HSBC Holdings plc

Capital and Risk Management
Pillar 3 Disclosures at 31 December 2014

HSBC

Certain defined terms

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

Cautionary statement regarding forward-looking statements

The Capital and Risk Management Pillar 3 Disclosures at 31 December 2014 ('Pillar 3 Disclosures 2014') contain certain forward-looking statements with respect to HSBC's financial condition, results of operations and business.

Statements that are not historical facts, including statements about HSBC's beliefs and expectations, are forward-looking statements. Words such as 'expects', 'anticipates', 'intends', 'plans', 'believes', 'seeks', 'estimates', 'potential' and 'reasonably possible', variations of these words and similar expressions are intended to identify forward-looking statements. These statements are based on current plans, estimates and projections, and therefore undue reliance should not be placed on them. Forward-looking statements speak only as of the date they are made. HSBC makes no commitment to revise or update any forward-looking statements to reflect events or circumstances occurring or existing after the date of any forward-looking statements.

Written and/or oral forward-looking statements may also be made in the periodic reports to the US Securities and Exchange Commission, summary financial statements to shareholders, proxy statements, offering circulars and prospectuses, press releases and other written materials, and in oral statements made by HSBC's Directors, officers or employees to third parties, including financial analysts.

Forward-looking statements involve inherent risks and uncertainties. Readers are cautioned that a number of factors could cause actual results to differ, in some instances materially, from those anticipated or implied in any forward-looking statement. These factors include changes in general economic conditions in the markets in which we operate, changes in government policy and regulation and factors specific to HSBC.

Verification

Whilst the Pillar 3 Disclosures 2014 *are not required to be externally audited, the document has been verified internally in accordance with the Group's policies on disclosure and its financial reporting and governance processes. Controls comparable to those for the* Annual Report and Accounts 2014 *have been applied to confirm compliance with CRD IV and the PRA Rulebook and consistency with HSBC's governance, business model and other disclosures.*

Contents

Tables

Who we are

HSBC is one of the largest banking and financial services organisations in the world.

Customers:

51m

Served by:

266,000

employees (257,600 FTE)

Through four global businesses:
- Retail Banking and Wealth Management
- Commercial Banking
- Global Banking and Markets
- Global Private Banking

Located in:

73

countries and territories

Across five geographical regions:
- Europe
- Asia
- Middle East and North Africa
- North America
- Latin America

Offices:

Over 6,100

Global headquarters:
- London

Market capitalisation:

US$182bn

Listed on stock exchanges in:
- London
- Hong Kong
- New York
- Paris
- Bermuda

Shareholders:

216,000 in 127

countries and territories

Introduction

Purpose

This document comprises HSBC's Pillar 3 disclosures on capital and risk management at 31 December 2014. It has two principal purposes:

- to meet the regulatory disclosure requirements under CRD IV, Part 8 – Disclosure by Institutions and the rules of the United Kingdom ('UK') Prudential Regulation Authority ('PRA') set out in the PRA Rulebook, Part PB – Public Disclosure and as the PRA has otherwise directed; and
- to provide further useful information on the capital and risk profile of the HSBC Group.

Additional relevant information may be found in the HSBC Holdings plc *Annual Report and Accounts 2014*.

Key metrics

On 1 January 2014, CRD IV came into force. Capital and risk-weighted assets ('RWA's) at 31 December 2014 are calculated and presented on this basis. In our Pillar 3 Disclosures 2013, capital and RWAs at 31 December 2013 were calculated and presented on a Basel 2.5 basis, and were also estimated based on the Group's interpretation of the final CRD IV legislation and final rules issued by the PRA at that time. In this document, 2013 comparative figures are on a Basel 2.5 basis unless otherwise stated.

CRD IV

Common equity tier 1 ratio *(transitional)*

10.9%

2013: 10.8%

Tier 1 ratio *(transitional)*

12.5%

2013: 12.0%

Total capital ratio *(transitional)*

15.6%

2013: 14.9%

Common equity tier 1 ratio *(end point)*

11.1%

2013: 10.9%

Common equity tier 1 capital *(transitional)*

US$133.2bn

– up 1.5%

2013: US$131.2bn

Tier 1 capital *(transitional)*

US$152.7bn

– up 4.9%

2013: US$145.6bn

Total regulatory capital *(transitional)*

US$190.7bn

– up 5.3%

2013: US$181.2bn

Common equity tier 1 capital *(end point)*

US$136.0bn

– up 2.6%

2013: US$132.5bn

Total RWAs

US$1,219.8bn

– up 0.4%

2013: US$1,214.9bn

Credit risk EAD

US$2,210.1bn

– up 2.3%

Credit risk RWA density

43%

Leverage ratio[1] *(end point)*

4.8%

2013: 4.4%

Basel 2.5

Core tier 1 capital

2013: US$149.1bn
2012: US$138.8bn

Core tier 1 ratio

2013: 13.6%
2012: 12.3%

Total RWAs

2013: US$1,093bn
2012: US$1,124bn

Credit risk EAD

2013: US$2,160bn
2012: US$2,171bn

Credit risk RWA density

2013: 40%
2012: 41%

1 *In January 2015 the PRA issued a letter setting out the approach to be taken for calculating the leverage ratio for disclosure. This confirmed that the basis of calculation of the leverage ratio has changed from our 2013 Pillar 3 disclosure. For a detailed basis of preparation, see page 31.*

Table 1: Pillar 1 overview

	RWAs			Capital required[1]		
	CRD IV transitional and end point		Basel 2.5 basis	CRD IV transitional and end point		Basel 2.5 basis
	2014 US$bn	2013 US$bn	2013 US$bn	**2014 US$bn**	2013 US$bn	2013 US$bn
Credit risk	**955.3**	936.5	864.3	**76.4**	**74.9**	**69.1**
Standardised approach	**356.9**	358.6	329.5	**28.6**	28.7	26.4
IRB foundation approach	**16.8**	13.5	13.6	**1.3**	1.1	1.1
IRB advanced approach	**581.6**	564.4	521.2	**46.5**	45.1	41.6
Counterparty credit risk	**90.7**	95.8	45.8	**7.3**	**7.7**	**3.7**
Standardised approach	**25.2**	36.6	3.6	**2.0**	2.9	0.3
Advanced approach	**65.5**	59.2	42.2	**5.3**	4.8	3.4
Market risk	**56.0**	63.4	63.4	**4.5**	**5.1**	**5.1**
Operational risk	**117.8**	119.2	119.2	**9.4**	**9.5**	**9.5**
At 31 December	**1,219.8**	1,214.9	1,092.7	**97.6**	**97.2**	**87.4**
Of which:						
Run-off portfolios	**99.2**	142.3	104.9	**7.9**	11.4	8.4
Legacy credit in GB&M	**44.1**	63.7	26.4	**3.5**	5.1	2.1
US CML and Other[2]	**55.1**	78.6	78.5	**4.4**	6.3	6.3
Card and Retail Services[3]	**–**	1.1	1.1	**–**	0.1	0.1

1 *'Capital required', here and in all tables where the term is used, represents the Pillar I capital charge at 8% of RWAs.*
2 *'Other' includes treasury services related to the US Consumer and Mortgage Lending ('CML') business and operations in run-off.*
3 *Operational risk RWAs, under the standardised approach, are calculated using an average of the last three years' revenues. For business disposals, the operational risk RWAs are not released immediately on disposal, but diminish over a period of time. The RWAs for the Card and Retail Services business at 31 December 2013 represent the remaining operational risk RWAs for this business.*

Tables 2 and 3 below summarise RWAs by global business and risk type across our five geographical regions. Commentaries on the impact of the CRD IV rules, by Basel approach and exposure class, and drivers of RWA movements, compared with the prior year, can be found on pages 22 to 29.

Table 2: Risk-weighted assets – by global business and region

	Europe US$bn	**Asia US$bn**	**MENA US$bn**	**North America US$bn**	**Latin America US$bn**	**Total RWAs US$bn**	**Capital required US$bn**
Retail Banking and Wealth Management	**42.4**	**59.1**	**7.7**	**73.5**	**22.4**	**205.1**	**16.4**
Commercial Banking	**106.3**	**208.6**	**26.0**	**58.2**	**33.3**	**432.4**	**34.6**
Global Banking and Markets[1]	**209.8**	**193.0**	**27.8**	**81.2**	**32.9**	**516.1**	**41.3**
Global Private Banking	**11.9**	**3.5**	**0.3**	**4.9**	**0.2**	**20.8**	**1.7**
Other[2]	**5.0**	**35.6**	**1.2**	**3.6**	**–**	**45.4**	**3.6**
At 31 December 2014	**375.4**	**499.8**	**63.0**	**221.4**	**88.8**	**1,219.8**	**97.6**
Retail Banking and Wealth Management	45.9	51.9	7.9	103.8	24.0	233.5	18.7
Commercial Banking	90.5	192.4	25.2	50.7	32.9	391.7	31.3
Global Banking and Markets[1]	149.2	164.9	27.8	62.1	32.2	422.3	33.8
Global Private Banking	13.1	3.6	0.4	4.4	0.2	21.7	1.7
Other[2]	1.4	17.9	1.2	2.8	0.2	23.5	1.9
At 31 December 2013	300.1	430.7	62.5	223.8	89.5	1,092.7	87.4

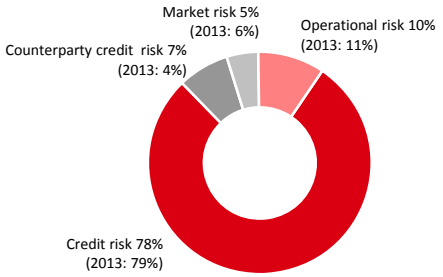
1 *RWAs are non-additive across regions due to market risk diversification effects within the Group.*
2 *Includes the results of certain property transactions, unallocated investment activities, centrally held investment companies, movements in fair value of own debt, central support costs with associated recoveries, HSBC's holding company and financing operations.*

Table 3: Risk-weighted assets – by risk type and region

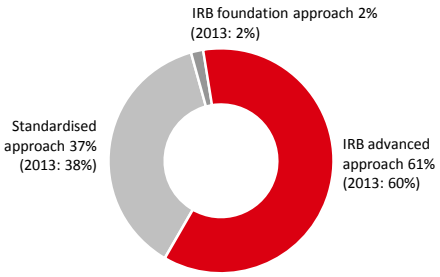
	Europe US$bn	**Asia US$bn**	**MENA US$bn**	**North America US$bn**	**Latin America US$bn**	**Total RWAs US$bn**	**Capital required US$bn**
Credit risk	**263.2**	**399.1**	**54.6**	**171.6**	**66.8**	**955.3**	**76.4**
Counterparty credit risk	**40.6**	**21.9**	**1.2**	**23.0**	**4.0**	**90.7**	**7.3**
Market risk[1]	**36.1**	**33.0**	**1.0**	**11.6**	**2.9**	**56.0**	**4.5**
Operational risk	**35.5**	**45.8**	**6.2**	**15.2**	**15.1**	**117.8**	**9.4**
At 31 December 2014	**375.4**	**499.8**	**63.0**	**221.4**	**88.8**	**1,219.8**	**97.6**
Credit risk	211.4	348.8	55.0	184.2	64.9	864.3	69.1
Counterparty credit risk	23.0	10.9	0.7	8.5	2.7	45.8	3.7
Market risk[1]	30.6	26.9	0.8	13.9	5.1	63.4	5.1
Operational risk	35.1	44.1	6.0	17.2	16.8	119.2	9.5
At 31 December 2013	300.1	430.7	62.5	223.8	89.5	1,092.7	87.4

1 *RWAs are non-additive across geographical regions due to market risk diversification effects within the Group.*

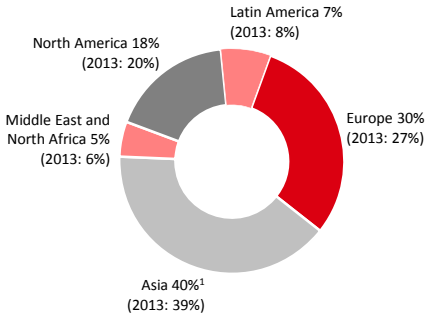
RWAs by risk type



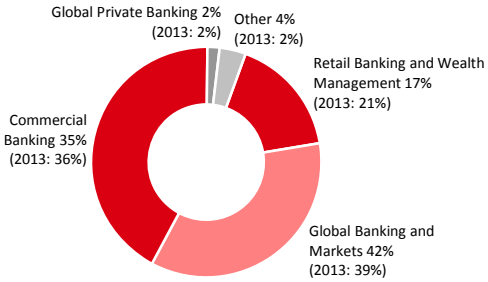
Credit risk RWAs by Basel approach



RWAs by region[1]



RWAs by global business



1 *In 2014 we changed the basis of our geographical segmentation. Businesses previously reported in 'Hong Kong' and 'Rest of Asia-Pacific' are now reflected in the new geographical segment 'Asia' (see Note 11 on the Financial Statements for further details). There has been no change in the underlying business operations. This applies to all tables in this document that show a breakdown by region.*

Regulatory framework for disclosures

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

At a consolidated group level, we calculated capital for prudential regulatory reporting purposes throughout 2014 using the Basel III framework of the Basel Committee on Banking Supervision ('Basel Committee') as implemented by the European Union ('EU') in the amended Capital Requirements Directive, known as CRD IV, and in the PRA's Rulebook for the UK banking industry. The regulators of Group banking entities outside the EU are at varying stages of implementation of the Basel framework, so local regulation in 2014 may have been on the basis of Basel I, II or III.

The Basel framework is structured around three 'pillars': the Pillar 1 minimum capital requirements and Pillar 2 supervisory review process are complemented by Pillar 3 market discipline. The aim of Pillar 3 is to produce disclosures which allow market participants to assess the scope of application by banks of the Basel framework and the rules in their jurisdiction, their capital condition, risk exposures and risk management processes, and hence their capital adequacy. Pillar 3 requires all material risks to be disclosed, enabling a comprehensive view of a bank's risk profile.

