RBS

Pillar 3 Report 2016

Contents

Note:
(1) Refer to the RBS Annual Report and Accounts 2016 (ARA): Capital and risk management - Credit risk

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Any discrepancies between totals and sums of components within tables in this report are due to rounding.

Forward-looking statements

This document contains certain ‘forward-looking statements’ as that term is defined in the United States Private Securities Litigation Reform Act of 1995 with respect to the financial condition, results of operations and business of The Royal Bank of Scotland Group plc (RBS). Generally, words such as ‘may’, ‘could’, ‘will’, ‘expect’, ‘intend’, ‘estimate’, ‘anticipate’, ‘believe’, ‘plan’, ‘seek’, ‘continue’, ‘project’, ‘should’, ‘probability’, ‘risk’, ‘value-at-risk’, ‘target’, ‘goal’, ‘objective’, ‘endeavour’, ‘outlook’, ‘optimistic’ and ‘prospects’ or similar expressions or variations on such expressions identify forward-looking statements.

Any forward-looking statements set out herein represent RBS’s expectations or beliefs concerning future events and involve known and unknown risks and uncertainty that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. Factors that could cause or contribute to differences in current expectations include, but are not limited to, legislative, fiscal and regulatory developments, accounting standards, competitive conditions, technological developments, exchange rate fluctuations and general economic conditions. For further risks and uncertainties faced by RBS that may impact the statements set out in this document, refer to the 2016 Annual Report and Accounts (ARA).

Any forward-looking statements set out herein speak only as at the date of this document. Except as required by the Prudential Regulation Authority (PRA), the London Stock Exchange or other applicable law or regulation, RBS does not have any obligation or responsibility to update or revise publicly any forward-looking statements, whether as a result of new information, further events or circumstances or otherwise, and expressly disclaims any obligation to do so.

Presentation of information

Regulatory framework

The European Union (EU) has implemented the Basel III capital proposals through the Capital Requirements Regulation (CRR) and the Capital Requirements Directive (CRD) collectively known as CRD IV.

The framework is based on three Pillars:

- Pillar 1 - Minimum capital requirements: defines rules for the capital requirement to absorb losses relating to credit, market and operational risk;
- Pillar 2 - Supervisory review process: requires banks to undertake an internal capital adequacy assessment process for risks not included in Pillar 1; and
- Pillar 3 - Market discipline: requires disclosures to allow investors and other market participants to understand the risk profiles of individual banks.

Pillar 1 - Minimum capital requirements

CRR requires risk-weighted assets (RWAs) to be calculated for credit, counterparty credit, market and operational risks with various approaches available to banks, with differing levels of sophistication. The minimum capital requirement is calculated as 8% of RWAs.

RBS uses the following approaches to calculate RWAs:

- Credit risk: the advanced internal ratings based (IRB) approach is used for most exposures. The standardised (STD) approach is used for exposures in certain portfolios.
- Counterparty credit risk: both the mark-to-market (mtm) method and the internal model method (IMM) are used.
- Securitisation: the IRB approach is used.
- Market risk: both the STD approach and the internal model approach (IMA) are used.
- Operational risk: the STD approach is used and is based on gross income. Refer to page 202 of the 2016 ARA for operational risk disclosures.

Pillar 2 - Supervisory review process

Pillar 2 comprises RBS's internal capital adequacy assessment process (ICAAP) and a supervisory review and evaluation process undertaken on an annual basis and focused on the amounts, types and distribution of capital which RBS considers adequate to cover the risks to which it is or may be exposed.

The ICAAP evaluates capital requirements for major sources of risk over the short and long term:

- Pillar 2A comprises risks that are not captured in Pillar 1 (such as non-traded interest rate risk, structural foreign exchange risk and pension risk) or not adequately captured in Pillar 1 (such as credit concentration risk); and
- Pillar 2B incorporates stress testing and scenario analysis, which serve as a basis for a forward-looking assessment of RBS's capital requirements in stress conditions and any resultant stress capital buffers.

RBS undertakes a risk assessment to ensure all material risks are identified, adequately managed and capitalised where appropriate.

Within Pillar 2A, RBS assesses credit concentration risk, certain aspects of traded market risk that are not fully captured in Pillar 1, non-traded interest rate risk (NTIRR), pension risk and operational risk to compensate for shortcomings of the Pillar 1 standardised approach. RBS uses economic capital models to estimate Pillar 2A capital charges for operational and credit concentration risk. For more information, refer to pages 204, 210 and 218 of the 2016 ARA. Information regarding specific credit risk concentrations, such as sector or geography, is included within Pillar 3. Refer to page 261 of the 2016 ARA for more information on NTIRR and page 205 for pension risk.

Pillar 2B is based on stress testing and scenario analysis. It is used to assess the quantum and quality of capital required to be set aside to counteract the adverse impact of a severe but plausible stress on RBS's capital, and to ensure capital levels in stress conditions remain above minimum requirements.

The ICAAP is approved by the Board before it is submitted to the regulator and forms the basis of the supervisory review and the setting of the Individual Capital Guidance by the PRA. Refer to page 179 of the 2016 ARA for details.

Pillar 3 - Market discipline

RBS is committed to delivering leading practice risk and capital disclosures to ensure that stakeholders understand the risks faced by RBS. The Pillar 3 disclosures are designed to encourage and promote market transparency and stability. They represent a component of RBS's broader disclosures framework.

RBS publishes its Pillar 3 disclosures as required by the CRD.

Certain of RBS's subsidiaries in Europe publish capital and RWA data externally through an appropriate mechanism (such as websites and annual reports), thereby satisfying the European Banking Authority requirements for disclosures in the member states. Outside the EU, local subsidiaries may make additional disclosures under Pillar 3 as required by their local regulators.

RBS continues to participate in the British Bankers' Association's drive towards consistent Pillar 3 disclosures for UK banks wherever possible.

It is possible that disclosures made by other banks, especially outside the UK, are not directly comparable with those in this report. Notes are included with the data tables to ensure transparency regarding the approaches used for the disclosures. At EU and global levels, different definitions and assumptions adopted by other banks can make direct comparison difficult.

Regulatory disclosure developments

The Basel Committee on Banking Supervision (BCBS) released Part 1 of the revised Pillar 3 framework (RPF) in January 2015. By introducing more specific guidance and prescribed tables and templates, the RPF is regarded by the regulators as a significant step towards enhancing the consistency and comparability of banks' regulatory disclosures. The RPF did not cover all relevant CRR disclosure requirements; in order to alleviate market pressure relating to these gaps, the European Banking Authority (EBA) issued its Pillar 3 Guidelines consultation paper on 29 June 2016 and final guidelines on 14 December 2016.

RBS participated in the British Bankers' Association Disclosure Code discussions relating to Pillar 3 disclosures during 2016 as in prior years.

RBS approach

RBS has published a significant proportion of the disclosures recommended by the EBA Pillar 3 guidelines in its 2016 Pillar 3 report and 2016 Annual Report and Accounts (2016 ARA).

Disclosure requirements relating to capital, leverage and securitisation were not addressed in the 2016 EBA Guidelines and are unchanged from the prior year.

The more significant changes compared with the 2015 Pillar 3 report are set out below:

- RBS has implemented the sequencing and nomenclature of templates in line with the EBA Pillar 3 Guidelines with additional tables covering CRR requirements and other key disclosures, principally credit risk.
- A significant number of CRR Common Reporting (COREP) templates are included at varying degrees of aggregation compared with COREP.
- The exposure measure in the 2016 Pillar 3 Report is aligned with COREP for some of the templates, for example gross exposure in addition to exposure at default (EAD).
- Gross exposures are analysed into defaulted and non-defaulted. Templates EU CR 1_A, EU CR 1_B, EU CR 1_C are based on COREP. Analysis of impairment provisions, impairment charges and write-offs and forbearance (templates EU CR 1_A, EU CR 1_B, EU CR 1_C; EU CR 2_A and EU CR2_B) are addressed in the 2016 ARA based on accounting values.
- Template EU CRB_D maps CRR regulatory exposure classes to the industry sectors used by RBS Credit Risk for internal risk management.
- Additional analysis of netting, collateral and credit conversion factors is provided.
- Granularity of credit risk disclosures has been significantly expanded, particularly on IRB exposures. Notably, EU CR6 provides analysis for each exposure class by probability of default (PD) range, number of obligors, average PD, average loss given default (LGD), average maturity, RWAs, RWA density, expected loss (EL) and provisions.
- Disclosures on back-testing of credit risk IRB PD models (template EU CR9) have also been significantly expanded to include estimated and actual annual default rates, the number of total and defaulted obligors, both one year and five year averages.
- The RWA summary (template EU OV1) is more granular: securitisation, thresholds for capital deductions and credit valuation adjustments (CVA) are reported separately and excluded from credit and counterparty credit risk as relevant. However, to align with internal Group and segmental capital management, RWA flow statements - CR8 and CCR7 - include securitisation, threshold RWAs and CVA. This differs from the approach prescribed by the EBA.
- Counterparty and market risk disclosures are more granular including a comparison of period end and average values over the preceding two months (EU MR2_A) in line with COREP.

Key metrics and disclosure roadmap

Banks are required to disclose their material risks as part of the Pillar 3 framework. Most of this information is disclosed in the 2016 ARA, available at rbs.com. The 2016 ARA includes a range of risk factors and provides in-depth analysis on the specific risks to which RBS is exposed. These Pillar 3 disclosures provide additional information over and above that contained in the 2016 ARA.

Key metrics for RBS are published as follows:

- Financial performance measures and ratios - Strategic report section on page 5 of the 2016 ARA.
- Capital and leverage ratios for RBS and significant subsidiaries on page 7.

Certain Pillar 3 disclosures are included elsewhere as follows:

- Remuneration on page 87 of the 2016 ARA.
- Strategic report - Risk overview on page 38 of the 2016 ARA.
- Report of the Board Risk Committee on page 79 of the 2016 ARA.
- Capital and risk management including Risk appetite and governance on page 164 of the 2016 ARA.
- Credit risk management on page 207 of the 2016 ARA
- Market risk on page 260 of the 2016 ARA.
- Operational risk on page 202 of the 2016 ARA.
- Capital instruments - detailed terms - are found on the RBS Investor Relations website.
- Global Systemically Important Institution (GSII) indicators at 31 December 2016 will be published on the RBS Investor Relations website in April 2017. The Financial Stability Board publishes the GSII list around November each year which informs the requirement for the following 12 months transition.

Independent review

The information presented in this Pillar 3 Report is not required to be, and has not been, subject to external audit.

Internal Audit undertakes procedures to provide management and the Board with assurance relating to the adequacy and effectiveness of the processes, controls and governance framework over the production of the Pillar 3 disclosures.

Internal Audit also provides additional oversight to the adequacy and effectiveness of the model controls and processes and performs in-depth testing on an annual basis. Internal Audit is independent from Risk Management, and therefore from those responsible for the development and independent validation activity. Any material gaps in control identified by Internal Audit are escalated through standard board reporting and action plans agreed with those accountable for the activity behind the control.

Consolidation

Scope of application

The Royal Bank of Scotland Group plc is the parent entity for all authorised firms in the Group and is subject to consolidated supervision by the PRA. The Pillar 3 disclosures have been prepared in accordance with CRR applicable in the UK as promulgated by the PRA (Central Bank of Ireland definitions for Ulster Bank Ireland Designated Activity Company (UBI DAC, previously Ulster Bank Ireland Limited)).

Control

Inclusion of an entity in the statutory consolidation is driven by RBS's ability to exercise control over that entity. The regulatory consolidation applies a comparable test but consolidation is restricted to certain categories of entities. In accordance with PRA rules, non-financial and certain structured entities are excluded from the regulatory consolidation.

Significant influence or joint control

Where RBS does not have control of an entity but has more than 20% of the voting rights or capital of that entity, then it must be included in the regulatory consolidation on a pro-rata basis, unless it falls into one of the excluded categories or RBS has agreed a different treatment with the PRA (by obtaining permission). Such entities will only be included in the statutory consolidation on a pro-rata basis where RBS has joint control. Entities where RBS has significant influence will be equity accounted in the statutory consolidation.

Solo-consolidation, impediments to the transfer of capital resources and aggregate capital deficiency

Individual entities within RBS apply the provisions in CRR (solo-consolidation permission) in a limited number of cases only. In 2016, The Royal Bank of Scotland plc (RBS plc) had no solo-consolidated subsidiaries whilst National Westminster Bank Plc (NWB Plc) had two solo-consolidated subsidiaries, together NWB Plc in this report. Permission is only used where the business of the activities of the entity is an extension of the parent bank's activities undertaken for commercial reasons and solo-consolidation is required to ensure that there are no adverse consequences to the capital ratios.

All RBS companies are subject to policies, governance and controls set centrally. Aside from regulatory requirements, there are no current or foreseen material, practical or legal impediments to the transfer of capital or prompt repayments of liabilities when due.

Regulatory hierarchy

In determining which are its significant subsidiaries for CRR reporting purposes, RBS has considered CRR requirements, including those entities whose total RWAs account for 5% or more of RBS's RWAs.

RBS's significant subsidiaries at 31 December 2016 were RBS plc, NWB Plc and UBI DAC.

Capital and leverage

Capital and leverage

Capital consists of reserves and instruments issued that are available to the Group and that have a degree of permanency and are capable of absorbing losses. A number of strict conditions set by regulators must be satisfied to be eligible to count as capital.

Capital risk is the risk that the Group has insufficient capital and other loss absorbing debt instruments to operate effectively including meeting minimum regulatory requirements, operating within Board approved risk appetite and supporting its strategic goals.

Capital management is the process by which the Group ensures that it has sufficient capital and other loss absorbing instruments to operate effectively including meeting minimum regulatory requirements, operating within Board approved risk appetite, maintaining its credit rating and supporting its strategic goals.

Capital management is critical in supporting the Group's business and is enacted through an end to end framework across the Group, its businesses and the legal entities through which it operates.

The Group manages capital based on regulatory requirements. Regulatory capital is monitored and reported on a regulated entity basis, each on a CRR transitional basis as relevant in the jurisdiction, other than for RBS which is on a consolidated and CRR end-point basis. As such, unless otherwise specified, this section applies to those individual regulated banks.

For disclosure purposes, significant legal entities are determined with reference to RBS RWAs, using 5% as the threshold. The significant legal entities in the Group are the Royal Bank of Scotland plc (RBS plc), National Westminster Bank Plc (NWB Plc) and Ulster Bank Ireland DAC (UBI DAC).

The PRA assesses capital adequacy in the UK banking sector, comparing a bank's capital resources with its RWAs (the assets and off-balance sheet exposures are 'weighted' to reflect the inherent credit and other risks) as well as leverage exposure.

For more information regarding the minimum capital and leverage requirements that RBS must meet, refer to the RBS ARA - Capital risk. For minimum capital and leverage requirements that apply to RBS plc, NWB Plc and UBI DAC, refer to the RBS plc ARA.

CAP 1: CAP and LR: Capital and leverage ratios - RBS CRR end-point and PRA transitional bases

Capital, RWAs and risk asset ratios, on a PRA transitional basis and an end-point CRR basis, calculated in accordance with PRA definitions, are set out below.

	2016		2015	
Capital	End-point CRR basis (1) £bn	PRA transitional basis £bn	End-point CRR basis (1) £bn	PRA transitional basis £bn
CET1	30.6	30.6	37.6	37.6
Tier 1	34.7	40.4	39.6	46.3
Total	43.8	52.3	47.6	60.0
RWAs				
Credit risk				
- non-counterparty	162.2	162.2	166.4	166.4
- counterparty	22.9	22.9	23.4	23.4
Market risk	17.4	17.4	21.2	21.2
Operational risk	25.7	25.7	31.6	31.6
	228.2	228.2	242.6	242.6
Risk asset ratios	%	%	%	%
CET1	13.4	13.4	15.5	15.5
Tier 1	15.2	17.7	16.3	19.1
Total	19.2	22.9	19.6	24.7
Leverage	2016		2015	
Tier 1 capital	£34.7bn	£40.4bn	£39.6bn	£46.3bn
Exposure	£683.3bn	£683.3bn	£702.5bn	£702.5bn
Leverage ratio	5.1%	5.9%	5.6%	6.6%

Note:
(1) Capital Requirements Regulation (CRR) as implemented by the PRA in the UK, with effect from 1 January 2014. All regulatory adjustments and deductions to CET1 have been applied in full for both bases with the exception of unrealised gains on available-for-sale securities which have been included from 2015 under the PRA transitional basis.

Capital and leverage

CAP 2: CAP and LR: Capital and leverage ratios - RBS and significant subsidiaries

Capital, RWAs and leverage on a PRA transitional basis for RBS and its significant subsidiaries (CBI basis for UBI DAC) are set out below. RBS metrics are presented for comparison purposes.

	2016				2015			
	RBS	RBS plc	NWB Plc	UBI DAC	RBS	RBS plc	NWB Plc	UBI DAC
Capital	£m	£m	£m	£m	£m	£m	£m	£m
CET1	30,623	23,333	10,393	5,224	37,630	32,416	7,154	5,690
Tier 1	40,419	25,292	10,393	5,224	46,346	34,734	7,171	5,690
Total	52,303	34,151	15,016	5,746	59,965	51,341	12,137	6,175
RWAs								
Credit risk								
- non-counterparty	162,162	127,019	56,066	16,263	166,417	146,444	54,422	17,729
- counterparty	22,925	21,214	473	505	23,361	21,769	402	345
Market risk	17,438	15,698	676	12	21,255	19,073	570	7
Operational risk	25,695	14,862	7,209	1,215	31,597	15,615	6,361	1,148
	228,220	178,793	64,424	17,995	242,630	202,901	61,755	19,229
Risk asset ratios (1)	%	%	%	%	%	%	%	%
CET1	13.4	13.1	16.1	29.0	15.5	16.0	11.6	29.6
Tier 1	17.7	14.1	16.1	29.0	19.1	17.1	11.6	29.6
Total	22.9	19.1	23.3	31.9	24.7	25.3	19.7	32.1
Leverage								
Tier 1 capital (£bn)	40.4	25.3	10.4	5.2	46.3	34.7	7.2	5.7
Exposure (£bn) (2)	683.3	447.2	169.6	27.3	702.5	502.6	153.1	23.7
Leverage ratio (%) (3)	5.9	5.7	6.1	19.1	6.6	6.9	4.7	24.0

Notes:

(1) CRR end-point for UK banks set by the PRA is 10.50% minimum total capital ratio, with a minimum CET1 ratio of 7.00%. The UK countercyclical capital buffer is currently 0.00%. These minimum ratios exclude the G-SIB buffer and any bank specific buffers, including Pillar 2A and PRA buffer. Central Bank of Ireland (CBI) has set a minimum total capital ratio of 10.50% with a minimum CET1 ratio of 7.00%; the countercyclical buffer is currently 0.00%.

(2) Leverage exposure is broadly aligned to the accounting value of on and off balance sheet exposures but subject to certain adjustments for trading positions, repurchase agreements and off-balance sheet exposures.

(3) The PRA has set a Tier 1 leverage ratio requirement for UK banks of 3.00% (CET1 requirement of 2.25%), excluding any additional leverage ratio buffer which is applicable to RBS as a G-SIB. CBI has not currently set a binding leverage requirement; a binding 3% leverage ratio has been proposed by the European Commission as part of its proposals to amend the CRR.

Capital and leverage

Key points

RBS

- The CET1 ratio decreased by 210 basis points to 13.4% in 2016, reflecting lower CET1 capital partially offset by a reduction in RWAs.
- Litigation and conduct charges of £5.9 billion in 2016 contributed to a significant reduction in the CET1 capital. Management actions to normalise the ownership structure and improve the long-term resilience of RBS also contributed to the reduction. These actions included the final Dividend Access Share payment of £1.2 billion and the impact of the accelerated pension payment of £4.2 billion.
- Tier 1 capital benefitted from the successful issuance of £2 billion of Additional Tier 1 (AT1) capital notes in August 2016. Total end-point CRR compliant AT1 capital now stands at £4.0 billion.
- RWAs decreased by £14.4 billion in the year to £228.2 billion consisting of reductions across all risk types predominantly driven by the run-down activity within Capital Resolution which resulted in an RWA decrease of £14.5 billion.
  - Non-counterparty credit risk RWAs decreased by £4.2 billion reflecting disposal activity in Capital Resolution, partially offset by the adverse impact of foreign exchange movements.
  - The impact of sterling weakening and the implementation of a new risk model for banks in the first half of the year, led to an increase of £2.8 billion in counterparty credit risk RWAs in NatWest Markets. This was offset by a reduction of £3.3 billion in Capital Resolution to result in an overall decrease of £0.5 billion.
  - Market risk RWAs reduced by £3.8 billion driven by disposals in Capital Resolution, business mitigation activity in NatWest Markets and lower US dollar position risk in Treasury.
  - Operational risk RWAs decreased by £5.9 billion as a result of the annual recalculation and the removal of the element relating to Citizens following regulatory approval.
- The minimum capital requirement of £805 million relating to the Basel I floor adjustment principally reflected growth in mortgage lending.
- Leverage ratio on a PRA transitional basis decreased by 70 basis points to 5.9%. This decrease was driven by the CET1 capital erosion due to litigation and conduct charges in the quarter, partially offset by additional AT1 issuance.
- The UK leverage ratio reflecting the post EU referendum measures announced by the Bank of England in the third quarter of 2016 was estimated at 5.6% on an end-point CRR basis.
- RBS's PRA minimum leverage ratio requirement of 3% has been supplemented with an additional GSII leverage ratio buffer of 0.13125%, equivalent to £897 million of CET1 capital.

RBS plc

- The CET1 ratio decreased from 16.0% to 13.1%. This reflected the annual phasing-in of the CRR end-point rules relating to significant investments, litigation and conduct charges of £2.7 billion, the £750 million provision recognised in relation to the W&G proposal, and the £1.3 billion capital injection into NWB Plc, following the accelerated pension payment, partially offset by RWA reduction.
- RWAs decreased by £24.1 billion primarily as a result of the annual phasing-in of the CRR end-point rules relating to significant investments, which reduced standardised credit risk RWAs by £14.8 billion. Market risk RWAs decreased by £3.4 billion primarily due to business mitigation activities and lower US dollar position risk.
- The leverage ratio on a PRA transitional basis decreased from 6.9% to 5.7% primarily reflected reduced Tier 1 capital.

NWB Plc

- The CET1 ratio increased from 11.6% to 16.1% primarily reflecting the £1.3 billion capital injection from RBS plc and profit in the year, partially offset by the adverse impacts of the £4.2 billion accelerated pension payment to the Main Scheme in March 2016 and the annual phasing-in of the CRR transition rules relating to significant investments.
- RWAs increased by £2.7 billion primarily due to lending growth and the annual recalculation of operational risk.
- The leverage ratio on a PRA transitional basis increased to 6.1% as a result of increased Tier 1 capital, offset by growth in mortgage lending.
- The minimum capital requirement of £1.1 billion relating to the Basel I floor adjustment principally reflected growth in mortgage lending.

UBI DAC

- The CET1 ratio decreased from 29.6% to 29.0%.
- RWAs decreased from €26.2 billion to €21 billion as a result of decreased lending, disposals and model changes.
- When translated into sterling RWAs decreased by £1.2 billion.
- The leverage ratio on a transitional basis decreased to 19.1% reflecting higher leverage exposure, primarily due to currency movements.

CAP 3: CAP: Capital resources (CRR own funds template) - RBS and significant subsidiaries

The table below sets out the capital resources in the prescribed template on a CRR transitional basis as relevant for the jurisdiction. The adjustments to end-point CRR are presented for RBS only, as prescribed.

		2016					
		RBS					
CET1 capital: instruments and reserves		PRA transitional £m	CRR prescribed residual amounts £m	Final CRD IV £m	RBS plc £m	NWB Plc £m	UBI DAC £m
1	Capital instruments and the related share premium accounts	34,952	—	34,952	33,416	3,904	4,090
	Of which: ordinary shares	*11,823*	—	*11,823*	*6,609*	*1,678*	*3,077*
2	Retained earnings	(5,981)	—	(5,981)	15,706	7,290	1,262
3	Accumulated other comprehensive income (and other reserves)	19,446	—	19,446	479	657	1
4	Public sector capital injections grandfathered until 1 January 2018	—	—	—	—	—	—
5a	Independently reviewed interim net profits net of any foreseeable charge or dividend	—	—	—	—	3,466	—
6	CET1 capital before regulatory adjustments	48,417	—	48,417	49,601	15,317	5,353
7	Additional value adjustments	(532)	—	(532)	(524)	(1)	—
8	Intangible assets (net of related tax liability)	(6,436)	—	(6,436)	(521)	(477)	—
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability)	(906)	—	(906)	(47)	(599)	(250)
11	Fair value reserves related to gains or losses on cash flow hedges	(1,030)	—	(1,030)	(261)	—	—
12	Negative amounts resulting from the calculation of expected loss amounts	(1,371)	—	(1,371)	(642)	(534)	(165)
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	(304)	—	(304)	(152)	—	(3)
15	Defined-benefit pension fund assets	(208)	—	(208)	(198)	(15)	—
19	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	—	—	—	(20,433)	(3,019)	—
22	Amount exceeding the 17.65% threshold (negative amount)	—	—	—	(3,250)	(959)	—
23	*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*	—	—	—	*(3,047)*	*(615)*	—
25	*Of which: deferred tax assets arising from temporary differences*	—	—	—	*(203)*	*(344)*	—
25a	Losses for the current financial period (negative amount)	(6,955)	—	(6,955)	(3,474)	—	—
26	Regulatory adjustments applied to CET1 in respect of amounts subject to pre-CRR treatment	(52)	—	(52)	3,234	879	322
26a	*Regulatory adjustments relating to unrealised gains and losses pursuant to articles 467 and 468*	—	—	—	—	—	—
26b	*Amount to be deducted from or added to CET1 capital with regard to additional filters and deductions required pre CRR*	*(52)*	—	*(52)*	*3,234*	*879*	*322*
27	Qualifying Additional Tier 1 (AT1) deductions that exceed the AT1 capital of the institution (negative amount)	—	—	—	—	(199)	(33)
28	Total regulatory adjustments to CET1	(17,794)	—	(17,794)	(26,268)	(4,924)	(129)
29	CET1 capital	30,623	—	30,623	23,333	10,393	5,224

CAP 3: CAP: Capital resources (CRR own funds template) - RBS and significant subsidiaries *continued*

	2016					
	RBS					
AT1 capital: instruments	PRA transitional £m	CRR prescribed residual amounts £m	Final CRD IV £m	RBS plc £m	NWB Plc £m	UBI DAC £m
30 Capital instruments and the related share premium accounts	4,051	—	4,051	—	—	—
31 *Of which: classified as equity under applicable accounting standards*	*4,051*	—	*4,051*	—	—	—
32 *Of which: classified as debt under applicable accounting standards*	—	—	—	—	—	—
33 Amount of qualifying items referred to in Article 484(4) and the related share premium accounts subject to phase out from AT1	5,416	(5,416)	—	3,003	175	—
34 Qualifying tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5 CET1) issued by subsidiaries and held by third parties	339	(339)	—	—	—	—
35 *Of which: instruments issued by subsidiaries subject to phase out*	*339*	*(339)*	—	—	—	—
36 AT1 capital before regulatory adjustments	9,806	(5,755)	4,051	3,003	175	—
AT1 capital: regulatory adjustments						
40 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 (amount above 10% threshold and net of eligible short positions)	—	—	—	(1,034)	(175)	—
41 (-) Actual or contingent obligations to purchase own AT1 instruments	(10)	—	(10)	(10)	—	—
41b Residual amounts deducted from AT1 capital with regard to deduction from Tier 2 (T2) capital during the transitional period	—	—	—	—	—	—
Of which: 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	—	—	—	—	—	—
43 Total regulatory adjustments to AT1 capital	(10)	—	(10)	(1,044)	(175)	—
44 AT1 capital	9,796	(5,755)	4,041	1,959	—	—
45 Tier 1 capital (T1 = CET1 + AT1)	40,419	(5,755)	34,664	25,292	10,393	5,224
T2 capital: instruments and provisions						
46 Capital instruments and the related share premium accounts	6,903	—	6,903	10,932	4,000	508
47 Amount of qualifying items referred to in Article 484 (5) and the related share premium accounts subject to phase out from T2	173	(173)	—	1,239	735	47
48 Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in CET1 or AT1) issued by subsidiaries and held by third parties	4,818	(2,550)	2,268	—	—	—
49 *Of which: instruments issued by subsidiaries subject to phase out*	*1,866*	*(1,866)*	—	—	—	—
50 Credit risk adjustments	—	—	—	—	—	—
51 T2 capital before regulatory adjustments	11,894	(2,723)	9,171	12,171	4,735	555
T2 capital: regulatory adjustments						
55 Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions)	—	—	—	(3,302)	(112)	—
56a (-) Actual or contingent obligations to purchase own AT1 instruments	(10)	—	(10)	(10)	—	—
56b Residual amounts deducted from T2 capital with regard to deduction from AT1 capital during the transitional period	—	—	—	—	—	(33)
56c Amount to be deducted from or added to T2 capital with regard to additional filters and deductions required pre CRR	—	—	—	—	—	—
57 Total regulatory adjustments to T2 capital	(10)	—	(10)	(3,312)	(112)	(33)
58 T2 capital	11,884	(2,723)	9,161	8,859	4,623	522
59 Total capital (TC = T1 + T2)	52,303	(8,478)	43,825	34,151	15,016	5,746
60 Total risk-weighted assets	228,220	—	228,220	178,793	64,424	17,995

CAP 3: CAP: Capital resources (CRR own funds template) - RBS and significant subsidiaries *continued*

	2016					
	RBS					
	PRA transitional £m	CRR prescribed residual amounts £m	Final CRD IV £m	RBS plc £m	NWB Plc £m	UBI DAC £m
Capital ratios and buffers						
61 CET1 (as a percentage of risk exposure amount)	13.4%	—	13.4%	13.1%	16.1%	29.0%
62 T1 (as a percentage of risk exposure amount)	17.7%	—	15.2%	14.1%	16.1%	29.0%
63 Total capital (as a percentage of risk exposure amount)	22.9%	—	19.2%	19.1%	23.3%	31.9%
64 Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1)(a) plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of risk exposure amount)	5.5%	—	8.5%	5.1%	5.1%	5.1%
65 *Of which: capital conservation buffer requirement*	*0.6%*	—	*2.5%*	*0.6%*	*0.6%*	*0.6%*
66 *Of which: counter cyclical buffer requirement*	—	—	—	—	—	—
67 *Of which: systemic risk buffer requirement*	—	—	—	—	—	—
67a *Of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer (1)*	*0.4%*	—	*1.5%*	—	—	—
68 CET1 available to meet buffers	8.9%	—	8.9%	8.6%	11.6%	24.5%
Amounts below the threshold deduction						
72 Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	837	—	837	452	11	—
73 Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	426	—	426	4,377	1,369	5
75 Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability)	306	—	306	291	765	1
Available caps on the inclusion of provisions in T2						
76 Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)	—	—	—	—	—	—
77 Cap on inclusion of credit risk adjustments in T2 under standardised approach	461	—	461	890	191	11
78 Credit risk adjustments included in T2 in respect of exposures subject to internal ratings based approach (prior to the application of the cap)	—	—	—	—	—	—
79 Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	752	—	752	336	243	92
Capital instruments subject to phase-out arrangements (only applicable between 1 January 2013 and 1 January 2022)						
82 Current cap on AT1 instruments subject to phase out arrangements	5,759	(5,759)	—	3,003	175	—
83 Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	—	—	—	1,009	164	—
84 Current cap on T2 instruments subject to phase out arrangements	4,035	(4,035)	—	1,669	735	82
85 Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	—	—	—	—	537	—

Note:
(1) From 1 January 2017 a revised G-SII end-point buffer of 1% comes into effect following the Financial Stability Board November 2015 announcement.

CAP 3: CAP: Capital resources (CRR own funds template) - RBS and significant subsidiaries *continued*

		2015					
		RBS					
		PRA transitional	CRR prescribed residual amounts	Final CRD IV	RBS plc	NWB Plc	UBI DAC
CET1 capital: instruments and reserves		£m	£m	£m	£m	£m	£m
1	Capital instruments and the related share premium accounts	33,745	—	33,745	31,995	3,904	3,506
	Of which: ordinary shares	*11,625*	—	*11,625*	*6,609*	*1,678*	*2,638*
2	Retained earnings	(4,381)	—	(4,381)	18,462	8,657	1,240
3	Accumulated other comprehensive income (and other reserves)	20,095	—	20,095	678	668	21
4	Public sector capital injections grandfathered until 1 January 2018	—	—	—	—	—	—
5a	Independently reviewed interim net profits net of any foreseeable charge or dividend	—	—	—	—	—	839
6	CET1 capital before regulatory adjustments	49,459	—	49,459	51,135	13,229	5,606
7	Additional value adjustments	(381)	—	(381)	(349)	(1)	—
8	Intangible assets (net of related tax liability)	(6,566)	—	(6,566)	(544)	(498)	—
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability)	(1,110)	—	(1,110)	(252)	(622)	(210)
11	Fair value reserves related to gains or losses on cash flow hedges	(458)	—	(458)	(286)	1	—
12	Negative amounts resulting from the calculation of expected loss amounts	(1,035)	—	(1,035)	(395)	(703)	(22)
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	(104)	—	(104)	17	—	—
15	Defined-benefit pension fund assets	(161)	—	(161)	(138)	—	—
19	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	—	—	—	(15,680)	(2,413)	—
22	Amount exceeding the 17.65% threshold (negative amount)	—	—	—	(3,170)	(1,326)	—
23	*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*	—	—	—	*(2,768)*	*(689)*	—
25	*Of which: deferred tax assets arising from temporary differences*	—	—	—	*(402)*	*(637)*	—
25a	Losses for the current financial period (negative amount)	(1,979)	—	(1,979)	(1,075)	(1,415)	—
26	Regulatory adjustments applied to CET1 in respect of amounts subject to pre-CRR treatment	(35)	(22)	(57)	3,153	902	323
26a	*Regulatory adjustments relating to unrealised gains and losses pursuant to articles 467 and 468*	—	—	—	—	—	—
26b	*Amount to be deducted from or added to CET1 capital with regard to additional filters and deductions required pre CRR*	*(35)*	*(22)*	*(57)*	*3,153*	*902*	*323*
27	Qualifying AT1 deductions that exceed the AT1 capital of the institution (negative amount)	—	—	—	—	—	(7)
28	Total regulatory adjustments to CET1	(11,829)	(22)	(11,851)	(18,719)	(6,075)	84
29	CET1 capital	37,630	(22)	37,608	32,416	7,154	5,690
	AT1 capital: instruments						
30	Capital instruments and the related share premium accounts	2,007	—	2,007	—	—	—
31	*Of which: classified as equity under applicable accounting standards*	*2,007*	—	*2,007*	—	—	—
32	*Of which: classified as debt under applicable accounting standards*	—	—	—	—	—	—
33	Amount of qualifying items referred to in Article 484(4) and the related share premium accounts subject to phase out from AT1	5,092	(5,092)	—	3,503	204	—
34	Qualifying tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5 CET1) issued by subsidiaries and held by third parties	1,627	(1,627)	—	—	—	—
35	*Of which: instruments issued by subsidiaries subject to phase out*	*1,627*	*(1,627)*	—	—	—	—
36	AT1 capital before regulatory adjustments	8,726	(6,719)	2,007	3,503	204	—

CAP 3: CAP: Capital resources (CRR own funds template) - RBS and significant subsidiaries *continued*

	2015					
	RBS					
	PRA transitional £m	CRR prescribed residual amounts £m	Final CRD IV £m	RBS plc £m	NWB Plc £m	UBI DAC £m
AT1 capital: regulatory adjustments						
40 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 (amount above 10% threshold and net of eligible short positions)	—	—	—	(1,175)	(187)	—
41 (-) Actual or contingent obligations to purchase own AT1 instruments	(10)	—	(10)	(10)	—	—
41b Residual amounts deducted from AT1 capital with regard to deduction from T2 capital during the transitional period						—
Of which: 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	—	—	—	—	—	—
43 Total regulatory adjustments to AT1 capital	(10)	—	(10)	(1,185)	(187)	—
44 AT1 capital	8,716	(6,719)	1,997	2,318	17	—
45 Tier 1 capital (T1 = CET1 + AT1)	46,346	(6,741)	39,605	34,734	7,171	5,690
T2 capital: instruments and provisions						
46 Capital instruments and the related share premium accounts	5,755	—	5,755	17,271	4,200	438
47 Amount of qualifying items referred to in Article 484 (5) and the related share premium accounts subject to phase out from T2	520	(520)	—	1,770	858	54
48 Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in CET1 or AT1) issued by subsidiaries and held by third parties	7,354	(5,097)	2,257	—	—	—
49 *Of which: instruments issued by subsidiaries subject to phase out*	*4,188*	*(4,188)*	—	—	—	—
50 Credit risk adjustments	—	—	—	—	—	—
51 T2 capital before regulatory adjustments	13,629	(5,617)	8,012	19,041	5,058	492
T2 capital: regulatory adjustments						
55 Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions)	—	—	—	(2,432)	(92)	—
56a (-) Actual or contingent obligations to purchase own AT1 instruments	(10)	—	(10)	(2)	—	—
56b Residual amounts deducted from T2 capital with regard to deduction from AT1 capital during the transitional period	—	—	—	—	—	(7)
56c Amount to be deducted from or added to T2 capital with regard to additional filters and deductions required pre CRR	—	—	—	—	—	—
57 Total regulatory adjustments to T2 capital	(10)	—	(10)	(2,434)	(92)	(7)
58 T2 capital	13,619	(5,617)	8,002	16,607	4,966	485
59 Total capital (TC = T1 + T2)	59,965	(12,358)	47,607	51,341	12,137	6,175
60 Total risk-weighted assets	242,630	—	242,630	202,901	61,755	19,229

CAP 3: CAP: Capital resources (CRR own funds template) - RBS and significant subsidiaries *continued*

	2015					
	RBS					
	PRA transitional £m	CRR prescribed residual amounts £m	Final CRD IV £m	RBS plc £m	NWB Plc £m	UBI DAC £m
Capital ratios and buffers						
61 CET1 (as a percentage of risk exposure amount)	15.5%	—	15.5%	16.0%	11.6%	29.6%
62 T1 (as a percentage of risk exposure amount)	19.1%	—	16.3%	17.1%	11.6%	29.6%
63 Total capital (as a percentage of risk exposure amount)	24.7%	—	19.6%	25.3%	19.7%	32.1%
64 Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1)(a) plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of risk exposure amount)	—	—	—	—	—	—
65 Of which: capital conservation buffer requirement	—	—	—	—	—	—
66 Of which: counter cyclical buffer requirement	—	—	—	—	—	—
67 Of which: systemic risk buffer requirement	—	—	—	—	—	—
67a Of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer	—	—	—	—	—	—
68 CET1 available to meet buffers	11.0%	—	11.0%	11.5%	7.1%	25.1%
Amounts below the threshold deduction						
72 Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	1,651	—	1,651	837	10	—
73 Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	450	—	450	4,809	999	3
75 Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability)	730	—	730	699	924	1
Available caps on the inclusion of provisions in T2						
76 Credit risk adjustments included in T2 in respect of exposures subject to standardised approach 76 (prior to the application of the cap)	—	—	—	—	—	—
77 Cap on inclusion of credit risk adjustments in T2 under standardised approach	475	—	475	1,108	200	9
78 Credit risk adjustments included in T2 in respect of exposures subject to internal ratings based approach (prior to the application of the cap)	—	—	—	—	—	—
79 Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	771	—	771	347	235	101
Capital instruments subject to phase-out arrangements (only applicable between 1 January 2013 and 1 January 2022)						
82 Current cap on AT1 instruments subject to phase out arrangements	6,719	(6,719)	—	3,504	204	—
83 Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	1,679	(1,679)	—	168	101	—
84 Current cap on T2 instruments subject to phase out arrangements	4,708	(4,708)	—	1,948	858	82
85 Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	123	(123)	—	—	246	—

Note:
(1) From 1 January 2017 a revised G-SII end-point buffer of 1% comes into effect following the Financial Stability Board November 2015 announcement.

EU OV1: CAP: RWA and MCR summary

The table below summarises RWAs and minimum capital requirements (MCR) by risk type for RBS and its significant subsidiaries. Further information on individual risk types and securitisation is found in subsequent tables in this report. MCR is calculated as 8% of RWAs.

	RBS		RBS plc		NWB Plc		UBI DAC	
2016	RWA £m	MCR £m	RWA £m	MCR £m	RWA £m	MCR £m	RWA £m	MCR £m
Credit risk (excluding credit counterparty risk)	158,777	12,702	122,262	9,780	52,818	4,225	16,247	1,300
STD approach	*35,107*	*2,808*	*67,557*	*5,404*	*12,640*	*1,011*	*841*	*67*
IRB approach (1)	*122,336*	*9,787*	*54,566*	*4,365*	*40,178*	*3,214*	*15,406*	*1,233*
Equity IRB under the simple risk-weight or the internal model approach	*1,334*	*107*	*139*	*11*	—	—	—	—
Counterparty credit risk	22,579	1,806	20,903	1,672	468	38	505	40
Marked to market	*5,522*	*442*	*4,324*	*346*	*71*	*6*	*10*	*1*
Securities financing transactions	*1,581*	*127*	*1,024*	*82*	—	—	—	—
CCR of which: IMM	*15,476*	*1,237*	*15,555*	*1,244*	*397*	*32*	*495*	*39*
Settlement risk	1	—	1	—	—	—	—	—
Securitisation exposures in banking book	1,954	156	1,523	122	316	25	—	—
IRB approach	*1,943*	*155*	*1,512*	*121*	*316*	*25*	—	—
Internal assessment approach	*11*	*1*	*11*	*1*	—	—	—	—
Market risk	17,438	1,395	15,698	1,256	676	54	12	1
STD approach	*3,532*	*283*	*2,115*	*169*	*642*	*51*	*12*	*1*
Internal model approach	*13,906*	*1,112*	*13,583*	*1,087*	*34*	*3*	—	—
Operational risk	25,695	2,056	14,862	1,189	7,209	577	1,215	98
STD approach	*25,695*	*2,056*	*14,862*	*1,189*	*7,209*	*577*	*1,215*	*98*
Amounts below the thresholds for deduction (subject to 250% risk-weight)	1,776	142	3,544	284	2,937	235	16	1
Floor adjustment (2)	—	805	—	—	—	1,063	—	—
Total	228,220	19,062	178,793	14,303	64,424	6,217	17,995	1,440

EU OV1: CAP: RWA and MCR summary *continued*

2015	RBS RWA £m	RBS MCR £m	RBS plc RWA £m	RBS plc MCR £m	NWB Plc RWA £m	NWB Plc MCR £m	UBI DAC RWA £m	UBI DAC MCR £m
Credit risk (excluding counterparty credit risk)	160,654	12,852	138,217	11,057	52,618	4,209	17,718	1,417
STD approach	*35,043*	*2,803*	*82,819*	*6,625*	*13,699*	*1,095*	*957*	*76*
IRB approach (1)	*123,998*	*9,920*	*55,287*	*4,423*	*38,919*	*3,114*	*16,742*	*1,339*
Equity IRB under the simple risk-weight or the internal model approach	*1,613*	*129*	*111*	*9*	—	—	*19*	*2*
Counterparty credit risk	22,764	1,821	21,211	1,697	394	32	345	28
Marked to market	*5,736*	*459*	*4,161*	*333*	*104*	*9*	*14*	*1*
Securities financing transactions	*1,442*	*115*	*1,059*	*85*	—	—	—	—
Of which: Original exposure	—	—	—	—	—	—	—	—
Of which: Standardised approach for counterparty credit risk	—	—	—	—	—	—	—	—
CCR of which: IMM	*15,586*	*1,247*	*15,991*	*1,279*	*290*	*23*	*331*	*27*
Equity positions in banking book under market-based approach	—	—	—	—	—	—	—	—
Settlement risk	19	2	17	1	—	—	—	—
Securitisation exposures in banking book	3,392	271	2,933	235	321	26	—	—
IRB approach	*3,339*	*267*	*2,880*	*231*	*321*	*26*	—	—
Of which: IRB supervisory formula approach	—	—	—	—	—	—	—	—
Internal assessment approach	*53*	*4*	*53*	*4*	—	—	—	—
Of which: Standardised approach	—	—	—	—	—	—	—	—
Market risk	21,255	1,700	19,073	1,526	570	46	7	1
STD approach	*4,713*	*377*	*3,961*	*317*	*400*	*32*	*7*	*1*
Internal model approach	*16,542*	*1,323*	*15,112*	*1,209*	*170*	*14*	—	—
Operational risk	31,597	2,528	15,615	1,249	6,361	509	1,148	92
Of which: Basic indicator approach	—	—	—	—	—	—	—	—
STD approach	*31,597*	*2,528*	*15,615*	*1,249*	*6,361*	*509*	*1,148*	*92*
Of which: Advanced measurement approach	—	—	—	—	—	—	—	—
Amounts below the thresholds for deduction (subject to 250% risk-weight)	2,949	236	5,835	467	1,491	119	11	1
Floor adjustment (2)	—	—	—	—	—	—	—	—
Total	242,630	19,410	202,901	16,232	61,755	4,941	19,229	1,539

Notes:

(1) Of which £681 million RWA's (2015 - £889 million) relates to equity IRB under the PD/LGD approach.

(2) This represents the additional capital requirement when comparing the Basel III Pillar 1 approach (sum of capital requirements from individual risk types) to the Basel I floor (calculated as 80% of Basel I capital requirement adjusted for excess expected loss).

Refer to commentary under CAP 2 for explanations relating to RWA movements for RBS and its significant subsidiaries. This commentary is based on credit and counterparty credit risk as managed internally within RBS whereby securitisations, thresholds and CVA are included within credit and counterparty credit risk as relevant. EU OV1_a provides a bridge between the two RWA approaches. Refer also to the commentary relating to RWA flow statements EU CR8, EU CCR7 and MR 1_A and MR 2_B for individual components in EU OV1_A.

