
Total IRB	299.6	3,745.0	20,474.8	18%	22,304.9
Standardised exposure class					
Central government or central banks	-	-	5,225.0	-	3,998.2
Regional governments or local authorities	-	0.5	2.6	20%	2.8
Public sector entities	0.2	2.9	14.6	20%	14.7
Multilateral development banks	-	-	329.3	-	440.1
Institutions	5.3	65.9	86.3	76%	68.5
Corporates	12.3	153.5	153.5	100%	204.3
Retail exposures	3.7	46.8	62.4	75%	61.8
Secured by mortgages on immovable property[3]	-	0.1	0.1	35%	0.1
Exposures in default	0.6	8.8	8.4	103%	16.0
Equity exposures	3.3	40.2	32.6	123%	37.5
Other items[4]	30.9	385.9	373.4	103%	486.3
Total Standardised	56.3	704.6	6,288.2	11%	5,330.3
Total credit risk	355.9	4,449.6	26,763.0	17%	27,635.2
Total market risk[5]	-	-	N/A	N/A	N/A
Operational risk	50.9	636.0	N/A	N/A	N/A
Total Pillar 1	406.8	5,085.6	N/A	N/A	N/A

1. The average EAD is defined as the mean average EAD across the 5 quarter ends from December 2017 to December 2018 for 2018 and the 5 quarter ends from December 2016 to December 2017 for 2017.
2. In 2018 the Bank has started to calculate its Non-credit obligations under IRB. These had previously been calculated and reported under the standardised methodology under Other items (see note 4). The NCO assets comprise items such as cash, items in the course of collection, fixed assets, other debtors, prepayments and accrued income.
3. The Standardised retail secured by mortgages on immovable property class contains a small number of legacy mortgages not included within the IRB portfolio. The 35% RW% is accurate; however, due to the small level of exposure rounded values do not allow the arithmetic calculation in the table.
4. Other items relate to accounting adjustments applied to customer balances and investments, and non-customer related assets on the balance sheet (e.g. cash, property plant and equipment, tax). In note 2 we state that a number of these items are now being calculated and reported as NCOs under the IRB approach.
5. Market risk is nil as the Bank has no trading book.

Counterparty risk arising from derivative exposures is reported within the appropriate exposure classes, dependent upon the counterparty classification.

Institutions calculated under the Standardised Approach include £21.4m of RWAs (2017: £36.7m) and £1.7m (2017: £2.9m) capital requirement relating to the calculation of Credit Valuation Adjustments (CVA) for derivatives.

Movement in EAD from 2017 to 2018:

- Foundation IRB corporates have decreased by £0.3bn reflecting the continued balance attrition of the corporate book.
- Retail secured by immovable property increased by £1.3bn following the increase in the underlying assets (see 2018 ARA risk management section 3.2.1)
- Qualifying revolving retail exposure has decreased by £0.2bn, reflecting the reduction in credit card exposure following customer management limit strategies alongside lower customer balances.
- Securitisation positions have reduced by £0.4bn.
- Central governments or central banks have reduced by £2.3bn, reflecting the Bank returning to a more efficient cash level following the excess holding at the end of 2017 from the Warwick Three transaction.

Table 9 - Flow statement of credit risk Risk Weighted Assets

A flow statement for the movement in credit risk RWAs during the year is set out in the table below.

	Corporate £m	Retail unsecured £m	Retail secured £m	Treasury £m	Other £m	Total £m
Credit risk RWAs at the beginning of the year	**1,242.9**	**520.9**	**1,763.9**	**495.8**	**426.1**	**4,449.6**
Book size[1]	(192.1)	(71.3)	400.7	(84.1)	8.3	**61.5**
Book quality[2]	(95.2)	(49.0)	34.6	(28.4)	-	**(138.0)**
Model updates[3]	16.0	68.0	-	(31.6)	-	**52.4**
Methodology and policy[4]	-	12.4	8.5	-	91.9	**112.8**
Acquisitions and disposals[5]	-	(6.2)	-	(21.9)	(3.6)	**(31.7)**
Credit risk RWAs at the end of the year	**971.6**	**474.8**	**2,207.7**	**329.8**	**522.7**	**4,506.6**

1. Book size - organic changes in book size and composition (including new business, maturing loans and individual customer deleverage).
2. Book quality - quality of book changes caused by experience such as underlying customer behaviour or demographics.
3. Model updates - PRA approved model changes and agreed temporary model adjustments (TMAs).
4. Methodology and policy - methodology changes to the calculations including those driven by regulatory policy change.
5. Acquisitions and disposals - significant acquisition or disposal of distinct portfolios.

Corporate RWAs have reduced by 21.8% during 2018, predominantly as a result of the decrease in book size (37.5% reduction in Standardised, 19.6% reduction in Specialised Lending and 19.3% reduction in other Foundation IRB portfolios). This continues to be driven predominantly by balance attrition on corporate assets. Other reductions in RWAs relate to the Private Finance Initiative (PFI) Slotting model TMA movements of £16m and also the revaluation of the Group Surrendered Loss Debtor (SLD) exposure which decreased RWAs by £56m, within the period.

The movement in retail unsecured RWAs has largely been driven by a decrease in book size and also by improvements in asset quality as the portfolios mature and balances pay down and exit the balance sheet. These movements have been offset by the implementation of IRB model TMAs on cards of £29m and overdrafts of £39m to address known model deficiencies within the existing model suite, and also the day 1 impact of IFRS 9 which went live in March 18. There has also been a £6.2m RWA reduction on as a result of debt sale activity on the personal loans portfolio in the first half of the year.

Retail secured RWAs increased by 25.2% to £2,207.7m, driven primarily by Platform new lending which continues to drive significant EAD growth (£496.6m increase in 2018), which is offset by continued amortisation/maturity of the direct and Optimum books. Secured RWAs were also impacted by the implementation of IFRS 9 in March 2018 of £8.5m but less materially.

Treasury RWAs decreased by 33.5%, driven primarily by a reduction in book size, as a result of a reduction in repo funding activity. There were also reductions in the size of the temporary model adjustment, a decrease in securitisation exposures driven by the sale of some Warwick One and Two notes, and improvements in overall book quality.

Table 10 - Reconciliation of statutory balance sheet to gross drawn credit risk exposure

The table below reconciles the statutory balance sheet included within the Annual Report and Accounts 2018 to gross drawn credit risk exposure.

	Balance sheet assets under the regulatory scope of consolidation £m	Credit risk adjustments £m	Derivative netting £m	Regulatory adjustments £m	Other adjustments £m	Gross drawn credit risk exposure £m
Cash and balances with central banks	**1,843.8**	-	-	-	15.3	**1,859.1**
Loans and advances to banks	**485.8**	-	-	-	(3.1)	**482.7**
Loans and advances to customers	**17,787.3**	52.7	-	-	(146.1)	**17,693.9**
FVOCI investment securities	**1,842.4**	-	-	-	-	**1,842.4**
Amortised cost and FVTPL investment securities	**92.6**	-	-	-	-	**92.6**
Derivatives and Securities Financing Transactions (e.g. reverse repos)	**192.2**	-	(50.1)	51.5	(4.0)	**189.6**
Equity shares	**26.4**	-	-	-	-	**26.4**
Intangible assets	**72.4**	-	-	(72.4)	-	**-**
Deferred tax assets	**2.9**	-	-	-	80.7	**83.6**
Other assets	**757.0**	-	-	-	(455.4)	**301.6**
Total balance sheet	**23,102.8**	**52.7**	**(50.1)**	**(20.9)**	**(512.6)**	**22,571.9**

Table 11 Reconciliation of gross drawn credit risk exposure to EAD

	Gross drawn exposure £m	Off-balance sheet items under regulatory scope £m	Gross exposure pre-CRM £m	CCF %	CRM £m	Net exposure post-CRM £m	Other regulatory adjustments £m	EAD £m
IRB approach								
Institutions	**380.5**	122.1	502.6		(188.6)	314.0	-	**314.0**
Corporates[1]	**1,193.3**	125.7	1,319.0	74%	-	1,286.3	(8.4)	**1,277.9**
Retail secured by immovable property	**16,022.3**	689.0	16,711.3	91%	-	16,646.6	324.4	**16,971.0**
Qualifying revolving retail exposures	**352.8**	1,309.6	1,662.4	95%	-	1,601.0	13.3	**1,614.3**
Retail other non-SME	**67.5**	-	67.5	-	-	67.5	-	**67.5**
Securitisation positions	**492.0**	-	492.0	-	-	492.0	-	**492.0**
NCO	**121.1**	-	121.1	-	-	121.1	-	**121.1**
Total	**18,629.5**	**2,246.4**	**20,875.9**		**(188.6)**	**20,528.5**	**329.3**	**20,857.8**
Standardised approach								
Central government or central banks	**2,820.8**	181.7	3,002.5	-	(71.2)	2,931.3	-	**2,931.3**
Regional governments or local authorities	**2.5**	-	2.5	67%	-	2.5	-	**2.5**
Public sector entities	**56.4**	0.1	56.5	8%	-	56.5	-	**56.5**
Multilateral development banks	**435.7**	-	435.7	-	-	435.7		**435.7**
Institutions	**174.6**	322.9	497.5	-	(426.1)	71.4	-	**71.4**
Corporates	**91.0**	10.5	101.5	25%	(0.3)	93.4		**93.4**
Retail exposures	**59.0**	-	59.0	-	-	59.0		**59.0**
Secured by mortgages on immovable property	**0.1**	-	0.1	-	-	0.1		**0.1**
Exposures in default	**12.0**	0.2	12.2	26%	-	11.9	(6.6)	**5.3**
Equity exposures	**26.4**	-	26.4	-	-	26.4	-	**26.4**
Other items	**263.9**	-	263.9	-	-	263.9	-	**263.9**
Total	**3,942.4**	**515.4**	**4,457.8**		**(497.6)**	**3,952.1**	**(6.6)**	**3,945.5**
Overall total	**22,571.9**	**2,761.8**	**25,333.7**		**(686.2)**	**24,480.6**	**322.7**	**24,803.3**

1. IRB corporates includes specialised lending.

The off-balance sheet items include future commitments to lend subject to conversion factors and repurchase agreements (repos) that are required under regulatory scope. CCFs applicable under the Standardised Approach per CRR article 111 are 0%, 20%, 50% or 100%, dependent upon the credit facility available. Where values differ in the table above this is a result of a mixed basis of credit facility within the given exposure class. CCF for IRB exposure classes relate specifically to off-balance sheet exposures calculated by the EAD model.

CRM has been calculated in line with CRR regulation Part 3, Title II, Chapter 4. For IRB institutions, £93.1m of the CRM relates to pledged collateral against repos and £95.5m relates to derivative collateral. For Standardised institutions, £315.8m of the CRM relates to pledged collateral against repos and £110.2m relates to derivative collateral.

Net exposure post-CRM is the sum of gross drawn exposures and off-balance sheet items following the application of CCF and CRM. EAD is the final exposure value used in the calculation of capital following the application of other regulatory adjustments.

Other regulatory adjustments in the IRB section relate specifically to the amount applied to drawn exposures calculated by the EAD model.

Other regulatory adjustments in the Standardised section relate specifically to the allocation of provisions and relate to corporate exposures within the EAD class.

Refer to Table 16 for EAD movements by exposure class and residual maturity between 2017 and 2018.

3.7 - Leverage ratio

Table 12 - Leverage ratio common disclosure

		2018 £m	2017 £m
	On-balance sheet exposures (excluding derivatives and SFTs)		
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	**23,221.4**	24,418.5
2	(Asset amounts deducted in determining Tier 1 capital)	**(622.1)**	(249.9)
3	**Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)**	**22,599.3**	24,168.6
	Derivative exposures		
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	**138.8**	167.4
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	**50.9**	46.5
EU-5a	Exposure determined under Original Exposure Method	**-**	-
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	**205.6**	242.1
7	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	**-**	-
8	(Exempted CCP leg of client-cleared trade exposures)	**-**	-
9	Adjusted effective notional amount of written credit derivatives	**-**	-
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	**-**	-
11	**Total derivative exposures**	**395.3**	456.0
	Securities financing transaction exposures		
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	**626.6**	1,824.9
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	**(568.8)**	(1,718.0)
14	Counterparty credit risk exposure for SFT assets	**17.1**	84.2
EU-14a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 429b(4) and 222 of Regulation EU No 575/2013		
15	Agent transaction exposures		
EU-15a	(Exempted CCP leg of client-cleared SFT exposure)		
16	**Total securities financing transaction exposures**	**74.9**	191.1
	Other off-balance sheet exposures		
17	Off-balance sheet exposures at gross notional amount	**2,135.4**	2,278.6
18	(Adjustments for conversion to credit equivalent amounts)	**(1,184.2)**	(1,301.9)
19	**Total off-balance sheet exposures**	**951.2**	976.7
	Exempted exposures in accordance with CRR Article 429(7) and (14) (on and off balance sheet)		
EU-19a	(Exemption of intragroup exposures (solo basis) in accordance with Article 429(7) of Regulation EU No 575/2013 (on and off balance sheet))	**-**	-
EU-19b	(Exposures exempted in accordance with Article 429(14) of Regulation EU No 575/2013 (on and off balance sheet)	**-**	-
	Capital and total exposures		
20	**Tier 1 capital**	**1,128.0**	1,255.7
21	**Total leverage ratio exposures**	**24,020.7**	25,792.4
	Leverage ratio		
22	**Leverage ratio**	**4.7%**	4.9%
	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
EU-24	Amount of derecognised fiduciary items in accordance with Article 429(11) or Regulation EU No 575/2013		

The leverage ratio has been calculated using the exposure basis within the European Commission delegated act.

Table - 12a Leverage ratio common qualitative disclosure

1	**Description of the processes used to manage the risk of excessive leverage**
	The Group is not subject to a regulatory minimum in relation to the leverage ratio, although monitoring of the leverage ratio remains embedded in internal planning and reporting processes. The leverage ratio is part of the risk appetite framework, is reported in management information provided to the Asset and Liability Committee (ALCo) and is a key consideration in the financial planning process. Additionally, the leverage ratio is stress-tested as part of the ICAAP.
2	**Description of the factors that had an impact on the leverage ratio during the period to which the disclosed leverage ratio refers**
	The leverage ratio is 4.7%, a small decrease of 0.2% from 31 December 2017 reflecting the reduction in Tier 1 capital from losses within the year, not offset by the lower exposure.

Table 13 - Summary reconciliation of accounting assets and leverage ratio exposures

		2018 £m	2017 £m
1	Total assets as per published financial statements	**23,102.8**	24,490.1
2	Adjustments for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	**-**	-
3	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio exposure measure in accordance with Article 429(13) of Regulation (EU) No 575/2013 "CRR")	**-**	-
4	Adjustments for derivative financial instruments	**203.1**	223.7
5	Adjustment for securities financing transactions SFTs	**74.9**	191.1
6	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	**951.2**	976.7
EU-6a	(Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429(7) of Regulation (EU) No 575/2013)	**-**	-
EU-6b	(Adjustment for exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (14) of Regulation (EU) No 575/2013)	**-**	-
7	Other adjustments	**(311.3)**	(89.2)
8	**Total leverage ratio exposure**	**24,020.7**	25,792.4

Table 14 - Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)

		2018 £m	2017 £m
EU-1	**Total on-balance sheet exposures (Excluding derivatives, SFTs and exempted exposures) of which:**	**23,221.4**	24,418.5
EU-2	Trading book exposures	**-**	-
EU-3	**Banking book exposures, of which:**	**23,221.4**	24,418.5
EU-4	Covered bonds	**-**	-
EU-5	Exposures treated as sovereigns	**3,373.8**	5,554.2
EU-6	Exposures to regional governments, MDB, international organisations and PSE NOT treated as sovereigns	**13.1**	17.2
EU-7	Institutions	**277.1**	246.2
EU-8	Secured by mortgages of immovable properties	**16,145.9**	14,880.8
EU-9	Retail exposures	**472.1**	556.4
EU-10	Corporate	**1,127.8**	1,435.2
EU-11	Exposures in default	**212.3**	159.9
EU-12	Other exposures (e.g. equity, securitisations, and other non-credit obligation assets)	**1,599.3**	1,568.6

3.8 IFRS 9 Capital transitional impact

The current transitional impact of IFRS 9 on the key capital metrics for available capital, RWA, capital ratios and leverage ratio is immaterial so that the EBA standardised table is not required to be published.

4. Risk management governance

There is a formal structure for identifying, reporting, monitoring and managing risks. This comprises, at its highest level, risk appetite statements which are set and approved by the Board and are supported by granular risk appetite measures across the principal risk categories. This is underpinned by a Risk Management Framework (RMF) which sets out the high level policy, standards, roles, responsibilities, governance and oversight for the management of all principal risks.