The PRA's final rules deployed available national discretion in order to accelerate significantly the transition timetable to full 'end point' CRD IV compliance. Notwithstanding this, and other major developments in regulation during 2014, important elements of the capital adequacy framework in the UK have yet to be clarified, so that uncertainties remain as to the amount of capital that banks will be required to hold. These include the quantification and interaction of capital buffers, Total Loss Absorbing Capacity ('TLAC') and the impact of structural reform. In addition, various technical standards and guidelines remain to be issued by the European Banking Authority ('EBA'), requiring adoption by the European Commission to come legally into force. Details of the major continuing regulatory reforms are set out in the 'Regulatory developments' section below.

Pillar 3 Disclosures 2014

The *Pillar 3 Disclosures 2014* comprise all information required under Pillar 3 in the UK, both quantitative and qualitative. They are made in accordance with Part 8 of the Capital Requirements Regulation within CRD IV, which came directly into legal force in the UK from 1 January 2014, supplemented by any specific additional requirements of the PRA and discretionary disclosures on our part.

In our disclosures, to give insight into movements during the year, we provide comparative figures for the prior year, analytical review of variances and 'flow' tables for capital requirements. Capital resources tables track the position from Basel 2.5 to CRD IV transitional and end-point bases. We do not re-state prior year comparatives to reflect CRD IV rules. Specific changes are set out below.

The principal changes in our *Pillar 3 Disclosures 2014,* compared with the prior year, are:

- **enhanced capital and leverage disclosures:**
  - new tables 6a and 6b setting out the linkages between the financial balance sheet and regulatory exposures;
  - extended coverage of Pillar 2 and capital buffers (page 6);
  - capital tables 7 and 8 showing CRD IV transitional basis, compared with Basel 2.5 and reconciliation to end point;
  - updated disclosures on leverage (page 30).
- **more granular risk disclosures:**
  - CRD IV impact and RWA flow tables 9 to 19;
  - an expanded analysis of key metrics by exposure class and geography (Tables 28 and 32a);
  - detail of Credit Valuation Adjustment and Central Counterparty exposures within Counterparty Credit Risk;
  - an extended section on Market Risk (page 83).
- **other items:**
  - enhanced coverage of capital and risk governance, as required by Capital Requirements Regulation Article 435 (page 32);
  - an asset encumbrance disclosure required under EBA guidelines (Appendix II);
  - removal of the regulatory remuneration disclosures to the *Annual Report and Accounts 2014;*
  - extended charts and other presentational improvements to aid clarity.

We publish comprehensive Pillar 3 disclosures annually on the HSBC internet site www.hsbc.com, simultaneously with the release of our *Annual Report and Accounts 2014*. Our interim reports and management statements include relevant summarised regulatory capital information complementing the financial and risk information presented there.

Some Pillar 3 disclosures have been withheld or aggregated because they are immaterial or, exceptionally, proprietary or confidential in nature, and we comment as appropriate. New EBA mandatory guidelines on Pillar 3 disclosures will result in semi-annual or quarterly publication of disclosures on capital, ratios, RWAs, leverage and risk model metrics that exceed the scope of our current interim disclosures. The guidelines are subject to implementation by national supervisors and are expected to enter into force in 2015.

Pillar 3 requirements may be met by inclusion in other disclosure media. Where we adopt this approach, references are provided to the relevant pages of the *Annual Report and Accounts 2014* or other location.

We continue to engage constructively in the work of the UK authorities and industry associations to improve the transparency and comparability of UK banks' Pillar 3 disclosures. We also take due account of other regulatory assessments, such as reviews by the EBA of best disclosure practice and progress reports of the Enhanced Disclosure Task Force ('EDTF') on the implementation of their October 2012 report.

Regulatory developments

Regulatory capital buffers

CRD IV establishes a number of capital buffers, to be met with common equity tier 1 ('CET1') capital, broadly aligned with the Basel III framework. CRD IV contemplates that these will be phased in from 1 January 2016, subject to national discretion.

Automatic restrictions on capital distributions apply if a bank's CET1 capital falls below the level of its CRD IV combined buffer. This is defined as the total of the capital conservation buffer ('CCB'), the countercyclical capital buffer ('CCyB'), the global systemically important institutions ('G-SII's) buffer and the systemic risk buffer ('SRB') as these become applicable. The PRA have proposed that the use of the PRA buffer will not result in automatic restrictions on capital distributions.

In April 2014, HM Treasury published the statutory instrument 'Capital Requirements (Capital Buffers and Macro-Prudential Measures) Regulations 2014' transposing into UK legislation the main provisions in CRD IV related to capital buffers, with the exception of the SRB. In January 2015, HM Treasury published amendments to this statutory instrument in order to transpose the SRB.

The PRA is the designated authority for the G-SIIs buffer, the other systemically important institutions ('O-SII's) buffer and the CCB. In April 2014, they published rules and supervisory statements implementing the main CRD IV provisions in relation to these buffers. The Bank of England is the designated authority for the CCyB and other macro-prudential measures. Whilst the PRA is the designated authority for applying and determining the SRB, the Financial Policy Committee (UK) ('FPC') is responsible for creating the SRB framework for calibration.

G-SII buffer

The G-SII buffer (which is the EU implementation of the Basel global systemically important banks ('G-SIB's) buffer) is to be met with CET1 capital and will be phased in from 1 January 2016. In October 2014, finalised technical standards on the methodology for identification of G-SIIs were published in the EU's Official Journal and came into effect from 1 January 2015.

In November 2014, the Financial Stability Board ('FSB') and the Basel Committee updated the list of G-SIBs, using end-2013 data. The add-on of 2.5% previously assigned to HSBC was left unchanged.

Following direction from the PRA to UK banks in its Supervisory Statement issued in April 2014, and in accordance with the EBA final draft Implementing Technical Standards ('ITS') and guidelines published in June 2014, we published the EBA template in July 2014. This disclosed the information used for the identification

and scoring process which underpins our G-SIB designation. The final ITS for disclosure requirements were published in September 2014, and will form the basis of our future 2015 disclosure of G-SII indicators.

Capital conservation buffer

The CCB was designed to ensure banks build up capital outside periods of stress that can be drawn down when losses are incurred and is set at 2.5% of RWAs. The PRA will phase in this buffer from 1 January 2016 to 1 January 2019.

Countercyclical and other macro-prudential buffers

CRD IV contemplates a countercyclical buffer in line with Basel III, in the form of an institution-specific CCyB and the application of increased requirements to address macro-prudential or systemic risk.

In January 2014, the FPC issued a policy statement on its powers to supplement capital requirements, through the use of the CCyB and the Sectoral Capital Requirements ('SCR') tools. The CCyB is expected to be set in the range of 0-2.5% of relevant credit exposures RWAs, although it is uncapped. Under UK legislation, the FPC is required to determine whether to recognise any CCyB rates set by other EEA countries before 2016.

In June 2014, the FPC set the CCyB rate for UK exposures at 0%. At its September 2014 meeting, the FPC left the CCyB rate for UK exposures unchanged at 0% and recognised the 1% CCyB rates introduced by Norway and Sweden to become effective from 3 October 2015.

In January 2015, the HKMA announced the application of a CCyB rate of 0.625% to Hong Kong exposures, to apply from 1 January 2016. In accordance with UK legislation and PRA supervisory statement PS 3/14, this rate will directly apply to the calculation of our institution-specific CCyB rate from 1 January 2016.

The institution-specific CCyB rate for the Group will be based on the weighted average of the CCyB rates that apply in the jurisdictions where relevant credit exposures are located. Currently the Group's institution specific CCyB is zero. The SCR tool is not currently deployed in the UK.

Systemic risk buffer

In addition to the measures above, CRD IV sets out an SRB for the financial sector as a whole, or one or more sub-sectors, to be deployed as necessary by each EU member state with a view to mitigating structural macro-prudential risk.

In January 2015, the legislative changes necessary to transpose the SRB were implemented. The SRB is to be applied to ring fenced banks and building societies (over a certain threshold), which are together defined as 'SRB institutions'. The SRB can be applied on an individual, sub-consolidated or consolidated basis and is applicable from 1 January 2019. By 31 May 2016, the FPC is required to create a framework for identifying the extent to which the failure or distress of SRB institutions will pose certain long-term non-cyclical systemic or macro-prudential risks. The PRA will apply this framework to determine whether specific SRB institutions would be subject to an SRB rate, and the level at which the buffer would be applied and is able to exercise supervisory judgement to determine what the rate should be. Where applicable the buffer rate must be set in the range of 1% to 3%. The buffer rate would apply to all the SRB institution's exposures unless the PRA has recognised a buffer rate set in another member state. If the SRB is applied on a consolidated basis it is expected that the higher of the G-SII or SRB would apply, in accordance with CRD IV.

Pillar 2 and the 'PRA buffer'

Under the Pillar 2 framework, banks are already required to hold capital in respect of the internal capital adequacy assessment and supervisory review which leads to a final determination by the PRA of individual capital guidance under Pillar 2A and Pillar 2B. Pillar 2A was previously met by total capital, but since 1 January 2015, in accordance with the PRA supervisory statement SS 5/13, is met with at least 56% CET1.

Pillar 2A guidance is a point in time assessment of the amount of capital the PRA considers that a bank should hold to meet the overall financial adequacy rule. It is therefore subject to change pending annual assessment and the supervisory review process. During 2014, the Group Pillar 2A guidance amounted to 1.5% of RWAs, of which 0.9% was to be met by CET1. In February 2015, this was revised to 2.0% of RWAs, of which 1.1% is to be met by CET1 and is effective immediately.

In January 2015, the PRA published a consultation on the Pillar 2 Framework. This set out the methodologies that the PRA proposed to use to inform its setting of firms' Pillar 2 capital requirements, including proposing new approaches for determining Pillar 2 requirements for credit risk, operational risk, credit concentration risk and pension obligation risk.

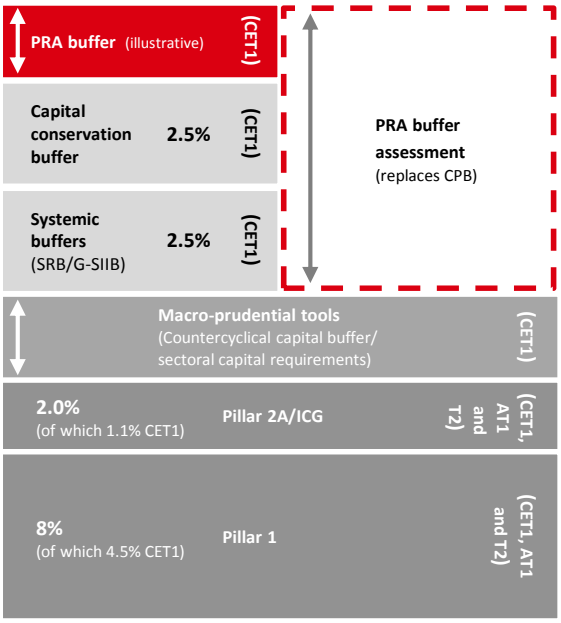
As part of CRD IV implementation, the PRA proposed to introduce a PRA buffer, to replace the capital planning buffer ('CPB') (known as Pillar 2B), also to be held in the form of CET1 capital. This was reconfirmed in the recent PRA consultation on the Pillar 2 framework. It is proposed that a PRA buffer will avoid duplication with CRD IV buffers and will be set for a particular firm depending on its vulnerability in a stress scenario or where the PRA has identified risk management and governance failings. In order to address weaknesses in risk management and governance, the PRA propose a scalar applied to firms' CET1 Pillar 1 and Pillar 2A capital requirements. Where the PRA considers there is overlap between the CRD IV buffers and the PRA buffer assessment, the PRA proposes to set the PRA buffer as the excess capital required over and above the CCB and relevant systemic buffers. The PRA buffer will however be in addition to the CCyB and sectoral capital requirements.

The PRA expects to finalise the Pillar 2 framework in July 2015, with implementation expected from 1 January 2016. Until this consultation is finalised and revised rules and guidance issued, there remains uncertainty as to the exact buffer rate requirements, and their ultimate capital impact.

Overall capital requirements

Following the developments outlined above, details are beginning to emerge of the various elements of the capital requirements framework. However, there remains residual uncertainty as to what HSBC's precise end point CET1 capital requirement will be. Elements of the capital requirements that are known or quantified to date are set out in the diagram below. Time-varying elements, such as the macro-prudential tools, the Pillar 2 requirements and systemic buffers are subject to change.

Capital requirements framework (end point)



In addition to the capital requirements tabulated above, we will need to consider the effect of FSB proposals published in November 2014 in relation to TLAC requirements. For further details, see page 10.

Regulatory stress testing

The Group is subject to supervisory stress testing in many jurisdictions. These supervisory requirements are increasing in frequency and in the granularity with which results are required. As such, stress testing represents a key focus for the Group.

In October 2013, the Bank of England published an initial discussion paper 'A framework for stress testing the UK banking system'. The framework replaces the current stress testing for the capital planning buffer with annual concurrent stress tests, the results of which are expected to inform the setting of the PRA buffer, the CCyB, sectoral capital requirements and other FPC recommendations to the PRA. In April 2014, the Bank of England published details of the UK stress testing exercise, which the Group subsequently participated in. The results of this exercise were published in December 2014.

Throughout 2014 the Group participated in various stress testing exercises across a number of different jurisdictions. For further details on all stress testing exercises, see pages 117-125 of the *Annual Report and Accounts 2014*.

RWA developments

Throughout 2014, regulators issued a series of recommendations and consultations designed to revise the various components of the RWA regime and increase related reporting and disclosures.