EU OV1_a: RWA bridge between EU OV1 and credit risk

The table below provides a bridge between the EU OV1 RWA summary, the RWA categorisation used by RBS for capital management, and detailed tables within this report. The principal reasons for the differences relate to the different presentation of securitisations, thresholds, CVA and settlement risk.

	RWAs	
	2016 £m	2015 £m
Credit risk excluding counterparty credit risk (EU OV1)	158,777	160,654
Securitisations (banking book only - CR2) - excluded from CR section	1,609	2,814
Threshold (EU OV1)	1,776	2,949
Non-counterparty including securitisations (EU CR8)	162,162	166,417
Counterparty total (EU OV1)	22,579	22,764
Settlement risk (EU OV1)	1	19
Securitisations (banking book only - CR2 CCR) - excluded from CCR section	345	576
Counterparty including settlement risk and securitisations (EU CCR7 + CCR2)	22,925	23,359
Total STD (EU OV1)	35,107	35,043
Threshold (EU OV1)	1,776	2,949
Total including threshold (CR2)	36,883	37,992
Total IRB (EU OV1)	122,336	123,998
Equity (EU CR10_B)	1,334	1,613
Securitisations (CR2)	1,609	2,814
Total IRB including equity and securitisations (CR2)	125,279	128,425

EU OV1_b: RWA bridge between EU OV1 and counterparty credit risk

The table below provides a bridge between the overall RWA summary disclosure in EU OV1 relating to counterparty credit risk sections presented in line with the EBA Pillar 3 Guidelines. The principal differences relate to CVA and central counterparties (CCPs).

	RWAs				
Counterparty credit risk	EU OV1_a £m	CCR1 £m	CCR2 £m	CCR8 £m	Total CCR £m
2016	22,579	17,680	4,663	236	22,579
2015	22,764	16,387	5,890	487	22,764

CAP 4: LR: Leverage exposures (CRR Delegated Act Template) - RBS and significant subsidiaries

		2016 RBS £m	2016 RBS plc £m	2016 NWB Plc £m	2016 UBI DAC £m	2015 RBS £m	2015 RBS plc £m	2015 NWB Plc £m	2015 UBI DAC £m
LRSum: Summary reconciliation of accounting assets and leverage ratio exposure									
1	Total assets as per published financial statements	798,656	633,613	228,921	26,291	815,408	669,182	220,392	22,778
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	9,157	—	—	—	6,990	—	—	(175)
4	Adjustment for derivative financial instruments	(176,384)	(176,226)	(2,012)	126	(180,030)	(180,318)	(1,255)	147
5	Adjustments for securities financing transactions (SFTs)	2,271	3,809	—	—	5,125	5,162	—	—
6	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	58,567	41,375	9,930	1,102	63,464	46,309	9,890	1,021
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	—	(31,631)	(62,152)	—	—	(18,919)	(70,752)	—
7	Other adjustments	(8,965)	(23,702)	(5,101)	(182)	(8,474)	(18,781)	(5,221)	(37)
8	Total leverage ratio exposure	683,302	447,238	169,586	27,337	702,483	502,635	153,054	23,734
LRCom: Leverage ratio common disclosure									
On-balance sheet exposures (excluding derivatives and SFTs)									
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	520,573	350,126	225,839	25,105	521,168	372,653	217,898	21,946
2	Asset amounts deducted in determining Tier 1 capital	(10,493)	(23,726)	(5,101)	(182)	(9,698)	(18,949)	(4,812)	(37)
3	Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)	510,080	326,400	220,738	24,923	511,470	353,704	213,086	21,909
Derivative exposures									
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	24,540	27,355	914	769	23,333	24,816	635	558
5	Add-on amounts for PFE associated with all derivatives transactions (mtm method)	65,804	67,407	190	235	76,739	77,364	196	246
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	600	600	—	—	2,955	2,955	—	—
7	Deductions of receivable assets for cash variation margin provided in derivatives transactions	(20,962)	(20,895)	(34)	—	(23,864)	(23,806)	(1)	—
8	Exempted CCP leg of client-cleared trade exposures	(1,032)	(851)	—	—	(1,173)	(567)	—	—
9	Adjusted effective notional amount of written credit derivatives	16,174	16,088	—	—	26,774	26,577	—	—
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(14,527)	(14,454)	—	—	(22,250)	(22,056)	—	—
11	Total derivative exposures	70,597	75,250	1,070	1,004	82,514	85,283	830	804

CAP 4: LR: Leverage exposures (CRR Delegated Act Template) - RBS and significant subsidiaries continued

		2016				2015			
		RBS	RBS plc	NWB Plc	UBI DAC	RBS	RBS plc	NWB Plc	UBI DAC
		£m	£m	£m	£m	£m	£m	£m	£m
Securities financing transaction exposures									
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	73,515	49,287	—	308	74,271	52,920	—	—
13	Netted amounts of cash payables and cash receivable of gross SFT assets	(31,728)	(17,252)	—	—	(34,361)	(21,824)	—	—
14	Counterparty credit risk exposures for SFT assets	2,271	3,809	—	—	5,125	5,162	—	—
16	Total securities financing transaction exposures	44,058	35,844	—	308	45,035	36,258	—	—
Other off-balance sheet exposures									
17	Off-balance sheet exposures at gross notional amount	194,232	125,015	48,486	3,840	198,895	131,833	44,576	4,226
18	Adjustments for conversion to credit equivalent amounts	(135,665)	(83,640)	(38,556)	(2,738)	(135,431)	(85,524)	(34,686)	(3,205)
19	Other off-balance sheet exposures	58,567	41,375	9,930	1,102	63,464	46,309	9,890	1,021
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)	—	(31,631)	(62,152)	—	—	(18,919)	(70,752)	—
Capital and total exposures									
20	Tier 1 capital	40,419	25,292	10,393	5,224	46,346	34,734	7,171	5,690
21	Total leverage ratio exposure	683,302	447,238	169,586	27,337	702,483	502,635	153,054	23,734
Leverage ratio		5.9%	5.7%	6.1%	19.1%	6.6%	6.9%	4.7%	24.0%

		2016				2015(1)			
		Leverage ratio exposures							
		RBS	RBS plc	NWB plc	UBI DAC	RBS	RBS plc	NWB plc	UBI DAC
LRSpl: Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)		£m	£m	£m	£m	£m	£m	£m	£m
EU-1	Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	510,080	294,769	158,586	24,923	511,470	334,785	142,334	21,909
EU-2	Trading book exposures	55,036	48,409	223	—	69,559	61,672	185	—
EU-3	Banking book exposures, of which:	455,044	246,360	158,363	24,923	441,911	273,113	142,149	21,909
EU-4	Covered bonds	1,386	1,304	—	—	1,367	1,273	—	—
EU-5	Exposures treated as sovereigns	115,532	105,989	1,602	3,672	116,877	110,733	291	2,516
EU-6	Exposures to regional governments, multilateral development bank, international organisations and public sector entities not treated as sovereigns	6,842	4,669	1,553	363	6,955	4,992	1,472	343
EU-7	Institutions	7,762	18,010	1,834	1,910	5,004	12,738	8,213	1,216
EU-8	Secured by mortgages of immovable properties	175,288	44,184	111,883	1,854	46,244	9,685	11,604	1,452
EU-9	Retail exposures	35,222	4,681	12,737	13,295	141,340	33,932	94,129	9,998
EU-10	Corporate	92,177	41,943	21,227	1,971	101,437	80,923	21,338	1,565
EU-11	Exposures in default	7,812	3,644	1,790	1,789	15,554	5,232	3,761	4,387
EU-12	Other exposures (e.g. equity, securitisations, and non-credit obligation assets)	13,023	21,936	5,737	69	7,133	13,605	1,341	432

Note:
(1) Certain line items in 2015 have been grossed up in line with 2016 in terms of presentation: total exposures are unchanged.

CAP 5: CAP: Capital instruments - RBS and significant subsidiaries

The following table sets out the main terms and conditions of RBS's Tier 1 and Tier 2 capital instruments that will be treated as non-end point CRR compliant, for instance because it is a legacy Tier 1 instrument or because it is a Tier 2 instrument that includes an incentive for the issuer to redeem. The balances are the International Financial Reporting Standard (IFRS) balance sheet carrying amounts, which may differ from the amount which the instrument contributes to regulatory capital. Regulatory balances exclude, for example, issuance costs and fair value movements, while dated capital is required to be amortised on a straight-line basis over the final five years of maturity. For accounting purposes the capital instruments in the following table are included within equity or subordinated liabilities, details of which are included on pages 356 to 361 of the 2016 ARA. Refer to RBS.com for more details on these and other instruments issued to third parties on an instrument-by-instrument basis.

Pillar 1 treatment - Additional Tier 1	Step-up coupon	2016 £m	2015 £m
RBS - undated loan capital			
US$762 million 7.648% perpetual regulatory (callable quarterly from September 2031)	3 month US$ LIBOR plus 2.5%	625	519
RBS - debt preference shares			
Series F US$156 million 8.5% (callable any time)		127	105
Series H US$242 million 7.25% (callable any time)		197	163
Series L US$751 million 5.75% (callable any time)		609	506
Series 1 US$65 million 9.118% (callable any time)		54	45
Series 1 £15 million 7.387% (callable any time)		15	15
NWB Plc - debt preference shares			
Series A £140 million 9% (not callable)		143	143
Series C US$246 million 8.625% (callable quarterly)		210	177
RBS US Capital Trusts - debt trust preferred securities			
US$486 million 6.8% 2042 (callable quarterly)		394	328
US$394 million 6.425% 2043 (callable quarterly from January 2034)	3 month US$ LIBOR plus 1.9425%	451	383
RBS N.V. US Capital Trusts - debt trust preferred securities			
US$1,285 million 5.90% Trust Preferred V		—	841
US$200 million 6.25% Trust Preferred VI		—	131
US$1,800 million 6.08% Trust Preferred VII		—	1,178
RBS US Capital Trusts - equity trust preferred securities			
€166 million 4.243%	3 month EURIBOR plus 1.69%	—	110
£93 million 5.6457% (callable quarterly from June 2017)	3 month LIBOR plus 1.69%	93	93
RBS - paid in equity trades			
CAD321 million 6.666% (callable quarterly from October 2017)	3 month CDOR plus 2.76%	156	156
US$564 million 6.99% (callable quarterly from October 2017)	3 month US$ LIBOR plus 2.67%	275	275

CAP 5: CAP: Capital instruments - RBS and significant subsidiaries *continued*

Pillar 1 treatment - Additional Tier 1 *continued*	Step-up coupon	2016 £m	2015 £m
RBS - equity preference shares			
Series R US$254 million 6.125%		—	126
Series S US$661 million 6.6% (callable any time)		321	321
Series T US$1,281 million 7.25%		—	615
Series U US$1,013 million 7.64% (callable every ten years from September 2017)		494	494
Series 1 €1,250 million 5.5% (callable quarterly)		859	859
Series 2 €785 million 5.25% (callable quarterly)		512	512
Series 3 €471 million 7.0916% (callable quarterly from September 2017)		325	325
Series 1 £54 million floating rate notes (callable quarterly)		54	54

Tier 2 capital securities which contain an incentive for the issuer to redeem

Pillar 1 treatment Tier 2			
RBS plc - undated loan capital			
£54 million 5.125% undated subordinated notes	Aggregate of 1.95% and the 5 year UK Gilts yield	—	57
CAD474 million 5.37% undated subordinated notes	3 month CDOR plus 1.48%	—	235
£51 million floating rate undated subordinated notes (callable every five years from December 2012)	Aggregate of 2.35% and the 5 year UK Gilts yield	52	51
£104 million 9.5% undated subordinated bonds (callable every five years from August 2018)	The higher of 9.5% or the 5 year UK Gilts yield plus 2.375%	117	121
£35 million 5.5% undated subordinated notes (callable every five years from December 2019)	Aggregate of 1.84% and the 5 year UK Gilts yield	38	38
£21 million 6.2% undated subordinated notes (callable every five years from March 2022)	Aggregate of 2.05% and the 5 year UK Gilts yield	27	26
£16 million 5.625% undated subordinated notes (callable every five years from September 2026)	Aggregate of 2.10% and the 5 year UK Gilts yield	25	24
£19 million 5.625% undated subordinated notes (callable every five years from June 2032)	Aggregate of 2.41% and the 5 year UK Gilts yield	21	21
NWB Plc - undated loan capital			
€11 million floating rate undated step-up notes (callable quarterly)	3 month EURIBOR plus 2.15%	9	8
€178 million floating rate undated subordinated notes (callable quarterly)	3 month EURIBOR plus 2.15%	154	131
£53 million 7.125% undated subordinated step-up notes (callable every five years from October 2022)	5 year UK Gilts yield plus 3.08%	55	55
RBS plc - dated loan capital			
€1,000 million 4.625% 2021 subordinated notes	3 month EURIBOR plus 1.3%	—	767

CAP 6a: CAP: Countercyclical capital buffer - geographical distribution of credit exposures

As part of the banking reforms introduced by Basel III, a countercyclical capital buffer is required to ensure banks take account of the macro-financial environment when assessing adequate capital requirements. The buffer is to help protect banks during periods of excess aggregate credit growth that have often been associated with the build-up of system wide risk. This regime is intended to help reduce the risk that the supply of credit will be constrained during a period of economic downturn which in turn could undermine the performance of the real economy and consequently result in additional credit losses in the banking system.

The table below summarises RBS's total exposures and own funds requirements based on country of economic operation of the customer. Where applicable, a countercyclical capital buffer rate is applied to the own funds requirement for the geographic region to capture an additional countercyclical requirement.

2016		UK £m	RoI £m	United States £m	Sweden £m	Hong Kong £m	Norway £m	Other £m	Total £m
General credit exposures	Exposure value for STD	25,983	1,113	1,640	222	174	8	18,072	47,212
	Exposure value for IRB	300,721	22,652	13,443	1,327	505	640	31,084	370,372
Trading book	Sum of long and short position of trading book	480	—	69	—	—	—	260	809
	Value of trading book exposure for internal models	(429)	(16)	(222)	(29)	(2)	(32)	(613)	(1,343)
Securitisation exposures	Exposure value for STD	—	—	—	—	—	—	—	—
	Exposure value for IRB	5,810	64	3,586	—	—	4	2,365	11,829
Own funds	Of which: General credit exposures	8,498	1,264	607	59	27	19	2,478	12,952
	Trading book exposures	93	—	24	8	—	—	62	187
	Securitisation exposures	80	2	32	—	—	—	42	156
	Total	8,671	1,266	663	67	27	19	2,582	13,295
Own funds requirement weights		65.21	9.53	4.99	0.50	0.21	0.15	19.41	100.00
Countercyclical capital buffer rate		0.0%	0.0%	0.0%	1.50%	0.63%	1.50%	0.0%	0.01%
Total risk exposure (sum of general credit, trading and securitisation)									
RBS plc		134,419	969	16,614	1,277	130	426	29,756	183,591
NWB Plc		180,038	148	716	17	150	5	2,247	183,321
UBI DAC		552	22,115	39	1	—	—	72	22,779
Total own fund requirements									
RBS plc		8,563	41	545	69	5	17	1,197	10,437
NWB Plc		4,238	8	14	1	3	—	93	4,357
UBI DAC		43	1,186	2	—	—	—	4	1,235

CAP 6b: CAP: Countercyclical capital buffer requirement

The additional countercyclical capital buffer requirement is shown below for RBS and its significant subsidiaries.

	RBS £m	RBS plc £m	NWB Plc £m	UBI DAC £m
Total risk exposure amount	228,220	178,793	64,424	17,995
Institution specific countercyclical buffer rate	0.01%	0.01%	—	—
Institution specific countercyclical buffer requirement	25	23	—	—

EU LI1: CAP: Accounting and regulatory scopes of consolidation

The table below provides a reconciliation between accounting and regulatory consolidation.

	2016				2015			
	Accounting balance sheet £m	Deconsolidation of non-financial entities (1) £m	Consolidation of banking associates (2) £m	Regulatory consolidation £m	Accounting balance sheet £m	Deconsolidation of non-financial entities (1) £m	Consolidation of banking associates (2) £m	Regulatory consolidation £m
Assets								
Cash and balances at central banks	74,250	(44)	648	74,854	79,404	(17)	549	79,936
Loans and advances	382,088	687	6,397	389,172	364,538	769	5,564	370,871
Debt securities	72,522	(577)	1,809	73,754	82,096	(278)	1,490	83,308
Equity shares	703	—	139	842	1,361	(29)	103	1,435
Settlement balances	5,526	—	—	5,526	4,116	—	—	4,116
Derivatives	246,981	507	34	247,522	262,514	369	22	262,905
Intangible assets	6,480	—	4	6,484	6,537	—	3	6,540
Property, plant and equipment	4,590	—	111	4,701	4,482	(32)	58	4,508
Deferred tax	1,803	—	—	1,803	2,631	—	—	2,631
Prepayments, accrued income and other assets	3,700	228	(786)	3,142	4,243	62	(799)	3,506
Assets of disposal groups	13	—	—	13	3,486	—	—	3,486
	798,656	801	8,356	807,813	815,408	844	6,990	823,242
Of which: By significant subsidiary (includes intra-group exposures)								
RBS plc	633,613	—	—	633,613	669,182	—	—	669,182
NWB Plc	228,702	—	—	228,702	219,984	—	—	219,984
UBI DAC	30,696	—	—	30,696	31,020	(239)	—	30,781
Liabilities								
Deposits by banks and customer accounts	419,524	313	7,478	427,315	408,594	613	6,481	415,688
Debt securities in issue	27,245	984	383	28,612	31,150	754	320	32,224
Settlement balances	3,645	—	—	3,645	3,390	—	—	3,390
Short positions	22,077	—	—	22,077	20,809	—	—	20,809
Derivatives	236,475	—	24	236,499	254,705	—	11	254,716
Provisions, deferred income and other liabilities	19,827	(495)	471	19,803	15,115	(524)	178	14,769
Retirement benefit liabilities	363	—	—	363	3,789	—	—	3,789
Deferred tax	662	—	—	662	882	—	—	882
Subordinated liabilities	19,419	—	—	19,419	19,847	—	—	19,847
Liabilities of disposal groups	15	—	—	15	2,980	—	—	2,980
	749,252	802	8,356	758,410	761,261	843	6,990	769,094
Of which: by significant subsidiary (includes intra-group exposures)								
RBS plc	587,737	—	—	587,737	618,006	—	—	618,006
NWB Plc	213,629	—	—	213,629	208,202	—	—	208,202
UBI DAC	24,208	115	—	24,323	23,184	2	—	23,185
Non-controlling interests	795	(1)	—	794	716	1	—	717
Owners' equity	48,609	—	—	48,609	53,431	—	—	53,431
Total equity	49,404	(1)	—	49,403	54,147	1	—	54,148
Of which: by significant subsidiary:								
RBS plc	45,876	—	—	45,876	51,176	—	—	51,176
NWB Plc	15,072	—	—	15,072	11,782	—	—	11,782
UBI DAC	6,488	(115)	—	6,373	7,836	(240)	—	7,596

Notes:
(1) RBS can only include particular types of subsidiary undertaking in the regulatory consolidation. Non-financial undertakings are excluded from the regulatory consolidation.
(2) RBS must proportionally consolidate its associates for regulatory purposes where they are classified as credit institutions or financial institutions. These will generally have been equity accounted for financial reporting purposes. A principal contributor is RBS's investment in Alawwal Bank (formerly Saudi Hollandi Bank).

Total credit risk exposures and RWAs (including counterparty credit risk)

EU CRA: IRB and STD: General qualitative information about credit risk

Definitions and framework

Credit risk is the risk of financial loss owing to the failure of a customer or counterparty to meet its obligation to settle outstanding amounts.

RBS is exposed to credit risk as a result of a wide range of business activities. The most significant source of credit risk is lending. The second most significant source is counterparty credit risk, which results from activities in the derivatives and security financing transaction markets. Credit risk management covers concentration risk, settlement risk, issuer risk, wrong-way risk, residual value risk and credit mitigation risk.

For definitions of terms used in credit and counterparty credit risk tables and text, refer to the Glossary.

The disclosures in this section cover both credit risk (referred to as non-counterparty credit risk for clarity) and counterparty credit risk. Counterparty credit risk principally comprises exposures arising from derivatives and securities financing transactions. Non-counterparty credit risk excludes such exposures but includes loans and advances to customers, banks and central banks, as well as holdings of debt securities and equity shares.

The two subsequent sections cover credit risk and counterparty credit risk separately. Except where noted, the disclosures in these sections exclude intra-Group exposures.

Credit risk governance and management

For a description of the main characteristics and elements of credit risk governance and management as well as additional credit risk disclosures, refer to page 207 of the 2016 ARA.

Measurement of credit RWAs under CRR

RBS has been granted permission by the PRA and other European regulators to use the Advanced Internal Ratings Based (AIRB) approach to calculate RWAs for the majority of its credit risk exposures. This permits RBS to use its own models to estimate Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD) as inputs to the regulatory formula that determines RWAs.

In the case of project finance and income-producing real estate lending, the supervisory slotting methodology is used to determine RWAs.

For some portfolios, primarily in Private Banking, RBS uses the Standardised (STD) approach to calculate RWAs - either on a permanent basis or pending an application to the PRA to transition to the AIRB approach under RBS's roll-out plan.

Under the STD approach, risk weights are assigned to exposures in accordance with the CRR. For corporates, sovereigns and financial institutions, RBS uses risk weights based on credit quality steps that are mapped from credit ratings issued by external rating agencies, namely Standard & Poor's (S&P), Moody's and Fitch.

EU CRC: IRB and STD: Qualitative disclosures relating to credit risk mitigation

RBS uses a number of credit risk mitigation approaches. These differ for Personal and Wholesale customers.

For Personal customers, RBS takes collateral in the form of residential property to mitigate the credit risk arising from mortgages and home equity lending.

For Wholesale customers, RBS mitigates credit risk through the use of netting, collateral and market standard documentation, depending on the nature of the counterparty and its assets. Mitigation can include commercial real estate, other physical assets - such as stock, plant, equipment, machinery, vehicles, ships and aircraft - receivables (amounts due to counterparties from their own customers) and financial collateral.

In certain cases, credit risk is mitigated through the use of guarantees. Such guarantees may be from banks or other financial institutions (including standby letters of credit), companies (including one-way or inter-company structures), export credit agencies, UK government schemes (such as the Enterprise Finance Guarantee), other Sovereigns, or individuals (in which case the amount must be specified). Requirements and conditions for these are set out in RBS credit policies.

RBS mitigates counterparty credit risk arising from both derivatives transactions and repurchase agreements through the use of market standard documentation, enabling netting, and through collateralisation.

Credit insurance can also be used as a mitigant. In such cases the insurer will, in return for insurance premiums, pay all or part of an amount due to RBS if certain events agreed with the insurer occur. Credit insurance may be used to mitigate debtor risk in receivables financing, to mitigate lessee risk in asset financing or otherwise to mitigate general exposure to a customer. Requirements and conditions for these are set out in RBS credit policies.

Credit risk mitigants are reviewed in the context of the overall credit concentration risk frameworks.

For further information on credit risk mitigation, refer to Table EU CR3_a of this report and page 211 of the 2016 ARA.

EU LI2: IRB and STD: Balance sheet to credit risk EAD bridge

The table below provides a bridge between the balance sheet and credit risk EAD by balance sheet caption as a first step towards implementing the EBA's EU LI2 bridge.

				Other regulatory adjustments								
2016	Balance sheet £bn	Consolidation differences (1) £bn	Regulatory consolidation £bn	Within the scope of market risk (2) £bn	Credit provisions (3) £bn	Netting and collateral (4) £bn	Capital deduction (5) £bn	Disposal groups (6) £bn	Methodology differences and reclassifications (7) £bn	Total drawn EAD £bn	Undrawn and off-balance sheet EAD £bn	Total EAD £bn
Cash and balances at central banks	74.3	0.6	74.9	—	—	—	—	—	1.2	76.1	—	76.1
Reverse repurchase agreements and stock borrowing	41.8	—	41.8	—	—	(24.5)	—	—	(1.0)	16.3	—	16.3
Loans and advances	340.3	7.1	347.4	(0.2)	4.3	(23.7)	—	—	(10.0)	317.8	82.5	400.3
Debt securities	72.5	1.2	73.8	(24.4)	—	—	—	—	(1.6)	47.7	—	47.7
Equity shares	0.7	0.1	0.8	(0.2)	—	—	—	—	0.2	0.8	—	0.8
Settlement balances	5.5	—	5.5	—	—	—	—	—	(5.5)	—	—	—
Derivatives	247.0	0.5	247.5	—	—	(205.4)	—	—	(4.1)	38.1	—	38.1
Intangible assets	6.5	—	6.5	—	—	—	(6.5)	—	—	—	—	—
Property, plant and equipment	4.6	0.1	4.7	—	—	—	—	—	0.1	4.8	—	4.8
Deferred tax	1.8	—	1.8	—	—	—	(0.8)	—	(0.7)	0.3	—	0.3
Prepayments, accrued income and other assets	3.7	(0.6)	3.1	—	0.2	—	—	—	(0.4)	3.0	—	3.0
Assets of disposal groups	—	—	—	—	—	—	—	—	—	—	—	—
Total assets	798.7	9.2	807.8	(24.8)	4.5	(253.5)	(7.3)	—	(21.8)	504.8	82.5	587.3
Contingent obligations											9.9	9.9
											92.4	597.2

For the notes to this table refer to the following page.

EU LI2: IRB and STD: Balance sheet to credit risk EAD bridge *continued*

2015	Balance sheet £bn	Consolidation differences (1) £bn	Regulatory consolidation £bn	Other regulatory adjustments: Within the scope of market risk (2) £bn	Credit provisions (3) £bn	Netting and collateral (4) £bn	Capital deduction (5) £bn	Disposal groups (6) £bn	Methodology differences and reclassifications (7) £bn	Total drawn EAD £bn	Undrawn and off-balance sheet EAD £bn	Total EAD £bn
Cash and balances at central banks	79.4	0.5	79.9	—	—	—	—	0.5	—	80.5	—	80.5
Reverse repurchase agreements and stock borrowing	39.8	—	39.8	—	—	(23.7)	—	—	—	16.1	—	16.1
Loans and advances	324.7	6.3	331.0	(0.3)	7.1	(28.3)	—	2.4	(10.6)	301.4	79.7	381.1
Debt securities	82.1	1.2	83.3	(35.7)	0.2	—	—	0.5	(0.1)	48.2	—	48.2
Equity shares	1.4	0.1	1.4	(0.7)	0.1	—	—	—	—	0.8	—	0.8
Settlement balances	4.1	—	4.1	—	—	—	—	—	(4.1)	—	—	—
Derivatives	262.5	0.4	262.9	—	0.8	(214.8)	—	—	(9.4)	39.5	—	39.5
Intangible assets	6.5	—	6.5	—	—	—	(6.5)	—	—	—	—	—
Property, plant and equipment	4.5	—	4.5	—	—	—	—	—	(0.1)	4.4	—	4.4
Deferred tax	2.6	—	2.6	—	—	—	(2.6)	—	0.7	0.7	—	0.7
Prepayments, accrued income and other assets	4.2	(0.7)	3.5	—	—	—	—	0.1	—	3.6	—	3.6
Assets of disposal groups	3.5	—	3.5	—	—	—	—	(3.5)	—	—	—	—
Total assets	815.4	7.8	823.2	(36.7)	8.2	(266.8)	(9.2)	—	(23.6)	495.2	79.7	574.9
Contingent obligations											16.5	16.5
											96.2	591.4

Notes:
(1) Represents proportional consolidation of associates and deconsolidation of certain subsidiaries, as required by regulatory rules.
(2) The exposures in regulatory trading book businesses are subject to market risk and are therefore excluded from EAD.
(3) Impairment loss provisions on loans and advances and securities, and credit valuation adjustment on derivatives.
(4) Includes:
- Reverse repos: reflects regulatory approach for securities financing transactions including netting of collateral and cash legs.
- Loans and advances: cash collateral pledged with counterparties in relation to net derivative liability positions.
- Derivatives: impact of master netting arrangements.

(5) Capital deductions are excluded as EAD only captures exposures for credit RWAs.
(6) Amounts reclassified to balance sheet lines for EAD.
(7) Primarily includes:
- Loans and advances: offset related to cash management pooling arrangements not allowed under IFRS and standardised approach credit risk mitigation.
- Derivatives: EAD valuation adjustments offset by difference between netting arrangements and netting within regulatory model sets.
- Property, plant and equipment: includes residual value of operating leases.

Total credit risk exposures and RWAs (including counterparty credit risk)

CR1: IRB and STD: RWA density by RBS sector cluster

The following table summarises RBS's total credit risk profile (incorporating counterparty credit risk and securitisations) analysed by customer type and type of risk, reflecting the basis on which these are managed internally. Wholesale customers, which are managed on an individual basis, are grouped by sector cluster. Personal customers, which are managed on a portfolio basis, are grouped into portfolios of similar risk. The table presents EAD post credit risk mitigation (CRM), RWAs and RWA density, each split by regulatory approach.

	EAD post CRM			RWAs			RWA density		
	IRB	STD	Total	IRB	STD	Total	IRB	STD	Total
2016	£m	£m	£m	£m	£m	£m	%	%	%
Sector cluster									
Sovereign									
Central banks	34,541	56,193	90,734	1,048	—	1,048	3	—	1
Central government	22,327	17,712	40,039	2,313	33	2,346	10	—	6
Other sovereign	4,246	461	4,707	1,244	181	1,425	29	39	30
Total sovereign	61,114	74,366	135,480	4,605	214	4,819	8	—	4
Financial institutions (FI)									
Banks	27,813	963	28,776	13,249	490	13,739	48	51	48
Non-bank FI (1)	31,056	9,673	40,729	15,469	6,059	21,528	50	63	53
SSPEs (2)	13,029	711	13,740	2,880	840	3,720	22	118	27
Total FI	71,898	11,347	83,245	31,598	7,389	38,987	44	65	47
Corporates									
Property									
- UK	41,090	4,362	45,452	20,107	4,171	24,278	49	96	53
- RoI	1,215	48	1,263	1,084	49	1,133	89	102	90
- Western Europe	2,866	379	3,245	1,503	373	1,876	52	98	58
- US	332	17	349	184	17	201	55	100	58
- RoW	611	2,174	2,785	422	2,026	2,448	69	93	88
Total property	46,114	6,980	53,094	23,300	6,636	29,936	51	95	56
Natural resources									
- Oil and gas	4,106	172	4,278	1,941	171	2,112	47	99	49
- Mining and metals	1,309	35	1,344	650	34	684	50	97	51
- Electricity	5,872	271	6,143	3,187	272	3,459	54	100	56
- Water and waste	6,699	80	6,779	1,706	64	1,770	25	80	26
Total natural resources	17,986	558	18,544	7,484	541	8,025	42	97	43
Of which: commodity traders	*665*	—	*665*	*335*	—	*335*	*50*	—	*50*
Transport									
- Shipping	4,162	873	5,035	2,440	908	3,348	59	104	66
- Automotive	8,028	100	8,128	3,280	97	3,377	41	97	42
- Other	8,402	714	9,116	3,933	457	4,390	47	64	48
Total transport	20,592	1,687	22,279	9,653	1,462	11,115	47	87	50
Manufacturing	18,459	2,142	20,601	8,486	2,059	10,545	46	96	51
Retail and leisure	20,481	4,215	24,696	12,887	4,000	16,887	63	95	68
Services	21,746	1,474	23,220	13,009	1,390	14,399	60	94	62
TMT (3)	7,262	391	7,653	5,133	377	5,510	71	96	72
Total corporates	152,640	17,447	170,087	79,952	16,465	96,417	52	94	57
Of which: total commodity traders	*861*	—	*861*	*473*	—	*473*	*55*	—	*55*
Personal									
Mortgages									
- UK	140,275	8,713	148,988	9,699	3,373	13,072	7	39	9
- RoI	15,685	20	15,705	9,729	14	9,743	62	70	62
- Western Europe	—	223	223	—	86	86	—	39	39
- US	—	131	131	—	51	51	—	39	39
- RoW	—	1,774	1,774	—	1,249	1,249	—	70	70
Total mortgages	155,960	10,861	166,821	19,428	4,773	24,201	12	44	15
Other personal	29,166	4,131	33,297	11,185	3,020	14,205	38	73	43
Total personal	185,126	14,992	200,118	30,613	7,793	38,406	17	52	19
Other items	—	8,231	8,231	—	6,457	6,457	—	78	78
Total	470,778	126,383	597,161	146,768	38,318	185,086	31	30	31

For the notes to this table refer to the following page.

Total credit risk exposures and RWAs (including counterparty credit risk)

CR1: IRB and STD: RWA density by RBS sector cluster *continued*

	EAD post CRM			RWAs			RWA density		
	IRB	STD	Total	IRB	STD	Total	IRB	STD	Total
2015	£m	£m	£m	£m	£m	£m	%	%	%
Sector cluster									
Sovereign									
Central banks	46,879	48,453	95,332	1,730	—	1,730	4	—	2
Central government	22,561	16,778	39,339	2,028	637	2,665	9	4	7
Other sovereign	4,109	442	4,551	963	225	1,188	23	51	26
Total sovereign	73,549	65,673	139,222	4,721	862	5,583	6	1	4
Financial institutions (FI)									
Banks	25,629	2,088	27,717	11,941	1,326	13,267	47	64	48
Non-bank FI (1)	30,898	10,057	40,955	15,366	5,623	20,989	50	56	51
SSPEs (2)	10,971	1,232	12,203	4,140	747	4,887	38	61	40
Total FI	67,498	13,377	80,875	31,447	7,696	39,143	47	58	48
Corporates									
Property									
- UK	41,992	3,473	45,465	20,827	3,487	24,314	50	100	53
- RoI	1,836	17	1,853	814	15	829	44	92	45
- Western Europe	2,992	378	3,370	1,587	374	1,961	53	99	58
- US	688	19	707	325	19	344	47	100	49
- RoW	930	1,315	2,245	792	1,295	2,087	85	99	93
Total property	48,438	5,202	53,640	24,345	5,190	29,535	50	100	55
Natural resources									
- Oil and gas	5,467	138	5,605	2,481	133	2,614	45	96	47
- Mining and metals	1,497	106	1,603	690	108	798	46	102	50
- Electricity	5,133	167	5,300	2,586	144	2,730	50	86	52
- Water and waste	5,805	68	5,873	1,511	53	1,564	26	78	27
Total natural resources	17,902	479	18,381	7,268	438	7,706	41	91	42
Of which: commodity traders	776	—	776	365	—	365	47	—	47
Transport									
- Shipping	5,811	1,698	7,509	3,790	1,698	5,488	65	100	73
- Automotive	8,580	87	8,667	3,222	80	3,302	38	91	38
- Other	8,890	645	9,535	3,964	368	4,332	45	57	45
Total transport	23,281	2,430	25,711	10,976	2,146	13,122	47	88	51
Manufacturing	22,811	1,476	24,287	9,430	1,382	10,812	41	94	45
Retail and leisure	20,071	3,634	23,705	12,207	3,548	15,755	61	98	66
Services	22,080	1,207	23,287	12,884	1,138	14,022	58	94	60
TMT (3)	7,424	370	7,794	4,495	337	4,832	61	91	62
Total corporates	162,007	14,798	176,805	81,605	14,179	95,784	50	96	54
Of which: total commodity traders	*1,350*	—	*1,350*	*624*	—	*624*	*46*	—	*46*
Personal									
Mortgages									
- UK	126,295	8,087	134,382	9,397	3,337	12,734	7	41	9
- RoI	14,048	18	14,066	11,564	12	11,576	82	65	82
- Western Europe	—	228	228	—	97	97	—	42	42
- US	—	111	111	—	45	45	—	41	41
- RoW	—	1,328	1,328	—	897	897	—	68	68
Total mortgages	140,343	9,772	150,115	20,961	4,388	25,349	15	45	17
Other personal	29,659	5,395	35,054	11,276	3,966	15,242	38	74	43
Total personal	170,002	15,167	185,169	32,237	8,354	40,591	19	55	22
Other items	—	9,359	9,359	—	8,677	8,677	—	93	93
Total	473,056	118,374	591,430	150,010	39,768	189,778	32	34	32

Notes:
(1) Non-bank financial institutions, such as US agencies, insurance companies, pension funds, hedge and leverage funds, broker-dealers and non-bank subsidiaries of banks.
(2) Securitisation special purpose entities (SSPEs) primarily relate to securitisation related vehicles.
(3) Telecommunications, media and technology.
(4) Alawwal Bank exposures at 31 December 2016 are classified by sector cluster based on published accounts. 2015 data has been revised to be consistent.

Total credit risk exposures and RWAs (including counterparty credit risk)

Key points

- Total credit risk exposure increased over the year, with EAD post CRM up 1% (£5.7 billion) to £597 billion at 31 December 2016 while RWAs fell 2% (£4.7 billion) to £185 billion as overall credit quality improved. Overall, RWA density remained fairly stable, as £7.7 billion of the increase in exposure related to zero-weighted placements with the Bank of England.
- Excluding the exchange rate impact, EAD post CRM fell 3% or £16.3 billion.
- The key upward drivers for EAD post CRM were:
  - The weakening of sterling against other major currencies following the EU referendum (which accounted for an underlying upward impact of £22 billion); and
  - 11% growth in the UK mortgage portfolio to £149 billion, in line with the growth strategy for this sector, still within risk appetite (accounting for an upward impact of £15 billion).
- These were largely offset by:
  - Asset sales, limit reductions and early repayments in line with risk reduction strategy (accounting for a downward impact of £22 billion); and
  - A reduction in exposures to central banks as part of ongoing liquidity management by Treasury (accounting for a downward impact of £11 billion).
- RWA movements were also affected by recent updates to the PD models for banks, local authorities, housing associations and investment fund bridge lending; and the LGD models for banks and quasi-governments. These updates are implemented through annual customer credit review. The update of the PD model for banks recognised a reduction in implied government support reflecting changes in the regulatory environment in response to the global economic downturn in 2008. This resulted in some downward rating migration across internal asset quality bands.
- Retail PD models are recalibrated on a quarterly basis to incorporate more recent data. This resulted in upward rating migrations due to the current benign credit conditions, notably in mortgage lending.

Credit risk (excluding non-counterparty credit risk)

Non-counterparty credit risk EAD post CRM increased 1% (£7.0 billion) to £543 billion. The increase was predominantly driven by the growth in the UK mortgage portfolio and exchange rate movements, partly offset by a reduction in exposures to central banks as part of ongoing liquidity management by Treasury and selective disposals in the US and APAC, portfolio sales, limit reductions and early repayments in line with risk reduction strategy. RWAs decreased 3% (£4.3 billion) to £162 billion reflecting risk reduction strategy, a change in the portfolio mix in securitisations and upward rating migrations in the Retail portfolio.

Counterparty credit risk

Counterparty credit risk EAD post CRM and RWAs fell 2% due to the continuing roll-off of trades in Capital Resolution, offset by the impact of exchange rate movements.

Sector cluster movements - IRB approach

Overall, EAD post CRM under the IRB approach fell 0.5% (£2.3 billion) to £471 billion due to a reduction in exposures to central banks as part of ongoing liquidity management by Treasury and selective disposals in the US and APAC, as well as portfolio sales, limit reductions and early repayments in line with RBS's risk reduction strategy. This was largely offset by exchange rate movements and growth in the UK mortgage portfolio. RWA density fell from 32% to 31% in line with RWA reductions of 2% (£3.2 billion) reflecting risk reduction strategy, a change in the portfolio mix in securitisations and the continued benign economic conditions, reflected in the Retail portfolio.

Sovereigns - The decrease of 17% (£12.4 billion) in EAD post CRM reflected liquidity management, partially offset by exchange rate movements. RWAs and RWA density remained stable.

Securitisation SPEs - The 19% (£2.1 billion) increase in EAD post CRM reflected growth in lower-risk transactions and the continuing run-down of high-risk assets. This was reflected in the RWA decrease of 30% (£1.3 billion) in line with RBS's risk reduction strategy. This caused RWA density to fall from 38% to 22%.

Property - EAD post CRM fell 5% (£2.3 billion) and RWAs fell by 4% (£1 billion), primarily as a result of reductions through repayments, asset sales and write-offs of legacy non-performing assets. RWA density in RoI increased from 44% to 89% following the sale of a non-performing portfolio of loans that had no impact on RWAs.

Oil and gas - EAD post CRM fell 25% (£1.4 billion) and RWAs fell 22% (£0.5 billion), mainly due to exposure reductions in the US and APAC (£0.5 billion). RWA density increased from 45% to 47%, reflecting the deteriorating credit quality of the portfolio, as the challenging market conditions in this sector continued.

Mining and metals - EAD post CRM fell 13% (£0.2 billion) while RWAs fell 6% (£0.04 billion). There was no material trend in the portfolio other than normal business activities. RWA density rose from 46% to 50% due to a degree of deterioration in the credit quality of the portfolio, as the sector remained affected by a slowdown in demand and the oversupply of key metal commodities.

Electricity - EAD post CRM increased 14% (£0.7 billion). This largely reflected a refined classification of exposure in the natural resources sector, which led to a transfer of regulated utility exposure from Oil and Gas to Electricity and an increase in Project Finance portfolio as part of the growth strategy. This caused RWAs to rise 23% (£0.6 billion) and RWA density to rise from 50% to 54%. The overall average RWA density for the Project Finance portfolio was unchanged at 75% compared to 2015.

Water and waste - EAD post CRM increased 15% (£0.9 billion) driven by derivative mark-to-market movements. RWA density fell from 26% to 25% despite RWAs increasing 13% (£0.2 billion) as these derivative products attract below-average RWAs for this sector.

Shipping - EAD post CRM fell 28% (£1.6 billion) and RWAs fell by 36% (£1.4 billion). The reductions reflected not only asset sales and loan amortisations but also the continued challenging market conditions that affect vessel values in the bulk, container and tanker sectors as a number of customers moved into default. RWA density decreased from 65% to 59% due to sales of high-capital-consumption portfolios in Capital Resolution.

Personal: Mortgages - EAD post CRM for UK mortgages rose 11%, driven by business strategy to increase lending, while underwriting standards remained robust. RWAs remained fairly stable, due to asset mix benefits and overall improved credit quality, largely reflecting the current benign credit conditions. RWA density remained flat at 7%.

EAD post CRM for RoI mortgages increased 12%, mostly driven by exchange rate movements as well as new lending reflecting continuing market demand. This was offset by asset disposals, repayments and the sale of a loan portfolio. RWAs fell 16% and RWA density fell from 82% to 62% due to higher-risk asset sales and improvements in credit quality. The underlying credit metrics continued to benefit from the improving economic environment.

Sector cluster movements - STD approach

Overall, EAD post CRM under the STD approach increased 7% to £126 billion, mainly due to liquidity management activities and an increase in Alawwal Bank's mortgage, property and manufacturing exposure in the Rest of the World (RoW). This was offset by reductions in unsecured lending to Personal customers, reduced placements with Banks and asset sales in Shipping. RWAs fell 4% and RWA density fell from 34% to 30%, mainly due to the RWA reduction relating to Alawwal Bank's exposure.

Shipping - EAD post CRM fell 49% and RWAs fell 47%. The reductions reflected not only asset sales and loan amortisations but also the continued challenging market conditions. RWA density increased from 100% to 104%.The exposure under the STD approach relates to customers outside the UK, the RoI and the US, for which RBS has no permission to use internal models.

Personal: Other personal lending - EAD post CRM fell 23% and RWAs fell 24% due to a disposal of international business. The remaining UK-focused portfolio was stable and the arrears rate was in line with the prior year.

Other items - EAD post CRM fell by 12% and RWAs fell 26%, reflecting a reduction in Non-Credit Obligation Assets.

Refer to the Credit risk section of the 2016 ARA for further commentary on exposure movements by sector.

Total credit risk exposures and RWAs (including counterparty credit risk)

CR2: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS and significant subsidiaries

The table below analyses credit risk (including securitisations) and counterparty credit risk separately for RBS and significant subsidiaries (including intra-Group exposures). It presents EAD pre and post CRM, RWAs and minimum capital requirements (MCR), split by regulatory approach and exposure class.