For further details of the management of the governance of risks see the risk management section 1 of the 2018 Annual Report and Accounts.

5. Risks and their management

5.1 Overview

Further detail on risk management objectives, policies, strategy, appetite and analysis of principal risk categories can be found in the risk management section 1 of the 2018 Annual Report and Accounts.

5.2 Credit risk

Credit risk is the risk to earnings and capital arising from a customer's failure to meet their legal and contractual obligations. The arrears strategy plays a key part in credit risk management; it is therefore crucial that arrears management effectiveness is identified, measured, managed, monitored, reported appropriately and aligns to the credit risk strategy.

There are three areas with the RMF that underpin credit risk:

- Retail credit risk;
- Corporate credit risk; and
- Treasury credit risk.

The objectives of the management of retail and corporate credit risk include providing a framework to ensure that all lending within the retail and corporate books is responsible, appropriate, fair and consistent and that the following key credit risk principles are applied:

- Only lending to customers who understand the commitment(s) they are entering into;
- Only lending to customers whom we believe have the financial capability and willingness to meet the repayments of their credit agreement;
- Lending decisions are fair and consistent for all customers;
- Credit risk and other strategies are executed appropriately and consistently;
- The level of lending must be identified, monitored, measured, managed and reported in line with risk appetite; and
- Strategies in support of the collection and recovery of delinquent lending are fair and consistent.

The objectives of the management of treasury credit risk include to control treasury credit risk in accordance with limits and credit quality measures and to ensure that approved credit limits remain at appropriate levels.

Treasury credit risk monitors exposures against the following limits:

- Total treasury credit risk capital consumption;
- Individual counterparty or groups of counterparties;
- Country;
- Concentration by Internal Rating Grade (IRG) including minimum acceptable grade;
- Tenor; and
- Large exposures.

5.2.1 Management of credit risk

All authority to take credit risk derives from the Board. This authority is delegated to the Chief Executive Officer (CEO) and Chief Risk Officer (CRO) who may then sub-delegate to defined role holders, to use at an individual level or in their capacity as Chair at the appropriate committee. The level of credit risk authority delegated depends on seniority and experience.

The Board requires that the business is managed in line with the risk strategy and risk appetite set by the Board. Risk measurement is based on a set of metrics, which are aligned with the Board agreed risk appetite and support the limits framework.

The oversight of credit risk is undertaken by:

- The Credit Risk Oversight Committee (CROC), which has formal delegated authority from the Enterprise Risk Oversight Committee (EROC) to provide oversight and reporting in relation to credit activity and supports the CRO in exercising their delegated lending discretion.
- The Asset and Liability Committee (ALCo), which has formal delegated authority from the Executive Committee (ExCo) to provide oversight and reporting in relation to wholesale credit exposure and reporting.

- The Analytics and Treasury Risk director, under delegated authority from the CRO, provides oversight and reporting in relation to the Bank's treasury credit risk exposures.

5.2.2 Credit risk control

Retail credit risk

Credit approval and individual limit setting
The approach for retail secured and unsecured credit is to establish credit criteria that determine the balance between volume growth (generating higher income) and higher arrears and losses, so as to ensure the return is commensurate with risk appetite, strategic objectives and enabling sustainable growth. Retail credit risk related decisions are based on a combination of core documentation including retail credit risk policy, supporting control standards and lending criteria, along with the use of bespoke scorecards derived from historical data. Monthly reporting on the performance of portfolios is provided to senior management and presented to CROC.

Unsecured lending
Application and behavioural scorecards are used to support new lending decisions and ongoing portfolio management. These scores are used, in combination with information from credit reference agencies, policy criteria and an assessment of affordability, to determine whether we will lend to an individual borrower and to set individual limits on the amount we will lend. Application scorecards are used to determine lending decisions to those customers with no or limited existing relationship with the Group. The characteristics of existing customers are assessed on a monthly basis using behavioural scorecards and the resulting scores are used to make lending decisions on credit limit increases/decreases, authorisation decisions and card reissue. Decisions are generally fully automated with manual intervention only required in the event of referrals being triggered or customer appeal. The application and behavioural scorecards used for lending decisions and customer management actions form the main components of the IRB models.

Mortgage lending
Scorecards are also used to assess new mortgage applications. The associated IRB models have all been developed based on the profile of mortgage applicants received by the specific asset class. Each model uses a combination of external credit reference agency data and information collected as part of the application process. The calculation of the application score is fully automated within the application processing system. The score is used in association with lending policy and affordability checks to make a decision on whether an application will be approved. More complex higher risk applications or those outside of standard lending criteria are reviewed by underwriters to ensure compliance with criteria and to allow expert judgement within agreed levels of authority and Bank risk appetite.

Corporate credit risk
The policy on new corporate lending is to consider relatively low risk and senior (not subordinated) exposures from UK customers provided they meet the criteria contained in the corresponding sector strategy, while avoiding excess single name or sector concentrations. During 2018, very little new corporate lending was undertaken and where agreed, was to existing customers. Individual cases which show signs of unsatisfactory performance were previously managed through the Strategic Asset Review (SAR) committee. This has now been replaced by the Watch Forum. The CROC and EROC (and by exception the Risk Committee) receive regular reports on the performance of the portfolio.

Corporate lending and credit approval
New lending facilities are required to meet lending criteria as laid down in individual sector strategy guidelines and strict policy with regards to single name concentrations and are approved by a team of corporate underwriters to allow expert judgement within agreed levels of authority and Bank risk appetite.

Monitoring of portfolios and impairment provisioning governance is in place across the portfolios.

Individual and portfolio limit setting
Portfolio limits are in place for specific lending sectors based on an overall assessment of our appetite for exposure to that sector. This includes an assessment of risk based on the capital requirement of each sector based on the IRB models.

Default
Defaults are recorded at account level for retail, and at obligor level for corporate as a result of past due position or unlikeliness to pay. The definition of default for secured retail exposures is taken as 180 days past due in arrears. The definition of default for unsecured retail and corporate exposures is taken as 90 days past due. Exposures will also be recorded as default for relevant unlikeliness to pay elements. In addition forbearance treatments which decelerate the natural roll-rate or result in a material forgiveness of principal will generate a default.

Wholesale treasury credit risk
The Group's treasury portfolio is held primarily for liquidity management purposes and, in the case of derivatives, for the purpose of managing market risk.

The treasury credit risk policy sets out a risk based approach which manages treasury exposures within agreed limits. Both the counterparties and assets held are monitored against a Board approved matrix of risk tolerances and associated indicators. The scope of this monitoring activity includes rating actions, market events and financial results as they are announced. These factors may influence a change in risk status and possible escalation requiring management actions and inclusion on a watchlist. The purpose of the watchlist is to formally document those counterparties that require additional management focus over and above that provided in the normal course of business. It will be derived from a combination of expert judgement and specific criteria.

The treasury risk team monitors the portfolio and watchlist daily for appropriate risk status bandings and any associated management actions. As at 31 December 2018 there were no red (highest risk) exposures outstanding (2017: £nil).

In order to maintain and control treasury counterparty relationships and manage the associated risk, limits are established. Generally, these limits are uncommitted, remain at the Bank's option and are not advised or agreed with the counterparty beforehand. They are subject to regular monitoring and can be subject to change depending on the Bank's credit risk view.

The counterparty limit matrix and delegated treasury credit limits provide a framework for the maximum permissible credit exposure. However, each counterparty limit must be set based on a thorough qualitative and quantitative assessment of the institution and the requirements of the Bank.

Default

For retail, defaults are recorded at account level. The definition of default for secured retail exposures is taken as 180 days past due in arrears, but also includes the relevant unlikeliness to pay elements such as bankruptcy and litigation. The definition of default for unsecured retail exposures is taken as 90 days past due and also includes relevant unlikeliness to pay elements. For the corporate and treasury portfolios, defaults are recorded at borrower level and similarly defined by 90 days past due and relevant unlikeliness to pay elements.

5.2.3 Models used

The Bank's currently used IRB models are not fully compliant with the CRR provisions and new, compliant models have been built and submitted to the PRA. The new models will replace the current models once approved. Where the new models provide higher capital requirements a Temporary Model Adjustment (TMA) is held to mitigate the risk of any capital requirement underestimation as a result of the current models' non-compliance.

The currently used models are described below.

5.2.3.1 Retail models residential mortgages

Probability of Default (PD) models

Underlying scorecards are calibrated to provide a PD for each loan. The application credit score is used for new lending to determine PD up until sufficient internal account performance data is available, at which time the behaviour score will be used to determine PD. The ratings philosophy of the PD models is deemed to be hybrid with the Point-in-Time (PiT) score mapped to a long run average PD grade. The long run grades have been determined using historical data and an assessment of PD performance over an economic cycle.

Loss Given Default (LGD) models

The key components of the LGD models are the Probability of Possession given Default (PPD) and expected shortfall, calibrated to reflect a downturn environment. Any post sale recoveries are excluded from the loss estimate. The expected shortfall calculation uses an estimate of house price at sale, a forced sale discount, projected balances (EAD) and costs, along with time to possession and sale parameters and standard discounting principles.

5.2.3.2 Qualifying revolving and other retail exposures

Probability of Default (PD) models

Underlying business scorecards are calibrated to provide a PD for each loan. The application credit score is used for new lending to determine PD up until sufficient internal account performance data is available, at which time the behaviour score will be used to determine PD. The ratings philosophy of the PD models is deemed to be predominantly PiT and therefore changes in the quality of the portfolio will be reflected in the PDs.

Loss Given Default (LGD) models

These models estimate the average loss percentage of snapshot balances for the three population segments: default, non-default and charge off. The LGD is calculated from discounted recoveries, cost of collections and downturn stress. In addition, the downturn LGD is based on the worst (highest) LGD observed during the development window.

Exposure at Default (EAD)

For credit cards and current accounts, EAD is equal to expected exposure by risk segment. For loan accounts, the EAD is set at 100% of current balance, in line with regulatory guidance.

5.2.3.3 Corporate models

Probability of Default (PD) models
There are three PD models in use for grading and monitoring exposures to corporates. RiskCalc is an external vendor model which is used industry-wide to rate large corporates. The other two are internally developed and are used to rate Registered Social Landlords (RSL) and corporate SME (business banking) customers respectively. For the latter two models, the ratings philosophy is defined as 'near PiT models', whereas RiskCalc is run in Financial Statements Only (FSO) mode and is hence more 'through the cycle' (TTC) in outlook. The output of all PD models is mapped to the 13 grades of the internal grading scale (with a 14th grade indicating default).

Loss Given Default (LGD) models
Capital adequacy for customers rated with a PD model is calculated under the Foundation IRB Approach and therefore regulatory prescribed LGD rates apply (from 35% for senior exposures fully secured by real estate collateral to 45% for senior unsecured exposures).

Supervisory slotting approach
Supervisory slotting criteria are used to analyse and monitor the specialised lending exposures to Private Finance Initiatives (PFIs) and Property Investment. The PFI and Property Investment slotting models are regulatory approaches and their output is mapped to four supervisory categories from strong to weak (slotting categories 1-4 respectively) or default with prescribed risk and expected loss weights.

Overrides
The PD and slotting grades can be overridden by exception in line with policy to ensure that the grades fully reflect all available information.

Exposure at Default
EAD across the whole corporate portfolio is calculated by applying regulatory prescribed CCFs.

5.2.3.4 Financial institution model
Under Foundation IRB, modelled PD for treasury counterparties that are financial institutions are used alongside regulatory defined LGD and CCFs (as per the corporate models described above). The model assigns an Internal Ratings Grade (IRG) between 1 and 10 to financial institution counterparties based on external credit ratings from nominated External Credit Assessment Institutions (ECAIs). IRGs are then mapped to PDs, which have been calibrated to externally available bond default statistics. IRGs are assessed for consistency using the prevailing model procedures and individual ratings are assessed for overrides, and the rationale for any such overrides must be documented and approved by the risk analytics and treasury risk director for up to 12 months.

5.2.3.5 Model performance and back testing
This section provides analysis of the performance of IRB models over 2017 and 2018.

The table below outlines the estimated and actual performance for PD, EAD and LGD by exposure class. All figures reported are taken from the Group's regulatory capital models.

For PD and EAD the calculation shown assesses the non-defaulted portfolio at the start of the period and measures the default emergence over the following year. These are measured on an account weighted basis. For LGD, the calculation shown assesses the losses of the defaulted population, with actuals measured at the end of the period. The estimates are taken from 4 years previous for unsecured (to allow time for recoveries) and 2 years previous for secured (to allow time for the default to progress to sale).

To ensure fair comparisons can be made over the period in regards to retail secured by immovable property, exposures now securitised through the Warwick Finance One, Warwick Finance Two and Warwick Finance Three transactions are removed from all estimated and actual performance and therefore the PD, EAD and LGD have been recalculated for all years.

Table 15 - Model performance

	PD				EAD	
Exposure class	**Long run estimate at 2017 %**	**Actual 2018 %**	Long run estimate at 2016 %	Actual 2017 %	**Downturn estimate to actual ratio 2018 %**	Downturn estimate to actual ratio 2017 %
Retail						
Retail secured by immovable property	**0.8%**	**0.3%**	0.9%	0.3%	**100.9%**	101.2%
Qualifying revolving retail exposures	**0.6%**	**0.4%**	0.7%	0.4%	**130.6%**	128.0%
Retail and other non-SME	**3.6%**	**3.1%**	3.4%	1.8%	**110.7%**	113.3%
Corporate	**1.3%**	**0.6%**	1.4%	0.5%	**-**	-

Note: The corporate portfolio operates under the Foundation IRB Approach, under which EADs and LGDs are not modelled. No defaults have been recorded in treasury's financial institution portfolio and its model's performance is not included in the table above.

Exposure class	LGD Downturn estimate at 2018 %	Actual 2018 %	Downturn estimate at 2017 %	Actual 2017 %
Retail				
Retail secured by immovable property	**18.0%**	**2.2%**	18.9%	2.4%
Qualifying revolving retail exposures	**86.5%**	**62.4%**	86.4%	81.1%
Retail and other non-SME	**85.8%**	**62.9%**	86.0%	59.9%

Retail unsecured (Qualifying revolving retail exposures and retail other non-SME)
Note that a small proportion of the retail unsecured portfolio is excluded from these comparisons. This covers immaterial products from a capital perspective such as basic bank accounts (approximately 0.1% of retail unsecured non-default RWA is excluded as at 31 December 2018).

The estimated performance is substantially higher than the recent actual performance as a result of the following:
- The PDs used for capital are predominantly PiT with an add-on. Hence the actual default rates are significantly lower than estimates used for capital; EAD and LGD models are similar to PD models with layers of add-ons to the PiT estimates included to reflect the downturn.

Two differences between 2017 and 2018 actuals are noted:
- Increased 2018 actual retail and other non-SME PD is an indirect result of changes to collection strategies leading to an enhancement of the default identification on the personal loan product; this is expected to reduce in effect in 2019.
- The decrease in 2018 actual qualifying revolving retail exposures' LGD is also an effect of the changed collection strategies.

Retail secured by immovable property
As with unsecured, the actual outcomes for the secured portfolio are lower than the estimates for all metrics:
- The secured retail PDs used within the regulatory capital models are based on long-run averages. The recent actual default rates are significantly lower than estimates due to the continued benign economic environment.
- The actual LGDs are significantly lower than estimates. The reasons are twofold: the model predicts losses in a downturn environment, and house price increases over the last 2 years are not reflected in the model.

Corporate
The corporate portfolio operates under the Foundation IRB Approach under which EADs and LGDs are not modelled. The Property Investment and Private Finance Initiative models use the Foundation IRB slotting approach which assigns prescribed risk weights and expected losses and are not included in the table. The table also excludes performance in those sectors where the Standardised Approach is adopted, typically due to low volumes or a low default history of a particular sector. Overall, corporate year on year actual defaults have reduced in line with the continued benign economic environment. Estimated PDs for 2017 exceed actual default rates.

5.2.4 Model risk management
The model risk framework applies to ratings models to ensure that the model risks faced are appropriately managed under the RMF. Model governance is documented in the model risk policy and control standard, defining the risk owners, risk framework owners and governance committee structure for model risk. All model developments and adjustments are subject to this framework.