UK

In March 2014, the FPC published that it was minded to recommend that firms report and disclose capital ratios using the standardised approach to credit risk as soon as practicable in 2015 following a Basel review of the standardised approach.

In June 2014, the PRA issued its consultation paper CP12/14. This proposed changes to the credit risk rules in two areas. Firstly, a proposal that exposures on the advanced internal ratings-based approach for central governments, public sector entities, central banks and financial sector entities would be moved to the foundation approach from June 2015. Secondly, a proposal to introduce stricter criteria for the application of the standardised risk weight for certain commercial real estate ('CRE') exposures located in non-EEA countries, which would be dependent upon loss rates in these jurisdictions over a representative period. In October, the PRA published a policy statement ('PS10/14') containing final rules on the second proposal, which introduces more stringent criteria for the application of risk weights to non-EEA CRE exposures from April 2015.

EU

In May 2014, the EBA published a consultation on benchmarks of internal approaches for calculating own funds requirements for credit and market risk exposures in RWAs. This follows a series of benchmarking exercises in 2013 to better understand the drivers of differences observed in RWAs across EU institutions. The future annual benchmarking exercise outlined in the consultation paper aims to improve the comparability of capital requirements calculated using internal modelled approaches and will be used by regulators to inform their policy decisions.

In June 2014, the EBA published a consultation on thresholds for the application of the standardised approach for exposures treated under permanent partial use and the internal ratings-based approach ('IRB') roll-out plan. The finalised Regulatory Technical Standards ('RTS') are yet to be published.

In December 2014, the list of non-EEA countries that are deemed to have equivalent regulatory regimes for CRD IV purposes was published in the EU's Official Journal, and became effective on 1 January 2015. This equivalence evaluation affects the treatment of exposures across a number of different areas in CRD IV, such as the treatment of exposures to third country investment firms, credit institutions and exchanges; standardised risk weights applicable to exposures to

central governments, central banks, regional governments, local authorities and public sector entities; and the calculation of RWAs for exposures to corporates, institutions, central governments and central banks under the IRB approach.

International

Throughout 2014, the Basel Committee published proposals across all Pillar 1 risk types, to update standardised, non-modelled approaches for calculating capital requirements and to provide the basis for the application of a capital floor.

In particular, in March 2014, the Basel Committee published finalised proposals for the standardised approach for calculating counterparty credit risk exposures for over-the-counter ('OTC') derivatives, exchange traded derivatives and long settlement transactions. Following this, another technical paper on the foundations of the new standard was published in August 2014. The new approach is proposed to replace both the current exposure measure and the standardised method and is expected to come into effect on 1 January 2017.

In October 2014, the Basel Committee also published a consultation and a Quantitative Impact Study ('QIS') to revise the standardised approach for calculating operational risk. The proposals seek to establish a new unitary standardised approach to replace the current non-model-based approaches, which comprise the basic indicator approach and the standardised approach, including its variant the alternative standardised approach. An implementation date is yet to be proposed.

In December 2014, the Basel Committee undertook a further consultation on its fundamental review of the trading book. This included revisions to the market risk framework that was published for consultation in October 2013. The Committee intends to carry out a further QIS in early 2015 to inform finalised proposals expected at the end of 2015.

In December 2014, the Basel Committee published a revised framework for securitisation risk, which will come into effect on 1 January 2018.

In December 2014, the Basel Committee also published a consultation paper on revisions to the Standardised Approach for credit risk. Proposals include a reduced reliance on external credit ratings; increased granularity and risk sensitivity; and updated risk weight calibrations. Proposed calibration for risk weights are indicative only and will be further informed by responses from this consultation and results from a QIS.

Additionally, in December 2014, the Basel Committee published a consultation on the design of a capital floor framework, which will replace the Basel I floor. The calibration of the floor is, however, outside the scope of this consultation. The Committee has stated its intention to publish final proposals including calibration and implementation timelines by the end of 2015.

All finalised Basel Committee proposals for standardised approaches for calculating risk requirements and the introduction of a revised capital floor would need to be transposed into EU requirements before coming into legal effect.

Leverage ratio proposals

In October 2014, the FPC published final recommendations on the design of a UK specific leverage ratio framework and calibration. This followed an earlier FPC consultation in July 2014 on the design of the framework. The FPC finalised recommendations included a minimum leverage ratio of 3% to be implemented as soon as practicable for UK G-SIBs and major UK banks and building societies, a supplementary leverage ratio buffer applied to systemically important firms of 35% of the relevant risk-weighted systemic risk buffer rates, and a further countercyclical leverage ratio buffer ('CCLB') of 35% of the relevant risk weighted CCyB. The minimum leverage ratio is to be met 75% with CET1 and 25% with AT1, and both the supplementary leverage ratio buffer and CCLB are to be met 100% with CET1. The FPC recommended that HM Treasury provide the FPC with the necessary powers to direct the PRA to set leverage ratio requirements implementing the above mentioned calibration and framework.

HM Treasury published a consultation paper in November 2014, which responded to and agreed with the FPC recommendations in relation to the design of the leverage ratio framework. Specifically, HM Treasury agreed that the FPC should be granted powers to direct the PRA on a minimum requirement, additional leverage ratio buffer (for G-SIBs, major UK banks and building societies including ring fenced banks) and a CCLB. HM Treasury did not, however, provide any views on the calibration. The consultation paper included legislative changes to provide the FPC with new powers. In February 2015, HM Treasury published a summary of responses, alongside the draft instrument which was laid before Parliament.

Banking structural reform and recovery and resolution planning

In the EU, the Bank Recovery and Resolution Directive ('BRRD') was finalised and published in June 2014. This came into effect from 1 January 2015, with the option to delay implementation of bail-in provisions until 1 January 2016. Regardless of this, the UK introduced bail-in powers from 1 January 2015. The UK transposition of the BRRD builds on the resolution framework already in place in the UK. In January 2015, the PRA published a policy statement containing updated requirements for recovery and resolution planning which revises PRA rules that have been in force since 1 January 2014. In addition, the EBA has produced a number of RTS, some of which are yet to be finalised, that will further inform the BRRD requirements.

In December 2013, the UK's Financial Services (Banking Reform) Act 2013 received royal assent, which implements ring-fencing recommendations of the Independent Commission on Banking. This has been supplemented through secondary legislation which was finalised in July 2014. In October 2014, the PRA published a consultation paper on ring-fencing rules. The PRA intends to undertake further consultation and finalise ring-fencing rules in due course, with implementation by 1 January 2019.

In January 2014, the European Commission also published legislative proposals on ring-fencing trading activities from deposit taking and a prohibition on proprietary trading in financial instruments and commodities. This is currently under discussion in the European Parliament and the Council.

For further details of the policy background and the Group's approach to recovery and resolution planning see page 14 of the *Annual Report and Accounts 2014*.

Total loss absorbing capacity proposals

In November 2014, as part of the 'too big to fail' agenda, the FSB published proposals for TLAC for G-SIBs.

The FSB proposals include a minimum TLAC requirement in the range of 16-20% of RWAs and a TLAC leverage ratio of at least twice the Basel III tier 1 leverage ratio. The TLAC requirement is to be applied in accordance with individual resolution strategies, as determined by the G-SIB's crisis management group. A QIS is currently underway, the results of which will inform finalised proposals. The conformance period for the TLAC requirement will also be influenced by the QIS, but will not be before 1 January 2019. Once finalised, it is expected that any new TLAC standard should be met alongside the Basel III minimum capital requirements.

The draft proposals require G-SIBs to be subject to a minimum TLAC requirement with the precise requirement to be informed by the QIS. There are a number of requirements relating to the types of liabilities which can be used to meet the TLAC requirement, the composition of TLAC, and the location of liabilities within a banking group, in accordance with its resolution strategy. The TLAC proposals are expected to be finalised in 2015 and will then need to be implemented into national legislation.

Other regulatory updates

In January 2015, the EBA published revised final draft RTS on prudent valuation. Finalised requirements will need to be adopted by the European Commission and published in the EU's Official Journal before coming into effect.

In June 2014, the EBA and Basel Committee each issued a consultation on the Pillar 3 disclosures. The final EBA guidelines were issued in December 2014 and entail additional process and governance around the Pillar 3 report, as well as semi-annual or quarterly disclosure of key capital, ratio, RWA, leverage and risk model information, exceeding the scope of our current interim disclosures. The guidelines are subject to implementation by national supervisors and are expected to enter into force in 2015.

The final Basel standards on 'Revised Pillar 3 disclosure requirements' were issued in January 2015. They mandate extensive use of standardised templates, to enhance comparability between banks' disclosures, as well as requiring a considerable volume of disclosures to be produced semi-annually, rather than annually as hitherto. The revised framework calls for disclosure at the latest from 2016 year-end, concurrently with financial reports.

Linkage to the *Annual Report and Accounts 2014*

Basis of consolidation

The basis of consolidation for the purpose of financial accounting under International Financial Reporting Standards ('IFRSs'), described in Note 1 of the *Annual Report and Accounts 2014*, differs from that used for regulatory purposes as described in 'Structure of the regulatory group' on page 13. Table 4 below provides a reconciliation of the balance sheet from the financial accounting to the regulatory scope of consolidation.

It is the regulatory balance sheet, and not the financial accounting balance sheet, which forms the basis for the calculation of regulatory capital requirements.

The alphabetic references in this table link to the corresponding references in table 7: 'Composition of Regulatory Capital' on page 20, identifying those balances which form part of that calculation.

Table 4: Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation

		At 31 December 2014			
		Accounting balance sheet	Deconsolidation of insurance/ other entities	Consolidation of banking associates	Regulatory balance sheet
	Ref	US$m	US$m	US$m	US$m
Assets					
Cash and balances at central banks		129,957	–	30,731	160,688
Items in the course of collection from other banks		4,927	–	80	5,007
Hong Kong Government certificates of indebtedness		27,674	–	–	27,674
Trading assets		304,193	(720)	2,357	305,830
Financial assets designated at fair value		29,037	(28,791)	3,312	3,558
Derivatives		345,008	(94)	353	345,267
Loans and advances to banks		112,149	(2,727)	7,992	117,414
Loans and advances to customers		974,660	(10,809)	116,484	1,080,335
of which:					
– impairment allowances on IRB portfolios	*i*	(6,942)	–	–	(6,942)
– impairment allowances on standardised portfolios		(5,395)	–	(2,744)	(8,139)
Reverse repurchase agreements – non-trading		161,713	(30)	7,510	169,193
Financial investments		415,467	(50,420)	33,123	398,170
Capital invested in insurance and other entities		–	2,542	–	2,542
Current tax assets		1,309	(16)	–	1,293
Prepayments, accrued income and other assets		75,176	(5,295)	8,501	78,382
of which:					
– goodwill and intangible assets of disposal groups held for sale	*h*	8	–	–	8
– retirement benefit assets	*g*	(5,028)	–	–	(5,028)
– impairment allowances on assets held for sale		(16)	–	–	(16)
of which:					
– IRB portfolios	*i*	(16)	–	–	(16)
– standardised portfolios			–	–	
Interests in associates and joint ventures		18,181	–	(17,479)	702
of which:					
– positive goodwill on acquisition	*h*	621	–	(606)	15
Goodwill and intangible assets	*h*	27,577	(5,593)	571	22,555
Deferred tax assets	*n*	7,111	163	474	7,748
Total assets		2,634,139	(101,790)	194,009	2,726,358
Liabilities and equity					
Hong Kong currency notes in circulation		27,674	–	–	27,674
Deposits by banks		77,426	(21)	40,530	117,935
Customer accounts		1,350,642	(535)	141,858	1,491,965
Repurchase agreements – non-trading		107,432	–	–	107,432
Items in course of transmission to other banks		5,990	(3)	–	5,987
Trading liabilities		190,572	(42)	50	190,580
Financial liabilities designated at fair value		76,153	(6,317)	–	69,836
of which:					
– term subordinated debt included in tier 2 capital	*m*	21,822	–	–	21,822
– hybrid capital securities included in tier 1 capital	*j*	1,495	–	–	1,495
Derivatives		340,669	37	331	341,037
Debt securities in issue		95,947	(7,797)	3,720	91,870
Current tax liabilities		1,213	(138)	317	1,392
Liabilities under insurance contracts		73,861	(73,861)	–	–
Accruals, deferred income and other liabilities		53,396	(3,659)	5,145	54,882
of which:					
– retirement benefit liabilities		3,208	(2)	56	3,262
– contingent liabilities and contractual commitments		234	–	–	234
of which:					
– credit-related provisions on IRB portfolios	*i*	132	–	–	132
– credit-related provisions on standardised portfolios		102	–	–	102
Provisions		4,998	(63)	–	4,935
Deferred tax liabilities		1,524	(1,009)	2	517
Subordinated liabilities		26,664	–	2,056	28,720
of which:					
– hybrid capital securities included in tier 1 capital	*j*	2,761	–	–	2,761
– perpetual subordinated debt included in tier 2 capital	*l*	2,773	–	–	2,773
– term subordinated debt included in tier 2 capital	*m*	21,130	–	–	21,130

Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation (continued)

	Ref	At 31 December 2014 Accounting balance sheet US$m	Deconsolidation of insurance/ other entities US$m	Consolidation of banking associates US$m	Regulatory balance sheet US$m
Total shareholders' equity	*a*	**190,447**	**(7,531)**	**–**	**182,916**
of which:					
– other equity instruments included in tier 1 capital	*c, j*	**11,532**	**–**	**–**	**11,532**
– preference share premium included in tier 1 capital	*b*	**1,405**	**–**	**–**	**1,405**
Non-controlling interests	*d*	**9,531**	**(851)**	**–**	**8,680**
of which:					
– non-cumulative preference shares issued by subsidiaries included in tier 1 capital	*e*	**2,127**	**–**	**–**	**2,127**
– non-controlling interests included in tier 2 capital, cumulative preferred stock	*f*	**300**	**–**	**–**	**300**
– non-controlling interests attributable to holders of ordinary shares in subsidiaries included in tier 2 capital	*f, m*	**173**	**–**	**–**	**173**
Total liabilities and equity		**2,634,139**	**(101,790)**	**194,009**	**2,726,358**