	RBS				RBS plc				NWB Plc				UBI DAC			
Credit risk	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m
2016																
IRB																
Central governments and central banks	53,426	53,358	3,688	295	46,893	46,893	2,941	235	831	763	21	2	4,056	4,056	414	33
Institutions	18,615	16,084	4,690	375	10,036	9,450	3,052	244	2,533	918	316	25	621	621	162	13
Corporates	156,539	146,789	78,193	6,255	85,640	81,518	42,320	3,386	46,400	40,971	23,391	1,871	5,113	5,026	4,313	345
Specialised lending	*26,138*	*25,195*	*17,459*	*1,396*	*17,610*	*16,678*	*11,207*	*897*	*7,188*	*7,177*	*5,256*	*420*	*1,098*	*1,098*	*839*	*67*
SME	*23,471*	*22,878*	*10,613*	*849*	*5,792*	*5,609*	*2,787*	*223*	*11,526*	*11,168*	*4,912*	*393*	*1,126*	*1,119*	*742*	*59*
Other corporate	*106,930*	*98,716*	*50,121*	*4,010*	*62,238*	*59,231*	*28,326*	*2,266*	*27,686*	*22,626*	*13,223*	*1,058*	*2,889*	*2,809*	*2,732*	*219*
Retail	195,341	195,341	34,709	2,777	41,568	41,568	5,905	472	132,367	132,367	16,438	1,315	16,854	16,855	10,517	841
Secured by real estate property - SME	*1,360*	*1,361*	*462*	*37*	*397*	*397*	*134*	*11*	*965*	*965*	*328*	*26*	—	—	—	—
- non-SME	*155,959*	*155,959*	*19,428*	*1,554*	*33,111*	*33,111*	*2,396*	*191*	*104,859*	*104,859*	*6,648*	*532*	*15,685*	*15,686*	*9,729*	*778*
Qualifying revolving	*23,293*	*23,292*	*6,171*	*494*	*4,854*	*4,854*	*1,547*	*124*	*17,721*	*17,721*	*4,304*	*344*	*361*	*361*	*215*	*17*
Other retail - SME	*9,169*	*9,169*	*3,894*	*312*	*1,852*	*1,852*	*681*	*54*	*5,159*	*5,159*	*1,863*	*149*	*608*	*608*	*434*	*35*
- non-SME	*5,560*	*5,560*	*4,754*	*380*	*1,354*	*1,354*	*1,147*	*92*	*3,663*	*3,663*	*3,295*	*264*	*200*	*200*	*139*	*11*
Equities	781	781	2,015	161	154	154	487	39	4	4	13	1	—	—	—	—
Securitisation	10,685	10,685	1,609	129	8,492	8,492	1,212	97	2,141	2,141	309	25	—	—	—	—
Non-credit obligation assets	1,120	1,120	375	30	—	—	—	—	—	—	—	—	—	—	—	—
Total IRB	436,507	424,158	125,279	10,022	192,783	188,075	55,917	4,473	184,276	177,164	40,488	3,239	26,644	26,558	15,406	1,232
STD																
Central governments and central banks	71,819	71,894	729	58	67,932	68,054	728	58	951	962	1,839	147	1	1	2	—
Regional governments and local authorities	191	190	156	12	10	10	2	—	18	15	3	—	1	1	1	—
Multilateral development banks	33	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Institutions	505	558	263	21	43,568	43,568	1,791	143	63,900	63,900	217	17	1,554	1,554	315	25
Corporates	18,053	16,993	16,635	1,331	4,434	3,797	3,584	288	403	379	387	31	293	293	292	23
Retail	3,430	3,408	2,369	190	150	150	87	7	428	428	257	21	14	14	8	1
Secured by mortgages on:																
immovable property - residential	11,829	11,828	5,053	404	1,071	1,071	479	38	3	3	3	—	—	—	—	—
- commercial	3,508	3,483	3,496	280	367	350	364	29	51	50	50	4	4	4	6	1
Exposures in default	1,264	1,255	1,420	114	784	778	857	69	33	33	46	4	15	15	23	2
Items associated with particularly high risk	391	391	587	47	—	—	—	—	—	—	—	—	—	—	—	—
Covered bonds	84	84	17	1	—	—	—	—	—	—	—	—	—	—	—	—
Equity exposures	555	555	1,199	96	16,894	16,894	60,842	4,867	3,407	3,406	11,699	936	5	5	13	1
Other exposures	8,002	8,001	4,959	397	3,453	3,453	2,368	189	2,271	2,271	1,077	86	469	469	197	16
Total STD	119,664	118,673	36,883	2,951	138,663	138,125	71,102	5,688	71,465	71,447	15,578	1,246	2,356	2,356	857	69
Total IRB and STD	556,171	542,831	162,162	12,973	331,446	326,200	127,019	10,161	255,741	248,611	56,066	4,485	29,000	28,914	16,263	1,301

Total credit risk exposures and RWAs (including counterparty credit risk)

CR2: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS and significant subsidiaries *continued*

	RBS			RBS plc			NWB Plc			UBI DAC		
Counterparty credit risk	EAD post CRM £m	RWAs £m	MCR £m	EAD post CRM £m	RWAs £m	MCR £m	EAD post CRM £m	RWAs £m	MCR £m	EAD post CRM £m	RWAs £m	MCR £m
2016												
IRB												
Central governments and central banks	8,473	570	46	8,473	570	46	—	—	—	—	—	—
Institutions	10,661	8,703	695	10,614	8,623	690	2	1	—	14	9	1
Corporates	26,342	11,872	950	24,596	10,660	852	900	458	37	95	69	5
Specialised lending	*2,282*	*1,699*	*136*	*1,873*	*1,374*	*110*	*146*	*114*	*9*	*75*	*53*	*4*
SME	*207*	*175*	*14*	*115*	*106*	*8*	*89*	*65*	*5*	*3*	*3*	—
Other corporate	*23,853*	*9,998*	*800*	*22,608*	*9,180*	*734*	*665*	*279*	*23*	*17*	*13*	*1*
Securitisation positions	1,144	345	28	805	310	25	42	5	—	—	—	—
Total IRB	46,620	21,490	1,719	44,488	20,163	1,613	944	464	37	109	78	6
STD												
Government and multilateral institutions	2,607	10	1	2,599	9	1	—	—	—	—	—	—
Institutions	3,890	308	25	8,883	601	48	2,167	—	—	875	427	34
Corporates	1,203	1,109	89	524	440	35	9	9	1	—	—	—
Retail	8	6	—	—	—	—	—	—	—	—	—	—
Past due items	2	2	—	1	1	—	—	—	—	—	—	—
Total STD	7,710	1,435	115	12,007	1,051	84	2,176	9	1	875	427	34
Total IRB and STD	54,330	22,925	1,834	56,495	21,214	1,697	3,120	473	38	984	505	40

Total credit risk exposures and RWAs (including counterparty credit risk)

CR2: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS and significant subsidiaries *continued*

	RBS				RBS plc				NWB Plc				UBI DAC			
Credit risk	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m	EAD pre CRM £m	EAD post CRM £m	RWAs £m	MCR £m
2015																
IRB																
Central governments and central banks	66,599	66,599	3,977	318	59,224	59,224	2,787	223	143	143	4	—	3,335	3,335	364	29
Institutions	15,688	12,966	2,959	237	6,474	5,997	1,378	110	2,305	614	156	12	1,006	1,006	250	20
Corporates	174,237	156,402	79,543	6,364	100,672	88,961	43,816	3,505	46,720	40,850	23,491	1,879	6,185	6,071	3,586	287
Specialised lending	*27,547*	*26,734*	*18,622*	*1,490*	*18,171*	*17,372*	*12,035*	*963*	*7,662*	*7,649*	*5,834*	*467*	*1,007*	*1,007*	*595*	*48*
SME	*26,727*	*25,960*	*12,018*	*961*	*6,582*	*6,369*	*3,066*	*245*	*13,132*	*12,625*	*5,967*	*477*	*1,996*	*1,989*	*912*	*73*
Other corporate	*119,963*	*103,708*	*48,903*	*3,913*	*75,919*	*65,220*	*28,715*	*2,297*	*25,926*	*20,576*	*11,690*	*935*	*3,182*	*3,075*	*2,079*	*166*
Retail	179,406	179,406	36,216	2,897	43,896	43,896	6,575	526	115,744	115,744	15,255	1,221	15,219	15,219	12,542	1,003
Secured by real estate property - SME	*1,213*	*1,213*	*427*	*34*	*442*	*442*	*154*	*12*	*771*	*771*	*273*	*22*	—	—	—	—
- non-SME	*140,340*	*140,340*	*20,960*	*1,677*	*34,918*	*34,918*	*2,828*	*226*	*89,088*	*89,088*	*5,853*	*468*	*14,048*	*14,048*	*11,564*	*925*
Qualifying revolving	*23,792*	*23,792*	*6,383*	*510*	*5,189*	*5,189*	*1,707*	*137*	*17,921*	*17,921*	*4,335*	*347*	*313*	*313*	*216*	*17*
Other retail - SME	*8,597*	*8,597*	*3,883*	*311*	*1,966*	*1,966*	*745*	*60*	*4,407*	*4,407*	*1,697*	*136*	*698*	*698*	*640*	*51*
- non-SME	*5,464*	*5,464*	*4,563*	*365*	*1,381*	*1,381*	*1,141*	*91*	*3,557*	*3,557*	*3,097*	*248*	*160*	*160*	*122*	*10*
Equities	890	890	2,503	200	286	286	842	67	4	4	12	1	5	5	19	2
Securitisation	8,591	8,591	2,814	225	8,335	8,335	2,392	192	24	24	313	25	—	—	—	—
Non-credit obligation assets	1,117	1,117	412	33	—	—	—	—	—	—	—	—	—	—	—	—
Total IRB	446,528	425,971	128,424	10,274	218,887	206,699	57,790	4,623	164,940	157,379	39,231	3,138	25,750	25,636	16,761	1,341
STD																
Central governments and central banks	62,139	62,431	27	2	58,444	58,570	—	—	184	195	—	—	6	6	—	—
Regional governments and local authorities	210	210	179	14	9	9	2	—	—	—	—	—	1	1	1	—
Multilateral development banks	17	43	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Institutions	890	947	269	19	41,390	41,392	2,391	191	78,234	78,239	94	8	818	818	165	12
Corporates	19,887	18,427	17,751	1,421	35,410	35,183	6,383	511	327	312	210	17	283	283	283	23
Retail	3,732	3,607	2,527	202	146	146	85	7	449	449	276	22	12	12	7	1
Secured by mortgages on:																
immovable property - residential	10,592	10,592	4,398	352	1,040	1,040	439	35	3	3	4	—	—	—	—	—
- commercial	3,183	3,167	3,232	260	245	231	282	23	72	71	89	7	1	1	1	—
Exposures in default	632	632	745	60	102	102	127	10	25	25	37	3	9	9	13	1
Items associated with particularly high risk	191	191	286	23	—	—	—	—	—	—	—	—	—	—	—	—
Covered bonds	144	144	15	1	—	—	—	—	—	—	—	—	—	—	—	—
Collective investments undertakings	12	12	12	1	—	—	—	—	—	—	—	—	—	—	—	—
Equity exposures	605	605	1,281	102	20,909	20,909	74,803	5,984	3,240	3,240	11,614	929	5	5	15	1
Other exposures	8,813	8,813	7,271	582	4,032	4,032	4,142	331	3,083	3,083	2,867	229	500	500	483	39
Total STD	111,047	109,821	37,993	3,039	161,727	161,614	88,654	7,092	85,617	85,617	15,191	1,215	1,635	1,635	968	77
Total IRB and STD	557,575	535,792	166,417	13,313	380,614	368,313	146,444	11,715	250,557	242,996	54,422	4,353	27,385	27,271	17,729	1,418

Total credit risk exposures and RWAs (including counterparty credit risk)

CR2: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS and significant subsidiaries *continued*

	RBS			RBS plc			NWB Plc			UBI DAC		
Counterparty credit risk	EAD post CRM £m	RWAs £m	MCR £m	EAD post CRM £m	RWAs £m	MCR £m	EAD post CRM £m	RWAs £m	MCR £m	EAD post CRM £m	RWAs £m	MCR £m
2015												
IRB												
Central governments and central banks	7,028	350	28	7,023	348	28	—	—	—	3	1	—
Institutions	10,941	8,488	679	10,824	8,290	663	2	1	—	19	12	1
Corporates	27,464	12,147	972	25,980	11,053	884	660	391	31	98	69	6
Specialised lending	*2,558*	*2,012*	*161*	*2,132*	*1,680*	*134*	*140*	*132*	*11*	*72*	*47*	*4*
SME	*266*	*172*	*14*	*179*	*97*	*8*	*84*	*72*	*6*	*3*	*3*	—
Other corporate	*24,640*	*9,963*	*797*	*23,669*	*9,276*	*742*	*436*	*187*	*14*	*23*	*19*	*2*
Securitisation positions	1,652	601	48	1,283	562	45	61	8	1	—	—	—
Total IRB	47,085	21,586	1,727	45,110	20,253	1,620	723	400	32	120	82	7
STD												
Government and multilateral institutions	2,602	33	3	2,567	10	1	—	—	—	—	—	—
Institutions	4,687	558	45	4,284	990	79	—	—	—	530	263	21
Corporates	1,219	1,142	91	613	516	41	2	2	—	—	—	—
Retail	45	42	3	—	—	—	—	—	—	—	—	—
Total STD	8,553	1,775	142	7,464	1,516	121	2	2	—	530	263	21
Total IRB and STD	55,638	23,361	1,869	52,574	21,769	1,741	725	402	32	650	345	28

Key points

Credit risk

- RBS plc - EAD post CRM fell 11%, predominantly driven by a reduction in exposures to central banks as part of ongoing liquidity management by Treasury and selective disposals in the US and APAC, portfolio sales, limit reductions and early repayments in line with the risk reduction strategy. RWAs decreased 13%, mainly reflecting the risk reduction strategy and the replacement of legacy high-RWA-density business with new low-RWA-density business.
- NWB Plc - EAD post CRM increased 2% and RWAs increased 3%, driven by growth in the UK mortgage portfolio in line with the growth strategy, within risk appetite.
- UBI DAC - EAD post CRM rose 6%, driven by exchange rate movements and new lending, offset by asset sales and repayments. RWAs fell 8% due to higher-risk asset sales and improvements in credit quality. The underlying credit metrics continued to benefit from the improving economic environment.

Counterparty credit risk

- Counterparty credit risk EAD post CRM and RWAs fell 2% due to the continuing roll-off of trades in Capital Resolution, offset by the impact of exchange rate movements.

Total credit risk exposures and RWAs (including counterparty credit risk)

CR3: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS segments

The table below analyses credit risk (including securitisations) and counterparty credit risk separately for RBS and its segments. It presents EAD post CRM and RWAs, analysed by regulatory approach and exposure class.

	UK PBB		Ulster Bank RoI		Commercial Banking		Private Banking		RBSI		NatWest Markets		Capital Resolution		W&G		Central items & other		Total	
Credit risk	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m
2016																				
IRB																				
Central governments and central banks	7,571	445	8,241	660	18,575	1,088	—	—	2,283	132	6,517	447	9,138	851	—	—	1,033	65	53,358	3,688
Institutions	1,825	463	1,627	416	7,415	2,083	—	—	539	137	1,663	487	2,765	1,037	2	—	248	67	16,084	4,690
Corporates	561	611	5,132	4,234	117,127	59,633	—	—	485	357	6,693	2,822	8,337	4,752	8,428	5,770	26	14	146,789	78,193
Specialised lending	*11*	*9*	*1,098*	*839*	*16,656*	*11,714*	—	—	—	—	*66*	*47*	*4,017*	*2,296*	*3,347*	*2,554*	—	—	*25,195*	*17,459*
SME	*31*	*14*	*1,119*	*742*	*18,536*	*8,152*	—	—	*34*	*93*	—	—	*112*	*35*	*3,046*	*1,577*	—	—	*22,878*	*10,613*
Other corporate	*519*	*588*	*2,915*	*2,653*	*81,935*	*39,767*	—	—	*451*	*264*	*6,627*	*2,775*	*4,208*	*2,421*	*2,035*	*1,639*	*26*	*14*	*98,716*	*50,121*
Retail	162,260	21,136	16,855	10,518	1,467	824	—	—	—	—	—	—	22	12	14,737	2,219	—	—	195,341	34,709
Secured by real estate property																				
- SME	*1,150*	*390*	—	—	—	—	—	—	—	—	—	—	—	—	*211*	*72*	—	—	*1,361*	*462*
- non-SME	*129,149*	*8,972*	*15,685*	*9,729*	—	—	—	—	—	—	—	—	—	—	*11,125*	*727*	—	—	*155,959*	*19,428*
Qualifying revolving	*21,242*	*5,512*	*361*	*215*	—	—	—	—	—	—	—	—	—	—	*1,689*	*444*	—	—	*23,292*	*6,171*
Other retail - SME	*6,445*	*2,432*	*608*	*434*	*1,078*	*643*	—	—	—	—	—	—	*14*	*9*	*1,024*	*376*	—	—	*9,169*	*3,894*
- non-SME	*4,274*	*3,830*	*201*	*140*	*389*	*181*	—	—	—	—	—	—	*8*	*3*	*688*	*600*	—	—	*5,560*	*4,754*
Equities (1)	36	102	20	57	452	945	—	—	11	30	45	141	212	725	—	—	5	15	781	2,015
Securitisation	369	36	204	20	2,401	559	—	—	108	11	5,601	474	1,952	504	—	—	50	5	10,685	1,609
Non-credit obligation assets	—	—	—	—	1,120	375	—	—	—	—	—	—	—	—	—	—	—	—	1,120	375
Total IRB	172,622	22,793	32,079	15,905	148,557	65,507	—	—	3,426	667	20,519	4,371	22,426	7,881	23,167	7,989	1,362	166	424,158	125,279

Note:
(1) Represents equity warrants held by RBS, granting it the option to purchase shares in corporate entities. For accounting purposes, the warrants are treated as over-the-counter derivatives and thus reported under counterparty credit risk in regulatory disclosures.

Total credit risk exposures and RWAs (including counterparty credit risk)

CR3: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS segments *continued*

	UK PBB		Ulster Bank RoI		Commercial Banking		Private Banking		RBSI		NatWest Markets		Capital Resolution		W&G		Central items & other		Total	
Credit risk	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m
2016																				
STD																				
Central governments and central banks	11,307	93	5,750	51	25,224	223	5,323	113	3,208	54	8,800	90	10,741	89	—	—	1,541	16	71,894	729
Regional governments and local authorities	—	—	1	1	15	3	—	—	164	150	1	—	9	2	—	—	—	—	190	156
Multilateral development banks	—	—	—	—	—	—	—	—	—	—	—	—	33	—	—	—	—	—	33	—
Institutions	15	3	8	1	63	33	75	17	17	3	13	3	365	203	—	—	2	—	558	263
Corporates	32	39	486	469	3,516	3,435	1,082	1,068	5,172	5,166	205	128	6,399	6,233	100	96	1	1	16,993	16,635
Retail	82	59	16	10	1,105	651	1,316	983	104	77	1	1	784	588	—	—	—	—	3,408	2,369
Secured by mortgages on																				
- immovable property - residential	114	40	5	1	128	114	7,640	2,674	2,927	1,219	7	4	944	939	62	62	1	—	11,828	5,053
- commercial	1	1	5	7	387	401	1,817	1,817	1,228	1,225	1	1	2	2	42	42	—	—	3,483	3,496
Exposures in default	20	30	28	42	85	118	322	360	87	98	—	—	696	747	17	25	—	—	1,255	1,420
Items associated with particularly high risk	—	—	—	—	—	—	—	—	—	—	—	—	391	587	—	—	—	—	391	587
Covered bonds	13	2	7	1	30	5	6	3	4	2	11	2	11	2	—	—	2	—	84	17
Equity exposures	66	142	36	78	159	341	73	211	19	41	94	176	98	184	—	—	10	26	555	1,199
Other exposures	3,346	1,679	608	292	1,634	1,111	301	287	175	93	920	731	949	740	57	14	11	12	8,001	4,959
Total STD	14,996	2,088	6,950	953	32,346	6,435	17,955	7,533	13,105	8,128	10,053	1,136	21,422	10,316	278	239	1,568	55	118,673	36,883
Total IRB and STD	187,618	24,881	39,029	16,858	180,903	71,942	17,955	7,533	16,531	8,795	30,572	5,507	43,848	18,197	23,445	8,228	2,930	221	542,831	162,162

Total credit risk exposures and RWAs (including counterparty credit risk)

CR3: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS segments *continued*

	UK PBB		Ulster Bank RoI		Commercial Banking		Private Banking		RBSI		NatWest Markets		Capital Resolution		W&G		Central items & other		Total	
Counterparty credit risk	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m
2016																				
IRB																				
Central governments and central banks	—	—	—	—	—	—	—	—	—	—	4,698	390	3,775	180	—	—	—	—	8,473	570
Institutions	—	—	14	9	—	—	—	—	—	—	7,755	5,893	2,892	2,801	—	—	—	—	10,661	8,703
Corporates	—	—	95	68	2	2	—	—	17	32	15,948	6,692	10,280	5,078	—	—	—	—	26,342	11,872
Specialised lending	—	—	*75*	*52*	—	—	—	—	—	—	*239*	*156*	*1,968*	*1,491*	—	—	—	—	*2,282*	*1,699*
SME	—	—	*3*	*3*	*1*	*1*	—	—	—	—	*117*	*95*	*86*	*76*	—	—	—	—	*207*	*175*
Other corporate	—	—	*17*	*13*	*1*	*1*	—	—	*17*	*32*	*15,592*	*6,441*	*8,226*	*3,511*	—	—	—	—	*23,853*	*9,998*
Securitisation positions	—	—	—	—	—	—	—	—	—	—	342	53	802	292	—	—	—	—	1,144	345
Total IRB	—	—	109	77	2	2	—	—	17	32	28,743	13,028	17,749	8,351	—	—	—	—	46,620	21,490
STD																				
Government and multilateral institutions (1)	—	—	—	—	—	—	—	—	—	—	1,291	1	1,316	9	—	—	—	—	2,607	10
Institutions	—	—	—	—	—	—	—	—	—	—	3,389	218	501	90	—	—	—	—	3,890	308
Corporates	—	—	—	—	—	—	14	14	—	—	860	816	329	279	—	—	—	—	1,203	1,109
Retail	—	—	—	—	—	—	8	6	—	—	—	—	—	—	—	—	—	—	8	6
Past due items	—	—	—	—	—	—	1	1	—	—	—	—	1	1	—	—	—	—	2	2
Total STD	—	—	—	—	—	—	23	21	—	—	5,540	1,035	2,147	379	—	—	—	—	7,710	1,435
Total IRB and STD	—	—	109	77	2	2	23	21	17	32	34,283	14,063	19,896	8,730	—	—	—	—	54,330	22,925

Note:
(1) Comprises: central governments or central banks, regional governments or local authorities, administrative bodies and non-commercial undertakings, and multilateral development banks.

CR3: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS segments *continued*

Credit risk	UK PBB		Ulster Bank RoI		Commercial Banking		Private Banking		RBSI		NatWest Markets		Capital Resolution		W&G		Central items & other		Total	
	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m
2015																				
IRB																				
Central governments and central banks	9,234	403	8,704	598	20,206	905	—	—	2,291	100	8,366	484	17,798	1,487	—	—	—	—	66,599	3,977
Institutions	1,149	209	1,671	371	5,346	1,113	—	—	284	51	1,142	218	3,371	997	3	—	—	—	12,966	2,959
Corporates	1,739	1,182	4,842	3,533	108,780	54,655	—	—	358	383	7,809	2,704	24,557	11,340	8,317	5,746	—	—	156,402	79,543
Specialised lending	*278*	*158*	*720*	*594*	*16,004*	*11,637*	—	—	—	—	*106*	*67*	*6,395*	*3,609*	*3,231*	*2,557*	—	—	*26,734*	*18,622*
SME	*511*	*188*	*1,473*	*870*	*20,012*	*9,174*	—	—	*58*	*135*	—	—	*771*	*106*	*3,135*	*1,545*	—	—	*25,960*	*12,018*
Other corporate	*950*	*836*	*2,649*	*2,069*	*72,764*	*33,844*	—	—	*300*	*248*	*7,703*	*2,637*	*17,391*	*7,625*	*1,951*	*1,644*	—	—	*103,708*	*48,903*
Retail	148,265	20,626	15,218	12,542	1,409	670	—	—	—	—	—	—	40	14	14,474	2,364	—	—	179,406	36,216
Secured by real estate property																				
- SME	*938*	*329*	—	—	—	—	—	—	—	—	—	—	—	*1*	*275*	*97*	—	—	*1,213*	*427*
- non-SME	*115,831*	*8,683*	*14,048*	*11,564*	—	—	—	—	—	—	—	—	—	—	*10,461*	*713*	—	—	*140,340*	*20,960*
Qualifying revolving	*21,697*	*5,694*	*312*	*216*	—	—	—	—	—	—	—	—	—	—	*1,783*	*473*	—	—	*23,792*	*6,383*
Other retail - SME	*5,604*	*2,289*	*698*	*640*	*1,037*	*481*	—	—	—	—	—	—	*18*	*9*	*1,240*	*464*	—	—	*8,597*	*3,883*
- non-SME	*4,195*	*3,631*	*160*	*122*	*372*	*189*	—	—	—	—	—	—	*22*	*4*	*715*	*617*	—	—	*5,464*	*4,563*
Equities (1)	59	173	39	119	411	919	—	—	14	43	55	166	312	1,083	—	—	—	—	890	2,503
Securitisation	123	10	72	6	1,502	1,249	—	—	31	3	3,687	325	3,176	1,221	—	—	—	—	8,591	2,814
Non-credit obligation assets	—	—	—	—	792	253	—	—	—	—	—	—	325	159	—	—	—	—	1,117	412
Total IRB	160,569	22,603	30,546	17,169	138,446	59,764	—	—	2,978	580	21,059	3,897	49,579	16,301	22,794	8,110	—	—	425,971	128,424

Note:
(1) Represents equity warrants held by RBS, granting it the option to purchase shares in corporate entities. For accounting purposes, the warrants are treated as over-the-counter derivatives and thus reported under counterparty credit risk in regulatory disclosures.

Total credit risk exposures and RWAs (including counterparty credit risk)

CR3: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS segments *continued*

Credit risk	UK PBB EAD post CRM £m	UK PBB RWAs £m	Ulster Bank RoI EAD post CRM £m	Ulster Bank RoI RWAs £m	Commercial Banking EAD post CRM £m	Commercial Banking RWAs £m	Private Banking EAD post CRM £m	Private Banking RWAs £m	RBSI EAD post CRM £m	RBSI RWAs £m	NatWest Markets EAD post CRM £m	NatWest Markets RWAs £m	Capital Resolution EAD post CRM £m	Capital Resolution RWAs £m	W&G EAD post CRM £m	W&G RWAs £m	Central items & other EAD post CRM £m	Central items & other RWAs £m	Total EAD post CRM £m	Total RWAs £m
2015																				
STD																				
Central governments and central banks	9,378	4	4,966	—	18,565	—	4,941	—	2,271	23	6,486	—	12,521	—	—	—	3,303	—	62,431	27
Regional governments and local authorities	—	—	—	—	—	—	—	—	175	170	—	—	10	3	—	—	25	6	210	179
Multilateral development banks	—	—	—	—	—	—	—	—	—	—	—	—	26	—	—	—	17	—	43	—
Institutions	5	1	3	1	12	4	22	5	16	5	3	1	265	126	—	—	621	126	947	269
Corporates	368	313	461	387	3,131	2,950	949	918	4,481	4,458	280	137	8,078	7,841	116	121	563	626	18,427	17,751
Retail	123	90	12	7	1,081	641	1,570	1,173	93	70	—	—	657	493	1	1	70	52	3,607	2,527
Secured by mortgages on																				
- immovable property - residential	130	46	—	—	95	100	6,389	2,235	2,843	1,211	—	—	616	615	8	12	511	179	10,592	4,398
- commercial	—	1	1	1	269	321	2,030	2,033	796	788	—	—	7	7	57	74	7	7	3,167	3,232
Exposures in default	12	16	15	23	53	78	384	427	69	81	—	—	76	87	23	33	—	—	632	745
Items associated with particularly high risk	—	—	—	—	—	—	191	286	—	—	—	—	—	—	—	—	—	—	191	286
Covered bonds	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	144	15	144	15
Collective investments undertakings	—	—	—	—	—	—	—	—	—	—	—	—	12	12	—	—	—	—	12	12
Equity exposures	66	136	38	79	156	308	38	103	16	34	84	138	164	257	—	—	43	226	605	1,281
Other exposures	3,476	2,236	499	389	1,417	1,149	391	446	171	121	937	885	1,654	1,545	210	100	58	400	8,813	7,271
Total STD	13,558	2,843	5,995	887	24,779	5,551	16,905	7,626	10,931	6,961	7,790	1,161	24,086	10,986	415	341	5,362	1,637	109,821	37,993
Total IRB and STD	174,127	25,446	36,541	18,056	163,225	65,315	16,905	7,626	13,909	7,541	28,849	5,058	73,665	27,287	23,209	8,451	5,362	1,637	535,792	166,417

Total credit risk exposures and RWAs (including counterparty credit risk)

CR3: IRB and STD: EAD, RWAs and MCR by CRR exposure class: RBS segments *continued*

Counterparty credit risk	UK PBB		Ulster Bank RoI		Commercial Banking		Private Banking		RBSI		NatWest Markets		Capital Resolution		W&G		Central items & other		Total	
	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m	EAD post CRM £m	RWAs £m
2015																				
IRB																				
Central governments and central banks	—	—	3	—	—	—	—	—	—	—	3,795	231	3,230	119	—	—	—	—	7,028	350
Institutions	—	—	19	12	—	—	—	—	—	—	6,007	3,987	4,915	4,489	—	—	—	—	10,941	8,488
Corporates	1	1	85	61	2	—	—	—	8	8	15,720	5,809	11,648	6,268	—	—	—	—	27,464	12,147
Specialised lending	*—*	*—*	*66*	*48*	*—*	*—*	*—*	*—*	*—*	*—*	*171*	*157*	*2,321*	*1,807*	*—*	*—*	*—*	*—*	*2,558*	*2,012*
SME	*—*	*—*	*1*	*2*	*—*	*—*	*—*	*—*	*—*	*—*	*74*	*35*	*191*	*135*	*—*	*—*	*—*	*—*	*266*	*172*
Other corporates	*1*	*1*	*18*	*11*	*2*	*—*	*—*	*—*	*8*	*8*	*15,475*	*5,617*	*9,136*	*4,326*	*—*	*—*	*—*	*—*	*24,640*	*9,963*
Securitisation positions	—	—	—	—	—	—	—	—	—	—	483	85	1,169	516	—	—	—	—	1,652	601
Total IRB	1	1	107	73	2	—	—	—	8	8	26,005	10,112	20,962	11,392	—	—	—	—	47,085	21,586
STD																				
Government and multilateral institutions (1)	—	—	—	—	—	—	—	—	—	—	1,232	1	1,368	32	—	—	2	—	2,602	33
Institutions	—	—	—	—	—	—	—	—	—	—	4,486	493	192	61	—	—	9	4	4,687	558
Corporates	—	—	—	—	—	—	4	5	—	—	686	628	525	504	—	—	4	5	1,219	1,142
Retail	—	—	—	—	—	—	32	28	—	—	—	—	—	—	—	—	13	14	45	42
Total STD	—	—	—	—	—	—	36	33	—	—	6,404	1,122	2,085	597	—	—	28	23	8,553	1,775
Total IRB and STD	1	1	107	73	2	—	36	33	8	8	32,409	11,234	23,047	11,989	—	—	28	23	55,638	23,361

Note:
(1) Comprises: central governments or central banks, regional governments or local authorities, administrative bodies and non-commercial undertakings, and multilateral development banks.

Total credit risk exposures and RWAs (including counterparty credit risk)

Key points

Non-counterparty credit risk

- UK PBB - EAD post CRM increased 8%, driven by significant mortgage lending activity. Underwriting standards are constantly monitored to ensure that they remain adequate in the current market environment and were not weakened to sustain the growth observed during the period. The UK unsecured lending portfolio remained stable during the year, with no material changes to asset quality. RWAs remained fairly stable, reflecting the continued low interest rate environment.
- Ulster Bank RoI - EAD post CRM for mortgages increased 7%, driven by new mortgage lending and exchange rate movements; offset by asset sales and repayments. RWAs fell 7% as underlying credit metrics continued to benefit from the improving economic environment and higher-risk asset sales.
- Commercial Banking - EAD post CRM increased 11% and RWAs increased 10%, driven by new lending to commercial customers aimed at continuing to support the UK and Western Europe business community across a variety of sectors.
- RBSI - EAD post CRM increased 19% and RWAs increased 17% reflecting the segment's growth strategy and risk appetite, mainly within the Funds sector.
- NatWest Markets - EAD post CRM increased 6% and RWAs increased 9%, mainly due to an increase in securitisation positions.
- Capital Resolution - EAD post CRM fell 40% and RWAs fell 33% as the franchise continued to dispose of non-strategic assets.

Counterparty credit risk

- NatWest Markets - EAD post CRM increased 6%, mainly due to exchange rate movements. RWAs increased 25%, primarily reflecting the recent updates to PD estimates to reflect the reduced implied government support for banks.
- Capital Resolution - EAD post CRM fell 14% and RWAs fell 27%, driven by the continued roll-off of trades in line with strategy.

EU CRB_B: IRB and STD: Exposures (EAD) - period end and average EAD pre and post CRM

The table below presents credit risk EAD pre and post CRM on a period end and 12 month average basis, analysed by regulatory approach and exposure class. It excludes counterparty credit risk and securitisations.

	EAD pre CRM		EAD post CRM	
2016	Period end £m	Average £m	Period end £m	Average £m
IRB				
Central governments and central banks	53,426	62,460	53,358	62,433
Institutions	18,615	18,005	16,084	13,483
Corporates	156,539	173,214	146,789	152,934
Specialised lending	*26,138*	*26,847*	*25,195*	*26,346*
SME	*23,471*	*25,530*	*22,878*	*24,880*
Other corporate	*106,930*	*120,837*	*98,716*	*101,708*
Retail	195,341	189,179	195,341	189,179
Secured by real estate property - SME	*1,360*	*1,302*	*1,361*	*1,302*
- non-SME	*155,959*	*149,798*	*155,959*	*149,798*
Qualifying revolving	*23,293*	*23,433*	*23,292*	*23,433*
Other retail - SME	*9,169*	*9,103*	*9,169*	*9,103*
- non-SME	*5,560*	*5,543*	*5,560*	*5,543*
Equities	781	788	781	788
Non-credit obligation assets	1,120	1,235	1,120	1,235
Total IRB	425,822	444,881	413,473	420,052
STD				
Central governments and central banks	71,819	57,799	71,894	57,951
Regional governments and local authorities	191	210	190	210
Multilateral development banks	33	23	33	33
Institutions	505	581	558	639
Corporates	18,053	19,197	16,993	18,172
Retail	3,430	3,488	3,408	3,422
Secured by mortgages on immovable property - residential	11,829	11,178	11,828	11,177
- commercial	3,508	3,470	3,483	3,456
Exposures in default	1,264	897	1,255	891
Items associated with particularly high risk	391	52	391	52
Covered bonds	84	117	84	117
Collective investments undertakings	—	54	—	54
Equity exposures	555	290	555	290
Other exposures	8,002	8,324	8,001	8,322
Total STD	119,664	105,680	118,673	104,786
Total IRB and STD	545,486	550,561	532,146	524,838

EU CRB_B: IRB and STD: Exposures (EAD) - period end and average EAD pre and post CRM *continued*

2015	EAD pre CRM Period end £m	EAD pre CRM Average £m	EAD post CRM Period end £m	EAD post CRM Average £m
IRB				
Central governments and central banks	66,599	63,335	66,599	63,331
Institutions	15,688	18,474	12,966	15,560
Corporates	174,237	201,921	156,402	179,558
Specialised lending	*27,547*	*29,357*	*26,734*	*28,762*
SME	*26,727*	*32,217*	*25,960*	*31,480*
Other corporate	*119,963*	*140,347*	*103,708*	*119,316*
Retail	179,406	173,963	179,406	173,963
Secured by real estate property - SME	*1,213*	*1,250*	*1,213*	*1,250*
- non-SME	*140,340*	*133,824*	*140,340*	*133,824*
Qualifying revolving	*23,792*	*24,043*	*23,792*	*24,043*
Other retail - SME	*8,597*	*9,064*	*8,597*	*9,064*
- non-SME	*5,464*	*5,782*	*5,464*	*5,782*
Equities	890	808	890	808
Non-credit obligation assets	1,117	1,218	1,117	1,218
Total IRB	437,937	459,719	417,380	434,438
STD				
Central governments and central banks	62,139	54,491	62,431	54,491
Regional governments and local authorities	210	143	210	142
Multilateral development banks	17	108	43	108
International organisations	—	5	—	5
Institutions	890	1,571	947	1,571
Corporates	19,887	16,215	18,427	14,768
Retail	3,732	3,717	3,607	3,452
Secured by mortgages on immovable property - residential	10,592	9,926	10,592	9,926
- commercial	3,183	2,654	3,167	2,652
Exposures in default	632	715	632	697
Items associated with particularly high risk	191	46	191	46
Covered bonds	144	146	144	146
Collective investments undertakings	12	23	12	23
Equity exposures	605	187	605	187
Other exposures	8,813	10,488	8,813	10,487
Total STD	111,047	100,435	109,821	98,701
Total IRB and STD	548,984	560,154	527,201	533,139

Credit risk (excluding counterparty credit risk)

EU CRB_C: IRB and STD: Exposures (EAD post CRM) - geographical analysis

The table below presents credit risk EAD post CRM analysed by geography, split by regulatory approach and exposure class. It excludes counterparty credit risk and securitisations. Geographical analysis is based on country of operation of the customer.

2016	UK £m	RoI £m	Other Western Europe £m	US £m	Rest of world £m	Total £m
IRB						
Central governments and central banks	223	2,406	33,839	11,184	5,706	53,358
Institutions	2,637	80	7,769	3,875	1,723	16,084
Corporates	110,956	5,559	16,428	7,738	6,108	146,789
Specialised lending	*19,867*	*921*	*1,707*	*617*	*2,083*	*25,195*
SME	*21,607*	*1,155*	*61*	*34*	*21*	*22,878*
Other corporate	*69,482*	*3,483*	*14,660*	*7,087*	*4,004*	*98,716*
Retail	178,099	16,869	157	52	164	195,341
Secured by real estate property - SME	*1,354*	*1*	*2*	*1*	*3*	*1,361*
- non-SME	*140,274*	*15,685*	—	—	—	*155,959*
Qualifying revolving	*22,572*	*382*	*144*	*48*	*146*	*23,292*
Other retail - SME	*8,556*	*601*	*4*	*2*	*6*	*9,169*
- non-SME	*5,343*	*200*	*7*	*1*	*9*	*5,560*
Equities	622	—	143	13	3	781
Non-credit obligation assets	407	—	671	—	42	1,120
Total IRB	292,944	24,914	59,007	22,862	13,746	413,473
Proportion	71%	6%	14%	6%	3%	100%
STD						
Central governments and central banks	68,842	110	353	—	2,589	71,894
Regional governments and local authorities	180	1	9	—	—	190
Multilateral development banks	—	—	—	—	33	33
Institutions	28	2	116	19	393	558
Corporates	8,103	532	1,747	188	6,423	16,993
Retail	2,438	5	80	8	877	3,408
Secured by mortgages on immovable property - residential	9,495	27	226	124	1,956	11,828
- commercial	3,049	13	222	58	141	3,483
Exposures in default	479	48	61	9	658	1,255
Items associated with particularly high risk	—	—	—	391	—	391
Covered bonds	—	—	84	—	—	84
Equity exposures	55	—	13	31	456	555
Other exposures	6,645	481	229	184	462	8,001
Total STD	99,314	1,219	3,140	1,012	13,988	118,673
Proportion	84%	1%	3%	1%	11%	100%
Total IRB and STD	392,258	26,133	62,147	23,874	27,734	532,146
Proportion	74%	5%	12%	4%	5%	100%
Of which: by significant subsidiary (excludes intra-group exposures)						
RBS plc	170,578	902	50,279	21,700	11,603	255,062
NWB Plc	175,435	133	1,250	900	689	178,407
UBI DAC	563	24,368	1,816	96	360	27,203

EU CRB_C: IRB and STD: Exposures (EAD post CRM) - geographical analysis *continued*

2015	UK £m	RoI £m	Other Western Europe £m	US £m	Rest of world £m	Total £m
IRB						
Central governments and central banks	54	1,646	29,715	25,775	9,409	66,599
Institutions	2,770	118	7,318	1,057	1,703	12,966
Corporates	109,317	6,075	18,541	11,596	10,873	156,402
Specialised lending	*20,430*	*615*	*1,748*	*595*	*3,346*	*26,734*
SME	*23,791*	*1,995*	*97*	*32*	*45*	*25,960*
Other corporate	*65,096*	*3,465*	*16,696*	*10,969*	*7,482*	*103,708*
Retail	163,781	15,232	165	54	174	179,406
Secured by real estate property - SME	*1,206*	*1*	*2*	*1*	*3*	*1,213*
- non-SME	*126,292*	*14,048*	—	—	—	*140,340*
Qualifying revolving	*23,105*	*334*	*149*	*49*	*155*	*23,792*
Other retail - SME	*7,896*	*689*	*5*	*2*	*5*	*8,597*
- non-SME	*5,282*	*160*	*9*	*2*	*11*	*5,464*
Equities	497	10	337	32	14	890
Non-credit obligation assets	597	—	485	—	35	1,117
Total IRB	277,016	23,081	56,561	38,514	22,208	417,380
Proportion	66%	6%	14%	9%	5%	100%
STD						
Central governments and central banks	59,692	122	511	94	2,012	62,431
Regional governments and local authorities	177	1	20	—	12	210
Multilateral development banks	—	—	—	—	43	43
Institutions	20	4	336	17	570	947
Corporates	8,218	407	1,265	240	8,297	18,427
Retail	2,717	3	79	9	799	3,607
Secured by mortgages on immovable property - residential	8,470	26	217	103	1,776	10,592
- commercial	2,676	12	184	61	234	3,167
Exposures in default	481	34	63	13	41	632
Items associated with particularly high risk	184	—	3	—	4	191
Covered bonds	—	—	140	—	4	144
Collective investments undertakings	—	—	—	12	—	12
Equity exposures	25	—	54	25	501	605
Other exposures	6,383	495	377	404	1,154	8,813
Total STD	89,043	1,104	3,249	978	15,447	109,821
Proportion	81%	1%	3%	1%	14%	100%
Total IRB and STD	366,059	24,185	59,810	39,492	37,655	527,201
Proportion	69%	5%	11%	8%	7%	100%
Of which: by significant subsidiary (excludes intra-group exposures)						
RBS plc	163,518	664	47,571	36,963	16,593	265,309
NWB Plc	158,501	65	974	680	453	160,673
UBI DAC	845	22,717	2,060	253	377	26,252

Key points

- Following the EU referendum, exchange rate movements had a significant upward impact on EAD post CRM in the RoI, Western Europe and the US.
- US - EAD post CRM fell 40% reflecting RBS's strategy to reduce activity in the US.
- RoW - EAD post CRM fell 26% reflecting RBS's strategy to reduce activity in Asia-Pacific and asset sales in the Shipping sector.
- UK - EAD post CRM increased 7% driven by growth in the UK mortgage portfolio in line with the strategy to increase market share, remaining with risk appetite.

EU CRB_D: IRB and STD: Exposures (EAD post CRM) - industry analysis

The table below presents credit risk EAD post CRM analysed by industry, split by regulatory approach and exposure class. It excludes counterparty credit risk and securitisations. Industry analysis reflects the sector classification used by RBS for risk management purposes.