The key principles of the model risk framework are:
- Ownership of each model along with the associated model risk by the business owner and model owner;
- Responsibility by owners for the use, control, management, and governance of the model and the associated model risk in line with the model risk framework, and accountability for inappropriate model use;
- Senior management awareness of the model risk framework and models, including associated regulatory requirements, at an appropriate level of detail to enable them to effectively discharge their management, oversight, and governance responsibilities;
- An effective model development process that includes detailed testing and analysis to demonstrate that the model works as intended, and complies with regulatory requirements;
- Effective and independent challenge of the development of all models by independent model validation;
- Approval of all models through the appropriate model governance forum in line with model materiality;
- Maintenance of a complete and accurate model inventory that includes the key attributes of each model;
- Regular monitoring of the use and performance of all models in production to confirm that they continue to perform in line with original approvals; and
- Retirement of models when they are found to be no longer fit for purpose or are replaced by better models.

5.2.5 Credit risk exposures

The following table represents EAD analysed by approach, exposure class and contractual maturity.

Table 16 - Analysis of EAD by residual contractual maturity

2018 Exposure class	Repayable on demand / undated £m	Up to 1 year £m	1-5 years £m	5-10 years £m	10-20 years £m	>20 years £m	Total £m
IRB							
Institutions	206.9	35.0	70.8	1.3	-	-	**314.0**
Corporates – specialised lending	-	19.0	86.0	37.0	493.6	107.0	**742.6**
Corporates – other	0.2	14.8	127.0	78.7	313.2	1.4	**535.3**
Retail secured by immovable property	-	135.5	563.4	1,590.5	5,690.3	8,991.3	**16,971.0**
Qualifying revolving retail exposures	1,614.3	-	-	-	-	-	**1,614.3**
Retail other non-SME	5.4	5.7	53.4	3.0	-	-	**67.5**
Securitisation positions	-	-	399.4	-	-	92.6	**492.0**
NCO[1]	121.1	-	-	-	-	-	**121.1**
Total IRB	**1,947.9**	**210.0**	**1,300.0**	**1,710.5**	**6,497.1**	**9,192.3**	**20,857.8**
Standardised							
Central government or central banks	1,888.4	65.3	369.7	478.3	129.6	-	**2,931.3**
Regional governments or local authorities	-	-	0.2	-	-	2.3	**2.5**
Public sector entities	-	-	46.7	8.4	-	1.4	**56.5**
Multilateral development banks	-	25.0	346.8	63.9	-	-	**435.7**
Institutions	35.2	7.1	29.1	-	-	-	**71.4**
Corporates	7.1	20.6	30.8	11.1	23.8	-	**93.4**
Retail exposures	1.2	1.9	41.2	14.7	-	-	**59.0**
Secured by mortgages on immovable property	-	-	0.1	-	-	-	**0.1**
Exposures in default	0.2	0.4	3.2	1.5	-	-	**5.3**
Equity exposures	26.4	-	-	-	-	-	**26.4**
Other items[1]	263.9	-	-	-	-	-	**263.9**
Total Standardised	**2,222.4**	**120.3**	**867.8**	**577.9**	**153.4**	**3.7**	**3,945.5**
Total credit risk exposures	**4,170.3**	**330.3**	**2,167.8**	**2,288.4**	**6,650.5**	**9,196.0**	**24,803.3**

2017 Exposure class	Repayable on demand / undated £m	Up to 1 year £m	1-5 years £m	5-10 years £m	10-20 years £m	>20 years £m	Total £m
IRB							
Institutions	185.8	136.1	102.9	1.7	0.1	-	426.6
Corporates – specialised lending	-	42.7	108.0	47.4	533.1	152.6	883.8
Corporates – other	0.5	33.7	122.1	150.6	369.9	10.1	686.9
Retail secured by immovable property	-	172.5	592.8	1,612.7	5,813.4	7,455.5	15,646.9
Qualifying revolving retail exposures	1,773.7	-	-	-	-	-	1,773.7
Retail other non-SME	17.1	10.2	98.1	8.0	-	-	133.4
Securitisation positions	-	-	823.5	-	-	100.0	923.5
Total IRB	1,977.1	395.2	1,847.4	1,820.4	6,716.5	7,718.2	20,474.8
Standardised							
Central governments or central banks	4,049.7	26.3	570.5	502.5	76.0	-	5,225.0
Regional governments or local authorities	-	-	0.2	-	-	2.4	2.6
Public sector entities	-	1.1	2.4	6.6	3.0	1.5	14.6
Multilateral development banks	-	-	293.8	35.5	-	-	329.3
Institutions	48.7	37.6	-	-	-	-	86.3
Corporates	-	6.7	58.7	42.7	16.6	28.8	153.5
Retail exposures	1.4	2.2	45.1	13.7	-	-	62.4
Secured by mortgages on immovable property	-	-	0.1	-	-	-	0.1
Exposures in default	0.2	5.1	3.0	0.1	-	-	8.4
Equity exposures	32.6	-	-	-	-	-	32.6
Other items[1]	373.4	-	-	-	-	-	373.4
Total Standardised	4,506.0	79.0	973.8	601.1	95.6	32.7	6,288.2
Total credit risk exposures	6,483.1	474.2	2,821.2	2,421.5	6,812.1	7,750.9	26,763.0

1. Non-credit obligation assets are now calculated and reported as IRB (see table 8) as opposed to being calculated and reported as standardised in 2017.

Movement in EAD by maturity profile 2017 to 2018 comprises:

- Foundation IRB corporates: Reduction in EAD is driven primarily by balance attrition. The revaluation downwards of the Co-operative Group SLD exposure of £50m also contributes to the reduction in EAD within the period.
- Retail secured by immovable property: The retail mortgage book increased in size primarily due to the Platform portfolio which has continued to grow balances significantly over the period through new completions (£4.3bn). Total secured EAD increased by 8.5% from £15,646.9m in 2017 to £16,971.0m to 2018.
- Retail other non-SME: Decrease largely driven by balance attrition and cessation of new lending volumes on personal loans. EAD over the period reduced by 49.4% from £133.4m to £67.5m.
- Qualifying revolving retail exposure: Decrease driven largely by balance attrition and balance paydown in 2018. EAD over the period reduced by 9.0% from £1,773.7m to £1,614.3m.
- Specialised lending: Reduction in EAD driven largely by balance on property related and PFI assets.
- Standardised corporates: EAD reduction primarily due to continued balance attrition of individual assets.

5.2.6 Impaired and past due exposures

The following table represents EAD, impaired and past due exposures and impairment analysed by approach and exposure class.

Table 17 - Analysis of impaired and past due exposures

2018 Exposure class	EAD £m	Of which: impaired exposures £m	Of which: past due exposures not impaired £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
IRB					
Institutions	314.0	-	-	-	-
Corporates – specialised lending	742.6	27.1	16.9	14.0	(8.2)
Corporates – other	535.3	1.5	3.5	1.7	(0.6)
Retail secured by immovable property	16,971.0	450.0	77.6	17.5	(0.2)
Qualifying revolving retail exposures	1,614.3	10.4	5.9	8.4	6.9
Retail other non-SME	67.5	5.3	0.8	4.0	(0.3)
Securitisation positions	492.0	-	-	-	-
NCO[1]	121.1	-	-	-	-
Total IRB	**20,857.8**	**494.3**	**104.7**	**45.6**	**(2.4)**
Standardised					
Central government or central banks	2,931.3	-	-	-	-
Regional governments or local authorities	2.5	-	-		-
Public sector entities	56.5	-	-		-
Multilateral development banks	435.7	-	-		-
Institutions	71.4	-	-	-	-
Corporates	93.4	-	5.8	0.4	(0.6)
Retail exposures	59.0	-	0.6	-	-
Secured by mortgages on immovable property	0.1	-	-	-	-
Exposures in default	5.3	5.3	0.1	6.7	1.3
Equity exposures	26.4	-	-	-	-
Other items[1]	263.9	-	-	-	-
Total Standardised	**3,945.5**	**5.3**	**6.5**	**7.1**	**0.7**
Total credit risk exposures	**24,803.3**	**499.6**	**111.2**	**52.7**	**(1.7)**

2017 Exposure class	EAD £m	Of which: impaired exposures £m	Of which: past due exposures not impaired £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
IRB					
Institutions	426.6	-	-	-	-
Corporates – specialised lending	883.8	80.6	-	23.1	1.3
Corporates – other	686.9	13.4	-	2.1	(0.2)
Retail secured by immovable property	15,646.9	249.7	-	18.6	2.5
Qualifying revolving retail exposures	1,773.7	16.7	-	8.6	5.0
Retail other non-SME	133.4	25.3	-	21.9	(1.5)
Securitisation positions	923.5	-	-	-	-
Total IRB	20,474.8	385.7	-	74.3	7.1
Standardised					
Central government or central banks	5,225.0	-	-	-	-
Regional governments or local authorities	2.6	-	-	-	-
Public sector entities	14.6	-	-	-	(0.1)
Multilateral development banks	329.3	-	-	-	-
Institutions	86.3	-	-	-	-
Corporates	153.5	5.7	-	0.2	(0.7)
Retail exposures	62.4	1.3	-	-	-
Secured by mortgages on immovable property	0.1	0.1	-	-	-
Exposures in default	8.4	8.4	-	5.5	(2.6)
Equity exposures	32.6	-	-	-	-
Other items[1]	373.4	-	-	-	-
Total Standardised	6,288.2	15.5	-	5.7	(3.4)
Total credit risk exposures	26,763.0	401.2	-	80.0	3.7

1. Non-credit obligation assets are now calculated and reported as IRB (see table 8) as opposed to being calculated and reported as standardised in 2017.

Specific and general credit risk adjustments include specific and collective impairments. In 2017 all residual fair value adjustments were utilised or written off.

5.2.7 Analysis of corporate exposures impaired and past due

The following table represents, for corporate assets (excluding securitisations), EAD, impaired exposures and impairment analysed by approach and exposure class.

Table 18 - Analysis of corporate EAD by sector

2018 Sector	EAD £m	Of which: impaired exposures £m	Of which: past due exposures not impaired £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
Accommodation, food and licensed services	18.5	0.1	0.4	0.2	-
Care	13.8	-	2.5	-	0.1
Education	43.0	-	5.3	0.2	(0.2)
Financial services	15.0	0.2	-	-	(0.1)
Football clubs	8.3	0.8	-	0.8	(0.1)
Housing associations	367.1	-	-	0.1	-
Manufacturing	3.1	0.1	-	-	(0.1)
Motor trade and garages	0.7	0.3	-	-	-
PFI	568.1	-	14.5	1.6	(1.0)
Professional services	2.5	0.1	0.2	0.1	-
Property and construction					
Commercial investment	134.5	23.6	1.6	9.9	(8.2)
Residential investment	18.5	-	-	1.4	(0.2)
Commercial development	6.0	3.3	-	2.8	1.3
Residential development	-	-	-	-	-
Public sector entities	2.5	-	-	-	-
Renewable energy	31.6	-	-	0.2	(0.3)
Retail and wholesale trade	88.7	-	-	0.1	(0.1)
Services	26.1	3.5	1.5	5.0	0.8
Transport, storage and communication	0.6	-	-	-	-
Utilities	1.7	-	-	-	-
Other	37.8	0.3	0.2	0.3	-
Total	**1,388.1**	**32.3**	**26.2**	**22.7**	**(8.1)**
IRB corporates - other	535.3	1.5	3.5	1.7	(0.6)
IRB corporates - specialised lending	742.6	27.1	16.9	14.0	(8.2)
Standardised corporates[1]	100.6	-	-	0.4	-
Standardised past due corporates	9.6	3.7	5.8	6.6	0.7
Total	**1,388.1**	**32.3**	**26.2**	**22.7**	**(8.1)**

2017 Sector	EAD £m	Of which: impaired exposures £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
Accommodation, food and licensed services	41.1	12.3	0.1	(6.6)
Care	22.1	3.5	0.1	-
Education	54.9	4.0	0.1	-
Financial services	22.4	0.6	0.1	(0.1)
Football clubs	9.5	0.8	0.8	(0.1)
Housing associations	444.5	-	-	-
Manufacturing	4.5	0.7	0.1	(0.1)
Motor trade and garages	0.9	0.3	-	-
PFI	630.6	15.4	1.4	0.9
Professional services	3.8	0.5	0.1	(0.1)
Property and construction				
Commercial investment	187.5	47.2	20.6	0.1
Residential investment	48.0	7.3	1.4	0.2
Commercial development	7.5	3.2	1.5	0.8
Residential development	1.8	1.1	0.1	-
Public sector entities	2.6	-	-	-
Renewable energy	43.0	-	-	(0.5)
Retail and wholesale trade	142.2	0.4	-	-
Services	39.9	6.8	4.2	3.1
Transport, storage and communication	1.0	-	-	-
Utilities	2.3	-	-	-
Other	36.1	0.4	0.3	0.1
Total	1,746.2	104.5	30.9	(2.3)
IRB corporates – other	686.9	13.4	2.1	(0.2)
IRB corporates - specialised lending	883.8	80.6	23.1	1.3
Standardised corporates[1]	170.7	5.7	0.2	(0.8)
Standardised past due corporates	4.8	4.8	5.5	(2.6)
Total	1,746.2	104.5	30.9	(2.3)

1. Standardised corporates includes regional governments or local authorities and public sector entities

5.2.8 IRB approach

Foundation

The table below analyses EAD for each IRB exposure class by PD band and discloses average risk weight percentage for exposures subject to the Foundation IRB Approach.

Table 19 - Foundation IRB EAD by PD band

2018 Internal grades	PD range %	Mapped external rating	Exposure value pre-CCF £m	EAD £m	Average PD %	Average LGD %	RW %	RWA £m
Institutions								
1 / 2	0.00 to 0.04	AAA to AA	121.2	101.3	0.03%	45.0%	42.1%	42.6
3	0.04 to 0.06	AA-	97.6	78.2	0.05%	45.0%	55.1%	43.1
4	0.06 to 0.08	A+	-	-	-	-	-	-
5	0.08 to 0.20	A	159.9	103.7	0.09%	45.0%	55.6%	57.7
6	0.20 to 0.30	A- to BBB+	1.6	1.6	0.28%	45.0%	83.3%	1.3
7	0.30 to 1.00	BBB to BBB-	122.3	29.2	0.66%	45.0%	51.5%	15.1
8	1.00 to 5.00	BB+ to BB-	-	-	-	-	-	-
9	5.00 to 99.99	B+ to C	-	-	-	-	-	-
10	100.00	Default	-	-	-	-	-	-
Total institutions			**502.6**	**314.0**	**0.11%**	**45.0%**	**50.9%**	**159.8**
Corporates								
1 / 2	0.00 to 0.06		-	-	-	-	-	-
3	0.06 to 0.16		291.5	291.2	0.14%	36.8%	47.4%	138.2
4	0.16 to 0.26		124.0	117.9	0.22%	40.0%	57.4%	67.7
5	0.26 to 0.40		105.7	88.2	0.33%	44.4%	94.6%	83.5
6	0.40 to 0.65		12.9	12.0	0.51%	43.0%	78.4%	9.4
7	0.65 to 1.10		7.1	6.1	0.85%	44.5%	89.2%	5.4
8	1.10 to 1.90		8.8	8.4	1.50%	38.3%	119.9%	10.1
9	1.90 to 3.30		3.2	2.9	3.00%	44.4%	133.8%	3.9
10	3.30 to 10.00		6.5	6.2	6.00%	40.3%	157.8%	9.6
11	10.00 to 15.00		0.7	0.6	13.00%	45.0%	215.7%	1.3
12	15.00 to 20.00		0.1	0.1	18.00%	45.0%	229.0%	0.3
13	20.00 to 99.99		0.2	0.2	22.00%	45.0%	240.3%	0.5
14	100.00		1.5	1.5	100.0%	44.8%	-	-
Total corporates			**562.2**	**535.3**	**0.61%**	**39.2%**	**61.6%**	**329.9**

2017 Internal grades	PD range %	Mapped external rating	Exposure value pre-CCF £m	EAD £m	Average PD %	Average LGD %	RW %	RWA £m
Institutions								
1 / 2	0.00 to 0.04	AAA to AA	81.8	81.8	0.03%	45.0%	38.4%	31.4
3	0.04 to 0.06	AA-	466.6	127.8	0.05%	45.0%	56.2%	71.9
4	0.06 to 0.08	A+	-	-	-	-	-	-
5	0.08 to 0.20	A	182.8	95.0	0.09%	45.0%	60.9%	57.9
6	0.20 to 0.30	A- to BBB+	697.3	120.0	0.28%	45.0%	82.5%	99.1
7	0.30 to 1.00	BBB to BBB-	-	-	-	-	-	-
8	1.00 to 5.00	BB+ to BB-	0.1	0.1	2.04%	45.0%	157.1%	0.1
9	5.00 to 99.99	B+ to C	1.9	1.9	7.43%	45.0%	223.8%	4.2
10	100.00	Default	-	-	-	-	-	-
Total institutions			1,430.5	426.6	0.15%	45.0%	62.0%	264.6
Corporates								
1 / 2	0.00 to 0.06		-	-	-	-	-	-
3	0.06 to 0.16		345.8	345.3	0.14%	36.8%	45.9%	158.6
4	0.16 to 0.26		155.1	150.4	0.22%	37.2%	49.4%	74.3
5	0.26 to 0.40		22.3	18.2	0.33%	42.1%	35.5%	6.4
6	0.40 to 0.65		152.2	138.1	0.51%	44.6%	93.2%	128.7
7	0.65 to 1.10		13.8	13.1	0.85%	40.7%	87.1%	11.4
8	1.10 to 1.90		4.3	3.6	1.50%	41.2%	86.5%	3.1
9	1.90 to 3.30		2.6	2.3	3.00%	44.3%	122.0%	2.8
10	3.30 to 10.00		13.0	12.5	6.00%	38.2%	110.0%	13.9
11	10.00 to 15.00		0.4	0.4	13.00%	45.0%	210.6%	0.8
12	15.00 to 20.00		0.1	0.1	18.00%	45.0%	229.0%	0.1
13	20.00 to 99.99		0.2	0.2	22.00%	45.0%	240.3%	0.4
14	100.00		2.9	2.7	100.00%	40.9%	-	-
Total corporates			712.7	686.9	0.79%	38.7%	58.3%	400.5

External ratings as shown in table mapped to distinct PDs. See section 5.2.3.4 for details.