	Ref	At 31 December 2013 Accounting balance sheet US$m	Deconsolidation of insurance/ other entities US$m	Consolidation of banking associates US$m	Regulatory balance sheet US$m
Assets					
Trading assets		303,192	32	1,686	304,910
Loans and advances to customers		1,080,304	(13,182)	110,168	1,177,290
of which:					
– impairment allowances on IRB portfolios	*i*	(9,476)	–	–	(9,476)
– impairment allowances on standardised portfolios	*k*	(5,667)	–	(2,465)	(8,132)
Financial investments		425,925	(52,680)	31,430	404,675
Capital invested in insurance and other entities		–	9,135	–	9,135
Interests in associates and joint ventures		16,640	–	(15,982)	658
of which:					
– positive goodwill on acquisition	*h*	608	–	(593)	15
Goodwill and intangible assets	*h*	29,918	(5,369)	631	25,180
Other assets		815,339	(37,634)	57,477	835,182
of which:					
– goodwill and intangible assets of disposal groups held for sale	*h*	3	–	–	3
– retirement benefit assets	*g*	2,140	–	–	2,140
– impairment allowances on assets held for sale		(111)	–	–	(111)
of which:					
– IRB portfolios	*i*	–	–	–	–
– standardised portfolios	*k*	(111)	–	–	(111)
Total assets		2,671,318	(99,698)	185,410	2,757,030

		At 31 December 2013			
		Accounting balance sheet	Deconsolidation of insurance/ other entities	Consolidation of banking associates	Regulatory balance sheet
	Ref	US$m	US$m	US$m	US$m
Liabilities and equity					
Deposits by banks		129,212	(193)	33,296	162,315
Customer accounts		1,482,812	(711)	142,924	1,625,025
Trading liabilities		207,025	(129)	161	207,057
Financial liabilities designated at fair value		89,084	(13,471)	–	75,613
of which:					
– term subordinated debt included in tier 2 capital	*m*	18,230	–	–	18,230
– hybrid capital securities included in tier 1 capital	*j*	3,685	–	–	3,685
Debt securities in issue		104,080	(9,692)	1,021	95,409
Retirement benefit liabilities	g	2,931	(11)	56	2,976
Subordinated liabilities		28,976	2	2,961	31,939
of which:					
– hybrid capital securities included in tier 1 capital.	*j*	2,873	–	–	2,873
– perpetual subordinated debt included in tier 2 capital	*l*	2,777	–	–	2,777
– term subordinated debt included in tier 2 capital	*m*	23,326	–	–	23,326
Other liabilities		436,739	(73,570)	4,991	368,160
of which:					
– contingent liabilities and contractual commitments		177	–	–	177
of which:					
– credit-related provisions on IRB portfolios	*i*	155	–	–	155
– credit-related provisions on standardised portfolios	*k*	22	–	–	22
Total shareholders' equity	*a*	181,871	(1,166)	–	180,705
of which:					
– other equity instruments included in tier 1 capital	*c, j*	5,851	–	–	5,851
– preference share premium included in tier 1 capital	*b*	1,405	–	–	1,405
Non-controlling interests	*d*	8,588	(757)	–	7,831
of which:					
– non-cumulative preference shares issued by subsidiaries included in tier 1 capital	*e*	2,388	–	–	2,388
– non-controlling interests included in tier 2 capital, cumulative preferred stock	*f*	300	–	–	300
– non-controlling interests attributable to holders of ordinary shares in subsidiaries included in tier 2 capital	*f, m*	188	–	–	188
Total liabilities and equity		2,671,318	(99,698)	185,410	2,757,030

The references (a) – (n) identify balance sheet components which are used in the calculation of regulatory capital on page 19.

Structure of the regulatory group

HSBC's organisation is that of a financial holding company whose major subsidiaries are almost entirely wholly-owned banking entities. A simplified organisation chart showing the difference between the accounting and regulatory consolidation groups is included at Appendix I to this report.

Interests in banking associates that are equity accounted in the financial accounting consolidation are proportionally consolidated for regulatory purposes by including our share of assets, liabilities, profit and loss and RWAs. The principal associates subject to proportional regulatory consolidation at 31 December 2014 are shown in table 5, representing 99% of our associates' total assets as shown in table 4.

Subsidiaries engaged in insurance activities are excluded from the regulatory consolidation by excluding assets, liabilities and post-acquisition reserves, leaving the investment of these insurance subsidiaries to be recorded at cost. In prior years the investment of these insurance subsidiaries was recorded at the net asset value. This change in treatment from 1 January 2014 has been aligned to the capital treatment under CRD IV where we have excluded post-acquisition reserves from our CET1 capital and the investment to be deducted from CET1 (subject to thresholds) valued at cost.

In the column 'Deconsolidation of insurance/other entities' in the table above the amount of US$2.5bn shown as 'Capital invested in insurance and other entities' represents the cost of investment in our insurance business while the prior year number of US$9.1bn represented the net assets value of these entities. The principal insurance entities are listed in table 5.

The regulatory consolidation also excludes special purpose entities ('SPE's) where significant risk has been transferred to third parties. Exposures to these SPEs are risk-weighted as securitisation positions for regulatory purposes. The deconsolidation of SPEs connected to securitisation activity and other entities mainly impacts the adjustments to 'Loans and advances to customers', 'Financial investments' and 'Debt securities in issue'. Table 5 lists the principal SPEs excluded from the regulatory consolidation with their total assets and total equity. Further details of the use of SPEs in the Group's securitisation activities are shown in Note 39 of the *Annual Report and Accounts 2014* and on page 79 of this report.

Table 5: Principal entities with a different regulatory and accounting scope of consolidation

		At 31 December 2014		At 31 December 2013	
	Principal activities	Total assets US$m	Total equity US$m	Total assets US$m	Total equity US$m
Principal insurance entities excluded from the regulatory consolidation					
HSBC Life (UK) Ltd	**Life insurance manufacturing**	**9,113**	**520**	12,259	458
HSBC Assurances Vie (France)	**Life insurance manufacturing**	**26,260**	**714**	27,814	692
HSBC Life (International) Ltd	**Life insurance manufacturing**	**32,578**	**2,778**	28,785	2,070
Hang Seng Insurance Company Ltd	**Life insurance manufacturing**	**13,353**	**1,323**	12,289	1,142
HSBC Insurance (Singapore) Pte Ltd	**Life insurance manufacturing**	**2,843**	**379**	2,416	246
HSBC Life Insurance Company Ltd	**Life insurance manufacturing**	**560**	**87**	354	65
HSBC Amanah Takaful (Malaysia) SB	**Life insurance manufacturing**	**349**	**31**	338	29
HSBC Seguros (Brasil) S.A.	**Life insurance manufacturing**	**619**	**357**	743	441
HSBC Vida e Previdência (Brasil) S.A.	**Life insurance manufacturing**	**5,044**	**119**	5,154	122
HSBC Seguros de Vida (Argentina) S.A.	**Life insurance manufacturing**	**225**	**55**	201	53
HSBC Seguros de Retiro (Argentina) S.A.	**Life insurance manufacturing**	**633**	**74**	691	84
HSBC Seguros S.A. (Mexico)	**Life insurance manufacturing**	**1,013**	**199**	1,133	266
Principal SPEs excluded from the regulatory consolidation					
Regency Assets Ltd	**Securitisation**	**10,984**	**–**	13,461	–
Mazarin Funding Ltd[1]	**Securitisation**	**3,913**	**(26)**	7,431	–
Barion Funding Ltd[1]	**Securitisation**	**1,970**	**90**	3,769	(59)
Malachite Funding Ltd[1]	**Securitisation**	**1,403**	**63**	3,004	(22)
Performance Trust[1]	**Securitisation**	**8**	**–**	707	(3)
Principal associates					
Bank of Communications Co., Limited ('BoCom')[2]	**Banking services**	**1,001,995**	**74,094**	946,332	67,609
The Saudi British Bank	**Banking services**	**50,161**	**6,807**	47,564	6,088

1 *These SPEs hold no or* de minimis *share capital. The negative equity represents net unrealised losses on unimpaired assets on their balance sheets and negative retained earnings.*
2 *Total assets and total equity as at 30 September 2014.*

Table 5 also aims to present as closely as possible the total assets and total equity, on a standalone IFRS basis, of the entities which are included in the Group consolidation on different bases for accounting and regulatory purposes. The figures shown therefore include intra-Group balances.

For insurance entities, these figures exclude any deferred acquisition cost assets that may be recognised in the entities' stand-alone financial reporting. This is because such assets are not recognised in the Group's consolidated financial reporting as this would be incompatible with the recognition of present value of in-force long-term insurance business ('PVIF') on long-term insurance business. The PVIF asset of US$5.3bn and the related deferred tax liability, however, are recognised at the IFRSs consolidated level only, and are therefore also not included in the asset or equity positions for the standalone entities presented in table 5.

For associates, table 5 shows the total assets and total equity of the entity as a whole rather than HSBC's share in the entities' balance sheets.

Measurement of regulatory exposures

The measurement of regulatory exposures is not directly comparable with the financial information presented in the *Annual Report and Accounts 2014*, and this section sets out the main reasons for this.

The Pillar 3 Disclosures 2014 have been prepared in accordance with regulatory capital adequacy concepts and rules, while the *Annual Report and Accounts 2014* are prepared in accordance with IFRSs. The purpose of the regulatory balance sheet is to provide a point in time value of all on balance sheet assets. The regulatory exposure value includes an estimation of risk, and is expressed as the amount expected to be outstanding if and when the counterparty defaults. The difference between total assets on the regulatory balance sheet as shown in table 4, and the credit risk and counterparty credit risk ('CCR') exposure values shown in table 6b below, is principally attributable to the following factors:

Credit risk and CCR exposures

Various assets on the regulatory balance sheet, such as intangible assets and goodwill, are excluded from the calculation of the credit risk exposure value as they are deducted from capital. The regulatory balances are adjusted for the effect of the differences in the basis for regulatory and accounting netting, and in the treatment of financial collateral.

Credit risk exposures only

When assessing credit risk exposures within the regulatory balance sheet, the Basel approach used to report the asset in question determines the calculation method for exposure at default ('EAD'). Using the Basel standardised ('STD') approach, the regulatory exposure value is based on the regulatory balance sheet amount, applying a number of further regulatory adjustments. Using IRB approaches, the regulatory EAD is either determined using supervisory (foundation) or internally modelled (advanced) methods.

EAD takes account of off balance sheet items, such as the undrawn portion of committed facilities, various trade finance commitments and guarantees, by applying credit conversion factors ('CCF') to these items.

Assets on the regulatory balance sheet are net of impairment. EAD, however, is only reduced for impairments under the standardised approach. Impairments under the IRB approach are not used to reduce the EAD amount.

CCR exposures only

For regulatory purposes, trading book items and derivatives and securities financing items in the banking book are treated under the rules for CCR. CCR exposures express the risk that the counterparty to a transaction may default before completing the satisfactory settlement of the transaction. See table 45 for a comparison of derivative accounting balances and CCR exposure for derivatives.

HSBC uses the mark-to-market method and the internal model method ('IMM') approach to calculate CCR EAD. Under the mark-to-market method EAD is based on the balance sheet value of the instrument plus an add-on for potential future exposure. Under the IMM approach modelled exposure value replaces the fair value on the balance sheet.

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

The following tables show in two steps how the accounting values in the regulatory balance sheet link to regulatory EAD.

In a first step, table 6a below shows a breakdown of the accounting balances into the risk types that form the basis for regulatory capital requirements. Table 6b then shows the main differences between the accounting balances and regulatory EAD by regulatory risk type.