	Sovereign			Financial institutions			Corporates							Personal		Other	
2016	Central banks £m	Central governments £m	Other sovereign £m	Banks £m	Non-bank £m	SSPEs £m	Property £m	Natural resources £m	Transport £m	Manufacturing £m	Retail and leisure £m	Services £m	TMT £m	Mortgages £m	Other personal £m	Not allocated £m	Total £m
IRB																	
Central governments and central banks	28,433	21,628	545	2,752	—	—	—	—	—	—	—	—	—	—	—	—	53,358
Institutions	—	—	2,513	13,533	1	—	—	—	33	—	—	4	—	—	—	—	16,084
Corporates	—	—	78	2	16,172	940	41,888	12,435	17,333	15,600	17,801	17,731	6,645	—	164	—	146,789
Specialised lending	—	—	*68*	—	*140*	*167*	*19,062*	*2,688*	*1,754*	*109*	*144*	*1,060*	*1*	—	*2*	—	*25,195*
SME	—	—	—	—	*745*	—	*2,490*	*634*	*2,534*	*4,649*	*4,776*	*6,496*	*535*	—	*19*	—	*22,878*
Other corporate	—	—	*10*	*2*	*15,287*	*773*	*20,336*	*9,113*	*13,045*	*10,842*	*12,881*	*10,175*	*6,109*	—	*143*	—	*98,716*
Retail	—	—	14	1	116	—	2,389	67	622	2,065	2,216	2,659	230	155,960	29,002	—	195,341
Secured by real estate property - SME	—	—	—	—	*5*	—	*575*	*6*	*71*	*130*	*291*	*248*	*23*	—	*12*	—	*1,361*
- non-SME	—	—	—	—	—	—	—	—	—	—	—	—	—	*155,959*	—	—	*155,959*
Qualifying revolving	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*23,292*	—	*23,292*
Other retail - SME	—	—	*14*	*1*	*111*	—	*1,814*	*61*	*551*	*1,935*	*1,925*	*2,410*	*207*	—	*140*	—	*9,169*
- non-SME	—	—	—	—	—	—	—	—	—	—	—	*1*	—	*1*	*5,558*	—	*5,560*
Equities	—	—	—	7	718	—	5	4	—	22	—	25	—	—	—	—	781
Non-credit obligation assets	—	19	83	91	71	—	161	32	404	31	149	16	63	—	—	—	1,120
Total IRB	28,433	21,647	3,233	16,386	17,078	940	44,443	12,538	18,392	17,718	20,166	20,435	6,938	155,960	29,166	—	413,473
STD																	
Central governments and central banks	56,051	15,562	—	—	—	—	—	—	—	—	—	—	—	—	—	281	71,894
Regional governments and local authorities	—	—	190	—	—	—	—	—	—	—	—	—	—	—	—	—	190
Multilateral development banks	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33
Institutions	—	—	—	505	53	—	—	—	—	—	—	—	—	—	—	—	558
Corporates	—	—	26	184	5,066	29	3,252	498	816	1,860	3,258	990	318	168	528	—	16,993
Retail	—	—	10	—	23	—	280	35	28	161	45	43	11	213	2,559	—	3,408
Secured by mortgages on																	
immovable property - residential	—	—	—	—	25	—	661	—	—	18	188	47	9	10,237	643	—	11,828
- commercial	—	—	—	—	18	—	2,527	—	9	49	377	206	34	30	233	—	3,483
Exposures in default	—	—	—	2	1	—	137	10	607	30	41	52	3	213	159	—	1,255
Items associated with particularly high risk	—	—	—	—	—	391	—	—	—	—	—	—	—	—	—	—	391
Covered bonds	—	—	—	—	84	—	—	—	—	—	—	—	—	—	—	—	84
Equity exposures	—	—	—	—	91	—	—	—	—	1	29	2	5	—	—	427	555
Other exposures	—	12	13	—	—	—	53	4	95	3	278	20	—	—	—	7,523	8,001
Total STD	56,084	15,574	239	691	5,361	420	6,910	547	1,555	2,122	4,216	1,360	380	10,861	4,122	8,231	118,673
Total IRB and STD	84,517	37,221	3,472	17,077	22,439	1,360	51,353	13,085	19,947	19,840	24,382	21,795	7,318	166,821	33,288	8,231	532,146

Credit risk (excluding counterparty credit risk)

EU CRB-D: IRB and STD: Exposures (EAD post CRM) - industry analysis *continued*

	Sovereign			Financial institutions			Corporates							Personal		Other	
2015	Central banks £m	Central governments £m	Other sovereign £m	Banks £m	Non-bank £m	SSPEs £m	Property £m	Natural resources £m	Transport £m	Manufacturing £m	Retail and leisure £m	Services £m	TMT £m	Mortgages £m	Other personal £m	Not allocated £m	Total £m
IRB																	
Central governments and central banks	41,892	21,791	199	2,653	—	—	—	37	—	—	—	27	—	—	—	—	66,599
Institutions	—	—	2,642	10,282	1	—	—	—	37	—	—	4	—	—	—	—	12,966
Corporates	—	—	210	1,238	15,312	475	44,144	12,666	19,243	20,305	17,492	18,438	6,656	—	223	—	156,402
Specialised lending	*—*	*—*	*92*	*—*	*219*	*196*	*19,917*	*2,067*	*3,107*	*6*	*164*	*962*	*1*	*—*	*3*	*—*	*26,734*
SME	*—*	*—*	*—*	*—*	*863*	*—*	*3,410*	*672*	*2,465*	*5,180*	*5,216*	*7,471*	*662*	*—*	*21*	*—*	*25,960*
Other corporate	*—*	*—*	*118*	*1,238*	*14,230*	*279*	*20,817*	*9,927*	*13,671*	*15,119*	*12,112*	*10,005*	*5,993*	*—*	*199*	*—*	*103,708*
Retail	—	—	14	1	107	—	2,345	63	604	1,819	2,014	2,444	218	140,342	29,435	—	179,406
Secured by real estate property - SME	*—*	*—*	*1*	*—*	*6*	*—*	*539*	*5*	*62*	*103*	*245*	*218*	*18*	*—*	*16*	*—*	*1,213*
- non-SME	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*140,340*	*—*	*—*	*140,340*
Qualifying revolving	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*23,792*	*—*	*23,792*
Other retail - SME	*—*	*—*	*13*	*1*	*101*	*—*	*1,806*	*58*	*542*	*1,716*	*1,769*	*2,224*	*200*	*—*	*167*	*—*	*8,597*
- non-SME	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*—*	*2*	*—*	*2*	*5,460*	*—*	*5,464*
Equities	—	—	—	5	802	—	6	—	2	29	1	44	1	—	—	—	890
Non-credit obligation assets	—	16	67	81	62	—	62	33	550	36	140	16	54	—	—	—	1,117
Total IRB	41,892	21,807	3,132	14,260	16,284	475	46,557	12,799	20,436	22,189	19,647	20,973	6,929	140,342	29,658	—	417,380
STD																	
Central governments and central banks	48,035	14,283	109	—	—	—	—	—	—	—	—	4	—	—	—	—	62,431
Regional governments and local authorities	—	—	205	—	5	—	—	—	—	—	—	—	—	—	—	—	210
Multilateral development banks	—	—	—	43	—	—	—	—	—	—	—	—	—	—	—	—	43
Institutions	79	—	—	837	—	—	—	—	—	—	—	—	—	—	—	31	947
Corporates	619	—	29	1,103	3,587	856	2,443	392	2,194	1,314	3,124	853	298	37	1,092	486	18,427
Retail	—	—	10	1	31	1	270	34	31	146	221	48	16	380	2,418	—	3,607
Secured by mortgages on immovable property - residential	—	—	—	—	662	15	532	1	2	17	32	52	22	8,161	1,096	—	10,592
- commercial	—	—	—	4	164	4	1,693	2	8	49	310	150	16	370	397	—	3,167
Exposures in default	—	—	—	29	29	50	107	17	4	11	20	16	3	207	139	—	632
Items associated with particularly high risk	—	—	—	—	—	—	145	—	—	—	23	11	—	6	6	—	191
Covered bonds	—	—	—	48	96	—	—	—	—	—	—	—	—	—	—	—	144
Collective investments undertakings	—	—	—	—	10	—	—	2	—	—	—	—	—	—	—	—	12
Equity exposures	—	—	—	27	110	—	1	—	—	6	1	5	5	—	—	450	605
Other exposures	—	13	13	—	1	—	57	5	102	8	197	19	—	—	10	8,388	8,813
Total STD	48,733	14,296	366	2,092	4,695	926	5,248	453	2,341	1,551	3,928	1,158	360	9,161	5,158	9,355	109,821
Total IRB and STD	90,625	36,103	3,498	16,352	20,979	1,401	51,805	13,252	22,777	23,740	23,575	22,131	7,289	149,503	34,816	9,355	527,201

EU CRB_E: IRB and STD: Exposures (EAD post CRM) - maturity analysis

The table below presents credit risk EAD post CRM analysed by residual maturity, split by regulatory approach and exposure class. It excludes counterparty credit risk and securitisations. Exposures with no stated maturity, principally equities, are reported within the > 5 years band.

2016	On demand £m	<=1 year £m	>1 year <= 5 years £m	> 5 years £m	Total £m
IRB					
Central governments and central banks	7,126	26,506	10,480	9,246	53,358
Institutions	6,472	2,548	1,706	5,358	16,084
Corporates	10,842	29,273	75,795	30,879	146,789
Specialised lending	*151*	*4,111*	*15,639*	*5,294*	*25,195*
SME	*3,345*	*4,540*	*8,336*	*6,657*	*22,878*
Other corporate	*7,346*	*20,622*	*51,820*	*18,928*	*98,716*
Retail	26,358	3,248	12,462	153,273	195,341
Secured by real estate property - SME	*161*	*82*	*345*	*773*	*1,361*
- non-SME	—	*2,051*	*6,043*	*147,865*	*155,959*
Qualifying revolving	*23,292*	—	—	—	*23,292*
Other retail - SME	*2,899*	*498*	*2,112*	*3,660*	*9,169*
- non-SME	*6*	*617*	*3,962*	*975*	*5,560*
Equities	—	—	—	781	781
Non-credit obligation assets	—	116	536	468	1,120
Total IRB	50,798	61,691	100,979	200,005	413,473
Proportion	12%	15%	24%	49%	100%
STD					
Central governments and central banks	729	29,527	33,809	7,829	71,894
Regional governments and local authorities	17	120	2	51	190
Multilateral development banks	—	—	33	—	33
Institutions	136	69	300	53	558
Corporates	934	6,435	9,023	601	16,993
Retail	794	726	1,149	739	3,408
Secured by mortgages on immovable property - residential	39	1,689	4,114	5,986	11,828
- commercial	24	1,071	2,283	105	3,483
Exposures in default	64	380	752	59	1,255
Items associated with particularly high risk	—	—	391	—	391
Covered bonds	—	24	60	—	84
Equity exposures	—	425	29	101	555
Other exposures	—	34	7,927	40	8,001
Total STD	2,737	40,500	59,872	15,564	118,673
Proportion	2%	34%	51%	13%	100%
Total IRB and STD	53,535	102,191	160,851	215,569	532,146
Proportion	10%	19%	30%	41%	100%
Of which: by significant subsidiary (excludes intra-group exposures)					
RBS plc	19,410	68,214	101,111	66,327	255,062
NWB Plc	29,010	6,351	27,266	115,779	178,406
UBI DAC	1,390	4,314	4,346	17,153	27,203

EU CRB_E: IRB and STD: Exposures (EAD post CRM) - maturity analysis *continued*

2015	On demand £m	<=1 year £m	>1 year <= 5 years £m	> 5 years £m	Total £m
IRB					
Central governments and central banks	20,606	30,253	8,054	7,686	66,599
Institutions	2,209	3,658	2,038	5,061	12,966
Corporates	15,085	30,592	77,436	33,289	156,402
Specialised lending	*230*	*4,856*	*15,382*	*6,266*	*26,734*
SME	*3,939*	*4,713*	*8,826*	*8,482*	*25,960*
Other corporate	*10,916*	*21,023*	*53,228*	*18,541*	*103,708*
Retail	26,814	3,434	11,960	137,198	179,406
Secured by real estate property - SME	*163*	*78*	*270*	*702*	*1,213*
- non-SME	*—*	*1,931*	*6,057*	*132,352*	*140,340*
Qualifying revolving	*23,792*	*—*	*—*	*—*	*23,792*
Other retail - SME	*2,850*	*661*	*1,933*	*3,153*	*8,597*
- non-SME	*9*	*764*	*3,700*	*991*	*5,464*
Equities	—	—	—	890	890
Non-credit obligation assets	—	206	650	261	1,117
Total IRB	64,714	68,143	100,138	184,385	417,380
Proportion	16%	16%	24%	44%	100%
STD					
Central governments and central banks	512	23,299	32,365	6,255	62,431
Regional governments and local authorities	72	62	26	50	210
Multilateral development banks	—	—	17	26	43
Institutions	166	514	218	49	947
Corporates	2,983	2,727	8,971	3,746	18,427
Retail	795	689	1,388	735	3,607
Secured by mortgages on immovable property - residential	129	2,278	3,775	4,410	10,592
- commercial	319	433	2,355	60	3,167
Exposures in default	54	279	239	60	632
Items associated with particularly high risk	2	106	83	—	191
Covered bonds	—	19	125	—	144
Collective investments undertakings	—	—	—	12	12
Equity exposures	—	473	36	96	605
Other exposures	—	768	7,948	97	8,813
Total STD	5,032	31,647	57,546	15,596	109,821
Proportion	5%	29%	52%	14%	100%
Total IRB and STD	69,746	99,790	157,684	199,981	527,201
Proportion	13%	19%	30%	38%	100%
Of which: by significant subsidiary (excludes intra-group exposures)					
RBS plc	32,172	66,414	99,320	67,403	265,309
NWB Plc	28,580	6,570	24,443	101,080	160,673
UBI DAC	1,182	4,900	4,488	15,682	26,252

Key points

- EAD post CRM fell 23% for "on demand" products (including nostros, overdrafts and credit cards), reflecting liquidity management, partially offset by exchange rate movements.
- EAD post CRM increased 8% for products with a maturity of five or more years, reflecting the growth strategy in UK mortgage lending.

EU CR1_A: IRB and STD: Exposures (Gross carrying value) - credit quality

The table below shows gross carrying values of credit risk exposures and specific credit risk adjustments (SCRA) analysed by credit quality, split by regulatory approach and exposure class. It excludes counterparty credit risk and securitisations. Gross carrying value comprises both on-balance sheet and off-balance sheet exposures.

	2016				2015			
	Gross carrying values				Gross carrying values			
Exposure class	Defaulted exposures(1,2) £m	Non-defaulted exposures £m	Total £m	SCRA (2) £m	Defaulted exposures(1, 2) £m	Non-defaulted exposures £m	Total £m	SCRA (2) £m
IRB								
Central governments and central banks	—	79,374	79,374	—	—	88,265	88,265	—
Institutions	1	24,420	24,421	1	1	22,231	22,232	4
Corporates	4,518	196,273	200,791	2,063	7,388	216,457	223,845	4,667
Specialised lending	*2,051*	*23,857*	*25,908*	*751*	*3,127*	*24,219*	*27,346*	*1,467*
SME	*1,002*	*24,965*	*25,967*	*435*	*1,994*	*27,200*	*29,194*	*1,483*
Other corporate	*1,465*	*147,451*	*148,916*	*877*	*2,267*	*165,038*	*167,305*	*1,717*
Retail	6,360	201,234	207,594	2,405	7,483	187,739	195,222	2,874
Secured by real estate property - SME	*39*	*1,351*	*1,390*	*20*	*52*	*1,182*	*1,234*	*—*
- non-SME	*4,444*	*151,713*	*156,157*	*1,093*	*4,861*	*135,354*	*140,215*	*1,351*
Qualifying revolving	*786*	*35,339*	*36,125*	*351*	*878*	*39,624*	*40,502*	*199*
Other retail - SME	*471*	*8,090*	*8,561*	*294*	*905*	*7,139*	*8,044*	*464*
- non-SME	*620*	*4,741*	*5,361*	*647*	*787*	*4,440*	*5,227*	*860*
Equities	27	805	832	52	28	923	951	51
Total IRB	10,906	502,106	513,012	4,521	14,900	515,615	530,515	7,596
STD								
Central governments and central banks	—	72,357	72,357	—	—	62,897	62,897	—
Regional governments and local authorities	—	447	447	—	—	515	515	—
Multilateral development banks	—	33	33	—	—	17	17	—
Institutions	—	754	754	—	—	917	917	—
Corporates	—	22,153	22,153	11	—	23,838	23,838	34
Retail	—	7,589	7,589	1	—	8,729	8,729	2
Secured by mortgages on:								
immovable property - residential	—	12,483	12,483	3	—	10,829	10,829	2
immovable property - commercial	—	3,800	3,800	1	—	3,460	3,460	1
Exposures in default	1,801	—	1,801	523	839	—	839	201
Items associated with particularly high risk	—	391	391	—	—	190	190	—
Covered bonds	—	82	82	—	—	141	141	—
Collective investments undertakings	—	—	—	—	—	12	12	—
Equity exposures	—	132	132	3	—	163	163	9
Other exposures	—	7,783	7,783	—	—	7,847	7,847	—
Total STD	1,801	128,004	129,805	542	839	119,555	120,394	249
Total IRB and STD	12,707	630,110	642,817	5,063	15,739	635,170	650,909	7,845

Notes:
(1) Defaulted exposures are those with a PD of 1 and past due exposures of one day or more on the payment of a credit obligation.
(2) Net carrying value (gross carrying value less SCRA) differs from equivalent accounting values principally relating to derivative close-out costs and Alawwal Bank balances

EU CR1_B: IRB and STD: Exposures (Gross carrying value) - credit quality by geography

The table below shows gross carrying values of credit risk exposures and specific risk adjustments (provisions) analysed by credit quality, split by geography. It excludes counterparty credit risk and securitisations. Geographical analysis is based on country of operation of the customer. Gross carrying value comprises both on-balance sheet and off-balance sheet exposures.

	2016				2015			
	Gross carrying values of			Specific	Gross carrying values of			Specific
Region	Defaulted exposures £m	Non-defaulted exposures £m	Total exposure £m	credit risk adjustment £m	Defaulted exposures £m	Non-defaulted exposures £m	Total exposure £m	credit risk adjustment £m
UK	6,483	440,511	446,994	2,660	8,579	417,803	426,382	3,926
RoI	3,043	24,032	27,075	1,244	4,895	20,712	25,607	2,877
Other Western Europe	1,141	86,071	87,212	475	1,285	87,613	88,898	550
US	238	47,939	48,177	88	160	64,871	65,031	49
Rest of World	1,802	31,557	33,359	596	820	44,171	44,991	443
Total	12,707	630,110	642,817	5,063	15,739	635,170	650,909	7,845

EU CR1_C: IRB and STD: Exposures (Gross carrying value) - credit quality by industry

The table below shows gross carrying values of credit risk exposures and specific risk adjustments (provisions) analysed by credit quality, split by industry. It excludes counterparty credit risk and securitisations. Industry analysis reflects the sector classification used by RBS for risk management purposes. Gross carrying value comprises both on-balance sheet and off-balance sheet exposures.

	2016				2015			
	Gross carrying values of			Specific	Gross carrying values of			Specific
Industry type	Defaulted exposures £m	Non-defaulted exposures £m	Total exposure £m	credit risk adjustment £m	Defaulted exposures £m	Non-defaulted exposures £m	Total exposure £m	credit risk adjustment £m
Central banks	—	107,407	107,407	—	—	109,174	109,174	—
Central government	—	39,499	39,499	—	—	38,490	38,490	—
Other sovereign	1	6,920	6,921	—	1	6,486	6,487	1
Banks	13	23,775	23,788	13	66	23,382	23,448	50
Non-bank financial institutions	367	31,956	32,323	319	411	29,618	30,029	295
Securitisation entities	122	1,272	1,394	16	186	1,258	1,444	30
Property	2,264	58,284	60,548	918	4,756	58,658	63,414	2,500
Natural resources	552	20,832	21,384	240	321	23,591	23,912	134
Transport	1,593	25,252	26,845	480	725	29,726	30,451	375
Manufacturing	272	27,947	28,219	131	402	36,453	36,855	169
Retail and leisure	498	32,032	32,530	410	857	32,435	33,292	892
Services	644	25,867	26,511	292	789	26,280	27,069	324
Telecommunications, media and technology	54	11,747	11,801	33	173	12,611	12,784	72
Mortgages	4,695	163,838	168,533	1,134	5,099	146,761	151,860	30
Other personal	1,632	45,958	47,590	1,064	1,953	52,589	54,542	2,973
Not allocated	—	7,524	7,524	13	—	7,658	7,658	—
Total	12,707	630,110	642,817	5,063	15,739	635,170	650,909	7,845

Key points

- Overall, defaulted exposure decreased 19% driven by disposals, limit reductions and repayments in line with RBS's risk reduction strategy. The increase in defaulted exposure in transport as well as RoW reflects the continuing challenging market conditions in the shipping sector, which affect vessel values in the bulk, container and tanker sub-sectors as a number of customers moved into default.
- The increase in defaulted exposure in natural resources was driven by the prolonged challenging market conditions in the oil and gas sector, which resulted in a limited number of customers experiencing financial stress during the year.

EU CR3: IRB and STD: Credit risk mitigation techniques - net carrying value

The table below presents net carrying values of credit risk exposures analysed by use of different credit risk mitigation techniques, split by regulatory approach and exposure class. It excludes counterparty credit risk and securitisations.

The EBA Guidelines require net carrying values to be analysed by:

- Exposure values of the secured assets, irrespective of the level of collateralisation. For example, two mortgage loans, each of £100,000 but one with property collateral of £50,000 and other with property collateral of £150,000, will both be reported in the Net carrying value secured by collateral column at £100,000.
- Unsecured exposure represents loans that have no security or collateral attached.

2016	Unsecured net carrying value £m	Net carrying values secured by Collateral £m	Guarantees £m	Credit derivatives £m	Total £m	Total net carrying value £m
IRB						
Central governments and central banks	79,249	121	2	—	123	79,372
Institutions	18,894	2,272	3,253	—	5,525	24,419
Corporates	122,097	71,689	4,323	619	76,631	198,728
Specialised lending	*2,718*	*21,712*	*728*	—	*22,440*	*25,158*
SME	*6,868*	*17,194*	*1,469*	—	*18,663*	*25,531*
Other corporate	*112,511*	*32,783*	*2,126*	*619*	*35,528*	*148,039*
Retail	48,755	156,435	—	—	156,435	205,190
Secured by real estate property - SME	—	*1,370*	—	—	*1,370*	*1,370*
Secured by real estate property - non-SME	—	*155,065*	—	—	*155,065*	*155,065*
Qualifying revolving	*35,774*	—	—	—	—	*35,774*
Other retail - SME	*8,267*	—	—	—	—	*8,267*
- non-SME	*4,714*	—	—	—	—	*4,714*
Equities	781	—	—	—	—	781
Total IRB	269,776	230,517	7,578	619	238,714	508,490
STD						
Central governments and central banks	72,206	—	151	—	151	72,357
Regional governments and local authorities	447	—	—	—	—	447
Multilateral development banks	33	—	—	—	—	33
Institutions	754	—	—	—	—	754
Corporates	20,830	1,092	220	—	1,312	22,142
Retail	7,337	251	—	—	251	7,588
Secured by mortgages on immovable property						
- residential	—	12,479	2	—	12,481	12,481
- commercial	—	3,792	7	—	3,799	3,799
Exposures in default	1,211	67	1	—	68	1,279
Items associated with particularly high risk	391	—	—	—	—	391
Covered bonds	82	—	—	—	—	82
Equity exposures	129	—	—	—	—	129
Other exposures	7,782	—	—	—	—	7,782
Total STD	111,202	17,681	381	—	18,062	129,264
Total IRB and STD	380,978	248,198	7,959	619	256,776	637,754

EU CR3: IRB and STD: Credit risk mitigation techniques *continued*

2015	Unsecured net carrying value £m	Net carrying values secured by Collateral £m	Guarantees £m	Credit derivatives £m	Total £m	Total net carrying value £m
IRB						
Central governments and central banks	88,102	110	52	—	162	88,264
Institutions	16,586	2,650	2,991	—	5,641	22,227
Corporates	128,724	83,908	5,383	1,166	90,457	219,181
Specialised lending	*3,162*	*22,117*	*601*	—	*22,718*	*25,880*
SME	*7,116*	*19,559*	*1,037*	—	*20,596*	*27,712*
Other corporate	*118,446*	*42,232*	*3,745*	*1,166*	*47,143*	*165,589*
Retail	52,251	140,097	—	—	140,097	192,348
Secured by real estate property - SME	—	*1,235*	—	—	*1,235*	*1,235*
- non-SME	—	*138,862*	—	—	*138,862*	*138,862*
Qualifying revolving	*40,304*	—	—	—	—	*40,304*
Other retail - SME	*7,580*	—	—	—	—	*7,580*
- non-SME	*4,367*	—	—	—	—	*4,367*
Equities	899	—	—	—	—	899
Total IRB	286,562	226,765	8,426	1,166	236,357	522,919
STD						
Central governments and central banks	62,897	—	—	—	—	62,897
Regional governments and local authorities	515	—	—	—	—	515
Multilateral development banks	17	—	—	—	—	17
Institutions	917	—	—	—	—	917
Corporates	21,452	1,945	408	—	2,353	23,805
Retail	8,434	292	—	—	292	8,726
Secured by mortgages on immovable property						
- residential	—	10,826	1	—	10,827	10,827
- commercial	—	3,426	33	—	3,459	3,459
Exposures in default	635	1	1	—	2	637
Items associated with particularly high risk	190	—	—	—	—	190
Covered bonds	141	—	—	—	—	141
Collective investments undertakings	12	—	—	—	—	12
Equity exposures	154	—	—	—	—	154
Other exposures	7,848	—	—	—	—	7,848
Total STD	103,212	16,490	443	—	16,933	120,145
Total IRB and STD	389,774	243,255	8,869	1,166	253,290	643,064

EU CR3_a: IRB: Credit risk mitigation - incorporation within IRB parameters

RBS employs a number of techniques to mitigate credit risk. For information on its approach to credit risk mitigation, including collateral and other credit enhancements, refer to page 211 of the 2016 ARA. For additional information on the mitigation of counterparty credit risk, refer to page 24 of this report.

The following table details how different risk mitigants are incorporated into IRB risk parameters (LGD, PD and EAD).

	LGD	PD	EAD
Real estate (commercial and residential)	✓		
Other physical collateral	✓		
Third party guarantees	✓		
Credit derivatives	✓		
Parental guarantees (connected parties)		✓	
Financial collateral			
- trading book			✓
- non-trading book	✓		
Netting (on and off-balance sheet)			✓
Receivables	✓		
Life policies	✓		
Credit insurance	✓		

EU CR4: STD: Exposures and CRM effects

The table below shows the effect of CRM techniques on credit risk exposures under the standardised approach. It shows exposures both before and after CRM and credit conversion factors (CCF) as well as associated RWAs and RWA density, split by exposure class. It excludes counterparty credit risk and securitisations.

	Exposures before CCF and CRM		Exposures post CCF and CRM			
2016	On-balance sheet £m	Off-balance sheet £m	On-balance sheet £m	Off-balance sheet £m	RWA £m	RWA density %
Central governments and central banks	71,445	852	71,848	46	729	—
Regional governments and local authorities	184	260	186	4	156	82%
Public sector entities	—	—	—	—	—	76%
Multilateral development banks	33	—	33	—	—	—
Institutions	390	364	442	116	263	47%
Corporates	14,652	7,314	13,738	3,255	16,635	98%
Retail	3,308	4,280	3,383	25	2,369	70%
Secured by mortgages on immovable property - residential	11,598	884	11,694	134	5,053	43%
- commercial	3,341	439	3,317	166	3,496	100%
Exposures in default	1,254	25	1,250	5	1,420	113%
Items associated with particularly high risk	391	—	391	—	587	150%
Covered bonds	82	—	84	—	17	20%
Collective investments undertakings	—	—	—	—	—	20%
Equity exposures	129	—	555	—	1,199	216%
Other exposures	7,781	—	8,001	—	4,959	62%
Total STD	114,588	14,418	114,922	3,751	36,883	31%
2015						
Central governments and central banks	62,147	692	62,423	8	27	—
Regional governments and local authorities	204	249	205	5	179	85%
Public sector entities	—	—	—	—	—	100%
Multilateral development banks	17	—	43	—	—	—
Institutions	767	150	851	96	269	28%
Corporates	16,286	7,053	15,236	3,191	17,751	96%
Retail	3,439	5,287	3,549	58	2,527	70%
Secured by mortgages on immovable property - residential	10,307	520	10,423	169	4,398	42%
- commercial	3,075	375	3,070	97	3,232	102%
Exposures in default	599	38	618	14	745	118%
Items associated with particularly high risk	190	—	191	—	286	150%
Covered bonds	141	—	144	—	15	10%
Collective investments undertakings	11	1	11	1	12	100%
Equity exposures	149	5	600	5	1,281	212%
Other exposures	7,848	—	8,813	—	7,271	83%
Total STD	105,180	14,370	106,177	3,644	37,993	35%

Credit risk (excluding counterparty credit risk)

EU CR5: STD: Credit risk exposure class and risk-weights

The table below analyses credit risk EAD post CRM under the standardised approach by risk weight, split by exposure class. It excludes counterparty credit risk and securitisations.

	Risk-weight																Of which:
EAD post CRM	0% £m	2% £m	4% £m	10% £m	20% £m	35% £m	50% £m	70% £m	75% £m	100% £m	150% £m	250% £m	370% £m	1,250% £m	Others £m	Total £m	Unrated £m
2016																	
Central governments and central banks	71,480	—	—	—	133	—	—	—	—	—	—	281	—	—	—	71,894	2,312
Regional governments and local authorities	—	—	—	—	41	—	2	—	—	147	—	—	—	—	—	190	146
Multilateral development banks	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	33
Institutions	—	—	—	—	271	—	157	—	—	130	—	—	—	—	—	558	350
Corporates	59	—	—	—	239	—	134	—	—	16,535	26	—	—	—	—	16,993	16,650
Retail	1	—	—	—	9	—	—	—	3,398	—	—	—	—	—	—	3,408	—
Secured by mortgages on																	
immovable property - residential	—	—	—	—	—	10,409	—	—	—	1,419	—	—	—	—	—	11,828	11,827
- commercial	—	—	—	—	—	—	—	—	—	3,448	35	—	—	—	—	3,483	3,483
Exposures in default	—	—	—	—	—	—	—	—	—	927	328	—	—	—	—	1,255	1,254
Items associated with particularly high risk	—	—	—	—	—	—	—	—	—	—	391	—	—	—	—	391	391
Covered bonds	—	—	—	—	84	—	—	—	—	—	—	—	—	—	—	84	84
Equity exposures	—	—	—	—	—	—	—	—	—	126	—	429	—	—	—	555	29
Other exposures	2,168	—	—	—	974	—	36	—	—	4,714	—	—	—	—	109	8,001	7,989
Total STD	73,741	—	—	—	1,751	10,409	329	—	3,398	27,446	780	710	—	—	109	118,673	44,548
EAD pre CRM	73,689	—	—	—	1,751	10,409	280	—	3,420	28,451	795	710	—	—	159	119,664	45,861
2015																	
Central governments and central banks	62,315	—	—	—	111	—	—	—	—	5	—	—	—	—	—	62,431	1,969
Regional governments and local authorities	6	—	—	—	26	—	8	—	—	170	—	—	—	—	—	210	168
Multilateral development banks	43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43	—
Institutions	—	—	—	—	676	—	239	—	—	1	—	—	—	—	31	947	396
Corporates	69	—	—	—	185	—	898	—	—	17,139	77	—	—	—	59	18,427	17,429
Retail	—	—	—	—	8	—	—	—	3,599	—	—	—	—	—	—	3,607	—
Secured by mortgages on:																	
immovable property - residential	—	—	—	—	—	9,541	—	—	—	1,032	19	—	—	—	—	10,592	10,590
- commercial	—	—	—	—	—	—	—	—	—	3,029	138	—	—	—	—	3,167	3,167
Exposures in default	—	—	—	—	—	—	—	—	—	407	225	—	—	—	—	632	631
Items associated with particularly high risk	—	—	—	—	—	—	—	—	—	—	191	—	—	—	—	191	191
Covered bonds	—	—	—	140	4	—	—	—	—	—	—	—	—	—	—	144	—
Collective investments undertakings	—	—	—	—	—	—	—	—	—	12	—	—	—	—	—	12	—
Equity exposures	—	—	—	—	—	—	—	—	—	154	—	451	—	—	—	605	47
Other exposures	1,721	—	—	11	972	—	47	—	—	5,207	—	730	—	—	125	8,813	8,071
Total STD	64,154	—	—	151	1,982	9,541	1,192	—	3,599	27,156	650	1,181	—	—	215	109,821	42,659
EAD pre CRM	64,018	—	—	151	1,979	9,541	1,121	—	3,687	28,337	650	1,181	—	—	382	111,047	44,171

Key points

- Unrated exposures (except central governments and central banks) relate to exposures in RBS International and Private Banking.
- Credit Quality Step 1 (CQS1) exposures relate to balances with sovereigns with 0% risk weight as well as cash and amounted to 62% of the overall Standardised credit risk portfolio at the end of 2016 (2015 - 58%). RBS has immaterial exposures in CQS2-5.
- Credit risk EAD post CRM with a 150% risk weight relates to legacy assets in Capital Resolution.

EU CR5a: CQS mapping to external credit ratings

Under the STD approach, RBS uses credit quality steps (CQS) to calculate the RWAs associated with non-counterparty credit risk exposures. Each rated exposure in the STD portfolio is assigned to one of six CQS. The CQS map to the rating of the three major rating agencies, as shown in the table below. Each CQS is associated with a particular risk-weighting. Each exposure is multiplied by the appropriate risk weighting to calculate the relevant RWA amount. If no external rating is available, RBS assigns the exposure a risk-weighting in line with the CRR.

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

EU CRE: IRB models - qualitative disclosures

RBS uses credit risk models not only to calculate RWAs under the IRB approach but also to support risk assessments in the credit approval process and ongoing credit risk management, monitoring and reporting.

RBS develops credit risk models for both retail and wholesale customers. Retail models are automated and applied across a portfolio of products, whereas wholesale customer data is manually entered into the models as part of the credit risk management process, usually at the customer's annual review, and enables the use of expert judgement overrides, as permitted by regulation.

EU CRE_1: Credit RWA calculation approach by exposure class

This table presents, by IRB exposure class, the proportion of EAD and RWAs under the AIRB and Standardised approaches. The Standardised portion is categorised into assets that will remain on the approach on a permanent basis and assets that are planned to be transitioned to the AIRB approach. The latter consists of two business units: RBS International Limited and RBS Securities Inc. Both have IRB applications pending, in support of RBS's ring-fence proposals.

	EAD post CRM							RWAs						
				Standardised							Standardised			
	Total credit and counterparty	AIRB		Permanent portfolios		Portfolios involved in an IRB roll-out plan		Total credit and counterparty	AIRB		Permanent portfolios		Portfolios involved in an IRB roll-out plan	
Exposure class	£m	% of total	£m	% of total	£m	% of total	£m	£m	% of total	£m	% of total	£m	% of total	£m
2016														
Central governments and central banks	135,889	46	61,829	54	73,883	—	177	4,284	99	4,257	—	—	1	27
Institutions	31,322	85	26,746	14	4,401	1	175	14,094	95	13,392	4	550	1	151
Corporates														
Specialised lending	*29,064*	*95*	*27,477*	*—*	*41*	*5*	*1,546*	*20,746*	*92*	*19,159*	*—*	*41*	*7*	*1,548*
SME	*24,100*	*96*	*23,085*	*3*	*764*	*1*	*251*	*11,743*	*92*	*10,788*	*6*	*713*	*2*	*242*
Other	*144,678*	*85*	*122,571*	*12*	*17,231*	*3*	*4,876*	*82,826*	*73*	*60,123*	*22*	*17,824*	*6*	*4,878*
Retail														
Secured by real estate property - SME	*1,380*	*99*	*1,362*	*1*	*18*	*—*	*—*	*474*	*97*	*462*	*3*	*12*	*—*	*—*
- non-SME	*166,134*	*94*	*155,967*	*6*	*10,167*	*—*	*—*	*23,306*	*83*	*19,428*	*17*	*3,878*	*—*	*—*
Qualifying revolving	*23,478*	*99*	*23,293*	*1*	*185*	*—*	*—*	*6,321*	*98*	*6,171*	*2*	*150*	*—*	*—*
Other retail - SME	*10,282*	*89*	*9,168*	*11*	*1,114*	*—*	*—*	*4,527*	*86*	*3,894*	*14*	*633*	*—*	*—*
- non-SME	*8,908*	*62*	*5,559*	*38*	*3,349*	*—*	*—*	*7,329*	*65*	*4,754*	*35*	*2,575*	*—*	*—*
Equities	910	86	781	14	129	—	—	2,148	94	2,014	6	134	—	—
Non-credit obligation assets	9,122	12	1,120	88	8,002	—	—	5,334	7	375	93	4,959	—	—
Total	585,267	78	458,958	20	119,284	1	7,025	183,132	79	144,817	17	31,469	4	6,846

EU CRE_2: IRB models - Retail

Retail IRB models

The following table presents an overview of the Retail IRB models used to calculate RWAs for UK and Republic of Ireland retail customers and small business brands. Most retail models are statistical models developed using logistic or linear regression techniques.

Probability of default/customer credit grade models

- PD models assess the probability that a customer will fail to honour their credit obligations in the next 12 months.
- RBS assigns each customer account a score and this is used across the businesses to support decision-making and portfolio management. This score is used as an input into the PD model.
- Retail PD models are point-in-time by design, meaning they predict the probability of default under current economic conditions. They are typically developed applying logistic regression techniques using a range of customer and account data across portfolios, as well as data from credit bureaux.
- Different models are developed for different product types, with further distinctions based on other criteria such as whether or not a customer also has a current account with RBS. All retail PD models produce both a best estimate measure, used for portfolio reporting and forecasting, and a conservative measure, which is an input to RWA calculations. The conservative measure is designed to take account of the normal volatility in actual default rates and is floored at 0.03%, as mandated by regulation.
- To ensure that the retail PD models remain point-in-time, they are calibrated quarterly using observed default data covering the most recent performance period for the underlying portfolio.
- All retail PD models discriminate well and are stable.

Loss given default models

- LGD models estimate the amount of exposure that will not be recovered by RBS in the event of customer default.
- These models are developed by product type using internal loss data reflecting the collections and recoveries processes. They use a combination of borrower and facility characteristics and take account of credit risk mitigants, including collateral.
- As LGD represents economic loss, the estimate also incorporates the cost of collections and the impact of discounting to account for delays in recovery. In accordance with regulatory requirements, the estimates are calibrated to reflect loss rates expected during an economic downturn.

Exposure at default models

- EAD models estimate the utilisation of a credit facility at the time of a customer's default, recognising that further drawings on unused credit facilities may be made prior to the default.
- Historical data on limit utilisation, in the period prior to customer default, is used for estimation and calibration. EAD for revolving products (e.g. credit cards and current accounts) has a more material anticipation of further drawings.
- As required by regulation, EAD estimates are set to be no lower than the current balance and reflect economic downturn conditions.

EU CRE_2: IRB models - Retail

Portfolio	RWA (£m)	Model type	Number of models	IRB exposure class	IRB model segmentation	Model characteristics
Residential mortgages	19,428	PD	3	Retail - secured by real estate SME Retail - secured by real estate non-SME	Individual models are developed for United Kingdom and Republic of Ireland, with separate Great Britain and Northern Ireland PD models developed within the UK.	Key model drivers include the internal behaviour score of the related current account and loan-to-value (LTV).
		LGD	2			LGD is estimated by modelling the probability of possession given default and shortfall given repossession, using key drivers such as LTV. A 10% regulatory LGD floor is applied at portfolio level, with a 5% LGD floor applied at pool level.
		EAD	2			EAD estimate is determined by account limit.
Personal unsecured loans and current accounts	7,254	PD	3	Retail - qualifying revolving Retail - other non-SME	Individual PD and EAD models are developed for current accounts and loan products, with a single LGD model covering both. A separate student current account model is developed for PD estimation.	Model estimates are mainly based on internal behavioural data, with some also using external credit bureau data.
		LGD	2			Models estimate the probability of loss on a defaulted account, which is converted into an LGD estimate.
		EAD	2			Current accounts: A combination of linear regression and average models have been developed using internal data, such as account limit and balance. Loans: EAD estimate is determined by account limit.
Small business unsecured loans and current accounts	3,818	PD	2	Retail - Other SME	Individual PD and EAD models are developed for current accounts and loan products with a single LGD model covering both.	Model estimates are mainly based on internal behaviour score.
		LGD	2			Model estimates are based on historical data and account for recoveries from the liquidation of collateral. Regulatory LGD floors are applied as follows for loans secured by: 1) Residential real estate - 10% 2) Commercial real estate - 15%
		EAD	2			Current accounts: A combination of linear regression and average models have been developed using internal data, such as account limit and balance. Loans: EAD estimate is determined by account limit.

EU CRE_2: IRB models - Retail continued

Portfolio	RWA (£m)	Model type	Number of models	IRB exposure class	IRB model segmentation	Model characteristics
Personal credit cards	3,487	PD	1	Retail - qualifying revolving	PD, EAD and LGD models developed for use across the retail brands.	Model estimates are based on internal behavioural data.
		LGD	1			Statistical model developed using internal and external data.
		EAD	1			A combination of linear regression and average models have been developed using internal data, such as account limit and balance.
Personal and small business asset finance	756	PD	1	Retail - other SME Retail - other non-SME	PD, EAD and LGD models developed for use within the UK Lombard brand.	Statistical model segmented by time on book, customer type and entity type.
		LGD	1			The model is segmented by leased asset type. LGD is based on the difference between the written-down value of the leased asset and EAD.
		EAD	1			EAD for leasing is the present value of lease payments per regulatory requirements.

EU CRE: IRB models continued

Wholesale IRB models

The following table presents the wholesale IRB models RBS uses to calculate RWAs.

Probability of default/customer credit grade models

- As part of the credit assessment process, RBS assigns each customer a credit grade reflecting its PD. RBS maintains and uses a number of credit grading models which consider risk characteristics relevant to the customer, incorporating both quantitative and qualitative inputs. RBS uses these credit grades in many of its risk management and measurement frameworks, including credit sanctioning, provisioning and managing single name concentration risk.
- Different models are developed for different customer types. The most material models (those used for the largest aggregate amounts of exposure) are those applied to large to mid-corporate customers and bank and sovereign counterparties. In addition, a number of less material models are used, including those for non-bank financial institutions, public sector entities and specialist corporate sectors such as shipping.
- Regulation defines the minimum time series and other attributes of the data used for developing and calibrating models. For the most material models, external data is referenced for estimation and calibration purposes (historical default and rating data from rating agencies and insolvency rates) so that models are based on over 20 years of default experience.
- Most of the less material models are developed for portfolios with low default frequency - where customer loan volumes are lower or borrowers are of higher credit quality. In these cases, as required by the PRA, a specific low-default portfolio approach is applied to produce an appropriately prudent calibration to reflect the potential that future outcomes differ from the very low risk outcomes historically observed.
- The majority of the PD model suite discriminates risk levels well and is stable; current observed default rates are lower than model estimates. This reflects prudent calibrations and the combined effect of the models being largely through-the-cycle in nature and above-average credit cycle conditions experienced throughout 2016 for the majority of sectors and regions.
- The exception to the previous point is the shipping PD model, where observed default rates exceed model estimates. This is a result of the distressed conditions in the shipping sector and RBS's stated intention to exit the ship finance business and that subsequent portfolio experience is not representative of the historical dataset used to develop the model. A remediation plan has been implemented to ensure appropriate capitalisation of the portfolio.
- PDs are floored at 0.03% (except for the Sovereign asset class) as mandated by regulation.

Loss given default models

- Models are developed for different customer segments and reflect the recoveries approach applied to each segment.
- Where sufficient internal and external loss data exists, LGD is modelled based on this experience and directly incorporates the impact of credit cycle conditions.
- For low-default portfolios, where loss data is scarce or the effect of credit conditions is only of limited relevance, simple benchmark LGDs are assigned in accordance with the PRA's low-default portfolio framework.
- Updates to the model for the UK mid-corporate portfolio have been undertaken, with roll-out expected in 2017.

Exposure at default models

- EAD is estimated on a product type basis, with different credit conversion factors (CCFs) - measuring the portion of unused credit facility expected to be further drawn prior to default - assigned to each product. For contingent products, such as trade letters of credit, a "probability of call" multiplier is also applied which reflects the likelihood of payout once issued.
- Exposure can be reduced by a netting agreement, subject to meeting standards of legal enforceability.
- Where sufficient internal historical data exists, CCF estimates are developed to reflect economic downturn conditions and are based on limit utilisation in the period prior to customer default.
- For low-default portfolios, where data is scarce, products are rank-ordered and CCFs benchmarked to modelled products or relevant regulatory values.
- The product families with greatest impact on EAD are those applying to non-contingent products, in particular loans, overdrafts and revolving credit facilities.

EU CRE_2: IRB models - Wholesale

Portfolio	RWA (£m)	Model type	Number of models	IRB exposure class	IRB model segmentation	Model characteristics
Sovereign and quasi-government entities	6,192	PD	4	Central governments and central banks Institutions Corporates - other	Global PD and LGD models are developed for sovereign and quasi-government type entities.	Sovereign: External rating agency replication model calibrated to long-run average default rates. Local Authority, Housing Association and UK University: Expert-driven scorecard models using qualitative and in some cases quantitative inputs.
		LGD	2			Sovereign: An unsecured model calibrated using a logistic regression on a limited dataset of internal and external observations. LGD is floored at 45% in accordance with PRA requirements. Quasi-Government: The model is based on Sovereign LGDs or regulatory LGD benchmarks due to its low-default nature.
Financial institutions	19,961	PD	7	Central governments and central banks Institutions Corporates - other equity IRB	Global PD and LGD models are developed for bank and non-bank financial institutions (NBFIs).	PD models are developed by counterparty type: Bank and Insurance Company: External rating agency replication models calibrated to agency long-run average default rates. Broker Dealer: A mix of external rating agency replication and calibration to internal default rates. Geared Investment Fund: Merton-like approach model which is directly calibrated to internal default experience. Investment Fund - Bridging: Expert-driven model using quantitative and qualitative inputs. Hedge Fund and Managed Fund: Expert-driven scorecard models based mainly on qualitative inputs, due to their low-default nature.
		LGD	2			Bank models and a single NBFI model are structured as simple decision trees relying on few regulatory LGD benchmarks, due to low frequency of loss data.

EU CRE_2: IRB models - Wholesale continued

Portfolio	RWA (£m)	Model type	Number of models	IRB exposure class	IRB model segmentation	Model characteristics
Corporates with turnover above £50 million	40,032	PD	2	Corporates - Other Equity IRB	PD: A global large corporate model where externally rated or turnover exceeds £500 million and a key country (UK, US & RoI) mid-large corporate model is used where turnover is £50 million-£500 million and not externally rated. LGD: single global LGD model used for large and mid-large Corporate customers.	Large Corporate: External rating agency replication model which is calibrated to external and internal long-run average default rates. Mid-Large Corporate: Statistical model which is calibrated to internal long-run default data.
		LGD	1			Statistical model using a combination of internal and external loss data. Key model drivers are seniority, collateral, industry, facility type and a credit cycle index. Lease facilities also use secured collateral specific secured recovery rate models, as described for Mid-Corporate LGD. A 35% LGD floor is applied for certain countries due to scarcity of loss data.
Corporates with turnover below £50m	18,151	PD	1	Corporates - Other Corporates - SME Equity IRB	United Kingdom and Republic of Ireland PD and LGD models for corporates with a turnover below £50 million.	Statistical rating model which uses qualitative and quantitative inputs to produce a score that is transformed into a through-the-cycle PD. Separate long-run average default rate calibrations exist for Great Britain and Ulster Bank customers, based on internal and external data.
		LGD	3			LGD is based on a framework which uses an Unsecured Recovery Rate model and a suite of Secured Recovery Rate models. The framework accounts for the value of collateral linked to each facility, together with costs and haircuts associated with the recovery of the collateral.

EU CRE_2: IRB models - Wholesale *continued*

Portfolio	RWA (£m)	Model type	Number of models	IRB exposure class	IRB model segmentation	Model characteristics
Shipping	897	PD	1	Corporates - Specialised lending	Global PD and LGD model for ship finance customers meeting the CRR specialised lending definition.	Expert driven scorecard model based on a mix of qualitative and quantitative inputs.
		LGD	1			Simple model based on benchmarks (which are different for different ship types) and calibrated to internal loss data.
EAD models for wholesale banking book portfolios			2	Central governments and central banks Institutions Corporates - SME Corporates - Other Corporates - specialised lending	Consists of a global wholesale EAD model for banking book portfolios and a specialist EAD model for the RBS Invoice Finance brand.	EAD is modelled by grouping product types (products sharing similar contractual features and expected drawdown behaviour) and assigned a CCF. CCFs are estimated either on historical internal data or on benchmarks, when data is scarce.