In accordance with CRR Article 150 (Conditions for permanent partial use), permission has been received from the regulator to exempt exposures to certain counterparty classes (namely central governments (sovereigns), central banks and multilateral development banks) from the IRB approach for the purposes of the calculation of both risk-weighted exposure and expected loss amounts, instead applying the Standardised Approach for these exposures.

Corporate IRB exposures reduced by 21.1% driven by deleverage of assets, whilst the mix of deleverage has seen the RW% increase by 3.3% to 61.6%.

EAD analysed by Expected Loss (EL) grades
The table below analyses each retail IRB exposure class by EL grade, calculated as expected loss as a percentage of EAD.

Table 20 - Retail IRB EAD by EL grade

2018	**EL grade 1 £m**	**EL grade 2 £m**	**EL grade 3 £m**	**EL grade 4 £m**	**EL grade 5 £m**	**EL grade 6 £m**	**Default £m**	**Total £m**
IRB exposure class								
Retail secured by immovable property	10,120.4	1,663.8	3,158.4	974.1	798.1	66.2	190.0	**16,971.0**
Qualifying revolving retail exposures	421.7	248.4	247.2	233.6	275.4	177.5	10.5	**1,614.3**
Retail other non-SME	-	-	-	29.3	22.3	8.9	7.0	**67.5**
Total retail IRB	**10,542.1**	**1,912.2**	**3,405.6**	**1,237.0**	**1,095.8**	**252.6**	**207.5**	**18,652.8**

2017	EL grade 1 £m	EL grade 2 £m	EL grade 3 £m	EL grade 4 £m	EL grade 5 £m	EL grade 6 £m	Default £m	Total £m
IRB exposure class								
Retail secured by immovable property	10,204.3	1,362.2	2,519.2	692.6	662.3	86.4	119.9	15,646.9
Qualifying revolving retail exposures	439.2	438.5	222.7	160.3	332.8	172.1	8.1	1,773.7
Retail other non-SME	-	-	-	50.7	40.2	22.5	20.0	133.4
Total retail IRB	10,643.5	1,800.7	2,741.9	903.6	1,035.3	281.0	148.0	17,554.0

Definition in grading for expected loss grade	
EL grade 1	**EL% < 0.05%**
EL grade 2	**0.05% =< EL% < 0.07%**
EL grade 3	**0.07% =< EL% < 0.20%**
EL grade 4	**0.20% =< EL% < 0.40%**
EL grade 5	**0.40% =< EL% < 2.00%**
EL grade 6	**2.00% =< EL% < 100.00%**

Retail other non-SME default grade has reduced in size by £13.0m, driven mainly by the unsecured debt sales of non-performing personal loan exposures in 2018 and also implementation of IFRS 9. Increased volumes of Platform new mortgage lending have caused the EAD distribution for the 'Retail secured by immovable property' asset class to increase across most EL grades particularly 3 to 5.

The table below analyses each retail IRB exposure class by PD grade.

Table 21 - Retail IRB RWA by PD grade

2018 Internal grades	PD range %	Gross exposure £m	EAD £m	Average PD %	Average LGD %	RW %	RWA £m
Retail secured by immovable property							
1	0.00 to 0.04	1,556.1	1,594.6	0.03%	6.2%	0.7%	10.7
2	0.04 to 0.07	1,866.6	1,912.4	0.06%	8.0%	1.5%	27.8
3	0.07 to 0.31	3,427.3	3,495.3	0.16%	10.7%	3.8%	134.2
4	0.31 to 1.00	6,841.4	6,964.7	0.53%	14.3%	12.8%	893.1
5	1.00 to 3.00	1,966.0	2,002.5	1.61%	18.7%	35.1%	701.9
6	3.00 to 15.32	683.2	638.9	6.74%	7.8%	20.5%	131.2
7	15.32 to 99.99	183.4	172.6	25.80%	7.9%	28.5%	49.2
8	100.00	187.3	190.0	100.00%	14.3%	136.6%	259.4
Total retail secured by immovable property		**16,711.3**	**16,971.0**	**2.09%**	**12.3%**	**13.0%**	**2,207.5**
Qualifying revolving retail exposures							
1	0.00 to 0.04	86.1	423.3	0.04%	74.4%	2.2%	9.3
2	0.04 to 0.07	-	-	-	-	-	-
3	0.07 to 0.12	501.5	406.3	0.09%	80.4%	4.6%	18.9
4	0.12 to 0.31	366.1	183.1	0.22%	80.0%	10.4%	19.0
5	0.31 to 0.50	318.3	228.3	0.42%	79.6%	17.5%	39.9
6	0.50 to 1.00	71.9	52.9	0.67%	82.4%	27.7%	14.7
7	1.00 to 5.00	254.5	257.2	1.91%	79.5%	64.2%	165.3
8	5.00 to 10.00	45.0	45.2	5.64%	82.7%	158.1%	71.6
9	10.00 to 20.00	5.3	3.7	14.57%	82.1%	268.2%	9.8
10	20.00 to 50.00	3.7	3.2	39.27%	81.2%	443.2%	14.1
11	50.00 to 99.99	0.6	0.6	61.62%	83.0%	390.9%	2.2
12	100.00	9.4	10.5	100.00%	84.8%	56.3%	5.9
Total qualifying revolving retail exposures		**1,662.4**	**1,614.3**	**1.38%**	**78.7%**	**23.0%**	**370.7**
Retail other non-SME							
1	0.00 to 0.04	-	-	-	-	-	-
2	0.04 to 0.07	-	-	-	-	-	-
3	0.07 to 0.12	-	-	-	-	-	-
4	0.12 to 0.31	-	-	-	-	-	-
5	0.31 to 0.50	29.3	29.3	0.41%	81.5%	55.3%	16.2
6	0.50 to 1.00	0.1	0.1	0.58%	74.4%	61.5%	0.1
7	1.00 to 5.00	28.7	28.7	2.40%	80.8%	110.0%	31.6
8	5.00 to 10.00	1.6	1.6	9.18%	81.2%	140.7%	2.3
9	10.00 to 20.00	-	-	-	-	-	-
10	20.00 to 50.00	0.7	0.7	36.02%	80.6%	222.9%	1.5
11	50.00 to 99.99	0.1	0.1	62.00%	74.4%	180.7%	0.1
12	100.00	7.0	7.0	100.00%	87.0%	91.3%	6.4
Total retail other non-SME		**67.5**	**67.5**	**12.24%**	**81.7%**	**86.1%**	**58.2**

2017 Internal grades	PD range %	Gross exposure £m	EAD £m	Average PD %	Average LGD %	RW %	RWA £m
Retail secured by immovable property							
1	0.00 to 0.04	1,974.4	2,023.6	0.03%	6.4%	0.7%	14.1
2	0.04 to 0.07	2,368.5	2,425.6	0.06%	8.4%	1.6%	37.6
3	0.07 to 0.31	2,902.0	2,962.8	0.15%	10.5%	3.7%	109.4
4	0.31 to 1.00	5,283.2	5,387.0	0.52%	12.6%	11.2%	602.1
5	1.00 to 3.00	1,834.5	1,872.7	1.57%	16.9%	31.3%	586.0
6	3.00 to 15.32	176.2	180.8	7.44%	14.2%	55.4%	100.1
7	15.32 to 99.99	735.4	674.5	27.17%	6.0%	14.3%	96.2
8	100.00	119.9	119.9	100.00%	17.1%	182.2%	218.4
Total retail secured by immovable property		15,394.1	15,646.9	2.44%	11.0%	11.3%	1,763.9
Qualifying revolving retail exposures							
1	0.00 to 0.04	86.0	439.2	0.04%	74.4%	2.2%	9.6
2	0.04 to 0.07	-	-	-	-	-	-
3	0.07 to 0.12	538.5	449.7	0.09%	80.2%	4.5%	20.1
4	0.12 to 0.31	405.7	211.6	0.22%	79.7%	9.7%	20.5
5	0.31 to 0.50	346.0	243.0	0.42%	79.6%	16.4%	39.8
6	0.50 to 1.00	78.9	66.7	0.69%	81.2%	24.5%	16.3
7	1.00 to 5.00	287.8	286.8	1.93%	79.5%	51.8%	148.6
8	5.00 to 10.00	55.1	56.7	5.65%	82.2%	114.0%	64.7
9	10.00 to 20.00	7.9	5.8	14.20%	81.5%	193.1%	11.1
10	20.00 to 50.00	6.2	5.0	39.23%	80.8%	259.7%	13.5
11	50.00 to 99.99	1.1	1.1	61.27%	82.3%	227.8%	2.5
12	100.00	8.1	8.1	100.00%	91.8%	46.3%	3.7
Total qualifying revolving retail exposures		1,821.3	1,773.7	1.29%	78.7%	19.7%	350.4
Retail other non-SME							
1	0.00 to 0.04	-	-	-	-	-	-
2	0.04 to 0.07	-	-	-	-	-	-
3	0.07 to 0.12	-	-	-	-	-	-
4	0.12 to 0.31	0.1	0.1	0.27%	78.9%	41.0%	-
5	0.31 to 0.50	50.6	50.6	0.41%	81.4%	55.3%	28.0
6	0.50 to 1.00	0.1	0.1	0.58%	74.4%	61.5%	-
7	1.00 to 5.00	52.8	52.8	2.42%	80.7%	109.9%	58.1
8	5.00 to 10.00	4.0	4.0	9.15%	81.1%	140.6%	5.7
9	10.00 to 20.00	0.1	0.1	18.76%	81.6%	187.8%	0.1
10	20.00 to 50.00	5.6	5.6	35.20%	80.5%	221.3%	12.2
11	50.00 to 99.99	0.1	0.1	62.05%	74.4%	180.5%	0.3
12	100.00	20.0	20.0	100.00%	88.3%	77.2%	15.5
Total retail other non-SME		133.4	133.4	17.93%	82.1%	89.9%	119.9

In retail secured by immovable property and qualifying revolving retail exposures the average PD% has increased, reflecting in both cases the increase in balances of high PD cases.

5.2.9 Standardised Approach

Analysis of exposures calculated in accordance with the Standardised Approach

For Standardised exposures that are rated, the nominated External Credit Assessment Institution (ECAI) is Moody's, and the credit quality assessments scale is also complied with in allocating external credit ratings to the credit quality steps as defined by the PRA.

The table analyses exposures post CCF and net of provisions subject to the Standardised Approach by associated credit quality step. The Group complies with the credit quality assessments scale in allocating external credit ratings to the credit quality steps as defined by the PRA within supervisory statement 10/13: www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2013/ss1013

Other items have reduced as a number of the items are now calculated and reported as IRB under non-credit obligations.

Table 22 - EAD post CRM calculated under the Standardised Approach

2018	**Credit quality step**							
	1 £m	**2 £m**	**3 £m**	**4 £m**	**5 £m**	**6 £m**	**Unrated[1] £m**	**Total £m**
Central government or central banks	2,931.3	-	-	-	-	-	-	**2,931.3**
Regional governments or local authorities	-	-	-	-	-	-	2.5	**2.5**
Public sector entities	45.7	-	-	-	-	-	10.8	**56.5**
Multilateral development banks	435.7	-	-	-	-	-	-	**435.7**
Institutions	-	-	-	-	-	-	71.4	**71.4**
Corporates	-	-	-	-	-	-	93.4	**93.4**
Retail exposures	-	-	-	-	-	-	59.0	**59.0**
Secured by mortgages on immovable property	-	-	-	-	-	-	0.1	**0.1**
Exposures in default	-	-	-	-	-	-	5.3	**5.3**
Equity exposures	-	-	-	-	-	-	26.4	**26.4**
Other items	-	-	-	-	-	-	263.9	**263.9**
Total Standardised Approach	**3,412.7**	-	-	-	-	-	**532.8**	**3,945.5**

2017	Credit quality step							
	1 £m	2 £m	3 £m	4 £m	5 £m	6 £m	Unrated[1] £m	Total £m
Central government or central banks	5,225.0	-	-	-	-	-	-	5,225.0
Regional governments or local authorities	-	-	-	-	-	-	2.6	2.6
Public sector entities	-	-	-	-	-	-	14.6	14.6
Multilateral development banks	329.3	-	-	-	-	-	-	329.3
Institutions	-	-	-	-	-	-	86.3	86.3
Corporates	-	-	-	-	-	-	153.5	153.5
Retail exposures	-	-	-	-	-	-	62.4	62.4
Secured by mortgages on immovable property	-	-	-	-	-	-	0.1	0.1
Exposures in default	-	-	-	-	-	-	8.4	8.4
Equity exposures	-	-	-	-	-	-	32.6	32.6
Other items	-	-	-	-	-	-	373.4	373.4
Total Standardised Approach	5,554.3	-	-	-	-	-	733.9	6,288.2

1. Unrated includes exposures where a customer's individual credit rating does not impact RWAs under the Standardised Approach. Corporate standardised exposures have decreased compared to last year as the balance attrition of the corporate book continued. The decrease in exposures to central governments and central banks is primarily due to a decrease in reserves held with the Bank of England, mainly due to the funding received from the Warwick 3 transaction in 2017 being deployed in 2018, returning the Bank's holdings to a more efficient level.

5.2.10 Supervisory slotting approach

The corporate book includes a specialised lending portfolio, consisting of lending to PFIs and property investment and development. For the specialised lending portfolio, the supervisory slotting approach is used. The table analyses EAD (including undrawn commitments post CCF) by slotting category.

Table 23 - Specialised lending by slotting category

	2018 £m	2017 £m
Slotting category		
Strong	**545.9**	607.0
Good	**138.2**	198.2
Satisfactory	**14.5**	6.2
Weak	**16.9**	23.6
Default	**27.1**	48.8
Total	**742.6**	883.8

Slotting models are used to analyse and monitor specialised lending exposures to property which are assigned to PRA supervisory categories with predefined risk weights. The exposures have reduced since last year, reflective of the continued balance attrition at the point of contractual maturity of the corporate PFI/commercial real estate books.

5.2.11 Credit risk mitigation

5.2.11.1 Retail and corporate

Collateral

Various forms of collateral are used to mitigate credit risk. Collateral is regularly reviewed to ensure continued effectiveness as part of the credit review process. Property collateral for corporate lending is categorised as security for property development or investment customers (i.e. 'property' lending) or owner occupied premises to secure mainstream loan and overdraft facilities. For general lending, in addition to taking charges over property assets owned by the customer, other security is taken in modest proportion to the total portfolio. This includes debentures, floating charges and personal or corporate guarantees (often supported by tangible security, where appropriate, including property, life policies and stocks and shares) and cash cover.

Where exposures are agreed on a secured basis, security cover is recognised only where:

- The security is legally enforceable and is of a tangible nature and type;
- An appropriate and reliable valuation is held; and
- A prudent margin is applied to the valuation, for the type of security involved.

Valuations are performed under instruction by an approved panel of external valuers. When cases are placed into the recoveries team and an LPA (Law of Property Act) Receiver is appointed, then the valuation used will be an Expected Outcome Statement (EOS).

Property valuations are obtained when the facility is first approved, with corporate lending procedures typically requiring collateral to be revalued every three years or more frequently in higher risk situations (typically annually or when a material change has occurred that is likely to affect the value and/or recoverability of the debt). For sectors such as Housing Associations, which have exhibited zero defaults historically, revaluations would be required every three years. In certain circumstances, such as syndicates, the multi bank facility letter may preclude revaluations at the customer's expense of all the assets as frequently as this and a decision is required by all banks involved to decide if they require the updates more frequently.