Table 6a: Mapping of financial statement categories with regulatory risk categories

		Carrying value of items:				
	Regulatory balance sheet[1] US$bn	Subject to credit risk framework US$bn	Subject to CCR framework[2] US$bn	Subject to securitisation framework[3] US$bn	Subject to the market risk framework US$bn	Subject to deduction from capital or not subject to regulatory capital requirements US$bn
Assets						
Cash and balances at central banks	**160.7**	**160.7**	**–**	**–**	**–**	**–**
Items in the course of collection from other banks	**5.0**	**5.0**	**–**	**–**	**–**	**–**
Hong Kong Government certificates of indebtedness	**27.7**	**27.7**	**–**	**–**	**–**	**–**
Trading assets	**305.8**	**–**	**23.1**	**–**	**305.8**	**1.1**
Financial assets designated at fair value	**3.6**	**3.6**	**–**	**–**	**–**	**–**
Derivatives	**345.3**	**–**	**344.6**	**0.7**	**345.3**	**–**
Loans and advances to banks	**117.4**	**115.3**	**–**	**2.1**	**–**	**–**
Loans and advances to customers	**1,080.3**	**1,078.1**	**–**	**2.2**	**–**	**–**
Reverse repurchase agreements – non-trading	**169.2**	**7.5**	**161.7**	**–**	**–**	**–**
Financial investments	**398.2**	**385.8**	**–**	**12.4**	**–**	**–**
Capital invested in insurance and other entities	**2.5**	**2.5**	**–**	**–**	**–**	**–**
Current tax assets	**1.3**	**1.3**	**–**	**–**	**–**	**–**
Prepayments, accrued income and other assets	**78.4**	**57.6**	**–**	**–**	**15.7**	**5.0**
Interests in associates and joint ventures	**0.7**	**0.7**	**–**	**–**	**–**	**–**
Goodwill and intangible assets	**22.6**	**–**	**–**	**–**	**–**	**22.6**
Deferred tax assets	**7.7**	**6.7**	**–**	**–**	**–**	**1.0**
Total assets at 31 December 2014	**2,726.4**	**1,852.5**	**529.4**	**17.4**	**666.8**	**29.7**

1 *The amounts shown in the column 'Regulatory balance sheet' do not equal the sum of the amounts shown in the remaining columns of this table for line items 'Derivatives' and 'Trading assets', as some of the assets included in these items are subject to regulatory capital charges for CCR and market risk.*
2 *The amounts shown in the column 'subject to CCR framework' include both banking book and trading book.*
3 *The amounts shown in the column 'subject to securitisation framework' only include banking book. Trading book securitisation positions are included in the market risk column.*

Table 6b: Main sources of differences between regulatory exposure values and carrying values in financial statements

	Items subject to:		
	Credit risk US$bn	CCR US$bn	Securitisation framework US$bn
Asset carrying value amount under scope of regulatory consolidation	**1,852.5**	**529.4**	**17.4**
– differences due to reversal of IFRS netting	**37.5**	**–**	**–**
– differences due to financial collateral on standardised approach	**(13.9)**	**–**	**–**
– differences due consideration of provisions on IRB approach	**7.3**	**–**	**–**
– differences due to modelling and standardised CCFs for credit risk and other differences[1]	**289.6**	**–**	**21.4**
– differences due the credit risk mitigation and potential exposures for counterparty risk	**–**	**(336.8)**	**–**
– differences due to free deliveries and sundry balances	**–**	**8.5**	**–**
Exposure values considered for regulatory purposes at 31 December 2014	**2,173.0**	**201.1**	**38.8**

1 *This includes the undrawn portion of committed facilities, various trade finance commitments and guarantees, by applying CCFs to these items.*

Capital and Risk

Capital management

Approach and policy

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

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

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

The ability of subsidiaries to pay dividends or advance monies to HSBC Holdings depends on, among other things, their respective local regulatory capital and banking requirements, statutory reserves, and financial and operating performance. During 2014 and 2013, none of the Group's subsidiaries experienced significant restrictions on paying dividends or repaying loans and advances. Also, there are no foreseen restrictions envisaged by our subsidiaries on paying dividends or repaying loans and advances. None of our subsidiaries which are excluded from the regulatory consolidation has capital resources below its minimum regulatory requirement.

For further details of our approach to capital management, please see page 257 of the Annual Report and Accounts 2014.

Risks to capital

Our top and emerging risks are regularly evaluated to assess the impact on our businesses and core capital position. This evaluation extends to a number of risks not technically within the scope of our top and emerging risks, but which are identified as presenting risks to capital due to their potential to impact the Group's RWAs and/or capital supply position. The downside or upside scenarios are assessed against the Group's capital management objectives and mitigating actions assigned to senior management as necessary.

Stress testing

Our stress testing and scenario analysis programme is central to the monitoring of top and emerging risks, helping us to understand the sensitivities of the core assumptions in our capital plans and assessment of our internal and regulatory capital requirements to the adverse effect of extreme but plausible events. Stress testing allows us to formulate our response and mitigate risk in advance of actual conditions exhibiting the stresses identified in the scenarios.

The governance and management of enterprise-wide stress testing is overseen by the Stress Testing Management Board, chaired by the Group Finance Director, to ensure appropriate senior management oversight and governance of the stress test programmes. Models used within stress testing are approved through functional Model Oversight Committees, with expert stress testing support during development. Updates are provided at each meeting of the Risk Management Meeting of the Group Management Board ('GMB'). The Group Risk Committee is informed, consulted or approves as appropriate.

We are subject to regulatory stress testing in many jurisdictions. These have increased both in frequency and in the granularity of information required by supervisors. These exercises are designed to assess the resilience of banks to adverse economic or political developments and ensure that they have robust, forward-looking capital planning processes that account for their unique risks. They include the programmes of the PRA, the EBA, the Federal Reserve Board, the ECB, the HKMA and other regulators. Assessment by regulators is on both a quantitative and qualitative basis, the latter focusing on our portfolio quality, data provision, stress testing capability and internal management processes.

Further details of the Group's stress testing programme and the major regulatory stress tests that we participated in during 2014 are given on pages 117 and 125 of the Annual Report and Accounts 2014*, respectively.*

Overview of regulatory capital framework

Introduction

On 1 January 2014, CRD IV rules and new PRA rules as set out in the PRA Rulebook came into effect. This introduced a fundamental change to the regulatory capital framework, increasing the quantum and quality of capital resources required to meet the regulatory Pillar 1 risks and introducing several capital buffers, to be met with CET1 capital, in order to address systemic risk and pro-cyclicality.

The balance of prudential supervision has shifted to devote more attention to macro-prudential concerns, complementing traditional 'micro-prudential', institution-specific work. Hence the Financial Stability Board's initiative on uniform data collection from G-SIBs is to provide consistent and granular information to support improved macro-prudential analysis, understanding of the inter-connected nature of financial

markets and early warning of possible issues at a global level.

The global framework for regulatory capital has been, and continues to be, significantly reinforced. It is envisaged that for the largest banks, the Pillar 1 and Pillar 2 requirements will be complemented by a specification of TLAC. The latter incorporates requirements for eligible liabilities, in addition to regulatory capital, which can be bailed in. The Financial Stability Board's proposals for TLAC are currently undergoing consultation.

The section below sets out details of the capital that is eligible for regulatory purposes, and the composition of HSBC's regulatory capital. It describes our Pillar 1 capital requirements as well as the Pillar 2 framework. Finally, it discusses the leverage ratio, which has assumed increasing importance in the supervisory toolkit as a non-risk-based measure supplementing the Basel risk-based methodology.

Eligible regulatory capital

For regulatory purposes, our capital base is divided into three main categories, namely common equity tier 1, additional tier 1 and tier 2, depending on their characteristics.

Common equity tier 1 capital is the highest quality form of capital, comprising shareholders' equity and related non-controlling interests (subject to limits). Under CRD IV various capital deductions and regulatory adjustments are made against these items which are treated differently for the purposes of capital adequacy – these include deductions for goodwill and intangible assets, deferred tax assets that rely on future profitability, negative amounts resulting from the calculation of expected loss amounts under IRB, holdings of capital instruments of financial sector entities and surplus defined benefit pension fund assets.

Additional tier 1 capital comprises eligible non-common equity capital instruments and any related share premium; it also includes qualifying instruments issued by subsidiaries subject to certain limits. Holdings of additional tier 1 instruments of financial sector entities are deducted.

Tier 2 capital comprises eligible capital instruments and any related share premium and qualifying tier 2 capital instruments issued by subsidiaries (subject to limits). Holdings of tier 2 capital instruments of financial sector entities are deducted.

For more details about our minimum capital requirements see the section Composition of regulatory capital on page 19.

Whilst CRD IV allows for the majority of regulatory adjustments and deductions from CET1 to be implemented on a gradual basis from 1 January 2014 to 1 January 2018, the PRA has largely decided not to make use of these transitional provisions. Due to the exclusion of unrealised gains on investment property, and available-for-sale securities which are only capable of being recognised in CET1 capital from 1 January 2015, and PRA acceleration of unrealised losses on these items, our CET1 capital and ratio is lower on a transitional basis than it is on an end point basis.

For additional tier 1 and tier 2 capital, the PRA followed the transitional provisions timing as set out in CRD IV to apply the necessary regulatory adjustments and deductions. The effect of these adjustments is being phased in at 20% per annum from 1 January 2014 to 1 January 2018.

Furthermore, non-CRD IV compliant additional tier 1 and tier 2 instruments benefit from a grandfathering period. This progressively reduces the eligible amount of these instruments that can be included in regulatory capital by 10% per annum, following an initial 20% reduction on 1 January 2014, until they are fully phased out by 1 January 2022.

Under CRD IV, as implemented in the UK, banks are required to meet a minimum CET1 ratio of 4.0% of RWAs (increasing to 4.5% from 1 January 2015), a minimum tier 1 ratio of 5.5% of RWAs (increasing to 6% from 1 January 2015) and a total capital ratio of 8% of RWAs. Alongside CRD IV requirements, from 1 July 2014, the PRA expects major UK banks and building societies to meet a 7% CET1 ratio using the CRD IV end point definition. Going forward, as the grandfathering provisions fall away, we intend to meet these regulatory minima in an economically efficient manner by issuing non-common equity capital as necessary. At 31 December 2014, the Group had US$19.8bn of CRD IV compliant, non-common equity capital instruments, of which US$3.5bn were tier 2 and US$5.7bn were additional tier1 which were issued during the year (for details on the additional tier 1 instruments issued during the year see page 425 of the *Annual Report and Accounts 2014*. At 31 December 2014, the Group also had US$37.1bn of non-common equity capital instruments qualifying as eligible capital under CRD IV by virtue of application of the grandfathering provisions, after applying the 20% reduction outlined above.

For a full disclosure of the CET1, tier 1 and total capital position on a 'transitional basis' at 31 December 2014, see Appendix III of this report.

Pillar 1

Pillar 1 covers the capital resources requirements for credit risk, market risk and operational risk. Credit risk includes counterparty credit risk and securitisation requirements. These requirements are expressed in terms of RWAs.

Risk category	Scope of permissible approaches	Approach adopted by HSBC
Credit risk	The Basel framework applies three approaches of increasing sophistication to the calculation of Pillar 1 credit risk capital requirements. The most basic level, the standardised approach, requires banks to use external credit ratings to determine the risk weightings applied to rated counterparties. Other counterparties are grouped into broad categories and standardised risk weightings are applied to these categories. The next level, the IRB foundation approach, allows banks to calculate their credit risk capital requirements on the basis of their internal assessment of a counterparty's probability of default ('PD'), but subjects their quantified estimates of EAD and loss given default ('LGD') to standard supervisory parameters. Finally, the IRB advanced approach allows banks to use their own internal assessment in both determining PD and quantifying EAD and LGD.	For consolidated Group reporting, we have adopted the advanced IRB approach for the majority of our business. Some portfolios remain on the standardised or foundation approaches: • pending the issuance of local regulations or model approval; • following supervisory prescription of a non-advanced approach; or • under exemptions from IRB treatment. Further information on our IRB roll-out plan may be found on page 44.
Counterparty credit risk	Three approaches to calculating counterparty credit risk and determining exposure values are defined by Basel: standardised, mark-to-market and IMM. These exposure values are used to determine capital requirements under one of the credit risk approaches; standardised, IRB foundation and IRB advanced.	We use the mark-to-market and IMM approaches for counterparty credit risk. Details of the IMM permission we have received from the PRA can be found in the Financial Services Register on the PRA website. Our aim is to increase the proportion of positions on IMM over time.
Equity	Equity exposures can be assessed under standardised or IRB approaches.	Whilst some equity exposures are reported locally under the IRB simple risk weight approach, for Group reporting purposes all equity exposures are treated under the standardised approach.
Securitisation	Basel specifies two methods for calculating credit risk requirements for securitisation positions in the non-trading book: the standardised approach and the IRB approach, which incorporates the Ratings Based Approach ('RBM'), the Internal Assessment Approach ('IAA') and the Supervisory Formula Method ('SFM').	For the majority of the securitisation non-trading book positions we use the IRB approach, and within this principally the RBM, with lesser amounts on IAA and SFM. We also use the standardised approach for an immaterial amount of non-trading book positions. Securitisation positions in the trading book are treated within Market Risk, using PRA standard rules.
Market risk	Market risk capital requirements can be determined under either the standard rules or the internal models approach ('IMA'). The latter involves the use of internal VAR models to measure market risks and determine the appropriate capital requirement. The incremental risk charge ('IRC') and comprehensive risk measure ('CRM') also apply.	The market risk capital requirement is measured using internal market risk models, where approved by the PRA, or the PRA standard rules. Our internal market risk models comprise VAR, stressed VAR and IRC. Non-proprietary details of the scope of our IMA permission are available in the Financial Services Register on the PRA website. We are in compliance with the requirements set out in Articles 104 and 105 of the Capital Requirements Regulation.
Operational risk	Basel allows for firms to calculate their operational risk capital requirement under the basic indicator approach, the standardised approach or the advanced measurement approach.	We have historically adopted and currently use the standardised approach in determining our operational risk capital requirement. We are in the process of developing and implementing an AMA-compliant model which we will use for economic capital calculation. Our medium-term aim is to move to an AMA approach for our operational risk capital requirement calculation.

Capital buffers

CRD IV establishes a number of capital buffers, to be met by CET1 capital, broadly aligned with the Basel III framework. CRD IV contemplates that these will be phased in from 1 January 2016, subject to national discretion.

For more details on capital buffers, see page 6.

Pillar 2

We conduct an internal capital adequacy assessment process ('ICAAP') to determine a forward-looking assessment of our capital requirements given our business strategy, risk profile, risk appetite and capital plan. This process incorporates the Group's risk management processes and governance framework. A range of stress tests are applied to our base capital plan. These, coupled with our economic capital framework and other risk management practices, are used to assess our internal capital adequacy requirements.

The ICAAP is examined by the PRA as part of its supervisory review and evaluation process, which occurs periodically to enable the regulator to define the individual capital guidance or minimum capital requirements for HSBC and our capital planning buffer where required.

For more details on Pillar 2, see page 29.

Leverage ratio

The leverage ratio was introduced into the Basel III framework as a non-risk-based backstop limit, to supplement risk-based capital requirements. It aims to constrain the build-up of excess leverage in the banking sector, introducing additional safeguards against model risk and measurement errors. The ratio is a volume-based measure calculated as Basel III tier 1 capital divided by total on- and off-balance sheet exposures.

For more details on leverage ratio, see page 30.

Composition of regulatory capital

On 1 January 2014, CRD IV rules and new PRA rules as set out in the PRA Rulebook came into effect, replacing the previous PRA's General Prudential Sourcebook ('GENPRU') rules and guidance for calculation of regulatory capital. We complied with the CRD IV rules and PRA's rules throughout 2014.