IRB modelling governance

The governance process for approval and oversight of IRB credit models involves the model developers, an independent model validation function (Model Risk Management) and the users of the model. The process applies greater scrutiny to the more significant model risks. Credit risk models are developed and maintained within a framework that includes the following key components:

- A high level policy framework that establishes responsibilities and minimum requirements applying to each stage of the modelling lifecycle:
  - Data sourcing and preparation;
  - Model specification;
  - Independent model review;
  - Model approval;
  - Model implementation; and
  - Model maintenance - monitoring and annual review.
- Detailed standards that define the approaches and activities undertaken at each of these stages.
- Defined structure and authorities that approve or oversee each stage.
- Model development teams that are part of the independent risk management function, separate from the functions responsible for originating or renewing exposures.
- An independent model validation function that is organisationally separate from the model development teams (see below for more information).

The framework aims to ensure that RBS is not exposed to excessive model risk and that the approaches deployed continue to meet both internal and regulatory standards.

EU CRE: IRB models *continued*

The performance of models is tested by monitoring and annual review. Every model is tested regularly by comparing estimates to outcomes to assess the accuracy of the model. Other statistical tests assess the ability of the models to discriminate risk (i.e. their ability to determine the relative risk level of a particular customer or exposure), the extent to which portfolio composition remains stable and, where relevant, the frequency and magnitude of overrides applied by model users to modelled estimates.

Reports providing the outcome of the monitoring are presented at the Credit Model Risk Forum for peer and stakeholder review and challenge. A summarised version of these reports is presented to the Risk Models Approval Committee (RMAC), including any points of escalation.

The annual reviews comprise further analyses that consider:
- Ongoing user acceptance and confidence in the model and its performance;
- Movements in the portfolio (both observed and anticipated); and
- Other relevant data that might be used to explain or assess model performance.

Where model performance is determined to be outside tolerance as part of the monitoring or annual review, appropriate action is taken. This may entail recalibration of the model, enhancement (such as by reweighting existing model factors) or redevelopment. Interim adjustments may be applied whilst the remediation activity is undertaken if management believe the underperformance may lead to insufficient capital requirements for the portfolio.

Because IRB models are used in the calculation of credit risk regulatory capital, once they have been approved through internal governance, they need to follow the appropriate regulatory approval or notification process before being implemented.

Independent model validation

All new and changed credit risk models are subject to detailed review by Model Risk Management (MRM) aimed at providing independent affirmation that the models are appropriate and remain fit for regulatory capital calculations. MRM's independent review of model redevelopments comprises some or all of the following steps, as appropriate:
- Testing and challenging the logical and conceptual soundness of the methodology;
- Testing the assumptions underlying the model, where feasible, against actual behaviour. In its validation report, MRM will opine on the reasonableness and stability of the assumptions and specify which assumptions, if any, should be routinely monitored in production;
- Testing whether all key appropriate risks have been sufficiently captured;
- Checking the accuracy of calculations;
- Comparing outputs with results from alternative methods;
- Testing parameter selection and calibration;
- Ensuring model outputs are sufficiently conservative in areas where there is significant model uncertainty;
- Confirming the applicability of tests for accuracy and stability; recalculating and ensuring that results are robust; and
- Ensuring appropriate sensitivity analysis has been performed and documented.

Based on the review and findings from MRM, the relevant model approver (which may be an individual or committee subject to delegation) will consider whether a model or model change can be approved and whether any conditions need to be imposed, including those relating to the remediation of material issues raised through the review process.

For model performance monitoring and annual reviews, MRM contributes to the technical oversight and challenge, and forms part of the Credit Model Risk Forum where these reviews are presented. A separate MRM review report is produced where there are material points to escalate at the forum. Ongoing use of the model needs to be affirmed by the model approver.

Internal Audit

Internal Audit provides additional oversight to the adequacy and effectiveness of the model controls and processes and performs in-depth testing on an annual basis. This function is stand-alone and organisationally separate to Risk Management, and therefore those responsible for the development and independent validation activity. Any material gaps in control are escalated through standard board reporting and action plans agreed with those accountable for the activity behind the control.

EU CR6_a: IRB: Exposures by exposure class and PD range - Retail

The table below presents the key parameters used for the calculation of capital requirements for credit risk exposures in Retail exposure classes under the IRB approach, split by PD range. It excludes exposures calculated under the supervisory slotting approach, equities under the simple risk-weight approach and non-credit assets. It also excludes counterparty credit risk and securitisations. A maturity adjustment is not a component of the IRB RWA formula for retail exposures and is therefore not reported in this table.

In accordance with regulatory requirements, for defaulted exposures RWAs are calculated as the difference between the LGD for an economic downturn and the best estimate LGD. This is the unexpected loss amount for which capital must be held.

2016		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	RWA £m	RWA density %	EL £m	Provisions £m
IRB													
Retail - Secured by real estate SME	1	0.00 to <0.15	—	50	100	35	0.1	5,305	53	4	12	—	
Retail - Secured by real estate SME	2	0.15 to <0.25	—	—	—	—	—	—	—	—	—	—	
Retail - Secured by real estate SME	3	0.25 to <0.50	56	13	100	66	0.4	2,529	42	13	20	—	
Retail - Secured by real estate SME	4	0.50 to <0.75	592	12	100	599	0.6	9,658	37	142	24	1	
Retail - Secured by real estate SME	5	0.75 to <2.50	379	41	100	407	1.3	7,554	45	163	40	2	
Retail - Secured by real estate SME	6	2.50 to <10.0	165	3	100	168	4.2	2,614	41	81	48	3	
Retail - Secured by real estate SME	7	10.0 to <100.00	39	1	100	39	24.3	764	43	30	77	4	
Retail - Secured by real estate SME	8	100.00 (default)	39	—	—	47	100.0	935	64	29	62	28	
Total - Retail - Secured by real estate SME			1,270	120	100	1,361	5.3	29,359	42	462	34	38	20
Retail - Secured by real estate non-SME	1	0.00 to <0.15	54,041	4,773	100	58,951	0.1	475,722	9	1,578	3	7	
Retail - Secured by real estate non-SME	2	0.15 to <0.25	815	19	100	835	0.2	9,190	26	83	10	—	
Retail - Secured by real estate non-SME	3	0.25 to <0.50	58,324	7,814	100	65,487	0.3	466,943	11	4,510	7	24	
Retail - Secured by real estate non-SME	4	0.50 to <0.75	12,692	80	97	12,900	0.6	103,478	19	2,318	18	15	
Retail - Secured by real estate non-SME	5	0.75 to <2.50	7,970	179	93	8,251	1.1	96,808	20	2,273	28	18	
Retail - Secured by real estate non-SME	6	2.50 to <10.0	1,770	21	100	1,802	5.4	23,311	12	767	43	12	
Retail - Secured by real estate non-SME	7	10.0 to <100.00	3,214	3	100	3,254	22.9	24,688	21	3,988	123	168	
Retail - Secured by real estate non-SME	8	100.00 (default)	4,431	13	100	4,479	100.0	36,306	31	3,911	87	1,089	
Total - Retail - Secured by real estate non-SME			143,257	12,902	100	155,959	3.7	1,236,446	12	19,428	12	1,333	1,094
Retail - Qualifying revolving	1	0.00 to <0.15	108	7,695	100	10,618	—	7,730,969	54	184	2	3	
Retail - Qualifying revolving	2	0.15 to <0.25	235	401	100	715	0.2	475,976	66	59	8	1	
Retail - Qualifying revolving	3	0.25 to <0.50	765	7,958	100	2,804	0.4	2,693,617	63	335	12	7	
Retail - Qualifying revolving	4	0.50 to <0.75	448	6,592	100	1,749	0.6	1,963,394	68	327	19	7	
Retail - Qualifying revolving	5	0.75 to <2.50	1,589	5,573	100	3,479	1.4	2,918,641	70	1,254	36	34	
Retail - Qualifying revolving	6	2.50 to <10.0	2,057	1,529	73	2,912	4.6	1,787,452	75	2,608	90	100	
Retail - Qualifying revolving	7	10.0 to <100.00	330	60	100	493	23.8	422,926	72	962	195	84	
Retail - Qualifying revolving	8	100.00 (default)	474	311	100	523	100.0	502,949	78	442	85	372	
Total - Retail - Qualifying revolving			6,006	30,119	99	23,293	3.6	18,495,924	62	6,171	26	608	351

EU CR6_a: IRB: Exposures by exposure class and PD range - Retail *continued*

2016		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	RWA £m	RWA density %	EL £m	Provisions £m
IRB													
Retail - Other SME	1	0.00 to <0.15	—	525	100	532	0.1	255,039	53	64	12	—	
Retail - Other SME	2	0.15 to <0.25	36	58	100	144	0.2	14,573	66	28	20	—	
Retail - Other SME	3	0.25 to <0.50	522	229	100	908	0.4	256,681	49	207	23	2	
Retail - Other SME	4	0.50 to <0.75	2,289	140	100	2,458	0.6	137,965	40	651	26	6	
Retail - Other SME	5	0.75 to <2.50	2,399	353	100	2,915	1.4	342,765	53	1,394	48	21	
Retail - Other SME	6	2.50 to <10.0	1,172	102	100	1,408	4.3	204,719	57	934	66	34	
Retail - Other SME	7	10.0 to <100.00	248	17	100	295	21.9	54,614	59	302	102	38	
Retail - Other SME	8	100.00 (default)	471	—	100	509	100.0	38,123	73	314	62	345	
Total - Retail - Other SME			7,137	1,424	100	9,169	7.6	1,304,479	51	3,894	42	446	294
Retail - Other non-SME	1	0.00 to <0.15	66	—	100	66	0.1	1,793	33	7	10	—	
Retail - Other non-SME	2	0.15 to <0.25	9	—	—	9	0.2	976	77	3	33	—	
Retail - Other non-SME	3	0.25 to <0.50	504	—	100	513	0.4	82,246	70	243	47	1	
Retail - Other non-SME	4	0.50 to <0.75	1,051	—	100	1,069	0.6	197,717	73	659	62	5	
Retail - Other non-SME	5	0.75 to <2.50	1,855	—	100	1,893	1.3	196,419	77	1,707	90	20	
Retail - Other non-SME	6	2.50 to <10.0	1,007	—	100	1,030	4.6	129,961	78	1,241	121	37	
Retail - Other non-SME	7	10.0 to <100.00	248	—	100	255	27.7	38,697	79	474	186	56	
Retail - Other non-SME	8	100.00 (default)	620	—	—	725	100.0	87,058	80	420	58	549	
Total - Retail - Other non-SME			5,360	—	100	5,560	15.8	734,867	76	4,754	86	668	646
Total - Retail all portfolios			163,030	44,565	99	195,342	4.2	21,801,075	22	34,709	18	3,093	2,405

EU CR6_a: IRB: Exposures by exposure class and PD range - Retail *continued*

2015		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	RWA £m	RWA density %	EL £m	Provisions £m
IRB													
Retail - Secured by real estate SME	1	0.00 to <0.15	—	55	100	39	0.1	5,830	54	4	11	—	
Retail - Secured by real estate SME	2	0.15 to <0.25	—	—	—	—	—	—	—	—	—	—	
Retail - Secured by real estate SME	3	0.25 to <0.50	47	8	100	54	0.4	2,034	44	12	22	—	
Retail - Secured by real estate SME	4	0.50 to <0.75	513	6	100	517	0.6	9,199	37	122	24	1	
Retail - Secured by real estate SME	5	0.75 to <2.50	341	41	100	368	1.3	7,859	46	150	41	2	
Retail - Secured by real estate SME	6	2.50 to <10.0	140	3	100	142	4.3	2,599	42	71	50	3	
Retail - Secured by real estate SME	7	10.0 to <100.00	28	1	100	29	23.6	717	43	22	77	3	
Retail - Secured by real estate SME	8	100.00 (default)	52	—	—	64	100.0	1,190	65	46	71	38	
Total - Retail - Secured by real estate SME			1,121	114	100	1,213	7.0	29,428	43	427	35	47	—
Retail - Secured by real estate non-SME	1	0.00 to <0.15	45,946	5,024	100	51,101	0.1	434,975	9	1,340	3	6	
Retail - Secured by real estate non-SME	2	0.15 to <0.25	112	—	—	112	0.2	2,747	28	13	12	—	
Retail - Secured by real estate non-SME	3	0.25 to <0.50	53,457	5,804	100	59,001	0.3	477,489	11	4,207	7	23	
Retail - Secured by real estate non-SME	4	0.50 to <0.75	8,203	222	95	8,427	0.6	64,396	14	1,110	13	7	
Retail - Secured by real estate non-SME	5	0.75 to <2.50	10,911	199	94	11,309	1.2	136,332	24	4,013	35	32	
Retail - Secured by real estate non-SME	6	2.50 to <10.0	1,963	32	100	2,007	5.1	21,785	12	836	42	13	
Retail - Secured by real estate non-SME	7	10.0 to <100.00	3,479	4	100	3,531	22.5	29,349	24	4,948	140	204	
Retail - Secured by real estate non-SME	8	100.00 (default)	4,848	12	100	4,852	100.0	41,366	24	4,493	93	813	
Total - Retail - Secured by real estate non-SME			128,919	11,297	100	140,340	4.4	1,208,439	12	20,960	15	1,098	1,352
Retail - Qualifying revolving	1	0.00 to <0.15	114	10,853	100	10,313	0.1	7,414,523	54	180	2	3	
Retail - Qualifying revolving	2	0.15 to <0.25	249	386	100	660	0.2	212,903	65	56	9	1	
Retail - Qualifying revolving	3	0.25 to <0.50	852	8,574	100	3,229	0.4	3,233,931	60	363	11	7	
Retail - Qualifying revolving	4	0.50 to <0.75	409	7,694	100	1,820	0.6	2,144,164	69	341	19	7	
Retail - Qualifying revolving	5	0.75 to <2.50	1,550	5,545	100	3,506	1.4	3,094,628	69	1,256	36	34	
Retail - Qualifying revolving	6	2.50 to <10.0	2,227	741	100	3,121	4.7	1,914,615	75	2,855	91	110	
Retail - Qualifying revolving	7	10.0 to <100.00	367	64	100	527	23.1	455,018	72	1,016	193	87	
Retail - Qualifying revolving	8	100.00 (default)	559	319	100	616	100.0	553,836	76	316	51	441	
Total - Retail - Qualifying revolving			6,327	34,176	100	23,792	4.0	19,023,618	62	6,383	27	690	199

EU CR6_a: IRB: Exposures by exposure class and PD range - Retail *continued*

2015		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	RWA £m	RWA density %	EL £m	Provisions £m
IRB													
Retail - Other SME	1	0.00 to <0.15	—	536	100	583	0.1	317,730	54	66	11	—	
Retail - Other SME	2	0.15 to <0.25	—	48	100	88	0.2	10,490	64	16	18	—	
Retail - Other SME	3	0.25 to <0.50	785	149	100	1,065	0.4	217,073	52	259	24	2	
Retail - Other SME	4	0.50 to <0.75	2,054	95	100	2,186	0.6	133,753	43	606	28	6	
Retail - Other SME	5	0.75 to <2.50	2,072	359	100	2,581	1.3	336,132	54	1,249	48	18	
Retail - Other SME	6	2.50 to <10.0	747	98	100	960	4.4	175,754	56	626	65	24	
Retail - Other SME	7	10.0 to <100.00	180	15	100	223	21.9	46,164	60	235	105	29	
Retail - Other SME	8	100.00 (default)	905	—	100	911	100.0	52,931	73	826	91	600	
Total - Retail - Other SME			6,743	1,300	100	8,597	12.3	1,290,027	53	3,883	45	679	464
Retail - Other non-SME	1	0.00 to <0.15	2	—	100	3	0.1	12	67	1	23	—	
Retail - Other non-SME	2	0.15 to <0.25	1	—	—	1	0.2	145	74	—	—	—	
Retail - Other non-SME	3	0.25 to <0.50	593	—	100	602	0.4	92,835	67	278	46	2	
Retail - Other non-SME	4	0.50 to <0.75	936	—	100	954	0.6	173,716	72	580	61	4	
Retail - Other non-SME	5	0.75 to <2.50	1,736	—	100	1,772	1.3	189,301	77	1,595	90	18	
Retail - Other non-SME	6	2.50 to <10.0	957	—	100	979	4.6	124,343	79	1,190	122	35	
Retail - Other non-SME	7	10.0 to <100.00	214	—	—	219	26.7	30,782	79	401	183	46	
Retail - Other non-SME	8	100.00 (default)	787	—	—	934	100.0	102,291	79	519	56	697	
Total - Retail - Other non-SME			5,226	—	100	5,464	19.6	713,425	76	4,564	84	802	860
Total - Retail all portfolios			148,336	46,887	100	179,406	5.2	22,264,937	23	36,217	20	3,316	2,875

EU CR6_b: IRB: Exposures by exposure class and PD range - Wholesale

The table below presents the key parameters used for the calculation of capital requirements for credit risk exposures in Wholesale exposure classes under the IRB approach, split by PD range. It excludes exposures calculated under the supervisory slotting approach, equities under the simple risk-weight approach and non-credit assets. It also excludes counterparty risk and securitisations. The average maturity used in the RWA calculation is capped at five years as per regulatory requirements. The Corporates - Specialised lending exposure class includes only exposures modelled under the PD/LGD method (relating to shipping). For specialised lending exposures under the supervisory slotting approach, refer to EU CR10_A.

2016		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWA £m	RWA density %	EL £m	Provisions £m
IRB														
Central governments and central banks	1	0.00 to <0.15	47,016	31,534	20	52,781	—	64	46	2.02	3,420	6	3	
Central governments and central banks	2	0.15 to <0.25	511	170	20	545	0.2	3	56	1.00	234	43	1	
Central governments and central banks	3	0.25 to <0.50	3	6	21	4	0.3	2	63	1.95	3	75	—	
Central governments and central banks	4	0.50 to <0.75	50	7	21	19	0.6	2	55	3.75	22	116	—	
Central governments and central banks	5	0.75 to <2.50	—	—	—	—	—	—	—	—	—	—	—	
Central governments and central banks	6	2.50 to <10.0	2	—	—	2	7.2	3	3	1.00	—	—	—	
Central governments and central banks	7	10.0 to <100.00	4	11	29	7	23.2	3	28	1.00	9	123	—	
Central governments and central banks	8	100.00 (default)	—	—	—	—	—	—	—	—	—	—	—	
Total - Central governments and central banks			47,586	31,728	20	53,358	—	77	46	2.01	3,688	7	4	—
Institutions	1	0.00 to <0.15	7,512	7,772	57	11,790	0.1	347	35	3.01	3,002	25	4	
Institutions	2	0.15 to <0.25	2,706	3,764	31	3,886	0.2	178	43	1.16	1,346	35	3	
Institutions	3	0.25 to <0.50	179	286	32	256	0.4	94	53	2.70	213	83	—	
Institutions	4	0.50 to <0.75	103	46	26	115	0.6	40	50	1.24	89	77	—	
Institutions	5	0.75 to <2.50	19	21	44	27	1.1	44	34	2.58	23	86	—	
Institutions	6	2.50 to <10.0	7	8	33	9	2.9	35	55	1.49	15	160	—	
Institutions	7	10.0 to <100.00	—	3	20	1	27.4	17	60	1.00	2	347	—	
Institutions	8	100.00 (default)	—	1	—	—	100.0	3	28	1.84	—	—	—	
Total - Institutions			10,526	11,901	48	16,084	0.1	758	37	2.55	4,690	29	7	—
Corporates - Specialised lending	1	0.00 to <0.15	—	—	—	—	—	—	—	—	—	—	—	
Corporates - Specialised lending	2	0.15 to <0.25	6	—	—	6	0.2	1	35	1.70	2	35	—	
Corporates - Specialised lending	3	0.25 to <0.50	61	—	—	60	0.3	6	33	2.95	31	52	—	
Corporates - Specialised lending	4	0.50 to <0.75	399	3	54	400	0.6	50	36	2.14	266	66	1	
Corporates - Specialised lending	5	0.75 to <2.50	445	1	102	443	1.1	51	37	2.13	379	86	2	
Corporates - Specialised lending	6	2.50 to <10.0	91	—	102	90	4.6	12	38	2.15	121	136	2	
Corporates - Specialised lending	7	10.0 to <100.00	56	—	101	55	11.7	7	36	2.41	97	177	2	
Corporates - Specialised lending	8	100.00 (default)	454	82	102	537	100.0	56	51	2.66	—	—	275	
Total - Corporates - Specialised lending			1,512	86	100	1,591	34.9	183	41	2.35	896	56	282	154

EU CR6_b: IRB: Exposures by exposure class and PD range - Wholesale *continued*

2016		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWA £m	RWA density %	EL £m	Provisions £m
IRB														
Corporates - SME	1	0.00 to <0.15	1	12	35	6	0.1	25	44	3.22	2	28	—	
Corporates - SME	2	0.15 to <0.25	407	109	64	477	0.2	1,115	39	3.34	181	38	—	
Corporates - SME	3	0.25 to <0.50	1,999	750	60	2,454	0.4	6,658	31	3.26	871	35	3	
Corporates - SME	4	0.50 to <0.75	2,090	766	58	2,539	0.6	5,368	29	2.93	1,028	41	5	
Corporates - SME	5	0.75 to <2.50	9,377	2,784	53	10,892	1.3	17,839	26	2.91	5,357	49	38	
Corporates - SME	6	2.50 to <10.0	4,341	1,212	48	4,978	3.6	9,148	23	2.68	2,618	53	41	
Corporates - SME	7	10.0 to <100.00	515	103	49	574	15.4	1,275	26	2.51	556	97	22	
Corporates - SME	8	100.00 (default)	936	58	34	958	100.0	3,085	45	3.09	—	—	434	
Total - Corporates - SME			19,666	5,794	53	22,878	6.1	44,513	27	2.91	10,613	46	543	435
Corporates - Other	1	0.00 to <0.15	24,201	44,263	43	43,293	0.1	2,743	37	3.15	8,939	21	9	
Corporates - Other	2	0.15 to <0.25	8,639	11,225	43	13,373	0.2	1,340	44	2.97	6,717	50	11	
Corporates - Other	3	0.25 to <0.50	8,643	10,657	48	13,696	0.4	1,994	43	2.91	9,382	69	23	
Corporates - Other	4	0.50 to <0.75	3,253	2,392	46	4,333	0.6	1,634	42	2.55	3,437	79	12	
Corporates - Other	5	0.75 to <2.50	12,365	6,394	52	15,628	1.3	13,181	35	2.75	13,661	87	71	
Corporates - Other	6	2.50 to <10.0	4,999	2,769	53	6,415	3.5	11,495	32	2.47	7,231	111	77	
Corporates - Other	7	10.0 to <100.00	552	196	45	641	18.4	1,015	22	2.02	754	118	32	
Corporates - Other	8	100.00 (default)	1,285	179	24	1,337	100.0	1,481	59	2.12	—	—	695	
Total - Corporates - Other			63,937	78,075	45	98,716	2.0	34,883	39	2.94	50,121	51	930	877
Equities	1	0.00 to <0.15	—	—	—	—	—	—	—	—	—	—	—	
Equities	2	0.15 to <0.25	—	—	—	—	—	—	—	—	—	—	—	
Equities	3	0.25 to <0.50	—	—	—	—	—	—	—	—	—	—	—	
Equities	4	0.50 to <0.75	—	—	—	—	—	—	—	—	—	—	—	
Equities	5	0.75 to <2.50	170	—	—	170	1.3	15	90	5.00	480	281	2	
Equities	6	2.50 to <10.0	63	—	—	62	2.5	23	90	5.00	201	326	1	
Equities	7	10.0 to <100.00	—	—	—	—	—	—	—	—	—	—	—	
Equities	8	100.00 (default)	2	—	—	—	100.0	1	90	5.00	—	—	—	
Total - Equities			235	—	—	232	1.7	39	90	5.00	681	293	3	3
Total - Wholesale all portfolios			143,462	127,584	40	192,859	2.1	80,453	39	2.64	70,689	37	1,769	1,469

EU CR6_b: IRB: Exposures by exposure class and PD range - Wholesale *continued*

2015		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWA £m	RWA density %	EL £m	Provisions £m
IRB														
Central governments and central banks	1	0.00 to <0.15	59,925	26,822	21	65,444	—	86	46	1.70	3,446	5	4	
Central governments and central banks	2	0.15 to <0.25	838	115	22	864	0.2	10	51	1.30	369	43	1	
Central governments and central banks	3	0.25 to <0.50	274	194	15	266	0.3	11	48	1.66	142	54	—	
Central governments and central banks	4	0.50 to <0.75	—	—	—	—	—	—	—	—	—	—	—	
Central governments and central banks	5	0.75 to <2.50	10	—	82	11	1.8	4	17	3.00	6	50	—	
Central governments and central banks	6	2.50 to <10.0	6	—	40	6	5.3	6	7	1.30	1	19	—	
Central governments and central banks	7	10.0 to <100.00	6	10	20	8	28.2	4	29	1.89	13	164	1	
Central governments and central banks	8	100.00 (default)	—	—	—	—	—	—	—	—	—	—	—	
Total - Central governments and central banks			61,059	27,141	21	66,599	—	121	46	1.69	3,977	6	6	—
Institutions	1	0.00 to <0.15	6,251	11,471	48	11,655	0.1	472	37	2.93	2,232	19	3	
Institutions	2	0.15 to <0.25	547	1,194	34	953	0.2	162	42	1.37	451	47	1	
Institutions	3	0.25 to <0.50	154	355	32	248	0.4	123	58	1.43	181	73	1	
Institutions	4	0.50 to <0.75	30	31	32	40	0.6	29	42	2.29	31	78	—	
Institutions	5	0.75 to <2.50	32	40	27	43	1.3	52	40	2.99	45	106	—	
Institutions	6	2.50 to <10.0	25	9	33	26	6.6	41	16	2.79	16	64	—	
Institutions	7	10.0 to <100.00	—	2	20	1	22.5	11	61	1.00	3	362	—	
Institutions	8	100.00 (default)	—	1	—	—	100.0	2	50	3.73	—	—	—	
Total - Institutions			7,039	13,103	46	12,966	0.1	892	38	2.78	2,959	23	5	4
Corporates - Specialised lending	1	0.00 to <0.15	—	—	—	—	—	—	—	—	—	—	—	
Corporates - Specialised lending	2	0.15 to <0.25	96	—	100	96	0.2	6	34	3.36	46	48	—	
Corporates - Specialised lending	3	0.25 to <0.50	156	—	—	156	0.4	14	30	3.27	89	57	—	
Corporates - Specialised lending	4	0.50 to <0.75	699	16	84	712	0.6	70	31	2.74	454	64	1	
Corporates - Specialised lending	5	0.75 to <2.50	1,065	4	94	1,069	1.2	126	31	2.84	841	79	4	
Corporates - Specialised lending	6	2.50 to <10.0	334	2	101	336	3.4	42	33	2.86	388	115	4	
Corporates - Specialised lending	7	10.0 to <100.00	51	—	—	51	22.5	4	36	3.46	106	209	4	
Corporates - Specialised lending	8	100.00 (default)	275	2	101	277	100.0	29	53	2.05	—	—	147	
Total - Corporates - Specialised lending			2,676	24	89	2,697	11.8	291	34	2.79	1,924	71	160	137

EU CR6_b: IRB: Exposures by exposure class and PD range - Wholesale *continued*

2015		PD Range %	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre CCF £m	Average CCF %	EAD post CRM and post CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWA £m	RWA density %	EL £m	Provisions £m
IRB														
Corporates - SME	1	0.00 to <0.15	97	102	44	142	0.1	49	45	2.97	48	34	—	
Corporates - SME	2	0.15 to <0.25	347	146	57	431	0.2	1,216	30	3.74	94	22	—	
Corporates - SME	3	0.25 to <0.50	1,854	725	62	2,310	0.4	7,262	31	3.27	774	34	3	
Corporates - SME	4	0.50 to <0.75	2,309	716	60	2,753	0.6	6,036	28	3.08	1,094	40	5	
Corporates - SME	5	0.75 to <2.50	9,606	2,817	56	11,247	1.3	22,911	28	3.08	5,939	53	42	
Corporates - SME	6	2.50 to <10.0	5,469	1,431	50	6,257	3.6	13,279	24	2.85	3,360	54	52	
Corporates - SME	7	10.0 to <100.00	793	115	52	866	16.0	2,246	24	2.78	709	82	32	
Corporates - SME	8	100.00 (default)	1,917	70	35	1,954	100.0	6,009	65	2.41	—	—	1,270	
Total - Corporates - SME			22,392	6,122	55	25,960	9.6	59,008	30	2.99	12,018	46	1,404	1,483
Corporates - Other	1	0.00 to <0.15	22,933	53,511	47	47,948	0.1	3,543	38	3.01	10,003	21	11	
Corporates - Other	2	0.15 to <0.25	9,377	13,671	44	15,405	0.2	1,966	44	2.68	7,212	47	13	
Corporates - Other	3	0.25 to <0.50	8,293	10,044	46	12,856	0.4	2,402	42	2.71	8,190	64	21	
Corporates - Other	4	0.50 to <0.75	3,457	3,614	46	5,119	0.6	1,665	40	2.70	3,904	76	13	
Corporates - Other	5	0.75 to <2.50	9,947	6,137	51	13,117	1.3	11,742	37	2.78	11,874	91	61	
Corporates - Other	6	2.50 to <10.0	5,345	2,697	53	6,609	5.5	10,921	30	2.61	6,687	101	84	
Corporates - Other	7	10.0 to <100.00	605	389	46	781	17.6	954	26	2.18	1,032	132	37	
Corporates - Other	8	100.00 (default)	1,772	214	40	1,873	100.0	3,972	71	2.09	—	—	1,336	
Total - Corporates - Other			61,729	90,277	47	103,708	2.6	37,165	39	2.83	48,902	47	1,576	1,717
Equities	1	0.00 to <0.15	—	—	—	—	—	—	—	—	—	—	—	
Equities	2	0.15 to <0.25	—	—	—	—	—	—	—	—	—	—	—	
Equities	3	0.25 to <0.50	—	—	—	—	—	—	—	—	—	—	—	
Equities	4	0.50 to <0.75	—	—	—	—	—	—	—	—	—	—	—	
Equities	5	0.75 to <2.50	261	—	—	261	1.3	16	90	5.00	733	282	3	
Equities	6	2.50 to <10.0	57	—	—	48	2.5	29	90	5.00	156	326	1	
Equities	7	10.0 to <100.00	—	—	—	—	—	—	—	—	—	—	—	
Equities	8	100.00 (default)	—	—	—	—	100.0	2	90	5.00	—	—	—	
Total - Equities			318	—	—	309	1.6	47	90	5.00	889	288	4	1
Total - Wholesale all portfolios			155,213	136,667	42	212,239	2.6	97,524	40	2.49	70,669	33	3,155	3,342

Key points

- Retail exposure classes - The RWA density reductions reflected improved asset quality due to current benign credit conditions.
- Institutions - RWA density increased following the update to the bank PD model reflecting a reduction in implied government support, offset in part by the inclusion of more recent loss experience in the LGD model.
- Corporates - Specialised lending: The reduction in RWA density reflected asset sales and loan amortisations as well as the continued challenging market conditions that affect vessel values in the bulk, container and tanker sectors as a number of customers moved into default.

EU CR6_c: Geographical split of PD and LGD

The table below presents weighted average PD and LGD for credit risk, analysed by geography, split by exposure class. It excludes exposures calculated under the supervisory slotting approach, equities under the simple risk-weight approach and non-credit assets. It also excludes counterparty credit risk and securitisations.

	Total		UK		RoI		Other Western Europe		US		Rest of World	
2016	PD %	LGD %	PD %	LGD %	PD %	LGD %	PD %	LGD %	PD %	LGD %	PD %	LGD %
IRB												
Central governments and central banks	—	45.6	—	49.9	0.1	45.0	—	45.0	—	45.0	0.1	50.7
Institutions	0.1	37.3	0.1	39.7	0.3	48.9	0.1	29.3	0.1	45.1	0.2	51.9
Corporates	3.2	36.5	2.5	33.0	7.6	43.4	2.1	47.8	2.6	47.5	14.7	43.5
Specialised lending	*34.9*	*41.4*	*1.8*	*50.0*	—	—	—	—	—	—	*34.9*	*41.4*
SME	*6.1*	*27.4*	*5.4*	*26.9*	*17.1*	*37.5*	*14.2*	*31.0*	*20.0*	*24.4*	*57.0*	*37.1*
Other corporate	*2.0*	*38.5*	*1.6*	*34.9*	*4.4*	*45.3*	*2.1*	*47.9*	*2.5*	*47.6*	*6.4*	*44.3*
Retail	4.2	22.2	2.8	21.1	19.2	33.2	3.4	60.5	3.2	59.1	4.1	59.8
Secured by real estate property - SME	*5.3*	*41.6*	*5.3*	*41.6*	*11.9*	*40.4*	*6.0*	*38.4*	*1.0*	*37.0*	*5.5*	*38.6*
- non SME	*3.7*	*12.4*	*1.9*	*10.4*	*19.8*	*30.4*	—	—	—	—	—	—
Qualifying revolving	*3.6*	*62.4*	*3.6*	*62.3*	*6.0*	*71.0*	*2.3*	*60.4*	*2.0*	*59.3*	*2.5*	*59.8*
Other retail - SME	*7.6*	*51.3*	*7.4*	*49.8*	*10.3*	*71.5*	*13.3*	*51.8*	*7.7*	*49.2*	*11.6*	*46.4*
- non-SME	*15.8*	*75.6*	*15.5*	*75.8*	*21.7*	*70.4*	*18.8*	*74.5*	*47.3*	*78.6*	*25.2*	*75.2*
Equities	1.6	90.0	1.8	90.0	—	—	1.4	90.0	1.8	90.0	11.4	90.0
Total IRB	3.2	30.6	2.7	25.3	15.0	36.4	0.6	43.6	0.9	45.9	6.7	47.9
2015												
IRB												
Central governments and central banks	—	45.9	0.2	45.6	0.1	45.3	—	45.0	—	45.0	0.1	51.3
Institutions	0.1	37.7	0.1	27.0	0.2	48.0	0.1	34.2	—	55.9	0.2	58.2
Corporates	4.2	37.3	2.9	32.6	31.9	54.9	1.9	47.3	1.7	46.8	6.9	42.5
Specialised lending	11.8	33.7	—	—	—	—	—	—	—	—	11.8	33.7
SME	9.6	30.0	6.6	27.5	44.1	58.3	14.3	32.2	26.2	29.4	83.2	67.2
Other corporate	2.6	39.3	1.5	34.5	24.9	53.0	1.8	47.3	1.6	46.8	4.7	45.5
Retail	5.2	23.1	3.5	22.0	24.1	34.4	4.4	60.7	4.6	59.5	4.9	60.2
Secured by real estate property - SME	7.0	43.1	7.0	43.1	30.6	41.9	8.5	40.7	0.9	39.4	5.4	39.9
- non SME	4.4	12.4	2.3	10.3	23.8	31.2	—	—	—	—	—	—
Qualifying revolving	4.0	62.2	4.0	62.1	7.3	71.2	2.7	60.4	2.7	59.5	3.2	60.0
Other retail - SME	12.3	53.5	10.1	51.8	37.2	73.2	22.4	54.3	15.7	51.5	13.5	48.7
- non-SME	19.6	75.7	19.3	75.9	28.2	69.4	20.5	74.3	45.8	74.9	23.6	74.9
Equities	1.6	90.0	2.5	90.0	—	—	1.3	90.0	1.4	90.0	8.7	90.0
Total IRB	3.8	32.4	3.2	25.8	24.1	40.3	0.6	44.5	0.5	45.8	3.4	47.7

Key points

- The reductions in weighted average PD and LGD in the RoI were driven by asset quality improvement due to the continued benign economic conditions.
- Deteriorating asset quality in the Shipping sector, reflecting continued challenging market conditions, contributed to the increase in weighted average PD for the RoW.

EU CR8: IRB & STD: Credit risk RWA and MCR flow statement

The table below presents the drivers of movements in credit risk RWAs and minimum capital requirements (MCR) over the reporting period, split by regulatory approach. RWAs include securitisations and deferred tax assets and significant investments to align with the capital management approaches of RBS and its segments.

	IRB £m	STD £m	Total RWA £m	MCR £m
At 1 January 2016	128,424	37,993	166,417	13,313
Asset size (1)	(7,163)	(3,380)	(10,543)	(843)
Asset quality (2)	(4,175)	(371)	(4,546)	(364)
Model updates (3)	747	(25)	722	58
Foreign exchange movements (4)	7,446	2,666	10,112	809
At 31 December 2016	125,279	36,883	162,162	12,973

Notes:
(1) Organic changes in book size and composition including the origination of new businesses and maturing loans and changes due to acquisitions and disposals of portfolios and exposures.
(2) Changes in the assessed quality of assets due to changes in borrower risk, such as rating grade migration or similar effects.
(3) Changes due to model implementation, changes in model scope, or any changes intended to address model weaknesses.
(4) Changes arising from foreign currency retranslation movements.

Key points

The key drivers of the reduction in RWAs were:

- Decreased asset size, predominantly in Capital Resolution, driven by the continued disposal of non-strategic assets as well as asset sales. This was partly offset by growth in lending in Commercial Banking and UK mortgages.
- Asset quality improvement due to continued benign economic conditions reflected in the Retail portfolio.

This was partly offset by:

- The weakening of sterling against other major currencies following the EU referendum.
- Updates to the PD models for banks, local authorities, housing associations and investment fund bridge lending; and the LGD models for banks and quasi-governments. These updates are implemented through annual customer credit review. Notably, the update of the PD model for banks recognised a reduction in implied government support reflecting changes in the regulatory environment in response to the global economic downturn in 2008. This resulted in some downward rating migration across internal asset quality bands.

EU CR9: IRB: IRB models back-testing qualitative disclosures

Wholesale credit grading models are hybrid models. They exhibit a degree of cyclicality that reflects broader credit conditions, but not the full cyclicality of a more point-in-time methodology.

The following table shows, for each of the past two years, the PD estimated for that year at the end of the previous year, compared with the actual default rate realised during the year. For wholesale exposures, the estimate shown is the averaged counterparty PD. For retail exposures, it is the averaged account-level PD. Exposures in default at the end of the previous year are excluded from the PD estimates as their probability of default is 100%. The default rate is the number of defaults observed during the year, divided by the number of obligors or accounts at the end of the previous year.

The EAD ratio displayed represents, for each year, the total EAD estimated for that year at the end of the previous year, against the actual exposure at the time of default for all assets that defaulted during the year.

EU CR9_a: IRB: IRB models - Summary PD and EAD back-testing

	PD				EAD	
	Estimated at 2015 %	Actual 2016 %	Estimated at 2014 %	Actual 2015 %	Estimated to actual ratio 2015 %	Estimated to actual ratio 2016 %
Central governments and central banks	1.05	—	0.65	—	—	—
Institutions	0.56	0.08	0.57	0.35	—	—
Corporates	2.13	1.27	2.30	1.48	107	110
Retail						
- Secured by real estate property SME	2.02	2.05	2.32	2.02	116	116
- Secured by real estate property non-SME	1.01	0.68	1.23	0.71	103	103
- Qualifying revolving	1.44	1.22	2.04	1.26	112	115
- Other retail	3.03	3.17	3.35	2.93	109	110
Equities	2.13	2.27	3.49	1.55	—	—

Key points

- In all wholesale exposure classes, actual default experience in 2016 was below estimated outcomes except for Equities, as had been the case in the previous year.
- The rise in the PD estimate for Central Governments can primarily be attributed to the downgrade of two Sovereign entities.
- In the Corporate and Equity exposure classes, the PD estimates fell on the back of the disposal of higher-risk assets in line with strategy.
- Observed default rates continued to fall year-on-year across the Secured and Qualifying Revolving Retail exposure classes.
- These reductions were also reflected in the estimates, although observed default experience in 2016 remained below estimated outcomes.
- Small increases in observed default rates were noted across the Retail SME and Other Retail asset classes. The PD under-prediction is being addressed through quarterly model calibrations, as outlined in section EU CRE.
- In the Corporates class, the EAD ratio increased after showing a sharp decline in 2015 due to amortising loans.
- In all Retail exposure classes, EAD experience in 2016 was below estimated outcomes, as had been the case in the previous year.

Back-testing of PD by exposure class

To provide enhanced disclosure on the probability of default analysis, the following two tables provide a further breakdown by exposure class and asset quality band: Table EU CR9_a_1 for Retail classes and Table EU CR9_a_2 for Wholesale classes.

The additional detail provided for Wholesale classes in Table EU CR9_a_2 includes the following:

- The estimated probabilities of default as at the end of 2015, on both an EAD weighted and obligor weighted (mean) basis.
- The actual default rates for 2016 and the averaged annual default rates across the five -year period covering 2012-2016 inclusive.
- The number of obligors at the 2015 and 2016 year-ends. Note that these numbers differ slightly from the obligor numbers in EU CR6 and EU CCR4 as specific filters are applied for modelling or scope differences (for example, the inclusion or exclusion of counterparty credit risk exposures).
- The total default count in 2016.
- The number of clients that defaulted in 2016 and that did not have committed facilities granted as at the 2015 year end. Note - these newly funded clients are not included in the actual 2016 default rates.

EU CR9_a_1: IRB models - Back-testing of PD by exposure class - Retail - credit risk

In this table, defaults are recognised at individual account level for the Retail classes. "Obligors" therefore relate to "Accounts" in the figures shown in this table and the two terms are equivalent in this context.

The methodology that has been used to assign obligors to AQ bands in this table differs from that used elsewhere in this report. Retail models are developed and monitored at obligor (i.e. account) level. Therefore, obligors in this table are directly allocated to AQ bands based on their individual PD. In other tables within this report, obligors are first aggregated into reporting pools (homogenous groups of obligors based on characteristics such as product type and PD). Each reporting pool is assigned the average PD for that pool, and each pool is then allocated to an AQ band based on the average PD.

			PD estimate at		Defaulted rates actual					
			EAD weighted	Obligor weighted	Obligor weighted	Obligor weighted	Number of obligors		Defaulted obligors	
Exposure class	AQ band	PD range	2015 %	2015 %	2016 %	2012-2016 %	2015	2016	All	of which: newly funded obligors during the year
Retail - Secured by real estate SME	AQ01	0% to 0.034%	—	—	—	—	—	585	6	6
Retail - Secured by real estate SME	AQ02	0.034% to 0.048%	0.04%	0.04%	—	0.07%	3,126	79	—	—
Retail - Secured by real estate SME	AQ03	0.048% to 0.095%	0.07%	0.07%	0.06%	0.05%	170,008	18,231	110	—
Retail - Secured by real estate SME	AQ04	0.095% to 0.381%	0.24%	0.22%	0.27%	0.20%	333,055	427,336	893	6
Retail - Secured by real estate SME	AQ05	0.981% to 1.076%	0.66%	0.66%	0.69%	0.58%	317,642	327,923	2,255	59
Retail - Secured by real estate SME	AQ06	1.076% to 2.153%	1.49%	1.50%	1.90%	1.30%	220,148	213,885	4,260	77
Retail - Secured by real estate SME	AQ07	2.153% to 6.089%	3.46%	3.59%	3.29%	2.74%	165,986	212,918	6,122	659
Retail - Secured by real estate SME	AQ08	6.089% to 17.222%	9.97%	10.02%	10.17%	8.54%	54,636	63,676	5,685	126
Retail - Secured by real estate SME	AQ09	17.222 % to 100 %	31.45%	33.35%	31.78%	28.87%	25,210	30,874	8,075	64
Retail - Secured by real estate SME	AQ10	100%	—	—	—	—	55,332	39,746	—	—
Total - Retail - SME	**Total**		1.79%	2.02%	2.05%	2.52%	1,345,143	1,335,253	27,406	997
Retail - Secured by real estate non-SME	AQ01	0% to 0.034%	—	—	—	0.00%	—	56	—	—
Retail - Secured by real estate non-SME	AQ02	0.034% to 0.048%	0.05%	0.05%	0.30%	0.06%	993	17,544	3	—
Retail - Secured by real estate non-SME	AQ03	0.048% to 0.095%	0.08%	0.08%	0.07%	0.05%	113,493	111,054	86	1
Retail - Secured by real estate non-SME	AQ04	0.095% to 0.381%	0.22%	0.22%	0.15%	0.14%	685,080	757,765	1,030	9
Retail - Secured by real estate non-SME	AQ05	0.981% to 1.076%	0.59%	0.62%	0.41%	0.38%	210,367	214,159	867	15
Retail - Secured by real estate non-SME	AQ06	1.076% to 2.153%	1.36%	1.40%	0.58%	0.78%	71,516	43,618	421	4
Retail - Secured by real estate non-SME	AQ07	2.153% to 6.089%	3.75%	3.55%	2.47%	2.11%	17,888	24,526	448	7
Retail - Secured by real estate non-SME	AQ08	6.089% to 17.222%	11.11%	10.94%	11.09%	8.78%	15,325	14,277	1,701	2
Retail - Secured by real estate non-SME	AQ09	17.222 % to 100 %	26.13%	26.21%	16.17%	21.90%	20,123	16,461	3,255	1
Retail - Secured by real estate non-SME	AQ10	100%	—	—	—	—	41,375	36,319	—	—
Total - Retail - non-SME	**Total**		1.01%	1.01%	0.68%	1.15%	1,176,160	1,235,779	7,811	39

EU CR9_a_1: IRB models - Back-testing of PD by exposure class - Retail - credit risk *continued*

Exposure class	AQ band	PD range	PD estimate at EAD weighted 2015 %	PD estimate at Obligor weighted 2015 %	Default rates actual Obligor weighted 2016 %	Default rates actual Obligor weighted 2012-2016 %	Number of obligors 2015	Number of obligors 2016	Defaulted obligors All	Defaulted obligors of which: newly funded obligors during the year
Retail - Qualifying revolving	AQ01	0% to 0.034%	0.03%	0.03%	0.02%	0.02%	5,076,049	5,475,320	1,109	57
Retail - Qualifying revolving	AQ02	0.034% to 0.048%	0.04%	0.04%	0.06%	0.04%	1,194,759	1,027,499	682	8
Retail - Qualifying revolving	AQ03	0.048% to 0.095%	0.08%	0.08%	0.08%	0.07%	293,647	561,598	245	—
Retail - Qualifying revolving	AQ04	0.095% to 0.381%	0.24%	0.24%	0.16%	0.25%	2,696,477	2,175,704	5,160	106
Retail - Qualifying revolving	AQ05	0.981% to 1.076%	0.63%	0.61%	0.52%	0.52%	4,938,217	4,607,549	25,121	298
Retail - Qualifying revolving	AQ06	1.076% to 2.153%	1.56%	1.55%	1.29%	1.42%	1,634,148	1,751,502	24,829	486
Retail - Qualifying revolving	AQ07	2.153% to 6.089%	3.72%	3.65%	2.77%	2.87%	1,814,631	1,660,588	56,847	6,369
Retail - Qualifying revolving	AQ08	6.089% to 17.222%	9.16%	9.43%	7.89%	7.40%	631,036	515,676	52,288	2,366
Retail - Qualifying revolving	AQ09	17.222 % to 100 %	34.98%	34.11%	30.07%	29.25%	225,018	229,237	71,941	3,064
Retail - Qualifying revolving	AQ10	100%	—	—	—	—	555,130	502,951	—	—
Total - Retail - Qualifying revolving	**Total**		1.49%	1.44%	1.22%	1.57%	19,059,112	18,507,624	238,222	12,754
Retail - Other	AQ01	0% to 0.034%	—	—	—	—	—	—	—	—
Retail - Other	AQ02	0.034% to 0.048%	—	—	—	—	—	—	—	—
Retail - Other	AQ03	0.048% to 0.095%	0.09%	0.09%	—	—	2	10	—	—
Retail - Other	AQ04	0.095% to 0.381%	0.33%	0.33%	0.76%	0.52%	18,678	27,553	278	136
Retail - Other	AQ05	0.981% to 1.076%	0.65%	0.62%	0.66%	0.63%	305,653	312,410	2,353	344
Retail - Other	AQ06	1.076% to 2.153%	1.51%	1.45%	1.74%	1.55%	105,643	111,260	2,312	476
Retail - Other	AQ07	2.153% to 6.089%	3.67%	3.55%	3.46%	3.10%	118,669	122,158	5,280	1,176
Retail - Other	AQ08	6.089% to 17.222%	9.72%	10.00%	10.24%	8.63%	36,798	45,505	4,450	681
Retail - Other	AQ09	17.222 % to 100 %	40.13%	43.13%	45.47%	41.17%	15,847	19,549	7,374	168
Retail - Other	AQ10	100%	—	—	—	—	99,959	85,248	—	—
Total - Retail - Other	**Total**		3.03%	3.03%	3.17%	3.49%	701,249	723,693	22,047	2,981

Key points

- Observed and estimated default rates are well aligned across AQ bands for all asset classes.
- A significant volume of obligors originating in AQ bands 8 and 9 in the qualifying revolving asset class subsequently go on to default within the year. These relate to “basic” accounts within the current account portfolio (i.e. accounts with no borrowing facilities) and tend to be low-value defaults.