Single name concentration risk

Single name concentration risk is the concentration in exposures to single counterparties. During 2018, single name concentration risk exposure has remained stable:

- As at 31 December 2018, five customers were on book with individual exposure exceeding £50m, totalling £320m (23% of total corporate portfolio). All customers have a performing status and sit within low risk categories, mainly in the Housing Association sector.
- As at 31 December 2017, five customers were on book with individual exposure exceeding £50m, totalling £373m (21% of total corporate portfolio). All customers have a performing status and sit within low risk categories, mainly in the Housing Association sector.

5.2.11.2 Wholesale credit risk

Collateral held represents the value of cash collateral held in relation to repo activity and cash and debt securities held in relation to derivative activity after the application of applicable regulatory haircuts as prescribed under CRR Articles 223 and 224 (financial collateral comprehensive method).

Table 24 - IRB exposures covered by collateral

	2018		2017 (Re-stated)[1]	
	Exposure value covered by collateral after haircut £m	**Exposure value covered by guarantee after haircut £m**	Exposure value covered by collateral after haircut £m	Exposure value covered by guarantee after haircut £m
Central governments and central banks	**-**	**-**	-	-
Institutions	**188.6**	**-**	556.4	-
Corporates	**-**	**-**	-	-
Totals	**188.6**	**-**	556.4	-

1. Re-stated for the regulatory haircut.

The move in cash collateral seen during 2018 reflects a reduction in term repo funding activity as existing deals have matured.

The Group also utilises a number of methods to reduce the credit risks associated with its activities. The form and scope of credit risk mitigation will vary depending upon factors such as the counterparty and underlying transaction type amongst others. These mitigation methods are summarised below:

Netting policies and processes

Derivative activity is executed under bilateral netting master agreements (typically industry standard International Swaps and Derivatives Association (ISDA) agreements) allowing close out netting with a single net settlement of all derivative contracts covered under each agreement concluded with the same legal counterparty in the event of default. This is achieved through the offsetting of all positive and negative market values under the derivative contracts outstanding with the given counterparty. Such agreements effectively serve to eliminate the counterparty credit risk associated with favourable contracts such that unfavourable contracts with the same legal counterparty are not settled before favourable contracts.

Collateral management and valuation policies and processes

The Group only accepts cash deposits, UK government bonds or other debt securities issued by a central government or qualifying multi-lateral development bank with a minimum rating of AA or a mortgage backed security issued by the Bank Company or one of its subsidiaries. It is also a requirement of the treasury credit risk policy that all securities received as collateral are valued on a daily basis and collateral calls made in line with the relevant legal agreement.

In conjunction with the execution of each ISDA Master Agreement, a collateral agreement known as a Credit Support Annex (CSA) will typically be established in order to further mitigate credit risk associated with derivative activity. These agreements govern the collateral amounts to be posted or received during the contract term. The terms of each CSA may vary according to each party's view of the other party's creditworthiness. Some agreements are linked to external credit ratings such that in the event of a deterioration of either party's external rating, it may be required to post collateral. The impact of any additional collateral that would have to be posted by the Group in the event of a downgrade of its own credit rating are considered within the Group's liquidity risk framework.

In the case of repurchase transactions, documentation takes the form of the Global Master Repurchase Agreement (GMRA), with collateral valuations calculated by reference to the market prices associated with the underlying debt security.

Wrong Way risk

This type of risk occurs when exposure to counterparty is adversely correlated with the credit quality of that counterparty. The Group ensures that the issuer of collateral is neither the same nor connected to the counterparty to a transaction.

5.2.12 Derivative credit exposure

The Group enters into a variety of derivative contracts for the purposes of hedging its market risk exposures such as interest rate and foreign exchange risks.

Counterparty credit risk

Counterparty credit risk in derivative transactions arises from the risk of counterparty default prior to the settlement date of derivative contracts with the counterparty unable to fulfil present and future contractual payment obligations. The amount at risk may change over time as a function of the underlying market parameters.

A key difference between derivatives and other asset types is that whereas the credit risk of other financial assets is generally represented by the principal amount net of any applicable allowance for credit losses, the counterparty credit risk associated with derivative instruments will ordinarily represent an amount significantly lower than the notional amount of the derivative instrument. The Bank no longer has any exchange traded derivatives.

The table below shows the aggregate notional amounts and exposures to counterparty credit risk for outstanding derivative contracts. The contracts we have are all over-the-counter derivative instruments. The notional amounts shown represent the reference amount to which a rate or price is applied in order to determine the cash flows to be exchanged during the life of the underlying transactions and are not in themselves a measure of potential credit or market risk, rather they provide an illustration of transactional volumes outstanding.

Table 25 - Net exposures to counterparty credit risk from derivative contracts

	2018		2017	
	Notional amount £m	**Exposure £m**	Notional amount £m	Exposure £m
Bilateral contracts				
Interest rate swaps	5,193.5	142.7	7,217.1	179.8
Currency interest rate swaps	-	-	-	-
Interest rate caps	31.0	0.1	36.1	0.1
Foreign exchange swaps	-	-	19.7	0.1
Forward foreign exchange	-	-	9.4	0.2
Equity swaps	-	-	-	-
Total bilateral contracts	**5,224.5**	**142.8**	7,282.3	180.2
Centrally cleared contracts				
Interest rate swaps	12,400.6	46.2	7,921.9	46.9
Total centrally cleared contracts	**12,400.6**	**46.2**	7,921.9	46.9
Total notional and gross positive fair value of contracts	**17,625.1**	**189.0**	15,204.2	227.1
Netting benefit and collateral		(50.2)		(59.7)
Replacement cost of derivatives		**138.8**		167.4
Potential future credit exposure		50.9		46.5
Net credit risk exposure		**189.7**		213.9

The net credit risk exposure figure at the foot of the above table represents the credit exposure through derivative transactions after recognition of legally enforceable netting agreements and the application of eligible financial collateral held. The effect of netting is to mitigate risk by offsetting the amounts due to the same counterparties (‘netting benefit’) and by collateral received from counterparties. The total derivatives exposure includes uplifts for potential future exposure under the mark to market method for assessing counterparty credit risk.

The table below analyses OTC derivatives notional amount by maturity.

Table 26 - Derivative counterparty credit risk notional maturity

2018	**< 1 year £m**	**≥ 1 year to < 5 years £m**	**≥ 5 years to < 10 years £m**	**≥ 10 years to < 20 years £m**	**≥ 20 years £m**	**Total £m**
Interest rate contracts						
Interest rate swaps	2,489.1	12,250.1	1,946.1	809.9	98.9	**17,594.1**
Currency interest rate swaps	-	-	-	-	-	**-**
Caps	2.6	8.1	20.3	-	-	**31.0**
Total interest rate contracts	**2,491.7**	**12,258.2**	**1,966.4**	**809.9**	**98.9**	**17,625.1**
Foreign exchange contracts						
Foreign exchange swaps	**-**	**-**	**-**	**-**	**-**	**-**
Forward foreign exchange	**-**	**-**	**-**	**-**	**-**	**-**
Total foreign exchange contracts	**-**	**-**	**-**	**-**	**-**	**-**
Other derivative contracts						
Equity swaps	**-**	**-**	**-**	**-**	**-**	**-**
Total other derivative contracts	**-**	**-**	**-**	**-**	**-**	**-**
Total derivative notional amounts	**2,491.7**	**12,258.2**	**1,966.4**	**809.9**	**98.9**	**17,625.1**

2017	< 1 year £m	≥ 1 year to < 5 years £m	≥ 5 years to < 10 years £m	≥ 10 years to < 20 years £m	≥ 20 years £m	Total £m
Interest rate contracts						
Interest rate swaps	1,667.7	11,383.8	1,141.7	724.2	221.6	15,139.0
Currency interest rate swaps	-	-	-	-	-	-
Caps	-	2.6	33.5	-	-	36.1
Total interest rate contracts	1,667.7	11,386.4	1,175.2	724.2	221.6	15,175.1
Foreign exchange contracts						
Foreign exchange swaps	19.7	-	-	-	-	19.7
Forward foreign exchange	9.4	-	-	-	-	9.4
Total foreign exchange contracts	29.1	-	-	-	-	29.1
Other derivative contracts						
Equity swaps	-	-	-	-	-	-
Total other derivative contracts	-	-	-	-	-	-
Total derivative notional amounts	1,696.8	11,386.4	1,175.2	724.2	221.6	15,204.2

Table 27 - Derivative counterparty credit risk by sector

	2018		2017	
	Credit risk post application of CRM £m	**% of portfolio**	Credit risk post application of CRM £m	% of portfolio
Sector				
Credit institutions	43.2	22.8	57.2	26.7
Other financial corporations	-	-	-	-
Sovereigns	-	-	-	-
Corporates	117.4	61.9	138.4	64.7
Central counterparties	29.1	15.3	18.3	8.6
Total	**189.7**	**100.0**	213.9	100.0

The counterparty credit risk to central counterparties is exposure to the London Clearing House (£29.1m).

Table 28 - Derivative counterparty credit risk by rating

	2018		2017	
	Credit risk post application of CRM £m	**% of portfolio**	Credit risk post application of CRM £m	% of portfolio
Credit rating				
AAA	-	-	-	-
AA+	-	-	-	-
AA	1.7	0.9	-	-
AA-	39.2	20.7	52.9	24.7
A+	-	-	0.7	0.3
A	2.3	1.2	3.6	1.7
A-	-	-	-	-
BBB+	-	-	-	-
Unrated	146.5	77.2	156.7	73.3
Total	**189.7**	**100.0**	213.9	100.0

The unrated exposure in the table above relates to the exposure to central counterparties and corporates as per Table 27. For the remaining derivatives the vast majority are rated AA-.

Table 29 - Derivative counterparty credit risk by country

	2018		2017	
	Credit risk post application of CRM £m	**% of portfolio**	Credit risk post application of CRM £m	% of portfolio
Country of incorporation				
Canada	-	-	-	-
Denmark	-	-	0.1	-
France	1.3	0.7	1.7	0.8
Germany	-	-	-	-
United Kingdom	183.5	96.7	207.4	97.0
USA	4.9	2.6	4.7	2.2
Total	**189.7**	**100.0**	213.9	100.0

Net counterparty credit risk exposure associated with OTC derivative transactions are concentrated primarily with counterparties incorporated in the UK at 96.7% of total exposure.

5.2.13 Impairment

Allowances for impairment relating to loans and advances to customers

The policy on impairment is described in the Accounting Policies section of the 2018 ARA. The allowance for impairment ties back to note 14 within the 2018 ARA.

The allowances for impairment within the corporate portfolio are across the corporate exposure classes for the Foundation IRB and Standardised Approaches. The allowances for impairment for retail exposures relate to retail secured by immovable property and the unsecured exposures within the qualifying revolving retail exposures and retail other non-SME exposure classes. With the exception of a small portfolio of personal career development loans, all retail exposures are treated under the retail IRB approach. Reductions in the specific retail impairments are a result of unsecured debt sales. In the Corporate portfolio it is largely the result of revaluations and balance attrition.

The EBA Credit Risk Adjustments Regulatory Technical Standard (RTS) specifies the criteria that need to be met for an allowance for impairments to be treated as a general provision. In particular, allowances for impairment need to cover 'credit risk losses that have not yet materialised' and for which there is 'currently no evidence that a loss event has occurred'. However, under IAS 39 banks were not permitted to book (individually assessed or collective) loss allowances unless there is 'objective evidence that a loss event has occurred'. Therefore, following on from the implementation of CRD IV, all of the Group's allowances for impairment had been classified as specific. This has not changed under IFRS9 as the EBA have provided guidance that they should remain as specific as the allowances for impairment under IFRS 9 will not be freely and fully available to meet losses that subsequently materialise, as these allowances for impairment are ascribed to particular assets, whether individual or grouped.

Table 30 - Allowance for impairment

2108 – IFRS 9	Specific retail £m	Specific corporate £m	Total £m
At the beginning of the year	49.1	30.9	**80.0**
IFRS 9 opening balance adjustment	(2.0)	2.9	**0.9**
IFRS 9 opening balance	47.1	33.8	**80.9**
Charge/(release) against profits	6.4	(8.1)	**(1.7)**
Asset de-recognised (write off)	(23.7)	(2.8)	**(26.5)**
Unwind of discount allowance	-	-	**-**
Merger fair value write off	-	-	**-**
At the end of the year	**29.8**	**22.9**	**52.7**

2017 – IAS 39	Specific retail £m	Specific corporate £m	Total £m
At the beginning of the year	73.8	48.5	122.3
Charge/(release) against profits	6.0	(2.3)	3.7
Amounts written off	(34.0)	(15.2)	(49.2)
Unwind of discount allowance	-	(0.1)	(0.1)
Merger fair value write off	3.3	-	3.3
At the end of the year	49.1	30.9	80.0

There has been a reduction in the overall level of impairment provisions from £80.0m to £52.7m, including the net impact of £0.9m increase on the adoption of IFRS 9. The reduction is driven primarily by debt sales on the unsecured book alongside further attrition activity on the corporate book.

Allowance for impairment relating to debt securities
In 2018, the result of the impairment review for debt securities showed no sign of impairment, as was the position in 2017.

Comparison of expected losses to accounting impairment losses
The following table compares expected losses on non-defaulted assets as at 31 December 2017 to the actual impairment charge/releases incurred during the subsequent year ending 31 December 2018.

Expected losses for exposures on the IRB approach are derived from underlying IRB models and are a function of estimated or regulatory defined PD, LGD and EAD. Expected losses for specialised lending are determined using pre-defined expected loss rates for each of the five PRA supervisory categories. Expected loss is not calculated for exposures on the Standardised Approach.

IRB models were further developed following Basel III requirements and are not directly comparable with accounting impairment losses. In particular expected loss calculations are based on long run estimates of PD and use economic downturn estimates of LGD. In addition, LGD represents the loss expectation until finalisation of the workout period while account impairment losses correspond to a single year.

Table 31 - Comparison of expected losses to impairment losses

2018	Expected losses on non-defaulted assets as at 31 December 2017 £m	Impairment (gains) /losses for 2018 £m
Exposure class		
IRB		
Institutions	0.6	-
Corporates – specialised lending	5.8	(8.2)
Corporates – other	1.1	(0.6)
Retail secured by immovable property	16.8	(0.2)
Qualifying revolving retail exposures	12.0	6.9
Retail other non-SME	3.1	(0.3)
Total IRB	**39.4**	**(2.4)**
Impairment charge on Standardised portfolios		0.7
Net gain to the income statements (for all portfolios)		**(1.7)**

2017	Expected losses on non-defaulted assets as at 31 December 2016 £m	**Impairment losses /(gains) for 2017 £m**
Exposure class		
IRB		
Institutions	0.2	-
Corporates – specialised lending	7.8	1.3
Corporates – other	1.5	(0.2)
Retail secured by immovable property	32.2	2.5
Qualifying revolving retail exposures	14.1	5.0
Retail other non-SME	4.3	(1.5)
Total IRB	60.1	7.1
Impairment losses on Standardised portfolios		(3.4)
Net charge to the income statements (for all portfolios)		3.7

Key impairments:

- Impairment for Retail secured by immovable property in 2018 is £0.2m release (2017: £2.5m charge) which is largely due to redemptions and release in interest only provision in the year, offset by increases in provision to reflect the growth in the Platform portfolio
- Qualifying revolving retail exposures charge of £6.9m in 2018 is adverse from the previous year (2017: £5.0m) due to losses in 2017 suppressed as a result of credit card and overdraft bulk debt sales which generated a gain.
- A release of £0.3m is reported for Retail other non-SME exposures. This is driven by a gain as a result of the unsecured loan debt sale.
- Specialised lending impairment release of £8.2m is driven by a significant writeback in the year (£8.4m) relating to a single borrower as a result of material improvements in the underlying asset value.

5.2.14 Securitisations

The Bank acts as an investor, originator, sponsor, cash manager, servicer/administrator, subordinated loan provider and the liquidity facility provider in securitisation transactions. Securitisations can take the form of traditional or synthetic securitisations and the Bank no longer has any synthetic securitisations and holds no revolving exposures.

Investments in securitisations

All securitisation exposures are to UK residential mortgages and reflect the retained elements of securitisations of mortgages either originated or acquired by the Bank. There are no securitised revolving exposures. The current total exposure of £0.5bn (2017: £0.9bn) relates to retained holdings of Residential Mortgage Backed Securities (RMBS) issued by the Warwick Finance One, Two and Three Special Purpose Entities (SPEs).

Securitisations can take the form of traditional or synthetic securitisations and the Bank no longer has any synthetic securitisations.