For a table of the movement in total regulatory capital during the year to 31 December 2014, see page 246 of the Annual Report and Accounts 2014.

All capital securities included in the capital base of HSBC have been issued either in accordance with the rules and guidance in the PRA's GENPRU and included in the capital base by virtue of application of the grandfathering provisions, or issued as fully compliant CRD IV securities (on an end point basis). The main features of capital securities issued by the Group, categorised as tier 1 and tier 2 capital, are set out on pages 423, 424, 437 and 438 of the *Annual Report and Accounts 2014.*

The values disclosed there are the IFRSs balance sheet carrying amounts, however, not the amounts that these securities contribute to regulatory capital. For example, the IFRSs accounting and the regulatory treatments differ in their approaches to issuance costs, regulatory amortisation and regulatory eligibility limits prescribed in the grandfathering provisions under CRD IV. The composition of capital under the current regulatory requirements is provided in the table below. The alphabetic references link back to table 4: 'Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation', which shows where these items are presented in the respective balance sheets. Not all items are reconcilable, due to regulatory adjustments that are applied, for example to non-common equity capital securities before they can be included in the Group's regulatory capital base.

Table 7: Composition of regulatory capital

	Ref[1]	CRD IV transitional		Basel 2.5
		At 31 December 2014 US$m	Estimated at 31 December 2013 US$m	At 31 December 2013 US$m
Tier 1 capital				
Shareholders' equity		**166,617**	164,057	173,449
Shareholders' equity per balance sheet[2]	*a*	**190,447**	181,871	181,871
Foreseeable interim dividend[3]		**(3,362)**	(3,005)	
Preference share premium	*b*	**(1,405)**	(1,405)	(1,405)
Other equity instruments	*c*	**(11,532)**	(5,851)	(5,851)
Deconsolidation of special purpose entities[4]	*a*	**(323)**	(1,166)	(1,166)
Deconsolidation of insurance entities	*a*	**(7,208)**	(6,387)	
Non-controlling interests		**4,640**	3,644	4,955
Non-controlling interests per balance sheet	*d*	**9,531**	8,588	8,588
Preference share non-controlling interests	*e*	**(2,127)**	(2,388)	(2,388)
Non-controlling interests transferred to tier 2 capital	*f*	**(473)**	(488)	(488)
Non-controlling interests in deconsolidated subsidiaries	*d*	**(851)**	(757)	(757)
Surplus non-controlling interests disallowed in CET1		**(1,440)**	(1,311)	
Regulatory adjustments to the accounting basis		**(6,309)**	(2,230)	480
Unrealised (gains)/losses in available-for-sale debt and equities[5]		**(1,378)**	–	1,121
Own credit spread[6]		**767**	1,112	1,037
Debit valuation adjustment		**(197)**	(451)	
Defined benefit pension fund adjustment[7]	*g*	**(4,069)**	(1,731)	(518)
Reserves arising from revaluation of property		**(1,375)**	(1,281)	(1,281)
Cash flow hedging reserve		**(57)**	121	121
Deductions		**(31,748)**	(34,238)	(29,833)
Goodwill and intangible assets	*h*	**(22,475)**	(24,899)	(25,198)
Deferred tax assets that rely on future profitability (excludes those arising from temporary differences)	*n*	**(1,036)**	(680)	
Additional valuation adjustment (referred to as PVA)		**(1,341)**	(2,006)	
Investments in own shares through the holding of composite products of which HSBC is a component (exchange traded funds, derivatives, and index stock)		**(1,083)**	(677)	
50% of securitisation positions				(1,684)
50% of tax credit adjustment for expected losses				151
Negative amounts resulting from the calculation of expected loss amounts	*i*	**(5,813)**	(5,976)	(3,102)
Common equity/core tier 1 capital		**133,200**	131,233	149,051
Additional tier 1 capital				
Other tier 1 capital before deductions		**19,687**	14,573	16,110
Preference share premium	*b*	**1,160**	1,160	1,405
Preference share non-controlling interests	*e*	**1,955**	1,955	2,388
Allowable non-controlling interest in AT1	*d*	**884**	731	
Hybrid capital securities	*j*	**15,688**	10,727	12,317
Deductions		**(148)**	(165)	(7,006)
Unconsolidated investments[8]		**(148)**	(165)	(7,157)
50% of tax credit adjustment for expected losses				151
Tier 1 capital		**152,739**	145,641	158,155

Composition of regulatory capital (continued)

	Ref[1]	CRD IV transitional		Basel 2.5
		At 31 December 2014 US$m	Estimated at 31 December 2013 US$m	At 31 December 2013 US$m
Tier 2 capital				
Total qualifying tier 2 capital before deductions		**38,213**	35,786	47,812
Reserves arising from revaluation of property and unrealised gains in available-for-sale equities				2,755
Collective impairment allowances	*k*			2,616
Allowable non-controlling interest in tier 2	*d*	**99**	86	
Perpetual subordinated debt	*l*	**2,218**	2,218	2,777
Term subordinated debt	*m*	**35,656**	33,242	39,364
Non-controlling interests in tier 2 capital	*f*	**240**	240	300
Total deductions other than from tier 1 capital		**(222)**	(248)	(11,958)
Unconsolidated investments[8]		**(222)**	(248)	(7,157)
50% of securitisation positions				(1,684)
50% of negative amounts resulting from the calculation of expected loss amounts	*i*			(3,102)
Other deductions				(15)
Total regulatory capital		**190,730**	181,179	194,009

1 *The references (a) to (n) refer to those in the reconciliation of balance sheets in table 4.*
2 *Includes externally verified profits for the year ended 31 December 2014.*
3 *This includes dividends on ordinary shares, quarterly dividends on preference shares and coupons on capital securities, classified as equity.*
4 *Mainly comprise unrealised gains/losses in available-for-sale debt securities related to SPEs.*
5 *Unrealised gains/losses in available-for-sale securities are net of tax.*
6 *Includes own credit spread on trading liabilities.*
7 *Under Basel 2.5 rules, any defined benefit asset is derecognised and a defined benefit liability may be substituted with the additional funding that will be paid into the relevant schemes over the following five-year period.*
8 *Mainly comprise investments in insurance entities.*

Table 8: Reconciliation of regulatory capital from transitional basis to an estimated CRD IV end point basis

	At 31 Dec 2014 US$m	Estimated at 31 Dec 2013 US$m
Common equity tier 1 capital on a transitional basis	**133,200**	131,233
Unrealised gains arising from revaluation of property	**1,375**	1,281
Unrealised gains in available for sale reserves	**1,378**	–
Common equity tier 1 capital end point basis	**135,953**	132,514
Additional tier 1 capital on a transitional basis	**19,539**	14,408
Grandfathered instruments:		
– preference share premium	**(1,160)**	(1,160)
– preference share non-controlling interests	**(1,955)**	(1,955)
– hybrid capital securities	**(10,007)**	(10,727)
Transitional provisions:		
– allowable non-controlling interest in AT1	**(487)**	(366)
– unconsolidated investments	**148**	165
Additional tier 1 capital end point basis	**6,078**	365
Tier 1 capital end point basis	**142,031**	132,879
Tier 2 capital on a transitional basis	**37,991**	35,538
Grandfathered instruments:		
– perpetual subordinated debt	**(2,218)**	(2,218)
– term subordinated debt	**(21,513)**	(21,513)
Transitional provisions:		
– non-controlling interest in tier 2 capital	**(240)**	(240)
– allowable non-controlling interest in tier 2	**396**	345
– unconsolidated investments	**(148)**	(165)
Tier 2 capital end point basis	**14,268**	11,747
Total regulatory capital end point basis	**156,299**	144,626
Total risk-weighted assets	**1,219,765**	1,214,939

Pillar 1 requirements, CRD IV impact and RWA flow

This section describes our Pillar 1 capital requirements, with a high-level view of the related RWAs.

Where they are not separately shown, counterparty credit risk and securitisation requirements fall within credit risk.

Table 9 sets out the change in exposure classes on the introduction of CRD IV, with commentary on the main drivers of related changes in exposure valuations.

Drilling down from the summary CRD IV impact by Pillar 1 risk type at table 10, tables 11 and 12 set out by exposure class and region the impact of the CRD IV rules on the calculation of RWAs, compared with those under Basel 2.5 reported last year, for credit risk and counterparty credit risk respectively. In the latter, we show separately the impact of the credit valuation adjustment.

Tables 13 to 19 with accompanying narratives set out, for credit, counterparty credit and market risks, first RWAs by Basel approach and then the movements during the year in IRB/model-based RWAs. Finally, we comment briefly on the reduction in operational risk RWAs.

Table 9: Credit risk exposure class mapping

CRD IV Exposure class	Exposure value US$bn	Basel 2.5 Exposure class	Exposure value US$bn
IRB advanced approach	**1,593.8**	**IRB advanced approach**	1,468.8
Retail:		Retail:	
– secured by mortgages on immovable property SME	**3.1**		
– secured by mortgages on immovable property non-SME	**288.9**		
Secured by mortgages on immovable property	**292.0**	– secured on real estate property	310.7
– qualifying revolving retail	**66.2**	– qualifying revolving retail	66.9
– other SME	**13.9**	– SMEs	18.6
– other non-SME	**47.3**	– other retail	46.8
Total retail	**419.4**	Total retail	443.0
Central governments and central banks	**327.4**	Central governments and central banks	341.7
Institutions	**130.4**	Institutions	130.0
Corporates	**625.8**	Corporates	508.7
Securitisation positions	**38.3**	Securitisation positions	45.4
Non-credit obligation assets	**52.5**		
IRB foundation approach	**25.8**	**IRB foundation approach**	23.6
Central governments and central banks	**0.1**	Central governments and central banks	–
Institutions	**0.1**	Institutions	–
Corporates	**25.6**	Corporates	23.6
Standardised approach	**590.5**	**Standardised approach**	667.7
Central governments and central banks	**189.3**	Central governments and central banks	220.0
Institutions	**30.1**	Institutions	35.2
Corporates	**240.1**	Corporates	221.8
Retail	**47.9**	Retail	47.7
Secured by mortgages on immovable property	**38.6**	Secured on real estate property	50.4
Exposure in default	**4.7**	Past due items	4.1
Regional governments or local authorities	**1.1**	Regional governments or local authorities	0.8
Equity	**13.2**	Equity	3.3
Items associated with particularly high risk	**4.0**	Regulatory high-risk categories	2.6
Securitisation positions	**0.4**	Securitisation Positions	0.4
Claims in the form of CIU	**0.6**	Collective investment undertakings	0.6
International organisations	**3.3**	International organisations	1.9
Multilateral development banks	**–**	Multilateral development banks	–
Other Items	**17.0**	Other items excluding equity	78.9
		Administrative bodies and non-commercial undertakings	–
Public sector entities	**0.2**		
At 31 December 2014	**2,210.1**	**At 31 December 2013**	2,160.1

Key points

Implementation of CRD IV has led to a number of changes in exposure class definitions. The main CRD IV changes are summarised below:

- The requirement to report exposure gross of any cash collateral. As a result, from 1 January 2014, an increase in exposure value was observed representing the amount of the credit risk exposure that is fully cash collateralised. This change principally impacted corporate and institution exposures in Europe. There is no impact on the level of RWAs as the fully collateralised portion of the EAD attracts a 0% LGD under CRD IV.
- Non credit obligation assets are now reported separately under the IRB approach, thereby reducing exposures in other under standardised approach and increasing IRB exposures. Non credit obligation assets include cash at central bank, gold bullion and tangible assets.
- The reclassification of the material holdings portfolio from a capital deduction to a 250% risk-weighting increased equity exposures under standardised approach.
- Deferred tax assets risk-weighted 250% are now reported under the central governments and central banks exposure class under standardised approach but were previously reported in other assets at a risk weight of 100%.
- Securitisation positions are risk-weighted at 1250% in 2014, but were deducted from capital in 2013.
- The CRD IV asset class exposure in default includes items classified as unlikely to pay, even if not past due.
- In accordance with CRD IV, the presentation of table 9 is based on a guarantor basis for 2014 versus an obligor basis for 2013. Exposures reported in central governments and central banks of US$7.5bn in 2014 would have been reported under different exposure classes in 2013.