EU CR9_a_2: IRB models - Back-testing of PD by exposure class - Wholesale - total credit risk

Exposure class	AQ band	PD range	Equivalent S&P Rating	PD estimate at EAD weighted 2015 %	PD estimate at Obligor weighted 2015 %	Default rates actual Obligor weighted 2016 %	Default rates actual Obligor weighted 2012-2016 %	Number of obligors 2015	Number of obligors 2016	Defaulted obligors All	Defaulted obligors of which: newly funded obligors during the year
Sovereign	AQ01	0% to 0.034%	AAA to AA	0.01%	0.01%	—	—	65	53	—	—
Sovereign	AQ02	0.034% to 0.048%	AA to AA-	0.04%	0.04%	—	—	5	5	—	—
Sovereign	AQ03	0.048% to 0.095%	A+ to A-	0.07%	0.07%	—	—	28	14	—	—
Sovereign	AQ04	0.095% to 0.381%	BBB+ to BBB-	0.23%	0.24%	—	—	18	12	—	—
Sovereign	AQ05	0.981% to 1.076%	BB+ to BB	0.45%	0.45%	—	—	5	4	—	—
Sovereign	AQ06	1.076% to 2.153%	BB- to B+	1.81%	1.55%	—	—	4	—	—	—
Sovereign	AQ07	2.153% to 6.089%	B+ to B	2.56%	2.55%	—	—	4	1	—	—
Sovereign	AQ08	6.089% to 17.222%	B to CCC+	7.96%	9.65%	—	—	3	4	—	—
Sovereign	AQ09	17.222 % to 100 %	CCC to CC	28.96%	28.96%	—	—	3	1	—	—
Sovereign	AQ10	100%	D	—	—	—	—	—	—	—	—
Total - Sovereign	Total			0.02%	1.05%	—	—	135	94	—	—
Institutions	AQ01	0% to 0.034%	AAA to AA	0.03%	0.03%	—	—	225	140	—	—
Institutions	AQ02	0.034% to 0.048%	AA to AA-	0.04%	0.04%	—	0.16%	107	71	—	—
Institutions	AQ03	0.048% to 0.095%	A+ to A-	0.06%	0.07%	—	0.06%	142	92	—	—
Institutions	AQ04	0.095% to 0.381%	BBB+ to BBB-	0.14%	0.21%	—	0.14%	491	508	—	—
Institutions	AQ05	0.981% to 1.076%	BB+ to BB	0.34%	0.59%	—	0.15%	197	208	—	—
Institutions	AQ06	1.076% to 2.153%	BB- to B+	1.39%	1.52%	—	1.85%	52	50	—	—
Institutions	AQ07	2.153% to 6.089%	B+ to B	3.38%	3.04%	2.04%	0.78%	49	43	1	—
Institutions	AQ08	6.089% to 17.222%	B to CCC+	7.37%	10.86%	—	7.15%	11	12	—	—
Institutions	AQ09	17.222 % to 100 %	CCC to D	21.92%	25.57%	—	1.21%	5	11	—	—
Institutions	AQ10	100%		—	—	—	—	2	4	—	—
Total - Bank	Total			0.12%	0.56%	0.08%	0.27%	1,281	1,139	1	—

EU CR9_a_2: IRB models - Back testing of PD by exposure class - Wholesale - total credit risk *continued*

				PD estimate at		Default rates actual		Number of obligors		Defaulted obligors	
				EAD weighted	Obligor weighted	Obligor weighted	Obligor weighted				
Exposure class	AQ band	PD range	Equivalent S&P Rating	2015 %	2015 %	2016 %	2012-2016% 2015	2015	2016	All	of which: newly funded obligors during the year
Corporates	AQ01	0% to 0.034%	AAA to AA	0.03%	0.03%	0.03%	0.01%	3,201	2,774	1	—
Corporates	AQ02	0.034% to 0.048%	AA to AA-	0.04%	0.04%	0.16%	0.03%	638	435	1	—
Corporates	AQ03	0.048% to 0.095%	A+ to A-	0.07%	0.07%	—	0.04%	1,592	1,160	—	—
Corporates	AQ04	0.095% to 0.381%	BBB+ to BBB-	0.20%	0.24%	0.06%	0.17%	8,445	7,124	5	—
Corporates	AQ05	0.981% to 1.076%	BB+ to BB	0.67%	0.70%	0.41%	0.55%	23,529	21,002	96	—
Corporates	AQ06	1.076% to 2.153%	BB- to B+	1.51%	1.54%	0.83%	1.14%	24,000	21,523	208	9
Corporates	AQ07	2.153% to 6.089%	B+ to B	3.28%	3.14%	1.49%	2.28%	22,081	19,168	338	9
Corporates	AQ08	6.089% to 17.222%	B to CCC+	9.90%	9.98%	8.91%	9.40%	4,110	2,982	372	6
Corporates	AQ09	17.222 % to 100 %	CCC to D	26.07%	25.42%	14.35%	20.75%	899	720	129	—
Corporates	AQ10	100%		—	—	—	—	12,766	4,442	—	—
Total - Corporates	Total			0.84%	2.13%	1.27%	2.12%	101,261	81,330	1,150	24
Equities	AQ01	0% to 0.034%	AAA to AA	—	—	—	—	—	—	—	—
Equities	AQ02	0.034% to 0.048%	AA to AA-	—	—	—	—	—	—	—	—
Equities	AQ03	0.048% to 0.095%	A+ to A-	—	—	—	—	—	—	—	—
Equities	AQ04	0.095% to 0.381%	BBB+ to BBB-	—	—	—	—	—	—	—	—
Equities	AQ05	0.981% to 1.076%	BB+ to BB	—	—	—	—	—	—	—	—
Equities	AQ06	1.076% to 2.153%	BB- to B+	1.30%	1.32%	—	0.37%	16	12	—	—
Equities	AQ07	2.153% to 6.089%	B+ to B	2.52%	2.60%	3.57%	1.49%	28	21	1	—
Equities	AQ08	6.089% to 17.222%	B to CCC+	—	—	—	5.29%	—	—	—	—
Equities	AQ09	17.222 % to 100 %	CCC to D	—	—	—	20.14%	—	—	—	—
Equities	AQ10	100%		—	—	—	—	1	1	—	—
Total - Equities	Total			1.49%	2.13%	2.27%	2.09%	45	34	1	—

Key points

- PD estimates rise with each AQ band as expected, but actual outcomes do not always increase monotonically for Wholesale clients, where sample sizes tend to be small at the AQ band level.
- Generally, as expected, the five-year actual default rates were higher than the 2016 experience. However, some random variation to this trend was evident.
- A small number of newly funded defaults were evident. These tended to be for small clients that had no formal borrowing facilities or that had experienced an unsuccessful restructuring.

EU CR9_b: IRB: IRB models – Back-testing of LGD by exposure class - total credit risk

Corporates

In the Corporates exposure class, actual LGD includes all defaulted client cases that closed during the year, excluding those formerly managed by RBS Capital Resolution (RCR now within Capital Resolution). The majority of these clients defaulted during 2008-2016.

The estimated LGDs are the average pre-default estimates for these defaults, with the actual LGDs being the averaged observed outcomes, time discounted to reflect the varying workout periods. Both estimated and actual LGDs are EAD-weighted.

Closure of a defaulted client case occurs upon a debt being repaid, fully or partially written off, or returned to the performing book, or a combination of these outcomes.

The former RCR default cases relate to clients that are in discontinued businesses, form part of loan sale programmes or are in accelerated exit portfolios.

Data for these assets have been excluded from the table below for both 2015 and 2016 as the outcomes do not represent expected future model performance, for the following specific reasons:

- Pre-default estimates were assessed on discontinued models;
- Actual LGD outcomes do not reflect normal workout processes; and
- Assets do not represent future 'go-forward' business.

Portfolio loan sales took place in Ulster Bank RoI in 2016 and, where these were concluded, the outcomes are reflected in the figures.

Central governments, banks, institutions and equities are not included owing to nil or very low volumes, hence disclosure is not meaningful.

Retail

In the retail exposure classes, estimated LGDs relate to loss estimates on defaulted exposures over defined periods ranging from 36 to 72 months, to align with the collections and recoveries process. The corresponding actual losses included in the table relate to the same exposures, with outcomes observed during the relevant reporting period.

	2016		2015	
IRB exposure class	LGD - estimated %	LGD - actual %	LGD - estimated %	LGD - actual %
Corporates	33.4	44.0	32.9	32.8
Retail				
- SME	72.5	63.2	73.0	61.5
- Secured by real estate property	35.9	20.7	33.2	19.6
- Qualifying revolving	76.0	70.9	77.9	73.1
- Other	79.2	75.3	79.6	75.5

Key points

- In the Corporates class, loss estimates were broadly stable. However, actual losses rose, primarily due to a small number of large exposures with high losses, combined with higher losses emerging from the portfolio sales undertaken by Ulster Bank RoI.
- Loss outcomes on a non-EAD-weighted basis were well within estimates.
- For all Retail exposure classes, actual loss experience in 2016 was below estimated outcomes, as had been the case in the previous year.
- In all Retail exposure classes, loss estimates and outcomes were broadly comparable year on year.

Credit risk (excluding counterparty credit risk)

EU CR9_c: IRB: IRB models - Back-testing of EL by exposure class - total credit risk

IRB exposure class	Expected loss estimated for following year at the end of 2015 Non-defaulted (AQ1-AQ9) £m	2015 Defaulted (AQ10) £m	2015 Total £m	2014 Non-defaulted (AQ1-AQ9) £m	2014 Defaulted (AQ10) £m	2014 Total £m	Impairment (release)/charge for the year 2016 £m	2015 £m
Central governments and central banks	6	—	6	14	—	14	—	—
Institutions	13	—	13	20	37	57	(9)	—
Corporates	568	4,301	4,869	776	13,120	13,896	801	(764)
Retail								
- SMEs	88	638	726	140	1,049	1,189	7	(73)
- Secured by real estate property	284	813	1,097	364	1,047	1,411	(136)	(112)
- Qualifying revolving retail	250	440	690	319	550	869	25	15
- Other	106	696	802	124	933	1,057	22	69
Equities	13	—	13	15	17	32	—	2
	1,328	6,888	8,216	1,772	16,753	18,525	710	(863)

Key points

- The ongoing reduction in expected loss is a reflection of the disposal and restructuring of higher risk exposures in line with strategy.
- The 2016 impairment charge primarily reflected losses relating to the shipping portfolio in Capital Resolution, single name oil and gas loss in Commercial Banking partly offset by net releases in Ulster Bank RoI following the sale of a loan portfolio. In contrast, the 2015 impairment release reflected favourable market conditions and efficient deal execution that supported disposal strategy.

EU CR10_A IRB: IRB specialised lending

The table below presents IRB specialised lending exposures subject to the supervisory slotting approach, analysed by type of lending and regulatory category. It excludes counterparty credit risk and securitisations. Note: For specialised lending exposures under the PD/LGD method (relating to shipping), refer to EU CR6_b.

Regulatory categories	Remaining maturity	On-balance sheet amount £m	Off-balance sheet amount £m	RW %	Exposure amount £m	RWA £m	Expected loss £m
2016							
IRB							
Strong	Less than 2.5 years	3,034	404	50	3,304	1,652	—
	Equal to or more than 2.5 years	8,001	1,069	70	8,723	6,106	35
Good	Less than 2.5 years	4,029	678	70	4,607	3,225	18
	Equal to or more than 2.5 years	4,092	216	90	4,238	3,814	34
Satisfactory	Less than 2.5 years	202	8	115	210	241	6
	Equal to or more than 2.5 years	658	103	115	753	866	21
Weak	Less than 2.5 years	117	4	250	120	301	10
	Equal to or more than 2.5 years	117	26	250	143	358	11
Default	Less than 2.5 years	996	13	—	1,007	—	506
	Equal to or more than 2.5 years	490	16	—	500	—	249
Total		21,736	2,537	—	23,605	16,563	890
2015							
IRB							
Strong	Less than 2.5 years	2,502	371	50	2,805	1,403	—
	Equal to or more than 2.5 years	7,370	856	70	7,945	5,561	32
Good	Less than 2.5 years	3,429	467	70	3,824	2,677	15
	Equal to or more than 2.5 years	4,506	358	90	4,773	4,296	38
Satisfactory	Less than 2.5 years	380	8	115	387	445	11
	Equal to or more than 2.5 years	945	108	115	994	1,143	28
Weak	Less than 2.5 years	217	6	250	222	554	18
	Equal to or more than 2.5 years	240	9	250	248	619	20
Default	Less than 2.5 years	1,640	18	—	1,658	—	874
	Equal to or more than 2.5 years	1,153	39	—	1,181	—	612
Total		22,382	2,240	—	24,037	16,698	1,648

Key point

- The increase in the Strong and Good categories reflected RBS's strategy to grow its Project Finance business.

EU CR10_B IRB: IRB equities

The table below presents IRB equity exposures subject to the simple risk weight approach. It excludes counterparty credit risk and securitisations.

2016	On-balance sheet amount £m	Off-balance sheet amount £m	RW %	Exposure amount £m	RWA £m	Expected loss £m
IRB						
Exchange-traded equity exposures	57	—	290	57	167	—
Private equity exposures	261	124	190	360	685	3
Other equity exposures	151	5	370	131	482	3
Total	469	129	—	548	1,334	6
2015						
IRB						
Exchange-traded equity exposures	45	—	290	45	132	—
Private equity exposures	183	124	190	279	530	2
Other equity exposures	270	10	370	258	951	7
Total	498	134	—	582	1,613	9

Key points

- The increase in Private Equity reflected RBS's contribution to the UK Business Growth Fund.
- The reduction in Other Equity was in line with Capital Resolution strategy to dispose of legacy assets.

Counterparty credit risk

EU CCRA: CCR: General qualitative information

Definition and framework

Counterparty credit risk relates to derivative contracts (including over-the-counter (OTC) derivatives and exchange-traded derivatives), securities financing transactions (SFTs), and long settlement transactions in either the trading or the non-trading book. It is the risk of loss arising from a default of a customer before the final settlement of the transaction's cash flows, which vary in value by reference to a market factor, such as an interest rate, exchange rate or asset price.

Counterparty credit risk is covered by RBS's credit risk framework. Refer to the Credit risk section in the 2016 ARA for more information.

However, a number of specific policies apply to derivatives including those transacted with central counterparties (CCPs) and SFTs. These include policies that address documentation requirements, product-specific requirements (for example, futures, credit derivatives and securities lending), counterparty specific requirements (for example, hedge funds and pension funds), margin trading, collateral and custodians.

EAD calculation methods

Internal model method (IMM)

RBS has permission from the PRA to use an internal model for calculating EADs for regulatory capital requirements for certain derivatives.

The IMM calculates EAD as the product of effective expected positive exposure (EEPE) or stressed EEPE whichever is the higher, and the regulatory prescribed alpha multiplier. The alpha multiplier, which was 1.4 for both 2015 and 2016 and uplifts the EAD, is indicative of the robustness of an institution's approach and governance framework for managing counterparty credit risk.

In accordance with the CRR requirements, the IMM for OTC derivatives is adjusted for wrong-way risk (for more information on wrong-way risks, refer to the following page), collateral and an increased margin period of risk, when appropriate.

Mark-to-market (mtm) method

For derivatives that fall outside the IMM and for exchange-traded derivatives where RBS does not have permission to use the IMM to calculate EAD for regulatory capital purposes, it calculates counterparty credit risk exposures using the mtm method. Exposure is calculated as the positive mtm value of outstanding contracts plus a potential future exposure. Exposure is adjusted for collateral, including any haircuts applied to collateral in accordance with regulatory requirements.

Financial collateral comprehensive method

RBS uses the financial collateral comprehensive method for calculating EAD on SFTs. Exposure is adjusted for collateral, after volatility adjustments are applied.

Counterparty credit limit setting

Counterparty credit limits are established through the credit risk management framework. Limits are based on the credit quality of the counterparty and the appetite for the projected maximum potential future exposure of transactions, based on 95th percentile confidence levels. The utilisations recorded against the limits also reflect the nature of the relevant documentation and the anticipated close-out periods in the event of default.

For CCPs, utilisations are calculated in the same way as for other collateralised counterparties, and a credit limit is set. However, additional limits are set to cover initial margin posted to the CCP, default fund contributions and other contingent liabilities.

Counterparty credit risk management

The credit policy framework governs counterparty credit risk management requirements. Industry standard documentation (for example, International Swaps and Derivatives Association master agreements for derivatives and Global Master Repurchase Agreements for SFTs) is executed for clients prior to trading. Exceptions to this require specific approval from a senior credit risk officer. The legal and administrative capacity of counterparties to enter into legal agreements, including collateral agreements (such as a credit support annex) is assessed. The policy framework establishes minimum documentation requirements under collateral agreements including: collateral threshold amounts; minimum transfer amounts; minimum haircuts; collateral eligibility criteria; and collateral call frequency.

Where netting is not enforceable, exposures are shown gross, and where netting and collateral enforceability criteria are not fulfilled, exposure is assumed to be uncollateralised. The framework also includes a formal escalation policy for counterparty collateral disputes and unpaid collateral calls.

Collateral required in the event of a credit rating downgrade

RBS calculates the additional collateral it would be required to post in the event of its credit ratings being downgraded by one or two notches. This is undertaken on a daily basis for treasury and liquidity management purposes. Refer to page 446 of the 2016 ARA for more information.

Credit valuation adjustments (CVAs)

The counterparty exposure management team charges the relevant trading desk a credit premium at the inception of a trade, in exchange for taking on the credit risk over the life of the transaction. The team may then hedge the default risk using credit derivatives sourced from third party providers. CVA sensitivities may be hedged using a combination of credit derivatives, interest rate derivatives, foreign exchange derivatives and other instruments.

RBS calculates a regulatory CVA capital charge. The purpose of this charge is to improve the resilience of banks to potential mark-to-market losses associated with deterioration in the creditworthiness of counterparties in non-cleared derivative trades. Under CRR rules, the charge is calculated using either the advanced approach or the standardised approach. As RBS has regulatory approval to use an internal model to calculate counterparty credit risk capital and permission to use an internal Value-at-Risk model for the specific risk of debt instruments, the advanced approach is used where possible. For products that fall outside the model permissions, the standardised approach, which is based on the external credit rating of the counterparty, is used.

Wrong-way risks

Wrong-way risk represents the risk of loss that arises when the risk factors driving the exposure to a counterparty are positively correlated with the probability of default of that counterparty, i.e. the size of the exposure increases at the same time as the risk of the counterparty being unable to meet that obligation increases.

In addition to its usual credit approval and credit authority policies, RBS also manages its exposure to wrong-way risk through a dedicated policy that establishes a framework incorporating approvals, controls, limits and regular monitoring, where appropriate.

Under the framework, enhanced transaction approval is required and limits are set to constrain wrong-way risk arising through currency exposure to countries classified as high-risk under the internal Watchlist process. The reporting process includes a monthly review of wrong-way risks arising either from such currency exposure or through reverse repos, credit derivatives and equity trades.

The framework distinguishes between specific wrong-way risk (where the risk factor driving the exposure is specific to the counterparty) and general wrong-way risk (where the risk factor driving the exposure is not specific to the counterparty but still positively correlated with its probability of default, for instance country or currency related factors).

EU CCR1: CCR: Analysis of exposure by approach

The table below presents the methods used to calculate counterparty credit risk exposure and resultant RWAs. It excludes credit valuation adjustment charges, securitisations and exposures cleared through a CCP.

2016	Notional £m	Replacement cost/current market value £m	Potential future exposure £m	EEPE (1) £m	Multiplier	EAD post-CRM £m	RWA £m
Mark-to-market method	n/a	13,945	4,175	n/a	n/a	8,183	4,410
Internal model method (for derivatives)	n/a	n/a	—	19,239	1	26,934	11,727
Derivatives and long settlement transactions	*n/a*	*n/a*	—	*19,239*	*1*	*26,934*	*11,727*
Financial collateral comprehensive method (for SFTs)	n/a	n/a	n/a	n/a	n/a	14,383	1,543
Total	n/a	n/a	n/a	n/a	n/a	49,500	17,680
2015							
Mark-to-market method	n/a	12,157	6,608	n/a	n/a	10,190	4,262
Internal model method (for derivatives)	n/a	n/a	n/a	17,584	1	24,617	10,709
Derivatives and long settlement transactions	*n/a*	*n/a*	*n/a*	*17,584*	*1*	*24,617*	*10,709*
Financial collateral comprehensive method (for SFTs)	n/a	n/a	n/a	n/a	n/a	14,692	1,413
Total	n/a	n/a	n/a	n/a	n/a	49,499	16,385

Note:
(1) This contains the higher of (i) Effective EPE calculated using current market data and (ii) Effective EPE using a stress calibration. The higher of those two EEPE measures is used for the calculation of RWAs as prescribed by article 284(3).

Key points

- EAD post CRM was unchanged year on year. The continuing roll-off of trades in Capital Resolution was offset by the impact of sterling weakening against other major currencies.
- The rise in RWAs was primarily driven by both the impact of the sterling depreciation over the period and a revised PD model for banks, notably to reflect a reduction in implied government support. This was offset partially by the roll-off of trades in Capital Resolution (offset somewhat by an increase in the trade count in NatWest Markets) and by an improvement in the IMM model over the period.
- EAD post CRM under the mark-to-market method fell as the majority of the trades unwound by Capital Resolution during the year were covered by this method. In addition, the proportion of trading activity in NatWest Markets covered by the internal model method increased.

EU CCR2: CCR: Credit valuation adjustment capital charge

The table below presents the CVA charge broken down by approach.

	2016		2015	
	Exposure value £m	RWAs £m	Exposure value £m	RWAs £m
Total portfolios subject to the advanced CVA capital charge	12,749	3,560	10,453	4,627
(i) VaR component (including the 3x multiplier)	n/a	686	n/a	524
(ii) Stressed VaR component (including the 3x multiplier)	n/a	2,874	n/a	4,103
All portfolios subject to the standardised CVA capital charge	2,942	1,103	2,866	1,263
Total	15,691	4,663	13,319	5,890

Key points

- The fall in RWAs largely reflected the improvement in the IMM model over the period.
- The model improvement had less impact on exposure values, which rose as a result of the weakening of sterling.

EU CCR3: CCR STD: Exposures by regulatory portfolio and risk weight

	Risk-weight												
Exposure class	0% £m	2% £m	4% £m	10% £m	20% £m	50% £m	70% £m	75% £m	100% £m	150% £m	Others £m	Total £m	Of which: Unrated £m
2016													
Central governments and central banks	2,555	—	—	—	—	—	—	—	—	—	—	2,555	—
Regional government and local authorities	—	—	—	—	51	—	—	—	—	—	—	51	—
Institutions	—	—	—	—	172	33	—	—	—	—	—	205	—
Corporates	—	—	—	—	73	159	—	—	971	—	—	1,203	87
Retail	—	—	—	—	—	—	—	8	—	—	—	8	—
Exposures in default	—	—	—	—	—	—	—	—	2	—	—	2	—
Total	2,555	—	—	—	295	192	—	8	973	—	—	4,024	87
2015													
Central governments and central banks	2,525	—	—	—	—	—	—	—	—	—	—	2,525	—
Regional government and local authorities	—	—	—	—	77	—	—	—	—	—	—	77	—
Institutions	—	—	—	—	198	2	—	—	—	—	—	200	5
Corporates	—	—	—	—	76	135	—	—	1,009	—	—	1,220	52
Retail	—	—	—	—	—	—	—	45	—	—	—	45	—
Total	2,525	—	—	—	351	137	—	45	1,009	—	—	4,067	56

Key point

- Total exposures under the standardised approach were broadly unchanged year on year, with no material movements by risk-weight band in absolute terms.

EU CCR4: CCR IRB: Exposures by portfolio and PD scale

The table below presents a detailed view of counterparty credit risk positions subject to the IRB approach by exposure class and PD scale. It excludes CVA charges and exposures cleared through a CCP. Counterparty credit risk exposures are managed on a portfolio basis, hence, it is not meaningful to report valuation adjustments and provisions at the regulatory exposure class level.

2016	PD Scale	EAD post CRM and post-CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity Years	RWA £m	RWA density %
Central governments and central banks	0.00 to <0.15	8,456	0.01	31	45	1.72	555	7
Central governments and central banks	0.15 to <0.25	9	0.22	4	45	4.01	6	65
Central governments and central banks	0.25 to <0.50	5	0.45	1	45	0.57	2	47
Central governments and central banks	0.50 to <0.75	—	—	—	—	—	—	—
Central governments and central banks	0.75 to <2.50	3	0.91	1	45	0.05	2	62
Central governments and central banks	2.50 to <10.00	—	—	—	—	—	—	—
Central governments and central banks	10.00 to <100.00	—	—	—	—	—	—	—
Central governments and central banks	100.00 (Default)	—	—	—	—	—	—	—
Total - Central governments and central banks		8,473	0.01	37	45	1.72	565	7
Institutions	0.00 to <0.15	4,996	0.10	162	47	2.44	2,065	41
Institutions	0.15 to <0.25	4,423	0.17	216	49	2.81	2,810	64
Institutions	0.25 to <0.50	897	0.41	159	58	1.77	817	91
Institutions	0.50 to <0.75	158	0.64	66	67	3.63	206	130
Institutions	0.75 to <2.50	131	1.20	56	52	3.17	192	147
Institutions	2.50 to <10.00	56	3.21	16	49	1.79	84	151
Institutions	10.00 to <100.00	—	—	2	45	2.19	1	229
Institutions	100.00 (Default)	—	100.00	1	56	1.92	—	—
Total - Institutions		10,661	0.19	678	49	2.56	6,175	58
Corporates - SME	0.00 to <0.15	—	—	—	—	—	—	—
Corporates - SME	0.15 to <0.25	9	0.22	24	29	1.23	2	19
Corporates - SME	0.25 to <0.50	55	0.44	209	55	3.25	41	73
Corporates - SME	0.50 to <0.75	16	0.64	203	56	1.96	12	75
Corporates - SME	0.75 to <2.50	86	1.25	614	49	2.79	82	95
Corporates - SME	2.50 to <10.00	35	3.71	269	34	2.60	30	86
Corporates - SME	10.00 to <100.00	2	15.17	32	36	1.66	3	122
Corporates - SME	100.00 (Default)	4	100.00	30	29	2.29	—	—
Total - Corporates - SME		207	3.39	1,381	47	2.73	170	81

EU CCR4: CCR IRB: Exposures by portfolio and PD scale *continued*

2016	PD Scale	EAD post CRM and post-CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity Years	RWA £m	RWA density %
Corporates - Specialised lending	Strong	1,728	n/a	339	n/a	3.60	1,215	70
Corporates - Specialised lending	Good	399	n/a	238	n/a	4.49	321	80
Corporates - Specialised lending	Satisfactory	118	n/a	28	n/a	4.45	130	110
Corporates - Specialised lending	Weak	8	n/a	11	n/a	4.45	21	250
Corporates - Specialised lending	Default	28	n/a	21	n/a	3.62	—	—
Total - Specialised lending (1)		2,281	n/a	637	n/a	3.80	1,687	74
Corporates - Other	0.00 to <0.15	16,746	0.06	2,810	37	3.07	3,461	21
Corporates - Other	0.15 to <0.25	5,358	0.19	424	48	2.53	3,052	57
Corporates - Other	0.25 to <0.50	834	0.38	353	55	2.08	642	77
Corporates - Other	0.50 to <0.75	343	0.64	140	47	1.23	255	74
Corporates - Other	0.75 to <2.50	391	1.24	359	31	3.26	270	69
Corporates - Other	2.50 to <10.00	175	3.25	234	50	2.47	267	153
Corporates - Other	10.00 to <100.00	1	11.62	20	40	1.69	3	200
Corporates - Other	100.00 (Default)	6	100.00	12	21	1.04	—	—
Total - Corporates - Other		23,854	0.18	4,352	41	2.89	7,950	33
Total - Wholesale all portfolios		45,476	0.17	7,085	43	2.64	16,547	36

Note:
(1) Specialised lending uses slotting rather than PD scale.

EU CCR4: CCR IRB: Exposures by portfolio and PD scale *continued*

2015	PD Scale	EAD post CRM and post-CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity Years	RWA £m	RWA density %
Central governments and central banks	0.00 to <0.15	7,025	0.01	40	45	1.27	300	4
Central governments and central banks	0.15 to <0.25	2	0.22	3	50	1.00	1	38
Central governments and central banks	0.25 to <0.50	—	—	—	—	—	—	—
Central governments and central banks	0.50 to <0.75	—	—	—	—	—	—	—
Central governments and central banks	0.75 to <2.50	—	—	—	—	—	—	—
Central governments and central banks	2.50 to <10.00	—	—	—	—	—	—	—
Central governments and central banks	10.00 to <100.00	—	—	—	—	—	—	—
Central governments and central banks	100.00 (Default)	—	—	—	—	—	—	—
Total - Central governments and central banks		7,027	0.01	43	45	1.27	301	4
Institutions	0.00 to <0.15	7,915	0.07	263	53	2.49	2,940	37
Institutions	0.15 to <0.25	2,311	0.18	204	52	2.54	1,752	76
Institutions	0.25 to <0.50	477	0.38	170	58	2.06	444	93
Institutions	0.50 to <0.75	67	0.64	47	60	2.58	90	134
Institutions	0.75 to <2.50	140	1.40	55	52	1.58	173	123
Institutions	2.50 to <10.00	31	3.04	19	30	3.49	54	175
Institutions	10.00 to <100.00	—	14.48	1	45	1.93	1	226
Institutions	100.00 (Default)	—	100.00	1	56	1.05	—	—
Total - Institutions		10,941	0.14	760	53	2.47	5,454	50
Corporates - SME	0.00 to <0.15	36	0.06	5	43	2.89	7	19
Corporates - SME	0.15 to <0.25	1	0.20	28	55	2.50	1	37
Corporates - SME	0.25 to <0.50	28	0.40	191	36	2.20	12	43
Corporates - SME	0.50 to <0.75	47	0.64	219	28	1.77	17	37
Corporates - SME	0.75 to <2.50	86	1.31	740	39	3.45	75	87
Corporates - SME	2.50 to <10.00	57	3.58	380	27	3.71	39	70
Corporates - SME	10.00 to <100.00	5	15.02	44	29	2.36	5	101
Corporates - SME	100.00 (Default)	7	100.00	58	52	2.11	—	—
Total - Corporates - SME		267	4.35	1,665	35	2.94	156	58

EU CCR4: CCR IRB: Exposures by portfolio and PD scale *continued*

2015	PD Scale	EAD post CRM and post-CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity Years	RWA £m	RWA density %
Corporates - Specialised lending	Strong	1,741	n/a	404	n/a	4.56	1,222	70
Corporates - Specialised lending	Good	613	n/a	334	n/a	4.42	516	84
Corporates - Specialised lending	Satisfactory	96	n/a	57	n/a	4.16	115	120
Corporates - Specialised lending	Weak	37	n/a	24	n/a	4.27	62	167
Corporates - Specialised lending	Default	65	n/a	63	n/a	3.49	—	—
Total - Specialised lending (1)		2,552	n/a	882	n/a	4.48	1,915	75
Corporates - Other	0.00 to <0.15	20,533	0.06	3,281	40	2.89	4,398	21
Corporates - Other	0.15 to <0.25	2,244	0.18	481	52	3.26	1,476	66
Corporates - Other	0.25 to <0.50	1,049	0.39	469	46	2.62	809	77
Corporates - Other	0.50 to <0.75	298	0.64	149	48	1.97	243	82
Corporates - Other	0.75 to <2.50	230	1.24	357	44	2.13	223	97
Corporates - Other	2.50 to <10.00	267	2.79	231	28	3.56	216	81
Corporates - Other	10.00 to <100.00	16	20.53	13	18	1.12	15	95
Corporates - Other	100.00 (Default)	8	100.00	16	60	1.65	—	—
Total - Corporates - Other		24,645	0.17	4,997	41	2.90	7,380	30
Total - Wholesale all portfolios		45,432	0.16	8,347	45	2.63	15,206	33

Note:
(1) Specialised lending uses slotting rather than PD scale.

Key points

- EAD post CRM was broadly unchanged. This was driven by the impact of the weakening of sterling, offsetting the continuing roll-off of trades in Capital Resolution.
- RWAs rose, reflecting the revised PD model for banks.
- As a result, RWA density for Institutions rose from 50% to 58%.

EU CCR6: CCR: Credit derivatives

As part of its strategy to manage credit risk concentrations, RBS buys credit derivative products. The counterparties from which this protection is bought are subject to standard credit risk analysis. Eligibility criteria apply: credit protection bought from the same counterparty group as the reference entity is not eligible in cases where double default applies under the relevant regulation. The table below presents credit derivatives bought and sold by notional and fair values.

	2016		2015	
Notionals	Protection bought £m	Protection sold £m	Protection bought £m	Protection sold £m
Single-name credit default swaps	15,781	11,016	18,803	12,852
Index credit default swaps	5,820	3,020	14,636	11,390
Total return swaps	743	171	450	663
Credit options	—	—	147	—
Other credit derivatives (1)	3,993	1,639	4,495	1,868
Total notionals	26,337	15,846	38,531	26,773
Of which: Own credit portfolio - notionals (2)	744	—	1,296	663
Fair values				
Positive fair value (asset)	487	118	413	336
Negative fair value (liability)	(227)	(336)	(445)	(275)

Notes:
(1) Credit derivatives are used for internal hedging and client transactions.
(2) Own credit portfolio consists of trades held in the regulatory banking book used for hedging and credit management. Fair values are not material. Intermediation activities cover all other credit derivatives.

Key point

- The most significant move was a reduction in index credit default swaps, largely due to the roll-off of trades.

EU CCR7: CCR: IMM and Non-IMM: Counterparty credit risk RWAs and MCR flow statement

The table below presents the drivers of movements in counterparty credit risk RWAs and minimum capital requirements (MCR) over the reporting period (excluding exposures cleared through a CCP).

	RWAs			MCR		
	IMM £m	Non-IMM £m	Total £m	IMM £m	Non-IMM £m	Total £m
At 1 January 2016	11,245	6,206	17,451	900	496	1,396
Asset size (1)	(415)	(314)	(729)	(33)	(25)	(58)
Credit quality of counterparties (2)	314	148	462	25	12	37
Foreign exchange movements (3)	838	238	1,076	67	19	86
At 31 December 2016	11,982	6,278	18,260	959	502	1,461

Notes:
(1) Organic changes in book size and composition including the origination of new businesses) and changes due to acquisitions and disposal of portfolios and exposures.
(2) Changes in the assessed quality of counterparties as measured under RBS's credit risk framework, including changes due to IRB models. Changes due to IMM model changes are not included here.
(3) Changes arising from foreign currency retranslation movements.

Key point

- The rise in RWAs primarily reflected the weakening of sterling against major currencies. The revised PD model for banks also contributed to the increase. This was partially offset by a decrease in asset size.

EU CCR8: CCR: Exposures (EAD post CRM) to central counterparties

The table below presents counterparty credit risk exposures to CCPs including default fund contributions. A qualifying CCP (QCCP) means a CCP that has been either authorised or recognised in accordance with the relevant regulation.

	2016		2015	
	EAD post-CRM £m	RWA £m	EAD post-CRM £m	RWA £m
Exposures to QCCPs (total)	n/a		n/a	
Exposures for trades at QCCPs (excluding OTC initial margin and default fund contributions)	3,033	190	3,764	369
Of which:				
(i) OTC derivatives	420	131	750	122
(ii) Exchange-traded derivatives including initial margin	721	21	1,560	217
(iii) Securities financing transactions	1,892	38	1,454	30
OTC initial margin	333	7	545	109
Pre-funded default fund contributions	253	38	155	9
Exposures to non-QCCPs (total)	n/a	—	n/a	—

Key point

- EAD and RWAs declined due to a change in the capital calculation approach for exposure to certain central counterparties.

Market risk

EU MRA: MR: General qualitative information

Definition and framework

Market risk is the risk of losses arising from fluctuations in interest rates, credit spreads, foreign currency rates, equity prices, commodity prices and other factors, such as market-implied volatilities, that may lead to a reduction in earnings, economic value or both.

RBS is exposed to traded market risk through its trading activities and to non-traded market risk as a result of its banking activities. In many respects, it manages its traded and non-traded market risk exposures separately, largely in line with the regulatory definitions of the trading and non-trading books.

Market risk governance and management

Responsibility for identifying, measuring, monitoring and controlling the market risk arising from trading or non-trading activities lies with the relevant trading or non-trading business, with second-line-of-defence oversight provided by the Market Risk function, headed by the Director of Market Risk. For more information on the governance and management, measurement and reporting of traded market risk, refer to page 262 of the 2016 ARA. For information on non-traded market risk, including non-traded interest rate risk, refer to page 268 of the 2016 ARA.

EU MRB_A: MR: Qualitative information - position risk

Inclusion of exposures in trading book

The Trading Book Policy sets out the RBS-wide principles and criteria for identifying and classifying trading book positions for the purpose of regulatory capital and market risk and credit risk measurement. The policy also stipulates the control requirements for the management and regular monitoring of the trading book status of positions and the procedures for escalation where necessary. Key criteria for determining trading book status set within the policy include considerations such as whether positions are transferable or comprise hedgeable financial instruments held with the intent to trade or in a hedging relationship with other trading book positions.

Trading book positions must be valued by marking them to market or to model on a daily basis. They are subject to market risk-based rules, with market risk capital requirements calculated either by using internal models where regulatory approval has been received or otherwise by using the non-modelled, or standardised, approach. Where the criteria set out in the policy are not met, positions are classified as non-trading book exposure and capitalised according to rules outlined on page 276 in the 2016 ARA.

Prudential valuation

Prudential valuation is a regulatory provision that requires additional valuation adjustments (AVAs) to be made over and above fair value adjustments that are calculated in accordance with accounting standards. AVAs represent excess valuation adjustments required to achieve a prudent value over the reported fair value. The purpose of these adjustments is to achieve an appropriate degree of certainty that the valuation is sufficiently prudent having regard to the dynamic nature of trading positions. Prudential valuation adjustments result in a deduction to CET1 capital in accordance with Article 105 of the CRR.

RBS applies prudential valuation to all positions that are subject to fair value accounting (both regulatory trading and banking books) classified for accounting purposes as fair value through profit or loss, including held for trading and available for sale. The prudent valuation is the value of the positions at the lower bound (downside) of the valuation uncertainty range and is always equal to or lower than the fair value for assets, and equal to or higher than the fair value for liabilities.

For more information regarding valuation methodologies of modelled and non-modelled products, the independent price verification process and the control and governance framework, please refer to the 2016 ARA, Financial instruments - valuation on page 331.

EU MRB_B: MR: Qualitative disclosure on use of internal model approach

Calculation of market risk capital requirements

As noted above, RBS uses two broad methodologies to calculate its market risk capital requirements: (i) the standardised (STD) approach, whereby regulator-prescribed rules are applied, or (ii) subject to regulatory approval, the internal model approach (IMA).

The PRA renewed RBS's IMA permission with effect from 30 November 2016, incorporating changes to the legal entity coverage of the permission (removal of RBS Securities Inc (RBSSI)) and minor revisions to its product and trading location coverage. The changes were requested by RBS, reflecting the continued simplification of its operations. RBS has IMA permission for the following material legal entities: RBS plc and NWB Plc.

The calculation of regulatory VaR differs from that of the internal VaR as it takes into account only products, locations and legal entities covered by the regulator's IMA permission. This differs from the calculation of internal VaR, which takes into account all trading book positions. In addition, regulatory VaR is based on a directly modelled ten-day holding period, rather than the scaled one-day holding period on which internal VaR is based. The PRA approval covers general market risk in interest rate, foreign exchange, equity and commodity products and specific market risk in interest rate and equity products.

RBS's Stressed VaR (SVaR) model has also been approved by the PRA for use in the capital requirement calculation. SVaR is a VaR-based measure using historical data from a one-year period of stressed market conditions. The distinction between regulatory SVaR and internal SVaR is the same as that between regulatory VaR and internal VaR.

The Risks not in VaR (RNIV) framework is used to identify and quantify market risks that are inadequately captured by the VaR and SVaR models and to ensure that such risks are adequately covered by capital. RBS adopts two approaches for the quantification of RNIVs:

- A VaR/SVaR approach. Under this approach, two values are calculated: (i) the VaR RNIV; and (ii) the SVaR RNIV.
- A stress-scenario approach. Under this approach, an assessment of ten-day extreme, but plausible, market moves is used in combination with position sensitivities to give a stress-type loss number - the stress-based RNIV value.

In line with regulatory guidelines for external reporting, VaR RNIV values are reported as a subset of the VaR-based regulatory capital charge, whereas SVaR RNIV values and stress-based RNIV values are reported as subsets of the SVaR-based charge.

VaR and SVaR capture general and specific risks using a single model but not risks arising from the impact of defaults and rating changes associated with traded credit products and their derivatives. For these risks, two product-dependent approaches are used:

- The incremental risk charge (IRC) model captures risks arising from rating migration and default events for the more liquid traded credit instruments and their derivatives.
- Securitisation and re-securitisation risks in the trading book are treated with the non-trading book non-modelled capitalisation approach.

RBS does not use the comprehensive risk measure.

For more information on the characteristics of the market risk measurement methodologies used by RBS under the IMA, including model validation, as well as their use for internal risk management purposes, refer to page 263 of the 2016 ARA.

Apart from RBS plc, RBSSI is the major contributor to market risk capital requirements in RBS and is therefore included in this section, although it is not otherwise considered a significant subsidiary. UBI DAC’s market risk capital requirements are not material (£1 million).

EU MR1_A: MR IMA and STD: RWA and MCR - RBS and significant subsidiaries

The following table presents market risk RWAs and minimum capital requirements (MCR) by calculation method and type of risk for RBS and significant subsidiaries.