No active trading book in RMBS is run. However, the retained notes may be sold or used as collateral for short term borrowing (repos) in response to needs for liquidity. Given that transacting in this type of asset is not within the normal scope of business activity, each purchase is individually agreed by ALCo and a maximum notional limit set.

RMBS positions held may give rise to credit risk and market risk. Credit risk is the risk that the SPEs will fail to meet interest and principal payment obligations as and when they fall due. Given the majority of the securitisation investments are in senior, highly rated securitisation positions, this risk is not significant. Market risk is the risk of losses that may be suffered due to fluctuations in credit spreads, interest rates, foreign currency rates and any other market implied volatility.

The Treasury Risk function acts as a second line of defence in monitoring and reporting changes in the credit and market risk profile of RMBS exposure, with external market analysis being supplemented by discussions with the portfolio manager (Treasury - 1st line of defence).

The external ratings based method for calculating risk weighted exposures is applied, where risk weight percentages are applied to each deal depending on the external rating, seniority and granularity of the instrument and multiplying the result by a factor of 1.06. Notwithstanding the risk banding allocation, all transactions where no value adjustment is held continue to meet their payment obligations. As at 31 December 2018, none of the Bank's securitisation positions were past due or impaired.

Under Article 409, the Bank is required to disclose that the minimum 5% holding for the Warwick One, Two and Three securitisation (Article 405) is being met by the Bank's holding of 5% of the Warwick Three notes and through the retention of a minimum of 5% of the Warwick Two and Three original pool of mortgage balances on its balance sheet.

The table below shows the EAD and capital requirement broken down by external ratings grade. Capital requirement is shown net of provisions.

There are no exposures to re-securitisations and no securitisation positions are hedged.

Table 32 - Securitisation exposure by rating grade

2018	Credit quality step	Senior and granular EAD £m	Senior and granular Capital requirement £m	Non senior and granular EAD £m	Non senior and granular Capital requirement £m	Non senior and non granular EAD £m	Non senior and non granular Capital requirement £m
AAA or A1/P1	1	406.1	2.4	-	-	-	-
AA	2	63.8	0.4	5.2	0.1	-	-
A+	3	-	-	6.5	0.1	-	-
A or A2/P2	4	-	-	-	-	-	-
A-	5	-	-	-	-	-	-
BBB+	6	-	-	-	-	-	-
BBB	7	-	-	3.2	0.2	-	-
BBB-	8	-	-	-	-	-	-
BB+	9	-	-	-	-	-	-
BB	10	-	-	1.8	0.7	-	-
BB-	11	-	-	-	-	-	-
Rated below BB- or A3/P3	12	-	-	5.4	5.7	-	-
Total		**469.9**	**2.8**	**22.1**	**6.8**	**-**	**-**

2017	Credit quality step	Senior and granular EAD £m	Senior and granular Capital requirement £m	Non senior and granular EAD £m	Non senior and granular Capital requirement £m	Non senior and non granular EAD £m	Non senior and non granular Capital requirement £m
AAA or A1/P1	1	825.9	4.9	-	-	-	-
AA	2	73.7	0.5	5.9	0.1	-	-
A+	3	-	-	6.6	0.1	-	-
A or A2/P2	4	-	-	-	-	-	-
A-	5	-	-	-	-	-	-
BBB+	6	-	-	-	-	-	-
BBB	7	-	-	3.2	0.2	-	-
BBB-	8	-	-	-	-	-	-
BB+	9	-	-	-	-	-	-
BB	10	-	-	1.8	0.7	-	-
BB-	11	-	-	-	-	-	-
Rated below BB- or A3/P3	12	-	-	6.4	6.7	-	-
Total		899.6	5.4	23.9	7.8	-	-

Ratings are based upon external credit ratings from nominated ECAIs.

Exposures have decreased, year on year, due to the sales and quarterly paydowns of the Warwick One and Two notes (£0.4bn).

Securitisation positions are risk weighted within credit quality step 12 at 1,250% rather than deducting from capital; CRD IV allows either treatment. Currently there are no outstanding assets awaiting securitisation.

Originated securitisations

Traditional securitisation structures have been established as part of funding and Optimum deleveraging activities, using residential mortgage loans as the underlying asset pools.

Securitisation funding transactions (Silk Road RMBS) provide funding diversity. However, the majority of the risks and rewards in respect of the underlying mortgage loan pools are retained with the Bank for funding securitisation structures. For such structures, where risks and rewards of the underlying mortgages are retained, the corresponding SPEs are included as subsidiaries in the consolidated financial statements, with the securitised assets continuing to be recognised as loans and advances to customers on the balance sheet, and income from the securitised assets being recognised as income.

The Bank acts as the mortgage originator, sponsor, seller and cash manager in respect of its own traditional funding securitisations. No bridging loans are provided, nor is any activity in underwriting or dealing in these securitisations undertaken. All transactions are approved at Board level and benefit from relevant accounting and legal advice to ensure compliance with regulatory and statutory requirements. Furthermore, no implicit support is provided for securitisations.

As at 31 December 2018, there were no securitisation funding transactions or Credit Linked Notes outstanding that were sold to third party investors.

The table below discloses 'first loss pieces' (general reserve fund) for retained securitisation transactions, at the balance sheet dates, which are funded by the subordinated Notes.

Table 33 - Originated on balance sheet securitisation exposures

	Retained notes initial percentage	Initial funded amount £m	2018 Value £m	2017 Value £m
First loss piece				
Silk Road Finance Number Four plc	**100.0**	**34.6**	**34.6**	34.6
Total		**34.6**	**34.6**	34.6

Detailed disclosures around the remaining active funding securitisation (Silk Road Finance Number Four plc) are published monthly on the Bank's website:
www.co-operativebank.co.uk/investorrelations.

Warwick SPEs are not consolidated within Group's financial statements and the underlying (former Optimum) mortgages are de-recognised. On that basis Warwick Finance One, Two, and Three have been excluded from Table 33. Any investment in Warwick Finance One, Two or Three Notes or residual position notes is detailed in Table 32.

Exposures securitised by the Bank within traditional securitisations as at 31 December 2018 totalled £797.9m (2017: £1,320.2m), all sitting within the retail secured by immovable property exposure class. Of these exposures, £0.8m (2017: £1.4m) were classed as impaired, with £1.5m (2017: £0.4m) of past due exposures. Losses associated with these exposures recognised in the year were £0.3m (2017: £0.2m).

5.3 Liquidity and funding risk

Liquidity and funding risk is the risk that obligations as they fall due are unable to be met, or can only be met at excessive cost. The aim is to maintain liquidity risk compliance via the holding of an appropriate quantum and composition of liquid assets.

For further details of the management of liquidity and funding risk see the risk management section 5 within the 2018 ARA.

5.3.1 Asset encumbrance

An asset is defined as encumbered if it has been pledged as collateral against an existing liability or to collateralise an exposure that the Group may have, restricting access to that asset in the event of resolution or bankruptcy. An encumbered asset would be no longer available to the Group for use in secured funding, to satisfy collateral needs or to be sold to reduce the funding requirement.

The Bank uses encumbrance primarily as part of its funding strategy. Other business uses include collateral to support services to the Bank.

Encumbrance per the below table is calculated on a median basis in line with EBA guidelines:

Table 34 - Encumbered and non-encumbered assets by balance sheet category

2018	Carrying amount of encumbered assets £m	Fair value of encumbered assets £m	Carrying amount of unencumbered assets £m	Fair value of unencumbered assets £m
		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA
Assets of the reporting institution	**4,646.6**		**19,014.2**	
Equity instruments	-		27.8	
Debt securities	896.8	896.8	1,206.5	1,206.5
of which: covered bonds	-	-	-	-
of which: asset backed securities	245.5	245.5	395.6	395.6
of which: issued by general governments	705.1	705.1	380.8	380.8
of which: issued by financial corporations	245.5	245.5	818.6	818.6
of which: issued by non financial corporations	-	-	-	-
Other assets	-		1,804.6	

2018	Fair value of encumbered collateral received or own debt securities issued £m	Fair value of unencumbered collateral received or own debt securities issued £m
Collateral received by the reporting institution	**-**	**99.8**
Loans on demand	**-**	**-**
Equity instruments	**-**	**-**
Debt securities	**-**	**99.8**
of which: covered bonds	**-**	**-**
of which: asset backed securities	**-**	**-**
of which: issued by general governments	**-**	**99.8**
of which: issued by financial corporations	**-**	**-**
of which: issued by nonfinancial corporations	**-**	**-**
Loans and advances other than own covered bonds or asset backed securities	**-**	**-**
Other collateral received	**-**	**-**
Own debt securities issued other than own covered bonds or asset backed securities	**-**	**-**
Own covered bonds and asset backed securities issued and not yet pledged	**-**	**-**
Total assets, collateral received and own debt securities lent	**4,646.6**	**-**

2018	Matching liabilities, contingent liabilities or securities lent £m	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered £m
Carrying amount of selected financial liabilities	**2,371.7**	**3,603.8**

2017	Carrying amount of encumbered assets £m	Fair value of encumbered assets £m	Carrying amount of unencumbered assets £m	Fair value of unencumbered assets £m
Assets of the reporting institution	3,849.6		21,183.9	
Equity instruments	-	-	25.8	25.8
Debt securities	1,393.3	1,393.3	1,149.7	1,149.7
Other assets	-		746.6	

2017	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered
Carrying amount of selected financial liabilities	1,925.2	2,804.5

There has been a limited increase in encumbrance values from £3.9bn to £4.6bn.

The encumbered assets captured above relate to median values over the last 4 quarters. The median based encumbrance ratio for 2018 is 19.9% (2017: 15.1%).

5.4 Market risk

Market risk is the risk of loss as a result of the value of financial assets or liabilities (including off-balance sheet instruments) being adversely affected by movements in market rates or prices. This loss can be reflected in the near term earnings by changing net interest income, or in the longer term because of changes in the economic value of future cash flows. The aim is to hold, as a minimum, the amount of capital that is deemed necessary to support the level of market risk exposure and the future financial performance.

The Bank does not have any Pillar 1 market risk as it has no trading book.

For further details of the management of market risk see the risk management section 4 of the 2018 Annual Report and Accounts.

5.5 Operational risk

5.5.1 Overview

Operational risk is the risk of loss resulting internally from inadequate and failed processes, people or systems or from external events.

Various sub categories of operational risk are assessed. These are listed in the risk management section 1.4 within the 2018 Annual Report and Accounts. The management of Operational risk is discussed within section 1.1-1.5 of the risk management section of the 2018 Annual Report and Accounts 2018.

The calculation of operational risk RWAs is detailed further in section 1.8 of the risk management section of the Annual Report and Accounts 2018.

5.5.2 Operational Risk Framework

The management of operational risk is designed to assist in the understanding of operations in the context of a Board approved risk appetite, particularly with regard to meeting regulatory expectations and reducing operational losses. The approved operational risk framework has been in place since early 2013 and continues to be embedded in line with good practice and regulatory guidance. This framework is designed to provide assurance over the system of risk management and internal control. Methods and approaches continue to be embedded within the business and there is significant focus on this activity. This is supported by the implementation of a revised Operational Risk Management System (ORMS) which was implemented in 2016 and has been further developed to store and report on operational loss data.

Operational risks are identified, managed and mitigated through ongoing risk management practices including material Group level risk assessments, risk event reporting, internal operational loss data analysis, a detailed Risk and Control Self Assessment (RCSA) process, a consistently applied risk acceptance process, monitoring of key metrics, scenario analysis, external risk event benchmarking and continuous training. Material operational risks are reported through an appropriate governance structure with regular meetings to monitor the development and effectiveness of the operational risk processes and material risks.

During 2018 operational risk processes have continued to be strengthened, however operational risk levels remain elevated due to legacy manual processes and systems for which remediation continues. Focus through 2019 will be to ensure robust operational risk and control activities remain an integral part of business as usual (BAU) activities. Further information can be found in the risk management (in particular, the principal risks and uncertainties) sections 1.1-1.6 of the 2018 Annual Report and Accounts.

The below analysis presents operational risk events by Basel Level 1 risk event category as this aligns with industry best practice.

Table 35 - Operational net losses

Risk events: net losses (as a % of total)	2018	2017
Business disruption and system failures	**<1%**	<1%
External fraud	**51.4%**	71.7%
Execution, delivery and process management	**14.2%**	20.9%
Internal fraud	**<1%**	<1%
Damage to physical assets and injury	**<1%**	<1%
Clients, products and business practices	**34.4%**	7.0%
Employment practices and workplace safety	**<1%**	<1%

Number of risk events (as a % of total)	2018	2017
Business disruption and system failures	**<1%**	<1%
External fraud	**66.9%**	59.8%
Execution, delivery and process management	**32.9%**	40.1%
Internal fraud	**<1%**	<1%
Damage to physical assets and injury	**<1%**	<1%
Clients, products and business practices	**<1%**	<1%
Employment practices and workplace safety	**<1%**	<1%

In 2018 external fraud accounted for 51.4% of the total net losses and 66.9% of the number of individual events. These events were driven by financial crime and include credit and debit card fraud, malware attacks, phishing, cheque fraud and mortgage fraud.

In 2018, clients, products and business practices accounted for 34.4% of the total net losses and less than 1% of the number of events. This is due to a large provision for customer redress relating to incorrect product documentation.

In 2018, execution, delivery and process management accounted for 14.2% of total net losses and 32.9% of the number of individual events.

As part of the process a review and analysis of risk events is performed to ensure that any required improvements to processes and/or controls and any learnings are implemented in order to help prevent reoccurrence. Other activities driven by risk events and losses include a strengthening of the 1st line process to carry out root cause analysis and continuous improvement to the control environment through management of the RCSA. Root cause analysis must be performed on all risk events with those categorised as 'Major' or above in severity discussed at governance committees.

5.5.3 Corporate insurance programme

The Bank has a structured programme designed to transfer the impact of specific operational risks in line with the appetite of the organisation and industry best practice. For example:

- Insurance of buildings and assets;
- Protection and revenue in the event of business interruption following damage to buildings or assets;
- Protection against impacts of financial crime;
- Professional indemnity and directors and officers liability cover;
- Motor, employer, product and public liability insurance;
- Pension trustee liability insurance; and
- Travel and personal accident insurance.

5.6 Other risks

For further details of the management of other significant risks see the risk management sections 1.1-1.5 and relevant notes of the 2018 Annual Report and Accounts.