Table 10: Total RWAs by risk type

	CRD IV transition and end point		Basel 2.5
	At 31 Dec 2014 US$bn	Estimated at 31 Dec 2013 US$bn	at 31 Dec 2013 US$bn
Credit risk	**955.3**	936.5	864.3
Counterparty credit risk	**90.7**	95.8	45.8
Market risk	**56.0**	63.4	63.4
Operational risk	**117.8**	119.2	119.2
	1,219.8	1,214.9	1,092.7

Table 11: CRD IV impact – Credit risk RWAs by region at 1 January 2014, by CRD IV asset class

	Europe US$bn	**Asia US$bn**	**MENA US$bn**	**North America US$bn**	**Latin America US$bn**	**Total US$bn**
RWAs						
IRB advanced approach[1]	**35.3**	**4.9**	**0.1**	**2.7**	**0.2**	**43.2**
Retail:						
– secured by mortgages on immovable property non-SME	**–**	**–**	**–**	**(0.7)**	**–**	**(0.7)**
– other SME	**(2.0)**	**–**	**–**	**–**	**–**	**(2.0)**
– other non-SME	**(0.9)**	**–**	**–**	**(0.8)**	**–**	**(1.7)**
Total retail	**(2.9)**	**–**	**–**	**(1.5)**	**–**	**(4.4)**
Institutions	**1.5**	**3.6**	**0.1**	**0.4**	**0.2**	**5.8**
Corporates	**0.7**	**1.3**	**–**	**(0.4)**	**–**	**1.6**
Securitisation positions	**36.0**	**–**	**–**	**4.2**	**–**	**40.2**
IRB foundation approach[1]	**(0.3)**	**–**	**0.2**	**–**	**–**	**(0.1)**
Corporates	**(0.3)**	**–**	**0.2**	**–**	**–**	**(0.1)**
Standardised approach[1]	**7.9**	**10.6**	**0.3**	**9.1**	**1.2**	**29.1**
Central governments and central banks	**2.1**	**1.5**	**0.3**	**5.6**	**2.3**	**11.8**
Corporates	**1.1**	**(0.1)**	**(0.5)**	**1.0**	**(0.5)**	**1.0**
Retail	**1.0**	**–**	**(0.1)**	**0.9**	**(1.3)**	**0.5**
Secured by mortgages on immovable property	**–**	**(1.9)**	**(0.5)**	**–**	**–**	**(2.4)**
Exposure in default	**0.7**	**–**	**0.9**	**–**	**1.1**	**2.7**
Equity	**2.6**	**11.4**	**0.2**	**1.6**	**0.7**	**16.5**
Other	**0.4**	**(0.3)**	**–**	**–**	**(1.1)**	**(1.0)**
At 1 January 2014	**42.9**	**15.5**	**0.6**	**11.8**	**1.4**	**72.2**

1 *The impact of transfer of immaterial portfolios from IRB approach to standardised approach is included in this table.*

Key points

The main impacts of CRD IV at 1 January 2014 are:

- Securitisation position RWA increased by US$40.2bn representing positions previously deducted from capital and now risk-weighted at 1250% in accordance with CRD IV.
- RWAs reported under equity exposure class has increased by US$16.5bn due to significant investments, now risk-weighted at 250%, and previously deducted from capital.
- RWAs reported under the central governments and central banks standardised approach has increased by US$11.8bn due to Deferred Tax Assets, now risk-weighted at 250%, and previously at 100%.
- RWAs reported under institutions and corporates IRB exposure classes increased by US$9.2bn due to the introduction of asset value correlation multiplier on large and un-regulated financial institutions.

Table 12: CRD IV impact – Counterparty credit risk RWAs by region at 1 January 2014

	Europe US$bn	Asia US$bn	North America US$bn	Latin America US$bn	Total US$bn
RWAs					
IRB advanced approach	**6.4**	**1.6**	**1.9**	**0.2**	**10.1**
Central governments and central banks	**0.2**	**–**	**–**	**–**	**0.2**
Institutions	**2.7**	**1.1**	**0.7**	**0.2**	**4.7**
Corporates	**3.5**	**0.5**	**1.2**	**–**	**5.2**
IRB foundation approach	**0.1**	**–**	**–**	**–**	**0.1**
Corporates	**0.1**	**–**	**–**	**–**	**0.1**
Total excluding CVA and CCP at 1 January 2014	**6.5**	**1.6**	**1.9**	**0.2**	**10.2**
CVA advanced	**6.8**	**–**	**–**	**–**	**6.8**
CVA standardised	**9.2**	**4.9**	**9.0**	**0.8**	**23.9**
CCP standardised	**3.5**	**0.6**	**1.3**	**3.7**	**9.1**
Total including CVA and CCP at 1 January 2014	**26.0**	**7.1**	**12.2**	**4.7**	**50.0**

Key points

The main impacts of CRD IV at 1 January 2014 are:

- RWAs for central governments and central banks, institutions and corporates increased by US$10.2bn due to the introduction of asset value correlation multiplier on large and unregulated financial institutions.
- An additional capital charge to cover the potential mark-to-market losses is referred to as credit valuation adjustment ('CVA'). This increased RWAs by US$23.9bn under standardised approach and by US$6.8bn under advanced approach.
- A new requirement for exposures to central counterparties has increased RWAs by US$9.1bn.

Credit Risk RWAs

Table 13a: Credit risk exposure – RWAs by region

	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
CRD IV basis						
IRB approach	**216.1**	**213.1**	**15.6**	**142.0**	**11.6**	**598.4**
IRB advanced approach	**203.3**	**213.1**	**11.6**	**142.0**	**11.6**	**581.6**
IRB foundation approach	**12.8**	**–**	**4.0**	**–**	**–**	**16.8**
Standardised approach	**47.1**	**186.0**	**39.0**	**29.6**	**55.2**	**356.9**
At 31 December 2014	**263.2**	**399.1**	**54.6**	**171.6**	**66.8**	**955.3**
Basel 2.5 basis						
IRB advanced approach	157.1	182.9	11.2	161.5	8.5	521.2
IRB foundation approach	9.8	–	3.8	–	–	13.6
Standardised approach	44.5	165.9	40.0	22.7	56.4	329.5
At 31 December 2013	211.4	348.8	55.0	184.2	64.9	864.3

Table 13b: Credit risk exposure – RWAs by global business

CRD IV basis	Principal RBWM US$bn	RBWM (US run-off) US$bn	Total RBWM US$bn	CMB US$bn	GB&M US$bn	GPB US$bn	Other US$bn	Total US$bn
IRB approach	**55.9**	**47.3**	**103.2**	**217.4**	**255.6**	**10.2**	**12.0**	**598.4**
IRB advanced approach	**55.9**	**47.3**	**103.2**	**209.4**	**248.1**	**10.0**	**10.9**	**581.6**
IRB foundation approach	**–**	**–**	**–**	**8.0**	**7.5**	**0.2**	**1.1**	**16.8**
Standardised approach	**60.4**	**4.8**	**65.2**	**181.8**	**70.1**	**6.6**	**33.2**	**356.9**
At 31 December 2014	**116.3**	**52.1**	**168.4**	**399.2**	**325.7**	**16.8**	**45.2**	**955.3**
Basel 2.5 basis								
IRB advanced approach	58.4	72.6	131.0	183.2	192.8	10.4	3.8	521.2
IRB foundation approach	–	–	–	6.3	5.8	0.1	1.4	13.6
Standardised approach	60.6	3.1	63.7	169.3	71.6	6.9	18.0	329.5
At 31 December 2013	119.0	75.7	194.7	358.8	270.2	17.4	23.2	864.3

Credit risk – Standardised approach RWAs

For portfolios treated under the standardised approach, credit risk RWAs increased by US$27.4bn which reflected a reduction of US$13.6bn due to foreign exchange movements.

Corporate growth in Asia, Europe, North America and Latin America, including term and trade related lending, increased RWAs by US$25.0bn, of which growth in our associate Bank of Communications accounted for US$6.4bn.

The move to a CRD IV basis increased RWAs on 1 January 2014 by US$7.1bn. This movement mainly comprised material holdings and deferred tax asset amounts in aggregate below the capital threshold, risk-weighted at 250% of US$28.3bn, partially offset by the reclassification of non-credit obligation assets to the IRB approach for reporting purposes of US$16.3bn and the netting of collective impairments against EAD under the standardised approach of US$3.5bn.

During the year, several individually immaterial portfolios moved from the IRB approach to the standardised approach, increasing standardised RWAs by US$6.0bn, and reducing IRB RWAs by US$4.8bn.

The disposal of our operations in Jordan, Pakistan, Colombia and Kazakhstan, reduced RWAs by US$1.0bn.

In Asia, movement in the fair value of our material holdings, mainly in Industrial Bank, resulted in an increase in RWAs of US$5.9bn. This was partially offset by the reclassification of Vietnam Technological and Commercial Joint Stock Bank from an associate to an investment, which reduced RWAs by US$1.1bn.

Table 14: RWA movement by region by key driver – credit risk – IRB only

	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
RWAs at 1 January 2014 on Basel 2.5 basis	**166.9**	**182.9**	**15.0**	**161.5**	**8.5**	**534.8**
Foreign exchange movement	**(11.6)**	**(4.0)**	**(0.2)**	**(2.4)**	**(1.9)**	**(20.1)**
Acquisitions and disposals	**(3.5)**	**–**	**(0.7)**	**(4.2)**	**(0.1)**	**(8.5)**
Book size	**11.4**	**19.5**	**1.8**	**2.9**	**2.0**	**37.6**
Book quality	**(1.5)**	**–**	**(0.8)**	**(10.3)**	**1.4**	**(11.2)**
Model updates	**19.4**	**0.3**	**–**	**(6.1)**	**–**	**13.6**
New/updated models	**19.4**	**0.3**	**–**	**(6.1)**	**–**	**13.6**
Methodology and policy	**35.0**	**14.4**	**0.5**	**0.6**	**1.7**	**52.2**
Internal updates	**(11.7)**	**(5.2)**	**(0.2)**	**(6.4)**	**(0.1)**	**(23.6)**
External updates	**2.2**	**8.5**	**(0.2)**	**0.7**	**0.1**	**11.3**
CRD IV impact	**37.0**	**5.7**	**0.4**	**4.9**	**0.2**	**48.2**
NCOA moving from STD to IRB	**7.5**	**5.4**	**0.5**	**1.4**	**1.5**	**16.3**
Total RWA movement	**49.2**	**30.2**	**0.6**	**(19.5)**	**3.1**	**63.6**
RWAs at 31 December 2014 on CRD IV basis	**216.1**	**213.1**	**15.6**	**142.0**	**11.6**	**598.4**

Table 14: RWA movement by region by key driver – credit risk – IRB only (continued)

	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
RWAs at 1 January 2013 on Basel 2.5 basis	150.7	162.3	12.6	187.1	11.2	523.9
Foreign exchange movement	3.3	(4.5)	(0.5)	(1.9)	(1.0)	(4.6)
Acquisitions and disposals	(1.5)	–	–	(8.6)	(1.7)	(11.8)
Book size	2.1	21.2	1.4	(10.6)	0.2	14.3
Book quality	(1.5)	5.3	1.3	(10.8)	(0.3)	(6.0)
Model updates	11.6	–	0.1	(0.2)	–	11.5
Portfolios moving onto IRB approach	13.4	–	–	–	–	13.4
New/updated models	(1.8)	–	0.1	(0.2)	–	(1.9)
Methodology and policy	2.2	(1.4)	0.1	6.5	0.1	7.5
Internal updates	(0.2)	(7.8)	0.1	(0.6)	0.1	(8.4)
External updates	2.4	6.4	–	7.1	–	15.9
Total RWA movement	16.2	20.6	2.4	(25.6)	(2.7)	10.9
RWAs at 31 December 2013 on Basel 2.5 basis	166.9	182.9	15.0	161.5	8.5	534.8

Table 15: RWA movement by global business by key driver – credit risk – IRB only

	Principal RBWM US$bn	**RBWM (US run-off) US$bn**	**Total RBWM US$bn**	**CMB US$bn**	**GB&M US$bn**	**GPB US$bn**	**Other US$bn**	**Total US$bn**
RWAs at 1 January 2014 on Basel 2.5 basis	**58.4**	**72.6**	**131.0**	**189.5**	**198.5**	**10.6**	**5.2**	**534.8**
Foreign exchange movement	**(2.6)**	**–**	**(2.6)**	**(8.7)**	**(8.1)**	**(0.2)**	**(0.5)**	**(20.1)**
Acquisitions and disposals	**–**	**–**	**–**	**–**	**(8.2)**	**–**	**(0.3)**	**(8.5)**
Book size	**1.8**	**(6.9)**	**(5.1)**	**23.2**	**21.1**	**(0.5)**	**(1.1)**	**37.6**
Book quality	**(5.7)**	**(8.6)**	**(14.3)**	**2.8**	**(0.2)**	**(0.3)**	**0.8**	**(11.2)**
Model updates	**0.6**	**(6.2)**	**(5.6)**	**12.2**	**7.0**	**–**	**–**	**13.6**
New/updated models	**0.6**	**(6.2)**	**(5.6)**	**12.2**	**7.0**	**–**	**–**	**13.6**
Methodology and policy	**3.4**	**(3.6)**	**(0.2)**	**(1.6)**	**45.5**	**0.6**	**7.9**	**52.2**
Internal updates	**(3.0)**	**(3.9)**	**(6.9)**	**(5.0)**	**(11.2)**	**(0.5)**	**–**	**(23.6)**
External updates	**1.8**	**–**	**1.8**	**2.5**	**6.3**	**0.5**	**0.2**	**11.3**
CRD IV impact	**–**	**–**	**–**	**(0.7)**	**48.6**	**0.2**	**0.1**	**48.2**
NCOA moving from STD to IRB	**4.6**	**0.3**	**4.9**	**1.6**	**1.8**	**0.4**	**7.6**	**16.3**
Total RWA movement	**(2.5)**	**(25.3)**	**(27.8)**	**27.9**	**57.1**	**(0.4)**	**6.8**	**63.6**
RWAs at 31 December 2014 on CRD IV basis	**55.9**	**47.3**	**103.2**	**217.4**	**255.6**	**10.2**	**12.0**	**598.4**

	RBWM US$bn	CMB US$bn	GB&M US$bn	GPB US$bn	Other US$bn	Total US$bn
RWAs at 1 January 2013 on Basel 2.5 basis	163.1	169.0	177.7	9.6	4.5	523.9
Foreign exchange movement	(0.4)	(1.5)	(2.7)	0.1	(0.1)	(4.6)
Acquisitions and disposals	(10.1)	(0.1)	(1.6)	–	–	(11.8)
Book size	(12.7)	14.5	13.5	(0.7)	(0.3)	14.3
Book quality	(6.4)	3.5	(3.4)	0.3	–	(6.0)
Model updates	(0.2)	10.1	(1.0)	2.6	–	11.5
Portfolios moving onto IRB approach	–	10.0	0.8	2.6	–	13.4
New/updated models	(0.2)	0.1	(1.8)	–	–	(1.9)
Methodology and policy	(2.3)	(6.0)	16.0	(1.3)	1.1	7.5
Internal updates	(2.3)	(3.4)	(0.6)	(2.1)	–	(8.4)
External updates	–	(2.6)	16.6	0.8	1.1	15.9
Total RWA movement	(32.1)	20.5	20.8	1.0	0.7	10.9
RWAs at 31 December 2013 on Basel 2.5 basis	131.0	189.5	198.5	10.6	5.2	534.8

Credit risk – IRB approach RWAs

For portfolios treated under IRB approaches, credit risk RWAs increased by US$63.6bn, reflecting a reduction of US$20.1bn due to foreign exchange movements driven by the strengthening of the US dollar against other currencies.