	RBS		RBS plc		NWB Plc		RBSSI	
2016	RWA £m	MCR £m	RWA £m	MCR £m	RWA £m	MCR £m	RWA £m	MCR £m
STD	3,532	283	2,115	169	642	51	722	58
Interest rate position risk	1,273	103	348	28	196	16	712	57
Equity position risk	—	—	—	—	—	—	—	—
Option position risk	3	—	2	—	—	—	—	—
Commodity position risk	10	1	—	—	—	—	10	1
Foreign exchange position risk	1,078	86	597	48	446	35	—	—
Specific interest rate risk	—	—	—	—	—	—	—	—
of securitisation positions	1,168	93	1,168	93	—	—	—	—
IMA	13,906	1,112	13,583	1,087	34	3	—	—
VaR	4,136	331	4,023	322	11	1	—	—
SVaR	7,590	607	7,382	591	23	2	—	—
Incremental risk charge	2,180	174	2,178	174	—	—	—	—
Total	17,438	1,395	15,698	1,256	676	54	722	58
Of which: RNIV	2,619	210	2,619	210	—	—	—	—
2015								
STD	4,713	377	3,961	317	400	32	134	11
Interest rate position risk	1,064	85	685	55	152	12	113	9
Equity position risk	9	1	—	—	—	—	9	1
Option position risk	69	6	17	1	—	—	—	—
Commodity position risk	3	—	—	—	—	—	—	—
Foreign exchange position risk	1,939	155	1,641	132	248	20	—	—
Specific interest rate risk								
of securitisation positions	1,629	130	1,618	129	—	—	12	1
IMA	16,542	1,323	15,113	1,209	170	14	783	63
VaR	5,203	416	4,858	389	41	3	136	11
SVaR	8,234	659	7,380	590	129	11	459	37
Incremental risk charge	3,105	248	2,875	230	—	—	188	15
Total	21,255	1,700	19,074	1,526	570	46	917	74
Of which: RNIV	2,767	221	2,712	217	—	—	56	4

Key points

- RBS's total market risk RWAs fell 18% or £3.8 billion to £17.4 billion, driven by reductions under both the standardised approach and the internal model approach.
- Under the standardised approach, RWAs fell 25% or £1.2 billion to £3.5 billion. This was mainly driven by a reduction in the banking book FX charge - reflecting sterling depreciation against major currencies following the EU referendum and a significant reduction in the US dollar long position in Treasury - and by asset disposals in trading book securitisations. The overall downward trend was partially offset by the transition of RBSSI from the internal model approach to the standardised approach, notably reflected in the increase in the interest rate position risk.
- Under the internal model approach, RWAs fell 16% or £2.6 billion to £13.9 billion as VaR and SVaR based requirements and the incremental risk charge all declined.
- The 21% decline in the VaR based requirement was primarily driven by:
  - RBSSI, reflecting its transition to the standardised approach; and
  - RBS plc, reflecting the significant reduction in traded market risk exposure in the run-up to key events, such as the UK referendum on EU membership in June and the US presidential election in November. Market flows increased markedly following these events, supporting NatWest Markets' customer activity. Given the significant risk reduction achieved in recent years, notably in Capital Resolution, by year-end 2016 the Group's VaR profile was more reflective of NatWest Markets' areas of activity in line with its strategic focus.
- The 8% decline in the SVaR based requirement was primarily driven by the transition of RBSSI to the standardised approach.
- The 30% decline in the incremental risk charge reflected a reduction in periphery bond positions during Q4 2016, predominantly related to RBS plc.
- RNIVs were broadly unchanged. New RNIVs introduced to supplement the capitalisation of risks against unreliable market data during H1 2016 were offset by the retirement of other RNIVs that are now adequately captured in the VaR and SVaR models during H2 2016.
- At the NWB Plc level, RWAs increased by 19% or £106 million to £676 million. This reflected a change in internal risk hedging strategy, resulting in a small residual risk for this entity.
- At the RBSSI level, the 21% fall in RWAs was primarily due to the change in approach for this entity. This is chiefly because US government securities, which form a large proportion of RBSSI's portfolio, do not attract a specific risk charge under the standardised approach, given their high credit quality. Therefore, the largest component of the standardised charge is general interest rate risk.

EU MR1_B: MR STD: RWAs and MCR

The following table presents market risk RWAs and MCR by type of risk under the standardised approach.

	2016		2015	
	RWA £m	MCR £m	RWA £m	MCR £m
Outright products	2,361	190	3,015	241
Interest rate risk (general and specific)	1,273	103	1,064	85
Equity risk (general and specific)	—	—	9	1
Foreign exchange risk	1,078	86	1,939	155
Commodity risk	10	1	3	—
Options	3	—	69	6
Delta-plus approach	3	—	69	6
Securitisation (specific risk)	1,168	93	1,629	130
Total	3,532	283	4,713	377

Key point

- Refer to the commentary on the standardised approach below Table EU MR1_A.

EU MR2_A: MR IMA: RWAs and MCR

The following table presents market risk RWAs and MCR by component under the internal model approach.

		2016		2015	
		RWA £m	MCR £m	RWA £m	MCR £m
	VaR (higher of a and b)	4,136	331	5,203	416
a	Period end VaR	1,538	123	1,461	117
b	Average of the daily VaR for preceding 60 business days x multiplication factor	4,136	331	5,203	416
	SVaR (higher of a and b)	7,590	607	8,234	659
a	Period end SVaR	3,566	285	3,487	279
b	Average of the SVaR for preceding 60 business days x multiplication factor	7,590	607	8,234	659
	Incremental risk charge (higher of a and b) (1)	2,180	174	3,105	248
a	Period end IRC value	1,953	156	2,412	193
b	Average IRC over preceding 60 business days	2,180	174	3,102	248
	Total	13,906	1,112	16,542	1,323
	Of which: Period end RNIV	2,619	210	2,767	221

Note:
(1) RBS IRC is calculated by aggregating IRC from legal entities approved to use models. For these legal entities, IRC is based on the higher of spot or 60 day average IRC. Therefore the RBS IRC reported may not necessarily be the higher of the RBS equivalents on rows a or b.

Key point

- Refer to the commentary on the internal model approach below Table EU MR1_A.

EU MR2_B: MR IMA and STD: Market risk RWA and MCR flow statement

The following table presents the drivers of movements in market risk RWAs and minimum capital requirements (MCR) over the reporting period.

	IMA					STD		Total	
	RWAs								
	VaR £m	SVaR £m	IRC £m	Total £m	MCR £m	RWAs £m	MCR £m	RWAs £m	MCR £m
At 1 January 2016	5,203	8,234	3,105	16,542	1,323	4,713	377	21,255	1,701
Movement in risk levels (1)	(1,028)	(144)	(739)	(1,911)	(153)	(1,874)	(150)	(3,784)	(304)
Model updates/changes (2)	(39)	(500)	(186)	(725)	(58)	699	56	(27)	(2)
Acquisitions and disposals (3)	—	—	—	—	—	(6)	—	(6)	—
At 31 December 2016	4,136	7,590	2,180	13,906	1,112	3,532	283	17,438	1,395
Of which: RNIV									
At 1 January 2016	495	2,272	—	2,767	221	—	—	2,767	221
VaR based RNIV	495	—	—	495	40	—	—	495	40
SVaR based RNIV	—	825	—	825	66	—	—	825	66
Stress RNIV	—	1,447	—	1,447	115	—	—	1,447	115
At 31 December 2016	426	2,193	—	2,619	210	—	—	2,619	210
VaR based RNIV	426	—	—	426	34	—	—	426	34
SVaR based RNIV	—	718	—	718	57	—	—	718	57
Stress RNIV	—	1,475	—	1,475	119	—	—	1,475	119

Notes:
(1) Changes due to position changes.
(2) Significant updates to the model to reflect recent experience or significant changes to model scope.
(3) Modifications due to acquisition or disposal of business or product lines or entities.

Key points

- The decline in RWAs over the reporting period was primarily driven by movements in risk levels (as explained in the commentary below Table EU MR1_A) and by model updates or changes.
- The model updates or changes chiefly related to the transition of RBSSI from the internal model approach to the standardised approach and, less significantly, the changes in the product and trading location coverage of the internal model approach referred to earlier.

EU MR3: MR IMA: IMA values for trading portfolios - RBS and significant subsidiaries

The following table presents the minimum, maximum, average and period-end values, over the reporting period, derived from the models approved under the IMA for use in calculating market risk capital requirements and RWAs, for RBS and significant subsidiaries. The reported values do not include any capital multipliers or other additional capital charges that may be applied at the supervisor's discretion.

	2016				2015			
2016	RBS £m	RBS plc £m	NWB plc £m	RBSSI £m	RBS £m	RBS plc £m	NWB plc £m	RBSSI £m
VaR (10 day 99%)								
Maximum value	122	117	2	—	153	141	2	17
Average value	90	85	1	—	114	104	1	8
Minimum value	56	50	—	—	79	69	1	3
Period end	112	111	—	—	103	98	1	3
SVaR (10 day 99%)								
Maximum value	156	146	5	—	205	183	8	42
Average value	137	121	2	—	172	136	4	34
Minimum value	112	95	—	—	142	118	3	6
Period end	149	146	—	—	142	129	5	6
IRC (99.9%)								
Maximum value	341	310	—	—	348	303	—	40
Average value	244	218	—	—	255	237	—	22
Minimum value	156	148	—	—	193	175	—	14
Period end	156	156	—	—	193	175	—	21

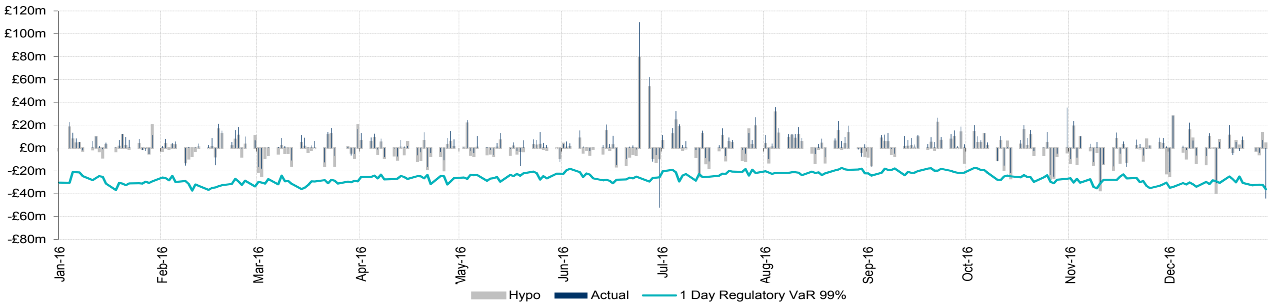
Key points

- The year-on-year decline in average VaR, SVaR and IRC values for RBS and RBS plc was in line with the downward trend in market risk capital requirements under the internal model approach, as explained in the commentary below table EU MR1_A.
- The reduction in RBSSI values to zero reflected the transition of this entity to the standardised approach.

EU MR4: 1-day 99% regulatory VaR vs. Actual and Hypo P&L

Two types of profit and loss (P&L) are used in back-testing comparisons: Actual P&L and Hypothetical (Hypo) P&L. For more information, refer to the Market risk section of the 2016 ARA.

The graph below presents 1-day 99% regulatory VaR vs. Actual and Hypo P&L for RBS plc, RBS's largest legal entity by market risk RWAs and positions.



EU MR4_A: Regulatory VaR model back-testing exceptions

The table below shows regulatory back-testing exceptions for a period of 250 business days for 1-day 99% traded regulatory VaR vs. Actual and Hypo P&L for the legal entities approved by the PRA and De Nederlandsche Bank.

	Back-testing exceptions	
Description	Actual	Hypo
The Royal Bank of Scotland plc	4	4
National Westminster Bank Plc	1	1
The Royal Bank of Scotland N.V.	9	7

Key points

- Statistically RBS would expect to see back-testing exceptions 1% of the time over a period of 250 business days. A VaR model recording four or fewer exceptions in a continuous 250-day period is regarded as satisfactory. A model recording five or more exceptions is regarded as having potential issues regarding its quality or accuracy.
- Most of the back-testing exceptions experienced in the period were driven by the increased market volatility.
- Three of the exceptions in RBS plc resulted from losses in the Capital Resolution and Rates businesses due to the rates sell-off across the euro and sterling curves during the second half of 2016. The exception in June 2016 was driven by valuation adjustments carried out at month end.
- The exception in NWB Plc was driven by a number of risk factors having an adverse impact on the Rates business following the EU referendum result.
- The number of exceptions in RBS N.V. reflects the decline in risk in this entity as it is being wound down. Given this decline, the idiosyncratic P&L that arises on the residual positions is more apparent than when the portfolio had a broader spectrum of exposures.

Securitisation

SECA: SEC qualitative disclosures

Framework, roles and definitions

This section presents descriptive information on RBS's securitisation activities and related risk management processes and accounting policies, followed by quantitative disclosures on its exposures to securitisations.

Definitions

Securitisation and special purpose entities

The CRR defines a securitisation as a transaction or scheme where the credit risk of an exposure or pool of exposures is tranched, where the payments arising from the transaction or scheme are dependent upon the performance of the underlying exposure(s) and where the subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

Securitisations can broadly take two forms: traditional and synthetic. In traditional securitisations, the originator transfers ownership of the underlying exposure(s) to a securitisation special purpose entity (SSPE), putting the asset(s) beyond the reach of the originator and its creditors. The purchase of the underlying exposure(s) by the SSPE is funded by the issuance of securities. In synthetic securitisations, the originator retains ownership of the underlying exposure(s) but transfers the associated credit risk to another entity through the use of guarantees or credit derivatives.

SSPEs are set up for a specific limited purpose to facilitate a securitisation transaction. They do not provide a commercial service or employ staff. They may take a variety of legal forms, such as trusts, partnerships and companies. Their activities are limited to those appropriate to carrying out a securitisation and their structure is intended to isolate the obligations of the SSPE from those of the originator institution and to ensure that the holders of the beneficial interests have the right to pledge or exchange those interests without restriction. Typically, their share capital is held ultimately by charitable trusts.

Although SSPEs are frequently used, they are not necessarily required for all securitisation structures.

The following definitions are used in these Pillar 3 disclosures:

Trading book - The trading book consists of positions in financial instruments and commodities held either with the intent to trade or in order to hedge other elements of the trading book. To be eligible for trading book capital treatment, financial instruments must either be free of any covenants restricting their tradability or be able to be hedged.

Non-trading book - The non-trading book consists of positions, exposures, assets and liabilities that are not in the trading book. It is also referred to as the 'banking book'. In this section, the counterparty credit risk arising from derivative trades associated with SSPEs is captured in the non-trading book disclosures.

Securitisation position - Any exposure to a securitisation that falls within the scope of regulatory treatment (further details on page 106). This includes not only exposures arising from the purchase or retention of the securities issued by an SSPE but also loans and liquidity facilities to securitisations, and the counterparty credit risk exposure of derivative positions transacted with a securitisation.

Re-securitisation - A securitisation in which the underlying asset or pool of assets comprises at least one securitisation position.

Securitised exposure - An asset or pool of assets that is securitised by way of a traditional or synthetic securitisation.

Significant risk transfer assessment - An assessment prescribed by the CRR and designed to determine whether or not a securitisation structure effectively transfers the underlying risks of the assets to a party or parties other than the originator.

Term securitisation - A securitisation vehicle funding a pool of assets through the issuance of long-term securities. A term securitisation may hold the assets of one or more originators.

Asset-backed commercial paper (ABCP) conduit - A securitisation vehicle funding a pool of assets through the issuance of predominantly short-term securities (namely commercial paper). A conduit may hold the assets of one or more originators (referred to as a single-seller or multi-seller conduit, respectively), one of which may also be the sponsor.

Objectives and roles

By participating in securitisation activity, RBS aims to achieve one or both of the following objectives:

- To diversify sources of funding, either for its own purposes or for customers; and
- To facilitate prudential balance sheet and risk management, either for its own purposes or for customers.

In doing so, RBS may incur a range of risks, including credit (non-counterparty and counterparty), market, liquidity and funding, legal, regulatory and reputational risks for which it must hold regulatory capital. For details of CRR rules governing the calculation of regulatory capital required in respect of securitisations, refer to page 106.

RBS may play one or more of the following roles in a securitisation transaction:

Originator - To diversify its sources of funding and manage its balance sheet, RBS securitises assets it has purchased or originated. The origination of securitisation assets may expose it to credit risk (non-counterparty and counterparty) and market risk, particularly if the structure of the transaction does not transfer these risks to third parties. Even if these risks have been transferred, it may nevertheless be exposed to credit and market risks if it retains a securitisation position by, for example, providing the SSPE with a liquidity facility or entering into derivative transactions with the SSPE.

Investor - To generate financial returns, RBS may:

- Purchase securities issued by an SSPE;
- Enter into derivative transactions with an SSPE; or
- Lend to an SSPE, often by providing a back-up liquidity facility that the SSPE can use if it is unable to issue securities, particularly commercial paper. Investment in securitisations exposes RBS to market risk and credit risk, both non-counterparty and counterparty.

To generate additional fee income, RBS may play other roles as well:
Sponsor - RBS may establish and manage a term securitisation that purchases bonds or other financial assets from third parties. It may do so on its own account or on behalf of its customers. Additionally, it historically established and managed ABCP conduits. In its role as sponsor, it is particularly exposed to credit and liquidity risk.

Arranger - RBS may structure a securitisation transaction, drafting the documentation that governs the behaviour of the SSPE, and then sell the securities issued by the SSPE to investors. It may act as arranger for securitisation transactions it originates or, alternatively, for securitisation transactions originated by its customers, principally financial institutions and large corporates.

Manager - RBS may manage and service the asset pool of the securitisation as required by the terms of the transaction.

Underwriter - RBS may underwrite the securities issued by an SSPE. The associated securitisation transaction may be originated by RBS or its customers.

Other administrative roles - As a 'contractual party', RBS may do any of the following, alone or in combination:

- Hold the bank account of an SSPE on its own books;
- Monitor the credit quality of the underlying assets on behalf of investors;
- Report on the performance of the SSPE to investors; and
- Make payments to investors on behalf of the SSPE.

Risk management

As noted above, acting as an originator, sponsor or investor in a securitisation transaction may give rise to both credit and market risk. The CRR prescribes how the regulatory capital held in connection with those risks is calculated. RBS may also incur other types of risk in the course of its exposure to securitisation activity.

All such risks are described in the table below, along with details of how they are monitored and managed.

With respect to the non-trading book, Capital Resolution manages the legacy positions mentioned above, including some re-securitisations. Treasury manages securitisations originated by RBS, particularly those used as a means of diversifying its funding sources. NatWest Markets manages trading book securitisation positions, including some re-securitisations.

In the case of junior notes, all of the following risks are likely to be heightened and thus subject to increased scrutiny.

Securitisation

Types of risk	Definition and how the risk may arise	How RBS monitors and manages the risk
Credit risk	The risk of loss arising from the failure of a customer or counterparty (or, in the case of a securitisation, an SSPE) to meet its obligations to settle outstanding amounts. Securitisation may expose RBS to credit risk for any of several reasons. If RBS invests in an SSPE by purchasing or (in the case of a securitisation it has originated) retaining the bonds it issues, conducting derivative transactions with it or lending to it, RBS is exposed to the risk that the SSPE will fail to meet its obligations to settle outstanding amounts to RBS. This may happen because cash flows generated by the underlying assets are insufficient to repay creditors, including bondholders, derivative counterparties or lenders, or in the event of a third party, such as a bank account provider or derivative counterparty, defaulting on its obligation to the SSPE. In such cases, the SSPE pays principal and interest to creditors in order of seniority, with the most senior paid first. When RBS originates a securitisation transaction, if the securitisation structure does not substantially transfer the economic risks of the underlying assets, including credit risk, to a third party, it is exposed to credit risk on those assets just as it would be if the securitisation had never taken place. Credit risk is heightened if the assets in the SSPE are not diversified by sector, geography or borrower. Capital Resolution holds legacy securitisation assets guaranteed by monoline insurance companies suffering financial distress, which reduces the value to RBS of their guarantees.	RBS's overall exposure to securitisation is governed by its sector concentration framework. If it retains or purchases bonds issued by an SSPE, conducts derivative transactions with it or lends to it, RBS monitors the performance of the vehicle in part by reviewing information provided by the trustee as well as by rating agencies or other third parties. If the securitisation structure does not substantially transfer credit risk to a third party, RBS manages it as if the securitisation had never taken place. RBS has credit limits in place and monitors SSPE positions with third party bank account providers for own asset securitisations which generate a credit risk exposure for RBS. RBS may seek to mitigate credit risk arising from the purchase (or retention) of bonds issued by an SSPE through the use of unfunded protection, usually credit default swaps, but also guarantees. It hedges the credit risk associated with purchased bonds, which are generally held in the trading book, as appropriate. It does not usually hedge the credit risk associated with retained bonds, which are generally held in the non-trading book.

Types of risk	Definition and how the risk may arise	How RBS monitors and manages the risk
Traded market risk	Within trading books, the risk of losses arising from fluctuations in interest rates, credit spreads, foreign currency rates, equity prices, commodity prices and other factors, such as market-implied volatilities, that may lead to a reduction in earnings, economic value or both. Securitisation may expose RBS to traded market risk for three major reasons. First, if RBS invests in a securitisation, it is indirectly exposed to the risk of loss due to fluctuations in interest rates, foreign currency rates and other prices. For example, if it purchases notes issued by an SSPE paying interest at a rate other than the rate paid by the assets the SSPE holds, the two rates may respond differently to changes in market interest rates, which may adversely affect the SSPE's ability to meet its obligations and cause RBS to suffer a loss. Similarly, if market interest rates rise, the value of fixed notes issued by an SSPE will fall, which may cause RBS to suffer a loss. If RBS purchases notes issued by an SSPE in a currency other than the currency of the underlying assets, giving rise to the possibility that the cash flows generated by the assets will not be sufficient to repay investors, it may also suffer a loss. Second, if the structure of a securitisation transaction does not substantially transfer the market risk of the underlying assets to a third party, RBS remains exposed to that risk as if the securitisation had never taken place. Third, if RBS purchases notes issued by an SSPE, it is exposed to the risk that the value of the position will change due to changes in the real or perceived ability of a borrower to pay related cash flows or obligations. This may result in a loss.	RBS manages this risk in accordance with its policy on market risk. Re-securitisation exposures are subject to individual scrutiny. For further information, refer to page 262 of the 2016 ARA.
Non-traded market risk	Within non-trading books, the risk of losses arising from fluctuations in interest rates, foreign exchange rates, and equity prices or from changes in managed rates.	RBS manages this risk in accordance with its policy on non-traded market risk, including structural interest rate risk. For further information, refer to page 268 of the 2016 ARA.
Liquidity and funding risk	The risk that RBS will be unable to meet its financial obligations when they fall due. RBS may originate securitisations to diversify its sources of funding. It also may sponsor securitisations and, as sponsor, may provide liquidity facilities to the SSPE. If the SSPE utilises these facilities, RBS will need to fund them, giving rise to the risk that it will not be able to do so.	RBS manages these risks in accordance with its policy on liquidity and funding risk. For further information, refer to page 187 of the 2016 ARA.

Types of risk	Definition and how the risk may arise	How RBS monitors and manages the risk
Legal risk	The risk that RBS will incur losses as a result of the failure of the documentation relating to a securitisation to perform as expected or as a result of investors asserting that RBS made inadequate disclosures or conducted inadequate due diligence in relation to the relevant credit exposures. Legal risk is elevated if the parties to the transaction are located in different jurisdictions, as documentation effective in one jurisdiction may not be effective in another. Additional losses may arise as a result of costs incurred by the parties in an effort to address documentary shortcomings. This risk is heightened in the case of re-securitisations, as RBS needs to gather information surrounding each of the original transactions, together with an understanding of their interaction within the re-securitisation.	RBS has specific processes and controls in place designed to ensure adequate due diligence is undertaken and appropriate disclosures are made in relation to the relevant offerings. In relation to documentation, distribution of securities and compliance with relevant laws and regulations, RBS works with experienced internal and external counsel to ensure all reasonable steps are taken to ensure documentation standards are satisfactory and applicable laws and regulations in all relevant jurisdictions are complied with.
Conduct and regulatory risk	The risk that the behaviour of RBS and its staff towards customers, or in the markets in which it operates, leads to unfair or inappropriate customer outcomes and results in reputational damage, financial loss or both. The damage or loss may be the result of a failure to comply with (or adequately plan for changes to) relevant official sector policy, laws, regulations, or major industry standards, or of failing to meet customers' or regulators' expectations.	Well established policies and supporting processes are in place to ensure timely identification of, and effective responses to, changes in official sector requirements, laws, regulations and major industry standards affecting RBS. This risk falls under the governance of the Mandatory Change Advisory Committee, which meets monthly with representatives from all franchises and functions. For further information, refer to page 200 of the 2016 ARA.
Reputational risk	The risk of brand damage and/or financial loss arising from a failure to meet stakeholders' expectations of RBS's conduct and performance. If in its capacity as originator, sponsor or investor, RBS fails to meet the expectations of stakeholders, it may be unable to build or sustain relationships with customers, incur regulatory censure or experience reduced access to funding sources.	RBS manages reputational risk in accordance with its reputational risk management framework. For further information, refer to page 199 of the 2016 ARA.
Operational risk	The risk of loss resulting from inadequate or failed internal processes, people and systems, or external events.	RBS manages operational risk in accordance with its operational risk management framework. For further information, refer to page 202 of the 2016 ARA.

Regulatory treatment
RBS determines the regulatory capital required for exposures related to its securitisation activities in accordance with the CRR. In so doing, with respect to each securitisation transaction, it considers on an ongoing basis:
- The effectiveness of the originated securitisation structure in achieving risk transfer; and
- Whether the securitisation positions it holds relate to the trading or non-trading book.

In instances where it is an originator, in accordance with the CRR, RBS carries out a significant risk transfer assessment to evaluate whether the securitisation structure effectively transfers the risks associated with the underlying assets to the holders of the securitisation positions.

If significant risk transfer is deemed to have been achieved, RBS need not hold any capital against the underlying assets. However, if it is deemed not to have been achieved, capital must be held against the underlying assets as if the securitisation had never taken place.

As noted earlier, RBS may play any of several roles in respect of securitisations. Of these, three may result in RBS holding securitisation positions in connection with which a capital charge is required: originator; sponsor; or investor.

In the case of securitisation positions related to the trading book, RBS calculates regulatory capital needed for specific and general market risks (refer to page 267 of the 2016 ARA). In the case of securitisation positions related to the non-trading book, it calculates regulatory capital needed for credit risk, either non-counterparty or counterparty.

Calculation of risk-weighted exposures
The regulatory framework for securitisation allows RWA calculation using either the STD or the IRB approach. The choice of approach depends on the credit framework adopted by the firm under Pillar 1 for the underlying portfolio of securitised exposures. As at 31 December 2016, all of the securitisation positions held by RBS were subject to the IRB approach.

RBS categorises securitised exposures according to risk-weight bands when calculating RWAs. Under the CRR, unrated positions are classified under the highest risk-weight band: 1,250%. Risk-weight bands are shown in Tables SEC 2 and SEC 3.

The IRB method used by RBS is the ratings based approach (RBA).

When assessing debt issued by SSPEs under the RBA, RBS recognises ratings issued by Standard & Poor's, Moody's, Fitch, DBRS or ARC Ratings. Most transactions are rated by two or more of these rating agencies, which are formally classified as external credit assessment institutions (ECAIs).

When assessing unrated exposures funded via an ABCP conduit, (whether a legacy RBS sponsored conduit or an ABCP conduit sponsored by other institutions), RBS is permitted to use the Internal Assessment Approach (IAA) under its IRB waiver.

Under the RBA (including the IAA), ECAI ratings are mapped to the corresponding credit quality step (CQS) in order to determine the risk weights for the facilities relating to each transaction. The mapping used is shown in Table EU CR5a in the Credit risk section.

More details on RBS's use of the IAA are provided below.

Summary of Internal Assessment Approach
Where an ABCP conduit is rated by an approved ECAI, the IAA permits RBS to calculate and assign internal credit grades and implied ratings based on published rating agency methodologies for the relevant asset class.

The assessment methodology must be that of one of the ECAIs that provides a rating to the ABCP conduit. The methodology selected need not be publicly available if RBS can demonstrate that, due to specific features of the securitisation, there is not yet an appropriate publicly available ECAI methodology.

The sponsoring business for the underlying transaction is required to model the transaction using an assessment methodology in line with the above. The modelling analysis is completed, refreshed or reviewed, as appropriate, as part of the credit application process/ongoing transaction surveillance. The credit risk assessment of the transaction which takes place both at inception and as part of ongoing review considers the appropriateness of the IAA, the assumptions used and the proposed implied rating.

Under the RBA, including the IAA, the ECAI ratings are mapped to the Credit Quality Steps (CQS) in order to determine the risk weight for the facilities relating to each transaction.

At programme level, the commercial paper issued by the conduits receives a public short-term rating, which is determined primarily by RBS's rating as liquidity provider.

Summary of accounting policies including derecognition

Accounting assessment takes place at the time of closing a transaction and under accounting rules, depends on a securitisation's residual risk. By contrast, significant risk transfer assessments take place at regular intervals. The resulting capital calculations can differ depending on the change in residual risk over time.

Recognition of sales

Securitisation vehicles are assessed for consolidation in accordance with RBS's published accounting policy *Basis of Consolidation* (refer to page 297 of the 2016 ARA). The transfer of assets to a securitisation vehicle is treated as a sale if the securitised assets are derecognised from the consolidated balance sheet in accordance with RBS's published accounting policy *Derecognition* (refer to page 304 of the 2016 ARA).

RBS applies its accounting policies *Provisions; Loan commitments; and Financial guarantee contracts* (set out on pages 301 and 304 of the 2016 ARA) to contractual commitments, such as liquidity lines, that could require it to provide financial support for securitised assets.

Key assumptions for valuing securitisation positions

Securitisation positions are valued using external information, such as market data for recent transactions, price information from third-party managers and advisors, and asset performance data provided to all bond holders at interest payment dates.

Synthetic securitisations

Synthetic securitisations are assessed using the same approach as non-synthetic securitisations. Any derivatives are treated in accordance with RBS's published accounting policy *Derivatives and hedging* (refer to page 305 of the 2016 ARA).

Assets awaiting securitisation

Financial assets are valued using RBS's accounting policy for financial assets (refer to page 301 of the 2016 ARA). At both 31 December 2016 and 31 December 2015, no assets were categorised as awaiting securitisation.

Implicit support

RBS has not provided support to any securitisation transactions beyond its contractual obligations.

Securitisation and re-securitisation exposures

Additional information detailing accounting policies, and treatment of securitisations and re-securitisations can be found on page 304 of the 2016 ARA.

Types of transactions

In the role of originator, RBS securitises a variety of assets which typically include the following:

Residential mortgages and commercial real estate loans - RBS securitises residential mortgages and commercial real estate loans that it originates itself. Mortgages and real estate loans are assigned to SSPEs, which fund themselves principally through the issue of floating rate notes.

Credit card receivables - In the UK, RBS securitises credit card receivables that it originates itself. Noteholders have a proportionate interest in a pool of credit card receivables that are assigned by RBS to a receivables trust.

Other loan types - RBS selectively securitises other loans that it originates, principally those to corporates and small and medium-sized enterprises.

SSPEs used by RBS

SSPEs used by RBS hold either the securitised assets themselves (traditional securitisations) or a package of other assets economically equivalent to those assets (synthetic securitisations).

At 31 December 2016, RBS sponsored one remaining multi-seller commercial paper conduit programme, Thames Asset Global Securitization (TAGS). RBS provides programme-wide credit enhancement and liquidity facilities to TAGS. During 2016, TAGS issued no commercial paper to external parties.

The transactions in which RBS acts as a swap counterparty, has originated all the assets and continues to administer the associated SSPEs include the following:

- Arran (UK residential mortgages SSPEs);
- Celtic (Irish residential mortgages SSPEs);
- Epic (commercial real estate SSPEs); and
- Talisman (commercial real estate SSPEs).

The last remaining Arran UK residential mortgages transaction was called on 20 January 2017.

Notes on the following tables

Tables SEC 1 to SEC 4 show total securitisation positions, as discussed under Regulatory treatment of securitisation on page 106. The exposures included those retained from RBS's own securitised assets, investments in SSPE notes, credit lines to SSPEs and derivative transactions with SSPEs.

The term 'exposure amount' used in the following tables refers to EAD, which is calculated according to CRR rules.

Exposure amount is shown along with other measures in Tables SEC 1 and SEC 2. Tables SEC 3 and SEC 4 show exposure amounts exclusively.

In previous years, Table SEC 7 appeared in the Market risk section of the ARA.

RBS did not securitise any of its own assets during 2015. In 2016 it completed a synthetic securitisation of £433 million of loans to corporates or SMEs. No gain or loss was recognised on the transfer of these assets.

Securitisation exposures: retained and purchased

SEC 1: Exposure, RWAs and MCR by regulatory approach

The following table shows exposures, RWAs, MCR and capital deductions calculated under the IRB and STD approaches.

	Aggregate amounts of securitisation positions retained or purchased				Of which, re-securitisation positions retained or purchased			
2016 - non-trading book	Exposure amount £m	RWAs £m	MCR £m	Of which: deduction from capital £m	Exposure amount £m	RWAs £m	MCR £m	Of which : deduction from capital £m
IRB	11,829	1,954	156	—	1	11	1	—
2015 - non-trading book								
IRB	10,242	3,414	273	—	17	4	—	—
2016 - trading book								
IRB	582	1,168	93	—	115	356	29	—
2015 - trading book								
IRB	390	1,597	128	—	60	511	41	—
STD	1	11	1	—	1	10	1	—
	391	1,608	129	—	61	521	42	—

Key points

Overview

- Total exposure amounts for retained or purchased securitisation positions increased in 2016 in both the non-trading and trading books due to an increase in business specific transactions as both originator and investor. This increase was partly offset in both books with the continued run-down of assets within Capital Resolution.
- The increase in business specific transactions occurred within the lower risk bands whilst the run-down of assets was focussed on the higher risk bands. Overall RWAs, therefore, continued to decline in 2016 in line with RBS's risk reduction strategy.

Non-trading book - IRB approach

- The increase in exposure was notably driven by residential mortgages and loans to corporates or SMEs.
- The total exposure amount includes EAD of £1.1 billion (2015 - £1.6 billion) and RWAs of £0.3 billion (2015 - £0.6 billion) related to counterparty credit risk associated with derivative trades. Within this, residential mortgages account for EAD of £0.7 billion (2015 - £1.0 billion) and RWAs of £0.2 billion (2015 - £0.3 billion). The relevant market risk is captured in the trading book.

Trading book - IRB approach

- The increase in exposure and decrease in RWAs were driven by a switch in business focus to create capacity by exiting capital-intensive assets.

SEC 2: Exposure and MCR by regulatory approach and risk-weightings

The following table shows exposures and MCR according to risk-weight bands. Unrated positions are included within the 1,250% band.

	Aggregate amounts of securitisation positions retained or purchased						Of which, re-securitisation positions retained or purchased					
	Exposure amount			Minimum capital requirements			Exposure amount			Minimum capital requirements		
	STD	IRB	Total	STD	IRB	Total	STD	IRB	Total	STD	IRB	Total
Risk-weight bands	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
2016 - non-trading book												
≤ 10%	—	8,558	8,558	—	52	52	—	—	—	—	—	—
> 10% ≤ 20%	—	2,280	2,280	—	29	29	—	—	—	—	—	—
> 20% ≤ 50%	—	557	557	—	16	16	—	—	—	—	—	—
> 50% ≤ 100%	—	346	346	—	22	22	—	—	—	—	—	—
> 100% ≤ 350%	—	—	—	—	—	—	—	—	—	—	—	—
> 350% ≤ 650%	—	42	42	—	—	—	—	—	—	—	—	—
1,250%	—	46	46	—	37	37	—	1	1	—	1	1
	—	11,829	11,829	—	156	156	—	1	1	—	1	1
2015 - non-trading book												
≤ 10%	—	6,334	6,334	—	41	41	—	—	—	—	—	—
> 10% ≤ 20%	—	2,112	2,112	—	27	27	—	16	16	—	—	—
> 20% ≤ 50%	—	875	875	—	29	29	—	—	—	—	—	—
> 50% ≤ 100%	—	544	544	—	28	28	—	—	—	—	—	—
> 100% ≤ 350%	—	1	1	—	—	—	—	—	—	—	—	—
> 350% ≤ 650%	—	249	249	—	72	72	—	1	1	—	—	—
1,250%	—	127	127	—	76	76	—	—	—	—	—	—
	—	10,242	10,242	—	273	273	—	17	17	—	—	—
2016 - trading book												
≤ 10%	—	186	186	—	1	1	—	—	—	—	—	—
> 10% ≤ 20%	—	139	139	—	2	2	—	—	—	—	—	—
> 20% ≤ 50%	—	109	109	—	3	3	—	65	65	—	2	2
> 50% ≤ 100%	—	20	20	—	1	1	—	1	1	—	—	—
> 100% ≤ 350%	—	3	3	—	1	1	—	—	—	—	—	—
> 350% ≤ 650%	—	35	35	—	15	15	—	—	—	—	—	—
1,250%	—	90	90	—	70	70	—	49	49	—	27	27
	—	582	582	—	93	93	—	115	115	—	29	29
2015 - trading book												
≤ 10%	—	127	127	—	1	1	—	—	—	—	—	—
> 10% ≤ 20%	—	23	23	—	—	—	—	—	—	—	—	—
> 20% ≤ 50%	—	36	36	—	1	1	—	18	18	—	1	1
> 50% ≤ 100%	—	57	57	—	4	4	—	2	2	—	—	—
> 100% ≤ 350%	—	9	9	—	2	2	—	—	—	—	—	—
> 350% ≤ 650%	—	39	39	—	16	16	—	4	4	—	2	2
1,250%	1	99	100	1	104	105	1	36	37	1	38	39
	1	390	391	1	128	129	1	60	61	1	41	42

SEC 3: Exposure by risk-weightings by underlying exposure type

The following table shows exposures by underlying exposure type and risk-weight bands. Unrated positions are included within the 1,250% band.

Risk-weight bands	Residential mortgages £m	Commercial mortgages £m	Credit card receivables £m	Leasing £m	Loans to corporates or SMEs £m	Consumer loans £m	Trade receivables £m	Auto receivables £m	Re-securitisation £m	Other assets £m	Total £m
2016 - non-trading book											
≤ 10%	4,440	78	418	395	427	96	—	2,536	—	168	8,558
> 10% ≤ 20%	753	371	18	241	—	50	—	592	—	255	2,280
> 20% ≤ 50%	69	23	—	107	7	—	—	—	—	351	557
> 50% ≤ 100%	82	262	—	—	—	—	—	—	—	2	346
> 100% ≤ 350%	—	—	—	—	—	—	—	—	—	—	—
> 350% ≤ 650%	42	—	—	—	—	—	—	—	—	—	42
1,250%	18	13	—	—	8	—	—	—	1	6	46
	5,404	747	436	743	442	146	—	3,128	1	782	11,829
2015 - non-trading book											
≤ 10%	3,065	67	353	337	—	118	72	2,142	—	180	6,334
> 10% ≤ 20%	359	333	—	291	—	273	—	749	16	91	2,112
> 20% ≤ 50%	165	261	—	53	8	—	—	—	—	388	875
> 50% ≤ 100%	212	10	—	—	—	8	—	—	—	314	544
> 100% ≤ 350%	—	—	—	—	—	—	—	—	—	1	1
> 350% ≤ 650%	52	6	—	—	—	—	—	—	1	190	249
1,250%	29	15	—	75	2	—	—	—	—	6	127
	3,882	692	353	756	10	399	72	2,891	17	1,170	10,242
2016 - trading book											
≤ 10%	106	—	—	—	55	—	—	25	—	—	186
> 10% ≤ 20%	125	—	—	—	8	—	—	6	—	—	139
> 20% ≤ 50%	8	20	—	—	2	—	—	—	65	14	109
> 50% ≤ 100%	1	6	—	—	11	—	—	—	1	1	20
> 100% ≤ 350%	—	3	—	—	—	—	—	—	—	—	3
> 350% ≤ 650%	4	—	—	—	31	—	—	—	—	—	35
1,250%	11	13	—	—	16	—	—	—	49	1	90
	255	42	—	—	123	—	—	31	115	16	582
2015 - trading book											
≤ 10%	17	—	5	—	89	3	—	13	—	—	127
> 10% ≤ 20%	5	—	—	—	15	—	—	3	—	—	23
> 20% ≤ 50%	3	11	—	—	4	—	—	—	18	—	36
> 50% ≤ 100%	1	43	—	—	9	—	—	—	2	2	57
> 100% ≤ 350%	5	—	—	—	4	—	—	—	—	—	9
> 350% ≤ 650%	—	7	—	—	28	—	—	—	4	—	39
1,250%	23	19	—	—	18	1	—	—	37	2	100
	54	80	5	—	167	4	—	16	61	4	391

Notes:
(1) In the non-trading book, around 68% of the Other assets relates to securitisation of receivables relating to entire revenue stream from public houses.
(2) Other assets include assets which cannot be classified in the specific asset classifications and may straddle asset type classifications.

Securitisation exposures: retained and purchased

SEC 4: Exposures by role, by on and off-balance sheet

The following table shows underlying exposures by:

- The role of RBS;
- On and off-balance sheet categories; and
- Underlying exposure type.

The off-balance sheet category represents the part of a liquidity facility that has not been utilised (undrawn) and derivative exposures.

	As originator		As sponsor		As investor		Total	
Underlying exposure type	On-balance sheet £m	Off-balance sheet £m	On-balance sheet £m	Off-balance sheet £m	On-balance sheet (1) £m	Off-balance sheet £m	On-balance sheet £m	Off-balance sheet £m
2016 - non-trading book								
Residential mortgages	—	—	—	—	2,483	2,921	2,483	2,921
Commercial mortgages	6	—	—	—	471	270	477	270
Credit card receivables	—	—	—	—	30	406	30	406
Leasing	—	—	—	—	704	39	704	39
Loans to corporates or SMEs	2	379	—	—	54	7	56	386
Consumer loans	—	—	72	13	61	—	133	13
Auto receivables	—	—	—	—	2,156	972	2,156	972
Re-securitisations	—	—	—	—	—	1	—	1
Other assets	—	—	—	—	448	334	448	334
	8	379	72	13	6,407	4,950	6,487	5,342
2015 - non-trading book								
Residential mortgages	—	—	381	80	2,484	937	2,865	1,017
Commercial mortgages	10	—	—	—	440	242	450	242
Credit card receivables	—	—	—	—	16	337	16	337
Leasing	—	—	—	—	655	101	655	101
Loans to corporates or SMEs	2	—	—	—	8	—	10	—
Consumer loans	—	—	80	2	21	296	101	298
Trade receivables	—	—	—	—	70	2	70	2
Auto receivables	—	—	—	—	2,132	759	2,132	759
Re-securitisations	—	—	—	—	17	—	17	—
Other assets	—	—	24	12	663	471	687	483
	12	—	485	94	6,506	3,145	7,003	3,239
2016 - trading book								
Residential mortgages	—	—	—	—	246	9	246	9
Commercial mortgages	—	—	—	—	42	—	42	—
Loans to corporates or SMEs	3	—	—	—	114	6	117	6
Auto receivables	—	—	—	—	31	—	31	—
Re-securitisations	1	—	—	—	90	24	91	24
Other assets	—	—	—	—	15	1	15	1
	4	—	—	—	538	40	542	40
2015 - trading book								
Residential mortgages	—	—	—	—	49	5	49	5
Commercial mortgages	—	—	—	—	80	—	80	—
Credit card receivables	—	—	—	—	5	—	5	—
Loans to corporates or SMEs	2	—	—	—	132	33	134	33
Consumer loans	—	—	—	—	4	—	4	—
Auto receivables	—	—	—	—	16	—	16	—
Re-securitisations	1	—	—	—	59	1	60	1
Other assets	—	—	—	—	4	—	4	—
	3	—	—	—	349	39	352	39

Securitisation exposures: retained and purchased

SEC 5: Exposures subject to market risk capital requirements

The following table shows trading book exposures subject to securitisation specific market risk capital regulations.

Underlying portfolio	Exposure amount Traditional £m	Minimum capital requirement Traditional £m
2016 - trading book		
Residential mortgages	255	17
Commercial mortgages	42	15
Loans to corporates or SMEs	123	30
Auto receivables	31	—
Re-securitisations	115	29
Other assets	16	2
	582	93
2015 - trading book		
Residential mortgages	54	26
Commercial mortgages	80	26
Credit card receivables	5	—
Loans to corporate or SMEs	167	32
Consumer loans	4	1
Auto receivables	16	—
Re-securitisations	61	42
Other assets	4	2
	391	129

Securitisation outstanding amounts

SEC 6: Securitisation positions retained from origination and sponsorship - outstanding and past due

The following table shows outstanding and related past due exposures pertaining to RBS's retained positions where RBS was the originator or sponsor. Where the originated securitisation was through a joint venture or through similar arrangements, the entire asset pool information is also disclosed separately below.

	Total		Non-trading exposures					Trading exposures				Memorandum: Entire asset pool	
			Originator		Sponsor			Originator					
2016	Exposures £m	Of which past due £m	Traditional £m	Synthetic £m	Traditional £m	Total £m	Of which past due £m	Traditional £m	Synthetic £m	Total £m	Of which past due £m	Exposures £m	Of which past due £m
Residential mortgages	321	—	—	—	9	9	—	312	—	312	—	312	—
Commercial mortgages	222	222	222	—	—	222	222	—	—	—	—	222	222
Loans to corporates or SMEs	768	3	127	433	42	602	2	166	—	166	1	726	3
Consumer loans	120	—	—	—	120	120	—	—	—	—	—	—	—
Other assets	8	—	—	—	8	8	—	—	—	—	—	—	—
	1,439	225	349	433	179	961	224	478	—	478	1	1,260	225
2015													
Residential mortgages	391	—	—	—	391	391	—	—	—	—	—	—	—
Commercial mortgages	975	—	505	—	—	505	—	470	—	470	—	975	—
Loans to corporates or SMEs	541	2	165	—	37	202	—	339	—	339	2	504	2
Consumer loans	150	—	—	—	150	150	—	—	—	—	—	—	—
Other assets	12	—	—	—	12	12	—	—	—	—	—	—	—
	2,069	2	670	—	590	1,260	—	809	—	809	2	1,479	2

Notes:
(1) For securitisations where RBS acted as investor, as disclosed in Table SEC 4, information on underlying assets is not readily available and therefore excluded in the table above.
(2) Outstanding and related past due exposures are based on pool amounts – which are sourced from investor reports. RBS does not hold this information in its internal systems.
(3) None of the retained positions at 31 December 2016 relating to originated securitisations were part of a joint venture. Therefore, the outstanding amount for the entire asset pool is the same as the RBS share.