Appendix 1 – Capital resources

The following table sets out full details of the Group's capital resources, regulatory adjustments, capital ratios and buffers:

	2018 £m	2017 £m
Common Equity Tier 1 (CET1) Capital: instruments and reserves		
Capital instruments and the related share premium accounts	**314.7**	314.7
of which: Instrument type 1	**-**	-
of which: Instrument type 2	**-**	-
of which: Instrument type 3	**-**	-
Retained earnings	**(1,092.8)**	(1,315.1)
Accumulated other comprehensive income (and other reserves)	**2,596.9**	2,273.3
Amount of qualifying items referred to in Article 484(3) and the related share premium accounts subject to phase out from CET1	**-**	-
Minority interests (amount allowed in consolidated CET1)	**-**	-
Independently reviewed interim profits net of any foreseeable charge or dividend	**-**	232.7
Common Equity Tier 1 (CET1) capital before regulatory adjustments	**1,818.8**	1,505.6
Common Equity Tier 1 (CET1) capital: regulatory adjustments		
Additional value adjustments (negative amount)	**(2.4)**	(1.5)
Intangible assets (net of related tax liability) (negative amount)	**(72.4)**	(81.5)
Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38(3) are met) (negative amount)	**(37.1)**	(4.2)
Fair value reserves related to gains or losses on cash flow hedges	**(20.0)**	(29.9)
Negative amounts resulting from the calculation of expected loss amounts	**(22.5)**	(14.5)
Any increase in equity that results from securitised assets (negative amount)	**-**	-
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	**-**	-
Defined benefit pension fund assets (negative amount)	**(467.7)**	(118.3)
Direct and indirect holdings by an institution of own CET1 instruments (negative amount)	**-**	-
Direct, indirect and synthetic holdings of the CET1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	**-**	-
Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	**-**	-
Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	**-**	-
Exposure amount of the following items which qualify for a RW of 1,250%, where the institution opts for the deduction alternative	**-**	-
of which: qualifying holdings outside the financial sector (negative amount)	**-**	-
of which: securitisation positions (negative amount)	**-**	-
of which: free deliveries (negative amount)	**-**	-
Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability where the conditions in Article 38(3) are met) (negative amount)	**-**	-
Amount exceeding the 15% threshold (negative amount)	**-**	-
of which: 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	**-**	-
of which: deferred tax assets arising from temporary differences	**-**	-
Losses for the current financial year (negative amount)	**(68.7)**	-
Foreseeable tax charges relating to CET1 items (negative amount)	**-**	-
Regulatory adjustments applied to CET1 in respect of amounts subject to pre-CRR treatment	**-**	-
Regulatory adjustments relating to unrealised gains and losses pursuant to Articles 467 and 468	**-**	-
of which: filter for unrealised loss 1	**-**	-
of which: filter for unrealised loss 2	**-**	-
of which: filter for unrealised gain 1	**-**	-
of which: filter for unrealised gain 2	**-**	-
Amount to be deducted from or added to Common Equity Tier 1 capital with regard to additional filters and deductions required pre CRR	**-**	-
Qualifying AT1 deductions that exceed the AT1 capital of the institution (negative amount)	**-**	-

	2018 £m	2017 £m
Total regulatory adjustments to Common Equity Tier 1 (CET1)	**(690.8)**	(249.9)
Common Equity Tier 1 (CET1) capital	**1,128.0**	1,255.7
Additional Tier 1 (AT1) capital: instruments		
Capital instruments and the related share premium accounts	-	-
of which: classified as equity under applicable accounting standards	-	-
of which: classified as liabilities under applicable accounting standards	-	-
Amount of qualifying items referred to in Article 484(4) and the related share premium accounts subject to phase out from AT1	-	-
Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5) issued by subsidiaries and held by third parties	-	-
of which: instruments issued by subsidiaries subject to phase out	-	-
Additional Tier 1 (AT1) capital before regulatory adjustments	-	-
Additional Tier 1 (AT1) capital: regulatory adjustments	-	
Direct and indirect holdings by an institution of own AT1 instruments (negative amount)	-	-
Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	-
Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above10% threshold and net of eligible short positions) (negative amount)	-	-
Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	-	-
Qualifying T2 deductions that exceed the T2 capital of the institution (negative amount)	-	-
Total regulatory adjustments to Additional Tier 1 (AT1) capital	-	-
Additional Tier 1 (AT1) capital	**-**	-
Tier 1 capital (T1 = CET1 + AT1)	**1,128.0**	1,255.7
Tier 2 (T2) capital: instruments and provisions		
Capital instruments and the related share premium accounts	-	-
Amount of qualifying items referred to in Article 484(5) and the related share premium accounts subject to phase out from T2	-	-
Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties	-	-
of which: instruments issued by subsidiaries subject to phase out	-	-
Credit risk adjustments	-	-
Tier 2 (T2) capital before regulatory adjustments	-	-

	2018 £m	2017 £m
Tier 2 (T2) capital: regulatory adjustments	**-**	-
Direct and indirect holdings by an institution of own T2 instruments and subordinated loans (negative amount)	**-**	-
Holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	**-**	-
Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	**-**	-
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) (negative amount)	**-**	-
Total regulatory adjustments to Tier 2 (T2) capital	**-**	-
Tier 2 (T2) capital	-	-
Total capital (TC = T1 + T2)	**1,128.0**	1,255.7
Total risk weighted assets	**5,053.5**	5,085.6
Capital ratios and buffers		
Common Equity Tier 1 (as a percentage of total risk exposure amount)	**22.3%**	24.7%
Tier 1 (as a percentage of total risk exposure amount)	**22.3%**	24.7%
Total capital (as a percentage of total risk exposure amount)	**22.3%**	24.7%
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 systemically important institution buffer expressed as a percentage of risk exposure amount)	**7.4%**	5.8%
of which: capital conservation buffer requirement[1]	**1.9%**	1.3%
of which: countercyclical buffer requirement	**1.0%**	-
of which: systemic risk buffer requirement	**-**	-
of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer	**-**	-
Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)	**14.3%**	16.7%
Amounts below the thresholds for deduction (before risk weighting)		
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)	**26.0**	26.2
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)	**-**	6.3
Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability where the conditions in Article 38(3) are met)	**83.6**	40.0
Applicable caps on the inclusion of provisions in Tier 2		
Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)	**-**	-
Cap on inclusion of credit risk adjustments in T2 under standardised approach	**7.2**	8.3
Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	**-**	-
Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	**22.7**	21.5
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2014 and 1 Jan 2022)		
Current cap on CET1 instruments subject to phase out arrangements	**-**	-
Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	**-**	-
Current cap on AT1 instruments subject to phase out arrangements	**-**	-
Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	**-**	-
Current cap on T2 instruments subject to phase out arrangements	**-**	-
Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	**-**	-

1. Unrounded, the capital conservation buffer requirement is 1.875% (2017: 1.25%)

Appendix 2 – Individual disclosure tables

The following tables present the disclosures required for the Bank Company on an individual basis. The differences between the Group and the Bank Company disclosures relate primarily to differences in equity, as well as exposures held by subsidiaries of the Bank Company.

Table 36 - Total capital resources

	2018 £m	2017 £m
Common Equity Tier 1 (CET1): instruments and reserves		
Permanent share capital and the related share premium account	2,442.5	2,442.5
Retained earnings	(1,521.1)	(1,547.2)
FVOCI/Available for sale and cash flow hedge reserves	33.9	54.7
Defined benefit pension reserve	415.5	70.8
Other reserves[1]	410.0	410.0
Independently reviewed interim profits net of any foreseeable charge or dividend	-	32.8
CET1 before regulatory adjustments	**1,780.8**	1,463.6
CET1: regulatory adjustments		
Prudent valuation	(2.6)	(1.5)
Intangible assets (net of related tax liability)	(72.4)	(81.5)
Defined benefit pension asset net of associated deferred tax liabilities	(467.6)	(118.3)
Deferred tax assets not arising from temporary differences	(33.9)	-
Cash flow hedge reserves	(20.0)	(29.9)
Expected loss shortfall	(22.0)	(14.1)
Loss for the year	(73.8)	-
Total regulatory adjustments to CET1	**(692.3)**	(245.3)
CET1	**1,088.5**	1,218.3
Additional Tier 1 (AT1) capital: instruments		
Total regulatory adjustments to AT1 capital	**-**	-
Total Tier 1 capital (T1 = CET1 + AT1)	**1,088.5**	1,218.3
Tier 2 (T2) capital: instruments and provisions		
Capital instruments	-	-
Credit risk adjustments	-	-
T2 capital before regulatory adjustments	**-**	-
Total regulatory adjustments to T2 capital	**-**	-
T2 capital	**-**	-
Total capital (TC = T1 + T2)	**1,088.5**	1,218.3

1. Other reserves represent the £410m capital redemption reserve created as a result of the Bank's Liability Management Exercise (LME) in 2013.

Refer to Table 5 for the equivalent disclosure on the Group basis.

Table 37 - Reconciliation of capital resources to statutory balance sheet

Balance sheet presentation	Balance per accounts £m	Regulatory presentation	Regulatory balance treatment £m	Cash flow hedge reserve £m	Defined benefit pension asset[1] £m	Regulatory treatment of deferred tax assets £m	Expected losses £m	Prudent valuation £m	Capital resources £m
		Equity							
Ordinary share capital	**25.6**	Paid up capital instruments	25.6	-	-	-	-	-	**25.6**
Share premium account	**2,416.9**	Share premium	2,416.9	-	-	-	-	-	**2,416.9**
Retained earnings	**(1,594.9)**	Retained earnings	(1,521.1)	-	-	-	-	-	**(1,521.1)**
		Regulatory profits for the year	(73.8)	-	-	-	-	-	**(73.8)**
FVOCI reserve	**13.9**	Available for sale reserve	13.9	-	-	-	-	-	**13.9**
Cash flow hedging reserve	**20.0**	Cash flow hedging reserve	20.0	(20.0)	-	-	-	-	**-**
Defined benefit pension reserve	**415.5**	Defined benefit pension reserve	415.5	-	(467.6)	-	-	-	**(52.1)**
Capital redemption reserve	**410.0**	Other reserves	410.0	-	-	-	-	-	**410.0**
		Total equity	**1,707.0**	**(20.0)**	**(467.6)**	**-**	**-**	**-**	**1,219.4**
		Non-equity							
Intangible assets	**(72.4)**	Intangible assets (net of related tax liability)	(72.4)	-	-	-	-	-	**(72.4)**
Deferred tax assets	**-**	Deferred tax assets arising from temporary differences	-	-	(33.9)	-	-	-	**(33.9)**
Credit risk adjustment[2]	**44.7**	Expected loss shortfall	44.7	-	-	-	(66.7)	-	**(22.0)**
		Prudent valuation	-	-	-	-	-	(2.6)	**(2.6)**
		Total non-equity	**(27.7)**	**-**	**(33.9)**	**-**	**(66.7)**	**(2.6)**	**(130.9)**
		Total balances subject to own funds calculations	**1,679.3**	**(20.0)**	**(501.5)**	**-**	**(66.7)**	**(2.6)**	**1,088.5**

1. Net of associated deferred tax liabilities
2. Credit risk adjustment is made up of impairment provision and credit related fair value adjustments, specifically for exposures calculated under the IRB approach to credit risk which are applicable for the calculation of expected loss shortfall per CRR. Therefore the impairment provision number included in the table above relates to IRB exposures only, and is a subset of the Group's total impairment and fair value.

Refer to Table 7 for the equivalent disclosure on the Group basis.

Table 38 - Leverage ratio common disclosure

		2018 £m	2017 £m
	On-balance sheet exposures (excluding derivatives and SFTs)		
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	**23,055.0**	24,254.1
2	(Asset amounts deducted in determining Tier 1 capital)	**(618.5)**	(245.3)
3	**Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)**	**22,436.5**	24,008.8
	Derivative exposures		
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	**112.0**	132.5
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	**40.8**	34.1
EU-5a	Exposure determined under Original Exposure Method	**-**	-
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	**205.6**	242.2
7	(deductions of receivables assets for cash variation margin provided in derivatives transactions)	**-**	-
8	(Exempted CCP leg of client-cleared trade exposures)	**-**	-
9	Adjusted effective notional amount of written credit derivatives	**-**	-
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	**-**	-
11	**Total derivative exposures**	**358.4**	408.8
	Securities financing transaction exposures		
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	**626.6**	1,824.9
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	**(568.8)**	(1,718.0)
14	Counterparty credit risk exposure for SFT assets	**17.1**	84.2
EU-14a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 429b(4) and 222 of Regulation EU No 575/2013	**-**	-
15	Agent transaction exposures	**-**	-
EU-15a	(Exempted CCP leg of client-cleared SFT exposure)	**-**	-
16	**Total securities financing transaction exposures**	**74.9**	191.1
	Other off-balance sheet exposures		
17	Off-balance sheet exposures at gross notional amount	**2,135.4**	2,278.6
18	(Adjustments for conversion to credit equivalent amounts)	**(1,184.2)**	(1,301.9)
19	**Total off-balance sheet exposures**	**951.2**	976.7
	Exempted exposures in accordance with CRR Article 429(7) and (14) (on and off balance sheet)		
EU-19a	(Exemption of intragroup exposures (solo basis) in accordance with Article 429(7) of Regulation EU No 575/2013 (on and off balance sheet))	-	-
EU-19b	(Exposures exempted in accordance with Article 429(14) of Regulation EU No 575/2013 (on and off balance sheet))	-	-
	Capital and total exposures		
20	**Tier 1 capital**	**1,088.5**	1,218.3
21	**Total leverage ratio exposures**	**23,821.0**	25,585.4
	Leverage ratio		
22	**Leverage ratio**	**4.6%**	4.8%
	Choice on transitional arrangements and amount of derecognised fiduciary items		
EU-23	Choice on transitional arrangements for the definition of the capital measure	**-**	-
EU-24	Amount of derecognised fiduciary items in accordance with Article 429(11) or Regulation (EU) No 575/2013	**-**	-

The leverage ratio has been calculated using the exposure basis within the European Commission delegated act.

Table 38a - Leverage ratio common qualitative disclosure

1	**Description of the processes used to manage the risk of excessive leverage**
	The Bank Company is not subject to a regulatory minimum in relation to the leverage ratio, although monitoring of the leverage ratio remains embedded in the Bank's internal planning and reporting processes. The leverage ratio is part of the risk appetite framework, is reported in management information provided to the Asset and Liability Committee is a key consideration in the financial planning process. Additionally, the leverage ratio is stress-tested as part of the ICAAP.
2	**Description of the factors that had an impact on the leverage ratio during the period to which the disclosed leverage ratio refers**
	The leverage ratio is 4.6%, compared to 4.7% on the Group basis. For further details see the Group basis.

Refer to Tables 12 and 12a for the equivalent disclosure on the Group basis.

Table 39 - Summary reconciliation of accounting assets and leverage ratio exposures

		2018 £m	2017 £m
1	Total assets as per published financial statements	**24,998.6**	26,899.7
2	Adjustments for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	**-**	-
3	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio exposure measure in accordance with Article 429(13) of Regulation (EU) No 575/2013 “CRR”)	**-**	-
4	Adjustments for derivative financial instruments	**192.9**	211.4
5	Adjustment for securities financing transactions “SFTs”	**74.9**	191.1
6	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	**951.2**	976.7
EU-6a	(Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429(7) of Regulation (EU) No 575/2013)	**-**	-
EU-6b	(Adjustment for exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (14) of Regulation (EU) No 575/2013)	**-**	-
7	Other adjustments	**(2,396.6)**	(2,693.5)
8	**Total Leverage ratio exposure**	**23,821.0**	25,585.4

Refer to Table 13 for the equivalent disclosure on the Group basis.

Table 40 - Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)

		2018 £m	2017 £m
EU-1	**Total on-balance sheet exposures (Excluding derivatives, SFTs and exempted exposures) of which:**	**23,055.0**	24,254.1
EU-2	Trading book exposures	**-**	-
EU-3	**Banking book exposures, of which:**	**23,055.0**	24,254.1
EU-4	Covered bonds	**-**	-
EU-5	Exposures treated as sovereigns	3,302.2	5,482.8
EU-6	Exposures to regional governments, MDB, international organisations and PSE NOT treated as sovereigns	12.3	14.9
EU-7	Institutions	171.8	196.5
EU-8	Secured by mortgages of immovable properties	16,052.8	14,772.1
EU-9	Retail exposures	472.1	556.4
EU-10	Corporate	1,221.5	1,524.6
EU-11	Exposures in default	189.6	138.2
EU-12	Other exposures (e.g. equity, securitisations, and other non-credit obligation assets)	1,632.7	1,568.6

Refer to Table 14 for the equivalent disclosure on the Group basis.

Table 41 - Pillar 1 capital requirements

2018	Capital requirement £m	RWA £m	EAD £m	Average risk weight %	Average EAD[1] £m
Institutions	5.9	74.2	171.8	43%	240.4
Corporates – specialised lending	44.5	556.0	742.6	75%	806.7
Corporates – other	26.4	329.9	535.3	62%	634.5
Retail secured by immovable property	170.8	2,135.0	16,854.3	13%	16,140.6
Qualifying revolving retail exposures	29.7	370.7	1,614.3	23%	1,705.7
Retail other non-SME	4.7	58.2	67.5	86%	99.6
Securitisation positions	9.6	119.5	492.0	24%	752.4
NCO	7.4	91.9	106.1	87%	21.2
Total IRB	**299.0**	**3,735.4**	**20,583.9**	**18%**	**20,401.1**
Standardised exposure class					
Central governments or central banks	-	-	2,859.7	-	4,031.2
Regional governments or local authorities	-	0.5	2.5	20%	2.4
Public sector entities	0.2	2.0	55.5	4%	29.2
Multilateral development banks	-	-	435.7	-	393.7
Institutions	2.6	32.2	71.4	45%	75.8
Corporates	13.8	172.9	187.1	92%	209.0
Retail exposures	3.5	44.3	59.0	75%	60.2
Secured by mortgages on immovable property[2]	-	0.1	0.1	35%	0.1
Exposures in default	0.4	5.5	5.3	104%	7.8
Equity exposures	11.5	142.6	75.9	188%	77.4
Other items[3]	31.0	387.9	263.0	148%	391.1
Total Standardised	**63.0**	**788.0**	**4,015.2**	**20%**	**5,277.9**
Total credit risk	**362.0**	**4,523.4**	**24,599.1**	**18%**	**25,679.0**
Total market risk	**-**	**-**	**N/A**	**N/A**	**N/A**
Operational risk	**38.5**	**480.9**	**N/A**	**N/A**	**N/A**
Total Pillar 1	**400.5**	**5,004.3**	**N/A**	**N/A**	**N/A**

2017	Capital requirement £m	RWA £m	EAD £m	Average risk weight %	Average EAD[1] £m
Institutions	15.1	188.9	329.6	57%	286.3
Corporates – specialised lending	54.5	680.4	883.7	77%	971.5
Corporates – other	32.0	400.5	686.9	58%	832.4
Retail secured by immovable property	135.0	1,687.9	15,515.3	11%	15,862.8
Qualifying revolving retail exposures	28.0	350.4	1,773.7	20%	1,852.9
Retail other non-SME	9.6	119.9	133.4	90%	159.9
Securitisation positions	13.2	165.3	923.5	18%	1,994.5
Total IRB	287.4	3,593.3	20,246.1	18%	21,960.3
Standardised exposure class					
Central governments or central banks	-	-	5,153.5	-	3,926.6
Regional governments or local authorities	-	0.5	2.6	20%	2.8
Public sector entities	0.2	2.5	12.4	20%	14.5
Multilateral development banks	-	-	329.3	-	439.3
Institutions	2.8	34.4	86.3	40%	69.3
Corporates	19.5	242.8	242.8	100%	331.1
Retail exposures	3.7	46.8	62.4	75%	61.8
Secured by mortgages on immovable property[2]	-	0.1	0.1	35%	0.1
Exposures in default	0.7	8.8	8.4	103%	16.0
Equity exposures	11.2	139.5	76.5	182%	104.6
Other items[3]	29.3	366.5	329.7	111%	488.6
Total Standardised	67.4	841.9	6,304.0	13%	5,454.7
Total credit risk	354.8	4,435.2	26,550.1	17%	27,415.0
Total market risk	-	-	N/A	N/A	N/A
Operational risk	44.1	550.8	N/A	N/A	N/A
Total Pillar 1	398.9	4,986.0	N/A	N/A	N/A

1. The average EAD is defined as the mean average EAD across the 5 quarter ends from December 2016 to December 2017 for 2017 and December 2017 to December 2018 for 2018.
2. The Standardised retail secured by mortgages on immovable property class contains a small number of legacy mortgages not included within the IRB portfolio. The 35% RW% is accurate however due to the small level of exposure rounded values do not allow the arithmetic calculation in the table.
3. 'Other items' relates to accounting adjustments applied to customer balances and investments, and non-customer related assets on the balance sheet (e.g. cash, property plant & equipment, tax).