Securitisation minimum capital requirement

SEC 7: Securitisation positions in the trading book

The following table shows the capital requirement for trading book securitisation positions by rating.

	Ratings							
2016	AAA £m	AA £m	A £m	BBB £m	Non-investment grade £m	Unrated £m	Total (1) £m	Non-modelled PRR (2) %
Trading book securitisation MCR	3	1	2	2	57	28	93	0.3
2015								
Trading book securitisation MCR	1	—	1	4	80	43	129	0.7

Notes:
(1) Includes both long and short positions
(2) Percentage of total non-modelled position risk requirement (PRR).

Appendix 1 - Asset encumbrance

RBS's primary funding source is its customer deposit base, primarily built through its retail and commercial franchises in the UK, the Republic of Ireland and the US. These deposits form a stable base which fully funds RBS's customer lending activities.

RBS evaluates the extent to which assets can be financed in a secured form (encumbrance) but certain asset types lend themselves more readily to encumbrance. The typical characteristics that support encumbrance are an ability to pledge those assets to another counterparty or entity through operation of law without necessarily requiring prior notification, homogeneity, predictable and measurable cash flows, and a consistent and uniform underwriting and collection process. Retail assets including residential mortgages, credit card receivables and personal loans display many of these features.

RBS categorises its assets into two broad groups; assets that are:

- Already encumbered and used to support funding currently in place via own asset securitisations, covered bonds and repos.
- Not currently encumbered. In this category, RBS has in place an enablement programme which seeks to identify assets which are capable of being encumbered and to identify the actions to facilitate such encumbrance whilst not impacting customer relationships or servicing.

Encumbered and unencumbered assets for the year ended 31 December 2016, based on the requirements in Part Eight of CRR and related Guideline issued by the EBA in June 2014, are set out in the following tables.

The values presented below, including totals, are shown on a five-point median average basis across the quarterly reporting periods in 2016 and the comparative year.

EBA asset encumbrance

	Median values			
Assets	Carrying amount of encumbered assets £m	Fair value of encumbered assets £m	Carrying amount of unencumbered assets £m	Fair value of unencumbered assets £m
2016				
Equity instruments	77	77	770	673
Debt securities	40,297	40,182	44,589	44,741
Other assets	48,279	—	719,366	—
Total assets of the reporting institution	90,327		771,273	
2015				
Equity instruments	1,183	1,183	2,179	2,180
Debt securities	33,074	33,049	48,534	48,591
Other assets	68,505	—	837,661	—
Total assets of the reporting institution	101,397		870,639	

		Unencumbered
Collateral received	Fair value of encumbered collateral received or own debt securities issued £m	Fair value of collateral received or own debt securities issued available for encumbrance £m
2016		
Equity instruments	1	160
Debt securities	60,810	12,678
Total collateral received by the reporting institution	60,810	12,941
2015		
Equity instruments	1,139	—
Debt securities	88,961	8,591
Total collateral received by the reporting institution	90,100	8,591

Sources of encumbrance	Matching liabilities, contingent liabilities or securities lent £m	Assets, collateral received and own debt securities issued other than covered bonds and asset-backed securities encumbered £m
2016		
Carrying amount of selected financial liabilities	94,407	101,059
Other sources of encumbrance	44,920	46,048
2015		
Carrying amount of selected financial liabilities	118,564	126,720
Other sources of encumbrance	57,433	64,777

Appendix 2 - CRR roadmap

For tables included in this roadmap, also refer to related key points.

CRR ref	High-level summary	Compliance reference
Scope of disclosure requirements		
431 (1)	Requirement to publish Pillar 3 disclosures.	RBS publishes Pillar 3 disclosures as required.
431 (2)	Firms with permission to use specific operational risk methodologies must disclose operational risk information.	ARA: Capital and risk management - Operational risk - pages 202-204.
431 (3)	Institution must have a policy covering frequency of disclosures. Their verification, comprehensiveness and appropriateness.	RBS has an appropriate Pillar 3 policy.
431 (4)	Explanation of ratings decision upon request.	An explanation of rating decisions is provided within the ARA: Capital and risk management. If requested, RBS provides an explanation in writing on rating decisions to SMEs and other corporate applicants.
CRR 432: Non-material, proprietary or confidential information - cover last		
432 (1)	Institutions may omit information that is not material if certain conditions are respected.	RBS complies with all relevant disclosure requirements.
432 (2)	Institutions may omit information that is proprietary or confidential if certain conditions are respected.	RBS does not omit any information on the grounds that it may be proprietary or confidential.
432 (3)	Where 432 (1) and (2) apply this must be stated in the disclosures, and more general information must be disclosed.	N/A
432 (4)	Use of 432 (1) or (2) is without prejudice to scope of liability for failure to disclose material information.	N/A
CRR 433: Frequency of disclosure		
433	Disclosures must be published once a year at a minimum, and more frequently if necessary.	Required disclosures are published annually at a minimum, with quarterly disclosures for key elements and metrics including Own Funds, Capital Requirements and Leverage.
CRR 434: Means of disclosures		
434 (1)	To include of disclosures in one appropriate medium, or provide clear cross-references.	Majority of the disclosure requirements are covered by the Pillar 3 Report. Other disclosures including certain qualitative requirements are covered within the ARA. Signposting is used to direct users to relevant pages or sections.
434 (2)	Disclosures made under other requirements (e.g. accounting) can be used to satisfy Pillar 3 if appropriate.	This reference guide sets out cross-references as does Basis of Disclosure.
CRR 435: Risk management objectives and policies		
435 (1)	Disclose information on:	
435 (1) (a)	the strategies and processes to manage risks	Overview of risk strategies - ARA: Governance report - Report of the Board Risk Committee pages 79-84. Additional information on risk management processes found throughout this document, and specifically ARA: Capital and risk management section - Risk overview.
435 (1) (b)	structure and organisation of risk management function	ARA: Capital and risk management - Risk overview pages 164-169.
435 (1) (c)	risk reporting and measurement systems	ARA: Capital and risk management - Risk overview pages 164-169 and throughout this document.
435 (1) (d)	hedging and mitigating risk - policies and processes	ARA: Capital and risk management - Operational risk, Risk mitigation page 203, Pension risk, Risk mitigation page 205, Credit risk, Risk mitigation page 211, Structural, Product and Equity hedging pages 273-274 Accounting policies, Derivatives and Hedging page 305.

Appendix 2 - CRR roadmap

CRR ref	High-level summary	Compliance reference
435 (1) (e)	adequacy of risk management arrangements.	ARA: Report of the Board Risk Committee pages 79-84.
435 (1) (f)	concise risk statement approved by the Board	ARA: Strategic Report - Risk overview pages 38-39.
435 (2)	Information on governance arrangements, including information on Board composition and recruitment, and risk committees.	Refer to sub-articles below.
435 (2) (a)	Number of directorships held by directors.	ARA: Governance pages 58-62.
435 (2) (b)	Recruitment policy of the Board, their experience and expertise.	ARA: Governance page 70; rbs.com/about/board-and-governance.html
435 (2) (c)	Policy on diversity of Board membership and results against targets.	ARA: Governance page 70; rbs.com/about/board-and-governance.html
435 (2) (d)	Disclosure of whether a dedicated risk committee is in place, and number of meeting in the year.	ARA: Report of the Board Risk Committee pages 79-84.
435 (2) (e)	Description of information flow risk to Board.	ARA: Capital and risk management - Risk overview pages 164-169.
CRR 436: Scope of application		
436	See sub paragraphs below.	
436 (a)	Name of institution.	The Royal Bank of Scotland Group plc and its consolidated subsidiaries - page 5.
436 (b)	Difference in basis of consolidation for accounting and prudential purposes, naming entities that are:	EU LI1; ARA: Note 7 Investments in Group undertakings page 396 and Note 15 Related undertakings page 400.
436 (b) (i)	Fully consolidated;	EU LI1 & page 5
436 (b) (ii)	Proportionally consolidated;	EU LI1 and footnote
436 (b) (iii)	Deducted from own funds;	EU LI1 & CAP 3
436 (b) (iv)	Neither consolidated nor deducted.	EU LI1
436 (c)	Impediments to transfer of funds between parent and subsidiaries.	There are no such impediments. Refer to page 6.
436 (d)	Capital shortfalls in any subsidiaries outside of scope of consolidation.	Entities outside the scope of consolidation are appropriately capitalised.
436 (e)	Making use of articles on derogations from a) prudential requirements or b) liquidity requirements for individual subsidiaries/entities.	N/A
CRR 437: Own funds		
437 (1)	Requirement to disclosure following information regarding own funds:	N/A
437 (1) (a)	Reconciliation of regulatory values for Common Equity Tier 1 items, Additional Tier 1 items, Tier 2 items and filters and deductions to statutory balance sheet;	EU LI1 & CAP 3
437 (1) (b)	Description of the main features of Capital Instruments issued by institution;	Pillar 3 Capital Instruments Common Disclosure template available on RBS Investor Relations website. www.investors.rbs.com
437 (1) (c)	Full terms and conditions of Capital Instruments issued by institution;	Pillar 3 Capital Instruments Common Disclosure template available on RBS Investor Relations website. www.investors.rbs.com
437 (1) (d)	Disclosure of the nature and amounts of the following: each prudential filter applied; each capital deduction applied; items not deducted from capital;	CAP 3
437 (1) (e)	a description of all restrictions applied to the calculation of own funds in accordance with this Regulation and the instruments, prudential filters and deductions to which those restrictions apply;	CAP 3
437 (1) (f)	where institutions disclose capital ratios calculated using elements of own funds determined on a different basis	N/A
437 (2)	EBA shall develop draft implementing technical standards to specify uniform templates for disclosure	EBA published technical standards introducing Common Disclosure Templates for Own Funds; available on CAP 3.

Appendix 2 - CRR roadmap

CRR ref	High-level summary	Compliance reference
CRR 438: Capital requirements		
438 (a)	Summary of institution's approach to assessing adequacy of capital levels.	Discussions of capital calculations are contained in each risk management section (credit, market and operational) and for significant subsidiaries. ARA: Capital and risk management - Capital management pages 178-186.
438 (b)	Result of ICAAP on demand from authorities.	N/A
438 (c)	Capital requirement amounts for credit risk for each Standardised approach exposure class.	CR2
438 (d) 438 (d) (i) 438 (d) (ii) 438 (d) (iii) 438 (d) (iv)	Capital requirements amounts for credit risk for each Internal Ratings Based Approach exposure class.	CR2, EU OV1 & CR10-B
438 (e)	Capital requirements amounts for market risk or settlement risk, or large exposures where they exceed limits.	EU OV1 & EU MR1_A
438 (f)	Capital requirement amounts for operational risk, separately for the basic indicator approach, the Standardised approach, and the advanced measurement approaches as applicable.	RBS uses Standardised approach; OV1 includes operational risk capital requirements.
438 (endnote)	Requirement to disclose specialised lending exposures and equity exposures in the banking book falling under the simple risk weight approach.	EU CR10_A; EU CR10_B.
CRR 439: Exposure to counterparty credit risk		
439 (a)	Description of process to assign internal capital and credit limits to CCR exposures.	Pages 84-85.
439 (b)	Discussion of process to secure collateral and establishing reserves.	Pages 84-85.
439 (c)	Discussion of management of wrong-way exposures	Page 85.
439 (d)	Disclosure of collateral to be provided (outflows) in the event of a ratings downgrade.	Counterparty credit risk page 84 and ARA page 446.
439 (e)	Derivation of net derivative credit exposure.	ARA: Capital and risk management - Derivatives page 258.
439 (f)	Exposure values for mark-to-market, original exposure, standardised and internal model methods.	EU CCR1
439 (g)	Notional value of credit derivative hedges and current credit exposure by type of exposure.	EU CCR6
439 (h)	Notional amounts of credit derivative transactions for own credit, intermediation, bought and sold, by product type.	EU CCR6
439 (i)	Estimate of alpha, if applicable.	Page 84
CRR 440: Capital buffers		
440 (1)	See sub paragraphs below	N/A
440 (1) (a)	Geographical distribution of relevant credit exposures.	CAP 6a
440 (1) (b)	Amount of the institution specific countercyclical capital buffer.	CAP 6b
440 (2)	EBA will issue technical implementation standards related to 440 (1).	RBS follows the current standards.

Appendix 2 - CRR roadmap

CRR ref	High-level summary	Compliance reference
CRR 441: Indicators of global systemic importance		
441 (1)	Disclosure of the indicators of global systemic importance.	GSIB indicators as of and for the year ended 31 December 2016 will be published in April 2017 on www.investors.rbs.com
441 (2)	EBA will issue technical implementation standards related to 441 (1).	RBS follows the current standards.
CRR 442: Credit risk adjustments		
442 (a)	Disclosure of bank's definitions of past due and impaired.	ARA: Capital and risk management -Impairments page 212; Past due defined in Glossary page 474.
442 (b)	Approaches for calculating credit risk adjustments.	ARA: Capital and risk management - Impairments page 212. Accounting policy 15: Impairment of financial assets page 302.
442 (c)	Disclosure of EAD by exposure class.	EU CRB_B
442 (d)	Disclosures of EAD by geography and exposure class.	EU CRB_C
442 (e)	Disclosures of EAD by industry and exposure class.	EU CRB_D
442 (f)	Disclosures of EAD by residual maturity and exposure class.	EU CRB_E
442 (g)	Breakdown of impaired, past due, specific and general credit adjustments, and impairment charges for the period, by exposure class or counterparty type.	EU CR1_A & EU CR1_C ARA: Capital and risk management - Credit risk: Balance sheet analysis pages 246-253.
442 (h)	Impaired, past due exposures, by geographical area, and amounts of specific and general impairment for each geography	ARA: Capital and risk management - Credit Risk: balance sheet analysis page 252.
442 (i)	Reconciliation of changes in specific and general credit risk adjustments.	ARA: Capital and risk management - Credit Risk: balance sheet analysis page 253.
442 (endnote)	Specific credit risk adjustments recorded to income statement are disclosed separately.	ARA: Capital and risk management - Credit Risk: balance sheet analysis page 252.
CRR 443: Unencumbered assets		
443	Disclosures on unencumbered assets.	Appendix 1 - Asset encumbrance.
CRR 444: Use of ECAIs		
444 (a)	Names of the ECAIs used in the calculation of Standardised approach RWAs, and reasons for any changes.	Page 24.
444 (b)	Exposure classes associated with each ECAI.	Majority of exposure where ECAI ratings are used to calculate the risk-weight are within central governments and banks exposure class. Refer to EU CR5 for risk-weights.
444 (c)	Process for translating external ratings into credit quality steps.	Page 24.
444 (d)	Mapping of external rating to credit quality steps.	EU CR5a
444 (e)	Exposure value pre and post-credit risk mitigation, by CQS.	Majority of exposure where ECAI ratings are used to calculate the risk-weight are within central governments and banks exposure class. Refer to EU CR5 for risk-weights

CRR ref	High-level summary	Compliance reference
CRR 445: Exposure to market risk		
445	Disclosure of position risk, large exposures exceeding limits, FX, settlement and commodities risk.	MR1_A for Specific Interest Rate Risk of Securitisation Positions; and, Market Risk components including position risk, foreign exchange risk and IMM. Settlement Risk and Large Exposures when appropriate are included within EU OV1.
CRR 446: Operational risk		
446	Scope of approaches used to calculate operational risk.	RBS uses the standardised approach, refer to EU OV1 and ARA: Capital and risk management - Risk overview pages 202-204.
CRR 447: Exposures in equities not included in the trading book		
447 (a)	Differentiation between exposures based on their objectives, and an overview of the accounting techniques and valuation methodologies used.	ARA: Capital and risk management - Credit risk - Balance sheet analysis page 257. For further detail on accounting techniques refer to ARA: Accounting policy 14 - Financial assets page 301.
447 (b)	Comparison between the balance sheet value, fair value and market price where materially different.	N/A
447 (c)	The types, nature and amounts of exchange-traded exposures, private equity exposures in sufficiently diversified portfolios, and other exposures.	ARA: Capital and risk management - Market risk - Non-traded book equity page 275.
447 (d)	The cumulative realised gains or losses arising from sales and liquidations in the period.	ARA: Capital and risk management - Market risk - Non-traded book equity page 275.
447 (e)	The total unrealised gains or losses, the total latent revaluation gains or losses, and any of these amounts included in the original or additional own funds.	ARA: Capital and risk management - Market risk - Non-traded book equity page 275.
CRR 448: Exposure to interest rate risk on positions not included in the trading book		
448		
448 (a)	For Non-Traded Interest Rate Risk the nature and frequency of measurement.	ARA: Capital and risk management - Interest rate risk pages 271-274.
448 (b)	The variation in earnings, economic value or other relevant measure used by the management for upward and downward rate shocks according to management's method for measuring the interest rate risk, broken down by currency.	ARA: Capital and risk management - Market risk - Non-traded interest rate risk pages 271-274.
CRR 449: Exposure to securitisation positions		
449	Exposure to securitisation positions.	RBS has no correlation trading portfolio.
449 (a)	Objectives in relation to securitisation activity.	Page 101.
449 (b)	Nature of other risks in securitised assets, including liquidity.	Page 103-105.
449 (c)	Risks in re-securitisation activity stemming from seniority of underlying securitisations and ultimate underlying assets.	Page 103-105.
449 (d)	The roles played by institutions in the securitisation process.	Page 103-105.
449 (e)	Indication of the extent of involvement in these roles.	SEC 4
449 (f)	Processes in place to monitor changes in credit and market risks of securitisation exposures, and how the processes differ for re-securitisation exposures.	Page 103-105.

CRR ref	High-level summary	Compliance reference
449 (g)	Description of the institution's policies with respect to hedging and unfunded protection, and identification of material hedge counterparties.	Page 103 & ARA: Accounting note 23. Derivatives and hedging page 305.
449 (h)	Approaches to calculation of RWA for securitisations mapped to types of exposures.	Page 106.
449 (i)	Types of SSPEs used to securitise third-party exposures, and list of SSPEs.	Pages 101-107, SEC 4 & SEC 6.
449 (j)	Summary of accounting policies for securitisations.	Pages 107-108
449 (k)	Names of ECAIs used for securitisations.	Page 106.
449 (l)	Full description of Internal Assessment Approach.	Page 106.
449 (m)	Explanation of changes in quantitative disclosures.	SEC 1 & SEC 6
449 (n)	Banking and trading book securitisation exposures:	
449 (n) (i)	Amount of outstanding exposures securitised;	SEC 6
449 (n) (ii)	On balance sheet securitisation retained or purchased, and off-balance sheet exposures;	SEC 4
449 (n) (iii)	Amount of assets awaiting securitisation;	Page 107.
449 (n) (iv)	Early amortisation treatment; aggregate drawn exposures, capital requirements;	RBS has no securitisation positions subject to early amortisation treatment
449 (n) (v)	Deducted or 1,250%-weighted securitisation positions;	SEC 2 & SEC 3
449 (n) (vi)	Amount of exposures securitised and recognised gains or losses on sales.	Page 107.
449 (o)	Banking and trading book securitisations by risk band:	
449 (o) (i)	Retained and purchased exposure and associated capital requirements, broken down by risk-weight bands;	SEC 1 & SEC 2
449 (o) (ii)	Retained and purchased re-securitisation exposures before and after hedging and insurance; exposure to financial guarantors broken down by guarantor credit worthiness.	SEC 1
449 (p)	Impaired assets and recognised losses related to banking book securitisations, by exposure type.	SEC 6
449 (q)	Exposure and capital requirements for trading book securitisations, separately into traditional.	SEC 5
449 (r)	Whether the institution has provided non-contractual financial support to securitisation vehicles.	Page 107
RR 450: Remuneration policy		
450	Remuneration	ARA: Governance - Directors' remuneration report and Other remuneration disclosures pages 88-111. Further detail on compliance with CRD IV and remuneration from rbs.com/about/board-and-governance.html

Appendix 2 - CRR roadmap

CRR ref	High-level summary	Compliance reference
CRR 451: Leverage		
451 (1) (a)	Leverage ratio, and breakdown of total exposure measure,	CAP 4
451 (1) (b)	including reconciliation to financial statements, and	CAP 4
451 (1) (c)	derecognised fiduciary items.	N/A
451 (1) (d)	Description of the risk management approach to mitigate excessive leverage.	ARA: Capital and risk management page 176.
451 (1) (e)	Factors that impacted the leverage ratio during the year.	Page 8.
451 (2)	EBA to publish implementation standards for points above.	RBS follows the current standards.
CRR 452: Use of the IRB Approach to credit risk		
452 (a)	Permission for use of the IRB approach from authority.	Page 24.
452 (b)	Explanation of:	
452 (b) (i)	Internal rating scales, mapped to external ratings;	ARA: Capital and risk management - Credit risk pages 211 & 246.
452 (b) (ii)	Use of internal ratings for purposes other than capital requirement calculations;	ARA: Capital and risk management - Credit risk pages 207-239.
452 (b) (iii)	Management and recognition of credit risk mitigation;	ARA: Capital and risk management - Credit risk - risk mitigation page 211.
452 (b) (iv)	Controls around ratings systems.	Page 65.
452 (c)	Ratings processes for each IRB asset class.	Pages 57-65.
452 (d)	Exposure values by IRB exposure class, separately for Advanced and Foundation IRB.	CR2 and numerous other tables throughout the report.
452 (e)	Disclosure by exposure classes, separately by obligor grade	EU CR6_b & EU CCR4
452 (e) (i)	Total exposure, separating drawn and undrawn exposure	EU CR6_b & EU CCR4
452 (e) (ii)	Exposure-weighted average risk weight	EU CR6_b & EU CCR4
452 (e) (iii)	Undrawn commitments and the exposure-weighted average Credit Conversion Factor (CCF)	EU CR6_b
452 (f)	The requirements laid out in 452(e) for the Retail exposure class.	EU CR6_a
452 (g)	Actual specific risk adjustments for the period and explanation of changes.	ARA: Capital and risk management: Credit risk - Balance sheet analysis pages 248-253.
452 (h)	Commentary on drivers of losses in preceding period.	ARA Capital and risk management: Impairment charge and provisions page 248.
452 (i)	Predicted against actual losses for sufficient period, and historical analysis to help assess the performance of the rating system over a sufficient period.	EU CR9_a; EU CR9_a_1; EU CR9_a_2; EU CR9_b; EU CR9_c
452 (j)	For all IRB exposure classes, where applicable, PD and LGD by each country where the bank operates.	EU CR6_C

Appendix 2 - CRR roadmap

CRR ref	High-level summary	Compliance reference
CRR 453: Use of credit risk mitigation techniques		
453 (a)	Use of on and off-balance sheet netting.	EU LI2 and page 61.
453 (b)	How collateral valuation is managed.	ARA: Capital and risk management - Risk mitigation pages 211-212; 226; 233; 236-238.
453 (c)	Description of types of collateral used by RBS.	EU CR3, EU CR3_a and ARA: Capital and risk management - Risk mitigation pages 211-247.
453 (d)	Guarantor and credit derivative counterparty, creditworthiness.	Page 24.
453 (e)	Market or credit risk concentrations within risk mitigation exposures.	Page 24.
453 (f)	Standardised or Foundation IRB approach, exposure value covered by eligible collateral.	EU CR4
453 (g)	Exposures covered by guarantees or credit derivatives.	EU CR3
CRR 454: Use of the Advanced Measurement Approaches to operational risk		
454	Description of the use of insurance or other risk transfer mechanisms to mitigate operational risk	N/A
CRR 455: Use of Internal Market Risk Models		
455 (a)	Refer to sub paragraphs below.	
455 (a) (i)	Characteristics of the market risk models.	Pages 94-95. ARA: Capital and risk management - Market risk pages 260-276.
455 (a) (ii)	Methodology for all-price risk measure and incremental risk charge.	ARA - Capital and risk management: Traded market risk pages 267-270.
455 (a) (iii)	Descriptions of stress tests applied to the portfolios.	ARA - Capital and risk management: Traded market risk pages 266-268.
455 (a) (iv)	Methodology for back-testing and validating the models.	EU MR4_A; ARA: Capital and risk management: Traded market risk pages 260-265.
455 (b)	Scope of permission for use of the models.	Page 95 and MR4_A
455 (c)	Policies and processes to determine trading book classification, and to comply with prudential valuation requirements.	Page 94-95.
455 (d)	High/Low/Mean values over the year of VaR, SVaR, all-price risk measure and incremental risk charge.	EU MR3
455 (e)	The elements of the own fund calculation.	EU MR2_A
455 (f)	Weighted average liquidity horizons of portfolios covered by models.	EU MR4_A; ARA: Capital and risk management: Traded market risk page 267.
455 (g)	Comparison of end-of-day VaR measures compared with one-day changes in portfolio's value.	EU MR4

Key terms and glossary

Acronyms

ABCP	Asset-backed commercial paper
AIRB	Advanced internal ratings based
AT1	Additional Tier 1
ARA	Annual Report and Accounts
AQ	Asset quality
BBA	British Bankers' Association
CCF	Credit conversion factor
CCP	Central counterparty
CDOR	Canadian Dollar Offered Rate
CET1	Common Equity Tier 1
COREP	CRR Common Reporting
CQS	Credit quality steps
CRD	Capital Requirements Directive
CRM	Credit risk mitigation
CRR	Capital Requirements Regulation
CVA	Credit valuation adjustment
EAD	Exposure at default
EBA	European Banking Authority
ECAI	External Credit Assessment Institution
EEPE	Effective expected positive exposure
EL	Expected loss
EPE	Expected positive exposure
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FI	Financial institution
GSIB	Global Systemically Important Bank
IAA	Internal assessment approach
ICAAP	Internal capital adequacy assessment process
IFRS	International Financial Reporting Standard
IMA	Internal model approach
IMM	Internal model method
IRB	Internal ratings based
IRC	Incremental risk charge
LGD	Loss given default
LIBOR	London Interbank Offered Rate
MCR	Minimum capital requirements
MRM	Model risk management
MTM	Mark-to-market
NTIRR	Non-traded interest rate risk
NWB Plc	National Westminster Bank Plc
OTC	Over-the-counter
PBB	Personal & Business Banking
PD	Probability of default
PFE	Potential future exposure
PRA	Prudential Regulation Authority
QCCP	Qualifying central counterparty
RAR	Risk asset ratio
RBA	Ratings based approach
RBS	The Royal Bank of Scotland Group plc and its subsidiaries
RBS plc	The Royal Bank of Scotland plc
RBSSI	RBS Securities Inc.
RCR	RBS Capital Resolution
RNIV	Risks not in VaR
RoI	Republic of Ireland
RoW	Rest of the World
RPF	Revised Pillar 3 framework
RWAs	Risk-weighted assets
S&P	Standard & Poor's
SCRA	Specific credit risk adjustments
SFTs	Securities financing transactions
SME	Small and medium-sized enterprise
SSPE	Securitisation special purpose entity
STD	Standardised
SVaR	Stressed value-at-risk
T2	Tier 2
TAGS	Thames Asset Global Securitization
TMT	Telecommunications, media, technology
UBI DAC	Ulster Bank Ireland Designated Activity Company
VaR	Value-at-risk

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Key terms and glossary

Key terms

Also refer to pages 505 to 511 of the 2016 ARA.

Additional Tier 1 Capital - a level of regulatory capital as defined within EU under CRD IV, typically non-cumulative perpetual capital instruments and related share premium. AT1 instruments include a write-down or conversion feature, usually based on a trigger event if Common Equity Tier 1 falls below a certain level.

Alpha - in the context of regulatory capital for counterparty credit risk, under the internal model method, alpha is a multiplier applied to the effective expected positive exposure (EPE) to determine the exposure at default. Alpha may be set using an own estimate with a floor of 1.2. It accounts for the extra capital needed for derivatives, compared to loans with the same EPE, to reflect the additional risks.

Asset-backed commercial paper (ABCP) - a form of asset-backed security generally issued by a commercial paper conduit.

Asset quality (AQ) band - probability of default banding for all counterparties on a scale of 1 to 10.

Back-testing - statistical techniques that assess the performance of a model, and how that model would have performed had it been applied in the past.

Basel II - the capital adequacy framework issued by the Basel Committee on Banking Supervision in June 2006 in the form of the 'International Convergence of Capital Measurement and Capital Standards'.

Basel III - in December 2010, the Basel Committee on Banking Supervision issued final rules: 'Basel III: A global regulatory framework for more resilient banks and banking systems' and 'Basel III: International framework for liquidity risk measurement, standards and monitoring'.

Central counterparty (CCP) default fund - a mechanism that allows the sharing (mutualisation) of losses among the central counterparty's clearing members. It is used where the losses incurred by the CCP following the default of a clearing member are greater than the margins and default fund contributions provided by that clearing member and any other defence the CCP may use before recurring to the default fund contributions of the remaining clearing members. In view of this, the risk of loss associated with exposures from default fund contributions is higher than that associated with trade exposures. Therefore, this type of exposures should be subject to a higher own funds requirement.

Commercial paper conduit - a structured entity that issues commercial paper and uses the proceeds to purchase or fund a pool of assets. The commercial paper is secured on the assets and is redeemed either by further commercial paper issuance, repayment of assets or liquidity drawings.

Common Equity Tier 1 capital - the highest quality form of regulatory capital under Basel III comprising common shares issued and related share premium, retained earnings and other reserves excluding the cash flow hedging reserve, less specified regulatory adjustments.

Counterparty credit risk - the risk that a counterparty defaults before the maturity of a derivative or sale and repurchase contract. In contrast to non-counterparty credit risk, the exposure to counterparty credit risk varies by reference to a market factor (e.g. interest rate, exchange rate, asset price).

CRD IV - the European Union has implemented the Basel III capital proposals through the Capital Requirements Regulation and the Capital Requirements Directive (CRD), collectively known as CRD IV. CRD IV was implemented on 1 January 2014. The European Banking Authority's technical standards are still to be finalised through adoption by the European Commission and implemented within the UK.

Credit conversion factor (CCF) - the CCF is an estimate of the proportion of undrawn commitments that will be drawn at the point of default. It is used in determining EAD and reflects the assumption that drawn balance at default might be greater than the current balance.

Credit default swap - a contract where the protection seller receives premium or interest-related payments in return for contracting to make payments to the protection buyer upon a defined credit event in relation to a reference financial asset or portfolio of financial assets. Credit events usually include bankruptcy, payment default and rating downgrades.

Credit grade - a rating that represents an assessment of the creditworthiness of a customer. It is a point on a scale representing the probability of default of a customer.

Credit quality step (CQS) - a grade on the PRA credit quality assessment scale based on the credit ratings of external credit assessment institutions. It is used to assign risk weights under the standardised approach to credit risk.

Credit risk - the risk of financial loss due to the failure of a customer, or counterparty, to meet its obligation to settle outstanding amounts.

Credit risk mitigation (CRM) - reducing the credit risk of an exposure by application of techniques such as netting, collateral, guarantees and credit derivatives.

Credit spread - the yield spread between securities with the same currency and maturity structure but with different associated credit risks, with the yield spread rising as the credit rating worsens. It is the premium over the benchmark or risk-free rate required by the market to take on a lower credit quality.

Credit valuation adjustment capital charge - The purpose of this charge is to improve the resilience of banks to potential mark-to-market losses associated with deterioration in the creditworthiness of counterparties in non-cleared derivative trades. Under CRR rules, the charge is calculated using either the advanced approach or the standardised approach.

Key terms and glossary

Key terms

Defaulted assets (AQ10) - Assets with a PD of 100%.

Effective expected positive exposure (effective EPE) - a measure used to determine EAD for OTC derivatives under the internal model method. It is calculated as the weighted average of non-decreasing expected positive exposures. The weight of each exposure is calculated as a percentage of total expected exposure over the relevant period. When calculating the minimum capital requirement, the average is taken over the first year.

Expected loss (EL, a regulatory measure) - is the product of the regulatory credit exposure, the probability of default over the next 12 months, averaged through an economic cycle, and the downturn loss given default. It is applied to exposures whether performance is recognised in income or reserves. Credit exposures include all financial assets, customer facilities and are subject to regulatory overlays.

Exposure - a claim, contingent claim or position which carries a risk of financial loss.

Exposure at default (EAD) - an estimate of the extent to which the bank will be exposed under a specific facility, in the event of the default of a counterparty.

EAD pre CRM/EAD post CRM - Credit risk mitigation (CRM) is defined as the use of collateral or guarantees to reduce potential loss if a customer fails to settle all or part of its obligations to RBS. The application of CRM depends on the approach (STD or IRB) governing capital calculation related to a credit exposure. (Refer to Table EU CR3_A for details of how different risk mitigants are incorporated into IRB risk parameters.)

EAD figures may be either pre or post CRM, and are labelled accordingly.

Non-counterparty credit risk EAD pre CRM:

- STD approach - EAD before legally enforceable netting, collateral and guarantees.
- IRB approach - EAD before legally enforceable netting only.

Non-counterparty credit risk EAD post CRM:

- STD approach - EAD after legally enforceable netting, collateral and guarantees.
- IRB approach - EAD after legally enforceable netting only.

Counterparty credit risk EAD post CRM for derivatives and securities financing transactions, under both the STD and IRB approaches, is EAD after legally enforceable netting and collateral.

Exposure class - exposures are assigned to classes defined under CRR, namely article 147 for the advanced IRB approach and article 112 for the standardised approach. This classification is required by the regulatory framework when calculating the capital requirements of banks.

Exposure-weighted average LGD (for each AQ band) - Calculated by multiplying the EAD of each position by the associated LGD, giving an LGD-weighted EAD value for each position. LGD-weighted EADs for each position are added together for the whole AQ band, and the final sum is divided by the total EAD for the AQ band to arrive at an exposure-weighted average LGD for each AQ band.

Exposure-weighted average PD (for each AQ band) - Calculated by multiplying the EAD of each position by the associated PD, giving a PD-weighted EAD for each position. PD-weighted EADs for each position are added together for the whole AQ band, and the final sum is divided by the total PD for the AQ band to arrive at an exposure-weighted average PD for each AQ band.

Fair value - the amount for which an asset could be exchanged or a liability settled, between knowledgeable and willing parties in an arm's length transaction.

Geographical region - The numbers are reported by country of operation of the obligor, except exposures to governments and individuals which are shown by country of residence. The country of operation is the country where the main operating assets of a legal entity are held, or where its main cash flows are generated, taking account of the entity's dependency on subsidiaries' activities. Rest of the World (RoW) includes exposures to supranationals and ocean-going vessels

Guarantees - an agreement by a third party to cover the potential loss to RBS should a specified counterparty default on its commitments.

Haircut - a downward adjustment to collateral value to reflect its nature and any currency or maturity mismatches between the collateral and the exposure it secures.

Income-producing real estate - comprises real estate exposures that meet the following CRR criteria for specialised lending exposures: (i) the exposure is to an entity that was created specifically to finance and/or operate physical assets; (ii) the contractual arrangements give the lender a substantial degree of control over the assets and the income that they generate; and (iii) the primary source of repayment of the obligation is the income generated by the assets being financed, rather than the independent capacity of a broader commercial enterprise. It therefore constitutes a sub-set of RBS's overall exposure to commercial real estate.

Incremental risk charge (IRC) - the IRC model quantifies the impact of rating migration and default events on the market value of instruments with embedded credit risk (in particular, bonds and credit default swaps) that are held in the trading book. It further captures basis risk between different instruments, maturities and reference entities.

Key terms and glossary

Key terms

Interest rate risk - the adverse impact on the value or interest income of a financial asset arising from changes in interest rates.

Internal Capital Adequacy Assessment Process (ICAAP) - RBS's own assessment, as part of CRR requirements, of its risks, how it intends to mitigate those risks and how much current and future capital is necessary having considered other mitigating factors.

Internal model method (IMM) - in the context of counterparty credit risk, the IMM is the most risk-sensitive and sophisticated approach to calculating EAD out of the three methods available under CRR. Under the IMM firms may use their internal model which should be aligned to the firm's internal risk management practices. EAD is calculated as the product of alpha and EPE.

Internal ratings based approach (IRB) - a method of estimating the amount of credit risk taken by a bank. Under IRB a bank may use internal estimates to generate risk components for use in the calculation of its credit risk regulatory capital requirements. There are two approaches: foundation and advanced (including retail).

Latent loss provisions - loan impairment provisions held against impairments in the performing loan portfolio that have been incurred as a result of events occurring before the balance sheet date but which have not been identified as impaired at the balance sheet date.

Loss given default (LGD) - an estimate of the amount that will not be recovered by RBS in the event of default, plus the cost of debt collection activities and the delay in cash recovery.

Margin period of risk - The time period from the last exchange of collateral covering a netting set of transactions with a defaulting counterparty until that counterparty is closed out and the resulting market risk is re-hedged.

Market risk - the risk of loss arising from fluctuations in interest rates, credit spreads, foreign currency rates, equity prices, commodity prices and other risk-related factors such as market volatilities that may lead to a reduction in earnings, economic value or both.

Mark-to-market (mtm) - the adjustment in the value of an asset or liability to reflect any change in market prices.

Mark-to-market method - in the context of counterparty credit risk, the mtm method is the simplest of three methods used to determine exposure values. The exposure value is calculated as the mtm value plus the potential future exposure (PFE) value, where the PFE is a percentage of the notional value of the contract. The percentage to be applied varies by product and maturity.

Minimum capital requirements - the minimum amount of regulatory capital that a financial institution must hold to meet the Pillar 1 requirements for credit, market and operational risk.

Monoline insurers (monolines) - entities that specialise in providing credit protection against the notional and interest cash flows due to the holders of debt instruments in the event of default. This protection is typically in the form of derivatives such as credit default swaps.

Netting - the process by which the value of assets taken from a given counterparty is offset by the value of assets given to the same counterparty, thereby reducing the exposure of one party to the other to the difference between the two.

Non-trading book - positions, exposures, assets and liabilities that are not in the trading book. It is also referred to as "banking book".

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

Over-the-counter derivatives - derivatives with tailored terms and conditions negotiated bilaterally, in contrast to exchange traded derivatives which have standardised terms and conditions.

Pillar 1 - the part of CRD IV that sets out the process by which regulatory capital requirements should be calculated for credit, market and operational risk.

Pillar 2 - Pillar 2 is intended to ensure that firms have adequate capital to support all the relevant risks in their business and is divided into capital held against risks not captured or not fully captured by the Pillar 1 regulations (Pillar 2A) and risks to which a firm may become exposed over a forward-looking planning horizon (Pillar 2B). Capital held under Pillar 2A, in addition to the Pillar 1 requirements, is the minimum level of regulatory capital a bank should maintain at all times to cover adequately the risks to which it is or might be exposed, and to comply with the overall financial adequacy rules. Pillar 2B is a capital buffer which helps to ensure that a bank can continue to meet minimum requirements during a stressed period, and is determined by the PRA evaluating the risks to which the firm may become exposed (e.g. due to changes to the economic environment) during the supervisory review and evaluation process. All firms will be subject to a PRA buffer assessment and the PRA will set a PRA buffer only if it judges that the CRD IV buffers are inadequate for a particular firm given its vulnerability in a stress scenario, or where the PRA has identified risk management and governance failings, which the CRD IV buffers are not intended to address.

Pillar 3 - the part of CRD IV that sets out the information banks must disclose about their risks, the amount of capital required to absorb them, and their approach to risk management. The aim is to strengthen market discipline.

Point-in-time - an assessment of PD or a rating system based on a view of a counterparty's current rather than future financial situation given economic conditions. This differs from a through-the-cycle approach, which considers performance over the duration of an economic cycle.

Key terms

Position risk requirement - a capital requirement applied to a position treated under Part Three, Title 1, Chapter 3 (Market risk) as part of the calculation of the market risk capital requirement.

Probability of default (PD) - the likelihood that a customer will fail to make full and timely repayment of credit obligations over a one year time horizon.

Prudential Regulation Authority (PRA) - the statutory body responsible, from 1 April 2013, for the prudential supervision of banks, building societies, insurers and a small number of significant investment firms in the UK. The PRA is a subsidiary of the Bank of England.

Repo - refer to sale and repurchase agreements.

Re-securitisations - securitisations in which the underlying pools of assets are themselves bonds issued by securitisation SSPEs.

Residential mortgage-backed securities - asset-backed securities for which the underlying asset portfolios are residential mortgages.

Residual maturity - the remaining time in years that a borrower is permitted to take to fully discharge their contractual obligation (principal, interest and fees) under the terms of a loan agreement. Exposures are classified using maturity bands in line with contractual maturity.

Reverse repurchase agreement (reverse repo) - refer to sale and repurchase agreements.

Risk-weighted assets (RWAs) - assets adjusted for their associated risks using weightings established in accordance with the Basel Capital Accord as implemented by the PRA. Certain assets are not weighted but deducted from capital.

Risks not in VaR (RNIVs) - the RNIV framework is used to identify and quantify market risks that are inadequately captured by the internal VaR and SVaR models.

RWA density - RWAs as a percentage of EAD post CRM.

Sale and repurchase agreements - in a sale and repurchase agreement one party, the seller, sells a financial asset to another party, the buyer, at the same time the seller agrees to reacquire and the buyer to resell the asset at a later date. From the seller's perspective such agreements are repurchase agreements (repos) and from the buyer's reverse repurchase agreements (reverse repos).

Securitisation - a process by which assets or cash flows are transformed into transferable securities. The underlying assets or cash flows are transferred by the originator or an intermediary, typically an investment bank, to a structured entity which issues securities to investors. Asset securitisations involve issuing debt securities (asset-backed securities) that are backed by the cash flows of income generating assets (ranging from credit card receivables to residential mortgage loans).

Securitisation position - refers to any exposures RBS may have to a securitisation. These include not only the securities issued by an SSPE, but also loans, liquidity facilities and derivatives transacted with an SSPE.

Securitisation special purpose entity (SSPE) - an entity that has been designed such that voting or similar rights are not the dominant factor in deciding who controls the entity, for example when any voting rights relate to administrative tasks only and the relevant activities are directed by means of contractual arrangements. SSPEs are usually established for a specific limited purpose, they do not carry out a business or trade and typically have no employees. They take a variety of legal forms - trusts, partnerships and companies - and fulfil many different functions.

Securitised exposure - an asset, or a pool of assets, that has been securitised, either via a traditional securitisation or a synthetic securitisation. See traditional securitisation and synthetic securitisation below.

Standard industrial classification - a classification of businesses by type or economic activity. It is applied by international government agencies to provide a framework for the collection, tabulation, presentation and analysis of data related to industry sectors, and its use promotes uniformity.

Standardised (STD) approach - a method used to calculate credit risk capital requirements under Pillar 1 of Basel III. In this approach the risk-weights used in the capital calculation are determined by regulators. For operational risk, capital requirements are determined by multiplying three years' historical gross income by a percentage determined by the regulator. The percentage ranges from 12% to 18%, depending on the type of underlying business being considered.

Stress testing - a technique used to evaluate the potential effects on an institution's financial condition of an exceptional but plausible event and/or movement in a set of financial variables.

Stressed value-at-risk (SVaR) - a VaR measure using historical data from a one year period of stressed market conditions. For the purposes of calculating regulatory stressed VaR, a time horizon of ten trading days is assumed at a confidence level of 99% (Refer to VaR definition below).

Supervisory slotting approach - a method of calculating regulatory capital, specifically for lending exposures in project finance and income producing real estate, where the PD estimates do not meet the minimum internal ratings based standards. Under this approach, the bank classifies exposures from 1 to 5, where 1 is strong and 5 is default. Specific risk-weights are assigned to each classification.

Synthetic securitisation - a securitisation process in which the originator retains ownership of the underlying exposure(s), but transfers the associated credit risk to another entity through the use of guarantees or credit derivatives.

Through the cycle – PD models that reflect a long run average view of default levels. Also refer to point-in-time.

Key terms and glossary

Key terms

Tier 1 capital - a component of regulatory capital, comprising Common Equity Tier 1 and Additional Tier 1.

Tier 1 capital ratio - Tier 1 capital as a percentage of risk-weighted assets.

Tier 2 capital - qualifying subordinated debt and other Tier 2 securities in issue, eligible collective impairment allowances less certain regulatory deductions.

Trading book - a trading book consists of positions in financial instruments and commodities held either with the intent to trade, or in order to hedge other elements of the trading book. To be eligible for trading book capital treatment, financial instruments must either be free of any restrictive covenants on their tradability, or able to be hedged.

Traditional securitisation - securitisation in which the originator transfers ownership of the underlying exposure(s) to an SSPE, putting the asset(s) beyond the reach of the originator and its creditors.

Undrawn commitments - assets/liabilities that have been committed but not yet transacted. In terms of credit risk, these are obligations to make loans or other payments in the future.

Undrawn weighted average credit conversion factor (for each AQ band) - Calculated by multiplying the undrawn commitment of each position by the associated CCF, giving a CCF-weighted undrawn for each position. CCF-weighted undrawns for each position are added together for the whole AQ band and the final sum is divided by the total CCFs for the AQ band to arrive at an exposure weighted average CCF for each AQ band.

Western Europe excluding the UK - Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Monaco, the Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland and the Vatican City State (Holy See).

Wrong-way risk - the risk of loss when the risk factors driving the exposure to a counterparty or customer are positively correlated with the creditworthiness of that counterparty i.e. the size of the exposure increases at the same time as the risk of the counterparty or customer being unable to meet that obligation, increases.

Value-at-risk (VaR) - a technique that produces estimates of the potential loss in the market value of a portfolio over a specified time period at a given confidence level.