Refer to table 8 for the equivalent disclosure on the Group basis.

Table 42 - Analysis of EAD by residual contractual maturity and exposure class

2018	Repayable on demand / undated £m	Up to 1 year £m	1-5 years £m	5-10 years £m	10-20 years £m	>20 years £m	Total £m
IRB							
Institutions	**135.5**	**35.0**	**-**	**1.3**	**-**	**-**	**171.8**
Corporates – specialised lending	**-**	**19.0**	**86.0**	**37.0**	**493.6**	**107.0**	**742.6**
Corporates – other	**0.2**	**14.8**	**127.0**	**78.7**	**313.2**	**1.4**	**535.3**
Retail secured by immovable property	**-**	**133.2**	**553.0**	**1,565.0**	**5,612.6**	**8,990.5**	**16,854.3**
Qualifying revolving retail exposures	**1,614.3**	**-**	**-**	**-**	**-**	**-**	**1,614.3**
Retail other non-SME	**5.4**	**5.7**	**53.4**	**3.0**	**-**	**-**	**67.5**
Securitisation positions	**-**	**-**	**399.4**	**-**	**-**	**92.6**	**492.0**
NCO	**106.1**	**-**	**-**	**-**	**-**	**-**	**106.1**
Total IRB	**1,861.5**	**207.7**	**1,218.8**	**1,685.0**	**6,419.4**	**9,191.5**	**20,583.9**
Standardised							
Central government or central banks	**1,835.9**	**65.3**	**350.6**	**478.3**	**129.6**	**-**	**2,859.7**
Regional governments or local authorities	**-**	**-**	**0.2**	**-**	**-**	**2.3**	**2.5**
Public sector entities	**-**	**-**	**45.7**	**8.4**	**-**	**1.4**	**55.5**
Multilateral development banks	**-**	**25.0**	**346.8**	**63.9**	**-**	**-**	**435.7**
Institutions	**35.2**	**7.1**	**29.1**	**-**	**-**	**-**	**71.4**
Corporates	**105.6**	**20.3**	**26.3**	**11.1**	**23.8**	**-**	**187.1**
Retail exposures	**1.2**	**1.9**	**41.2**	**14.7**	**-**	**-**	**59.0**
Secured by mortgages on immovable property	**-**	**-**	**0.1**	**-**	**-**	**-**	**0.1**
Exposures in default	**0.2**	**0.4**	**3.2**	**1.5**	**-**	**-**	**5.3**
Equity exposures	**75.9**	**-**	**-**	**-**	**-**	**-**	**75.9**
Other items	**263.0**	**-**	**-**	**-**	**-**	**-**	**263.0**
Total Standardised	**2,317.0**	**120.0**	**843.2**	**577.9**	**153.4**	**3.7**	**4,015.2**
Total credit risk exposures	**4,178.5**	**327.7**	**2,062.0**	**2,262.9**	**6,572.8**	**9,195.2**	**24,599.1**

2017	Repayable on demand / undated £m	Up to 1 year £m	1-5 years £m	5-10 years £m	10-20 years £m	>20 years £m	Total £m
IRB							
Institutions	136.1	136.1	55.6	1.7	0.1	-	329.6
Corporates – specialised lending	-	42.7	108.0	47.4	533.0	152.6	883.7
Corporates – other	0.5	33.7	122.1	150.6	369.9	10.1	686.9
Retail secured by immovable property	-	170.1	582.2	1,589.4	5,721.2	7,452.4	15,515.3
Qualifying revolving retail exposures	1,773.7	-	-	-	-	-	1,773.7
Retail other non-SME	17.1	10.2	98.1	8.0	-	-	133.4
Securitisation positions	-	-	823.5	-	-	100.0	923.5
Total IRB	1,927.4	392.8	1,789.5	1,797.1	6,624.2	7,715.1	20,246.1
Standardised							
Central government or central banks	4,020.4	-	554.6	502.5	76.0	-	5,153.5
Regional governments or local authorities	-	-	0.2	-	-	2.4	2.6
Public sector entities	-	0.2	1.1	6.6	3.0	1.5	12.4
Multilateral development banks	-	-	293.8	35.5	-	-	329.3
Institutions	48.7	37.6	-	-	-	-	86.3
Corporates	98.5	5.6	51.3	42.0	16.6	28.8	242.8
Retail exposures	1.4	2.2	45.1	13.7	-	-	62.4
Secured by mortgages on immovable property	-	-	0.1	-	-	-	0.1
Exposures in default	0.2	5.1	3.0	0.1	-	-	8.4
Equity exposures	76.5	-	-	-	-	-	76.5
Other items	329.7	-	-	-	-	-	329.7
Total Standardised	4,575.4	50.7	949.2	600.4	95.6	32.7	6,304.0
Total credit risk exposures	6,502.8	443.5	2,738.7	2,397.5	6,719.8	7,747.8	26,550.1

Refer to table 16 for the equivalent disclosure on the Group basis.

Table 43 - Analysis of impaired and past due exposures

2018	EAD £m	Of which: impaired exposures £m	Of which: past due exposures not impaired £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
IRB					
Institutions	171.8	-	-	-	-
Corporates – specialised lending	742.6	27.1	16.9	14.0	(8.2)
Corporates – other	535.3	1.5	3.5	1.7	(0.6)
Retail secured by immovable property	16,854.3	398.5	72.5	16.5	(0.1)
Qualifying revolving retail exposures	1,614.3	10.4	5.9	8.4	6.9
Retail other non-SME	67.5	5.3	0.8	4.0	(0.3)
Securitisation positions	492.0	-	-	-	-
NCO	106.1	-	-	-	-
Total IRB	**20,583.9**	**442.8**	**99.6**	**44.6**	**(2.3)**
Standardised					
Central government or central banks	2,859.7	-	-	-	-
Regional governments or local authorities	2.5	-	-	-	-
Public sector entities	55.5	-	-	-	-
Multilateral development banks	435.7	-	-	-	-
Institutions	71.4	-	-	-	-
Corporates	187.1	-	5.8	0.4	(0.6)
Retail exposures	59.0	-	0.6	-	-
Secured by mortgages on immovable property	0.1	-	-	-	-
Exposures in default	5.3	5.3	0.1	6.7	1.3
Equity exposures	75.9	-	-	-	-
Other items	263.0	-	-	-	-
Total Standardised	**4,015.2**	**5.3**	**6.5**	**7.1**	**0.7**
Total credit risk exposures	**24,599.1**	**448.1**	**106.1**	**51.7**	**(1.6)**

2017	EAD £m	Of which: impaired exposures £m	Of which: past due exposures not impaired £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
IRB					
Institutions	329.6	-	-	-	-
Corporates – specialised lending	883.7	80.6	-	23.1	1.3
Corporates – other	686.9	13.4	-	2.1	(0.2)
Retail secured by immovable property	15,515.3	229.1	-	17.5	(1.6)
Qualifying revolving retail exposures	1,773.7	16.7	-	8.6	5.0
Retail other non-SME	133.4	25.3	-	21.9	(1.5)
Securitisation positions	923.5	-	-	-	-
Total IRB	20,246.1	365.1	-	73.2	3.0
Standardised					
Central government or central banks	5,153.5	-	-	-	-
Regional governments or local authorities	2.6	-	-	-	-
Public sector entities	12.4	-	-	-	(0.1)
Multilateral development banks	329.3	-	-	-	-
Institutions	86.3	-	-	-	-
Corporates	242.8	5.7	-	0.2	(0.7)
Retail exposures	62.4	1.3	-	-	-
Secured by mortgages on immovable property	0.1	0.1	-	-	-
Exposures in default	8.4	8.4	-	5.5	(2.6)
Equity exposures	76.5	-	-	-	-
Other items	329.7	-	-	-	-
Total Standardised	6,304.0	15.5	-	5.7	(3.4)
Total credit risk exposures	26,550.1	380.6	-	78.9	(0.4)

Refer to table 17 for the equivalent disclosure on the Group basis.

Table 44 - Analysis of corporate EAD by sector

2018	EAD £m	Of which: impaired exposures £m	Of which: Past due exposures not impaired £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
Accommodation, food and licensed services	18.5	0.1	0.4	0.2	-
Care	13.8	-	2.5	-	0.1
Education	38.8	-	5.3	0.2	(0.2)
Financial services	15.0	0.2	-	-	(0.1)
Football clubs	8.3	0.8	-	0.8	(0.1)
Housing associations	367.1	-	-	0.1	-
Manufacturing	3.1	0.1	-	-	(0.1)
Motor trade and garages	0.7	0.3	-	-	-
PFI	568.1	-	14.5	1.6	(1.0)
Professional services	2.5	0.1	0.2	0.1	-
Property and construction					
Commercial investment	134.5	23.6	1.6	9.9	(8.2)
Residential investment	18.5	-	-	1.4	(0.2)
Commercial development	6.0	3.3	-	2.8	1.3
Residential development	-	-	-	-	-
Public sector entities	1.5	-	-	-	-
Renewable energy	31.6	-	-	0.2	(0.3)
Retail and wholesale trade	88.7	-	-	0.1	(0.1)
Services	26.1	3.5	1.5	5.0	0.8
Transport, storage and communication	0.6	-	-	-	-
Utilities	1.7	-	-	-	-
Other	135.9	0.3	0.2	0.3	-
Total	**1,481.0**	**32.3**	**26.2**	**22.7**	**(8.1)**
IRB corporates – other	535.3	1.5	3.5	1.7	(0.6)
IRB corporates – specialised lending	742.6	27.1	16.9	14.0	(8.2)
Standardised corporates[1]	193.5	-	-	0.4	-
Standardised past due corporates	9.6	3.7	5.8	6.6	0.7
Total	**1,481.0**	**32.3**	**26.2**	**22.7**	**(8.1)**

2017	EAD £m	Of which: impaired exposures £m	Specific and general credit risk adjustments £m	Charges for specific and general credit risk adjustments during the reporting period £m
Accommodation, food and licensed services	41.1	12.3	0.1	(6.6)
Care	22.1	3.5	0.1	-
Education	46.4	4.0	0.1	-
Financial services	22.4	0.6	0.1	(0.1)
Football clubs	9.5	0.8	0.8	(0.1)
Housing associations	444.5	-	-	-
Manufacturing	4.5	0.7	0.1	(0.1)
Motor trade and garages	0.9	0.3	-	-
PFI	630.6	15.4	1.4	0.9
Professional services	3.8	0.5	0.1	(0.1)
Property and construction				
Commercial investment	187.5	47.2	20.6	0.1
Residential investment	48.0	7.3	1.4	0.2
Commercial development	7.5	3.2	1.5	0.8
Residential development	1.8	1.1	0.1	-
Public sector entities	0.4	-	-	-
Renewable energy	43.0	-	-	(0.5)
Retail and wholesale trade	142.2	0.4	-	-
Services	39.9	6.8	4.2	3.1
Transport, storage and communication	1.0	-	-	-
Utilities	2.3	-	-	-
Other	133.8	0.4	0.3	0.1
Total	1,833.2	104.5	30.9	(2.3)

IRB corporates – other	686.9	13.4	2.1	(0.2)
IRB corporates – specialised lending	883.7	80.6	23.1	1.3
Standardised corporates[1]	257.8	5.7	0.2	(0.8)
Standardised past due corporates	4.8	4.8	5.5	(2.6)
Total	1,833.2	104.5	30.9	(2.3)

1. Standardised corporates includes regional governments or local authorities and public sector entities

Refer to Table 18 for the equivalent disclosure on the Group basis.

Appendix 3 - Capital instruments

The following table sets out full details of the Group's qualifying capital instruments in issue.

		Tier 1	
1	Issuer	The Co-operative Bank Holdings Limited	The Co-operative Bank plc
2	Unique identifier	N/A	N/A
3	Governing laws of the instrument	English	English
	Regulatory treatment		
4	Transitional CRR rules	Common Equity Tier 1	Common Equity Tier 1
5	Post-transitional CRR rules	Common Equity Tier 1	Common Equity Tier 1
6	Eligible at individual/(sub-) consolidated/individual & (sub-) consolidated	Consolidated	Individual
7	Instrument type (types to be specified by each jurisdiction)	Ordinary shares	Ordinary shares
8	Amount recognised in regulatory capital (£m)	314.7	2,442.5
9	Nominal amount of instrument (£m)	0.9	25.6
9a	Issue price	0.01p nominal value	5p nominal value
9b	Redemption price	N/A	N/A
10	Accounting classification	Shareholder's equity	Shareholder's equity
11	Original date of issue	01/09/2017	20/12/2013
12	Subsequent issue date	-	01/09/2017
13	Perpetual or dated	Perpetual	Perpetual
14	Original maturity date	N/A	N/A
15	Issuer call	N/A	N/A
16	Optional call date, contingent call dates and redemption amount	N/A	N/A
17	Subsequent call dates, if applicable	N/A	N/A
	Coupons/dividends		
18	Fixed or floating dividend/coupon	Floating dividend	Floating dividend
19	Coupon rate and any related index	N/A	N/A
20	Existence of a dividend stopper	N/A	N/A
21	Fully discretionary, partially or mandatory (in terms of timing)	Fully discretionary	Fully discretionary
22	Fully discretionary, partially or mandatory (in terms of amount)	Fully discretionary	Fully discretionary
23	Existence of step up or other incentive to redeem	N/A	N/A
24	Noncumulative or cumulative	Noncumulative	Noncumulative
25	Convertible or non-convertible	Non-convertible	Non-convertible
26	If convertible, conversion trigger(s)	N/A	N/A
27	If convertible, fully or partially	N/A	N/A
28	If convertible, conversion rate	N/A	N/A
29	If convertible, mandatory or optional conversion	N/A	N/A
30	If convertible, specify instrument type convertible into	N/A	N/A
31	If convertible, specify issuer of instrument it converts into	N/A	N/A
32	Write-down features	N/A	N/A
33	If write-down, write-down trigger(s)	N/A	N/A
34	If write-down, full or partial	N/A	N/A
35	If write-down, permanent or temporary	N/A	N/A
36	If write-down, description of write-up mechanism	N/A	N/A
37	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Subordinate to Redeemable Preference Shares[1]	Senior Unsecured
38	Non-compliant transitioned features	No	No
39	If yes, specify non-compliant features	N/A	N/A
40	Voting Rights	Yes[2]	Yes

1. The Co-operative Bank Holdings Limited also has in issue a small number of redeemable preference shares which carry voting rights and seniority in liquidation to the ordinary shares. They are immaterial in the context of regulatory capital holdings.
2. The ordinary shares have limited voting rights (these are detailed within the Statutory Disclosures Information section of the 2018 Annual Report and Accounts).

Appendix 4 - Tables index