Acquisitions and disposals

In GB&M, the sale of asset-backed securities ('ABS's) in North America reduced RWAs by US$4.2bn. Additionally, GB&M continued to manage down the securitisation positions held through the sale of certain structured investment conduit positions, lowering RWAs by US$3.0bn in Europe.

The disposal of our businesses in Kazakhstan, Colombia, Pakistan and Jordan resulted in a reduction in RWAs of US$1.2bn in Europe, Latin America and Middle East and North Africa.

Book size

Book size movement reflected higher corporate lending, including term and trade-related lending, increasing RWAs by US$40.3bn in Asia, Europe and North America for CMB and GB&M. Sovereign book growth in GB&M increased RWAs by US$3.3bn, mainly in Asia, Latin America and Middle East and North Africa.

In North America, in RBWM, continued run-off of the US CML retail mortgage portfolios resulted in a RWA reduction of US$6.9bn.

Book quality

RWAs reduced by US$8.5bn in the US run-off portfolio, primarily due to continued run-off that resulted in an improvement in the residual portfolio.

Book quality improvements in Principal RBWM of US$5.9bn related to model recalibrations reflecting improving property prices in the US and favourable change in portfolio mix reducing RWAs in Europe.

A ratings upgrade for the securitisation position resulted in a decrease in RWAs of US$3.2bn. This was partially offset by adverse movements in average customer credit quality in corporate, sovereign and institutional portfolios in Europe, North America, Middle East and North Africa, Asia and Latin America increasing RWAs by US$7.6bn.

Model updates

In Europe, an LGD floor applied to UK corporate portfolios resulted in an increase in RWAs of US$19.0bn in CMB and GB&M.

This was partially offset by model updates in North America, primarily the implementation of new risk models for the US mortgage run-off portfolio, resulting in a decrease in RWAs of US$6.2bn.

Methodology and policy changes

Methodology and policy updates increased RWAs by US$52.2bn.

CRD IV Impact

The rise related to the implementation of CRD IV rules at 1 January 2014, having an RWA impact of US$48.2bn. The main CRD IV movements arose from securitisation positions that were previously deducted from capital and are now included as a part of credit risk RWAs and risk-weighted at 1250%, resulting in a US$40.2bn increase in RWAs, in GB&M, primarily Europe. CRD IV also introduced an asset valuation correlation multiplier for financial counterparties, producing a US$9.2bn increase in RWAs primarily in GB&M Asia and Europe.

Internal updates

A decrease in RWAs of US$9.2bn arose from the set-off of negative available for sale ('AFS') reserves against EAD for GB&M legacy credit portfolios.

In Asia, internal methodology changes associated with trade finance products accounted for a reduction in RWAs of US$4.9bn.

Additionally, the transfer of individually immaterial portfolios moving to the standardised approach reduced IRB RWAs by US$4.8bn in Principal RBWM and CMB in most regions and increased RWAs in the standardised approach by US$6.0bn.

The reclassification of part of the mortgage portfolio led to a decrease in RWAs of US$4.5bn in North America of which US$4.1bn is in the run-off portfolio.

External updates

Selected portfolios with a low default history mainly in Europe, Asia and North America, were subjected to external updates with the introduction of LGD floors applied to corporates and institutions, increasing RWAs by US$9.8bn. A further RWA floor was introduced on retail mortgages in Asia resulting in an increase of US$1.7bn.

NCOA moving from standardised to IRB

The reclassification of non credit obligation assets to the IRB approach for reporting purposes increased RWAs under IRB approach by US$16.3bn and reduced standardised approach RWAs by the same amount.

Counterparty credit risk RWAs

Counterparty credit risk RWAs increased by US$45.0bn in 2014.

Table 16: Counterparty credit risk RWAs

	CRD IV basis 2014 US$bn	Basel 2.5 basis 2013 US$bn
Advanced approach	**65.5**	42.2
CCR IRB approach	**62.0**	42.2
CVA	**3.5**	–
Standardised approach	**25.2**	3.5
CCR standardised approach	**4.4**	3.5
CVA	**18.0**	–
CCP	**2.8**	–
RWAs at 31 December	**90.7**	45.7

CCR standardised RWAs increased by US$21.7bn, principally driven by the implementation of CRD IV at 1 January 2014, which introduced CVA and CCP RWAs.

Table 17: RWA movement by key driver – counterparty credit risk – advanced approach

	CRD IV basis 2014 US$bn	Basel 2.5 basis 2013 US$bn
RWAs at 1 January on Basel 2.5 basis	**42.2**	45.7
Book size	**1.6**	(0.9)
Book quality	**(0.6)**	(2.7)
Model updates	**0.1**	–
Methodology and policy	**22.2**	0.1
Internal updates	**(3.8)**	0.1
External regulatory updates	**9.0**	–
CRD IV impact	**17.0**	–
Total RWA movement	**23.3**	(3.5)
RWAs at 31 December	**65.5**	42.2

Counterparty credit risk – Advanced approach RWAs

Book size

The increase in book size was mainly driven by business movements and the impact of the strengthening of the USD against other currencies on marked to market derivatives contracts.

Model updates

In Europe, a LGD floor applied to UK corporate portfolios resulted in an increase in RWAs of US$2.2bn. This was offset by a decrease in RWA of US$2.0bn due to model updates to the IMM used for selected portfolios in London.

Methodology and policy changes

The CVA and asset value correlation multiplier for financial counterparties introduced by the implementation of CRD IV increased RWAs by US$6.8bn and US$10.2bn respectively on 1 January 2014.

Within external regulatory and policy updates, selected portfolios were subject to PRA LGD floors, which increased RWAs by US$7.5bn, mainly in Europe and Asia. Additionally, guidance received in 4Q14 led to the application of a 'potential future exposure' charge on sold options, contributing to a US$1.5bn increase in RWA.

Decreases in RWAs from internal methodology updates were mainly driven by additional CVA exemptions following internal due diligence and review alongside a more efficient allocation of collateral in Europe, which decreased RWAs by US$3.8bn.

Market risk RWAs

Total market risk RWAs decreased by US$7.4bn in 2014.

Table 18: Market risk RWAs

	CRD IV basis 2014 US$bn	Basel 2.5 basis 2013 US$bn
Internal model based		
VaR	**7.3**	4.9
Stressed VaR	**10.4**	9.4
Incremental risk charge	**20.1**	23.1
Comprehensive risk measure	**–**	2.6
Other VaR and stressed VaR	**6.8**	12.2
Internal model based	**44.6**	52.2
Standardised approach	**11.4**	11.2
At 31 December	**56.0**	63.4

Standardised approach

The Market risk RWAs movements for portfolios not within the scope of modelled approaches resulted in an increase of US$0.2bn. The increase in RWAs of US$2.6bn related to the CRD IV treatment of trading book securitisation positions that were previously deducted from capital.

This was offset by reductions in RWAs of US$2.5bn for interest rate position risk, primarily in Latin America, due to the introduction of the Scenario Matrix Method for options and a general reduction in positions in Latin America and the US.

Table 19: RWA movement by key driver – market risk – internal model based

	CRD IV basis 2014 US$bn	Basel 2.5 basis 2013 US$bn
RWAs at 1 January on Basel 2.5 basis	**52.2**	44.5
Acquisitions and disposals	**(2.2)**	–
Movement in risk levels	**(4.2)**	(14.5)
Model updates	**–**	17.6
Methodology and policy	**(1.2)**	4.6
Internal updates	**(3.8)**	4.6
External regulatory updates	**2.6**	–
Total RWA movement	**(7.6)**	7.7
RWAs at 31 December	**44.6**	52.2

Internal model based

Acquisitions and disposals

The sale of our correlation trading portfolio reduced Comprehensive Risk Measure RWAs by US$2.0bn. The disposal of our business in Kazakhstan resulted in a reduction of US$0.2bn in RWAs.

Movement in risk levels

Movement in risk levels reflected a decrease mainly in value at risk ('VaR') and Stressed VaR as a result of reduced FX and Equity trading positions.

Methodology and policy changes

The increase in RWAs from External updates related mainly to the introduction, for collateralised transactions, of the basis between the currency of trade and the currency of collateral into the VaR calculation and the removal of the diversification benefit from Risks not in VaR ('RNIV') calculations, driving an increase of US$6.7bn.

This was partially offset by decreases in RWAs of US$4.3bn from Internal updates mainly due to refinements in the RNIV calculation for the Equities and Rates desks.

There were further decreases in RWAs following regulatory approval for a change in the basis of consolidation for modelled market risk charges delivering a reduction in RWAs of US$4.1bn.

Operational risk RWAs

The reduction in operational risk RWAs of US$1.4bn was due to the finalisation of amortisation of the residual operational risk RWAs for the US CRS portfolio disposed of in May 2012, combined with a lower three-year average operating income.

Pillar 2 and ICAAP

Pillar 2

The processes of internal capital adequacy assessment and supervisory review, known as Pillar 2, lead to final determination by the PRA of Individual Capital Guidance ('ICG') and any CPB that may be required.

Within Pillar 2, Pillar 2A considers, in addition to the minimum capital requirements for Pillar 1 risks described above, any supplementary requirements for those risks and in addition any requirements for risk categories not captured by Pillar 1. The risk categories to be covered under Pillar 2A depend on the specific circumstances of a firm and the nature and scale of its business. Pillar 2A also estimates capital needed to compensate for any shortcomings in management, governance or controls, and to guard against unexpected losses while these deficiencies are addressed.

Pillar 2B consists of guidance from the PRA on a capital buffer a firm would require in order to remain above its ICG in adverse circumstances that may be largely outside the firm's normal and direct control, for example during a period of severe but plausible downturn stress, when asset values and the firm's capital surplus may become strained. This is quantified via any CPB requirement the PRA may consider necessary. The assessment of this is informed by stress tests and a rounded judgement of a firm's business model, also taking into account the PRA's view of a firm's options and capacity to protect its capital position under stress, for instance through capital generation. The CPB is a buffer that is intended to be drawn upon in times of stress and its use is not of itself a breach of capital requirements and would not trigger automatic restrictions on distributions. In the face of specific circumstances, the PRA would agree a plan with the firm to restore it over a certain timescale.

As explained in the Regulatory Developments section on page 6, the PRA is currently consulting on their revised approach to Pillar 2 (PRA CP1/15, '*Assessing capital adequacy under Pillar 2*', January 2015), including new methodologies for determining Pillar 2A requirements for credit risk, operational risk, credit risk and pension obligation risk and the PRA buffer and its interaction with the CRD IV buffers. The PRA expects to finalise the Pillar 2 framework in July 2015, with implementation expected from 1 January 2016.

Internal capital adequacy assessment

Through the ICAAP, the GMB examines the Group's risk profile from both regulatory and economic capital viewpoints, aiming to ensure that capital resources:

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

The minimum regulatory capital that we are required to hold is determined by the rules and guidance established by the PRA for the consolidated Group and by local regulators for individual Group companies. These capital requirements are a primary influence shaping the business planning process, in which RWA targets are established for our global businesses in accordance with the Group's strategic direction and risk appetite.

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

The ICAAP and its constituent economic capital calculations are examined by the PRA as part of its supervisory review and evaluation process. This examination informs the regulator's view of our Pillar 2 capital requirements.

Preserving our strong capital position remains a priority, and the level of integration of our risk and capital management helps to optimise our response to business demand for regulatory and economic capital. Risks that are explicitly assessed through economic capital are credit risk including counterparty credit risk, market and operational risk, non-trading book interest rate risk, insurance risk, pension risk, residual risk and structural foreign exchange risk.

Leverage ratio

Table 20: Estimated leverage ratio

	EU Delegated Act basis 31 December 2014 US$bn	Basel III 2010 basis 31 December 2013 US$bn
Total assets per accounting balance sheet	**2,634**	2,671
Deconsolidation of insurance/other entities	**(104)**	
Capital invested in insurance entities	**2**	
Consolidation of banking associates	**194**	
Total assets per regulatory/accounting balance sheet	**2,726**	2,671
Adjustment to reverse netting of loans and deposits allowable under IFRS	**38**	93
Reversal of accounting values:	**(525)**	(482)
Derivatives	**(345)**	(282)
Repurchase agreement and securities finance	**(180)**	(200)
Replaced with values after applying regulatory rules:		
Derivatives:	**166**	239
Market-to-market value	**81**	69
Deductions of receivables assets for cash variation margin	**(82)**	
Add-on amounts for potential future exposure	**148**	170
Exposure amount resulting from the additional treatment for written credit derivatives	**19**	
Repurchase agreement and securities finance:	**188**	147
Gross securities financing transactions assets	**269**	
Netted amounts of cash payables and cash receivables of gross securities financing transactions assets	**(89)**	
Securities financing transactions assets netted under Basel III 2010 framework		147
Measurement of counterparty risk	**8**	
Addition of off balance sheet commitments and guarantees:	**396**	388
Guarantees and contingent liabilities	**67**	85
Commitments	**321**	295
Other	**8**	8
Exclusion of items already deducted from the capital measure	**(36)**	(28)
Exposure measure after regulatory adjustments	**2,953**	3,028
Tier 1 capital under CRD IV (end point)	**142**	133
Estimated leverage ratio (end point)	**4.8%**	4.4%

In January 2014, the Basel Committee published its finalised leverage ratio framework, along with public disclosure requirements applicable from 1 January 2015, updating its 2010 recommendations.

In June 2014, the PRA published its revised expectations in relation to the leverage ratio for major UK banks and building societies, namely that from 1 July 2014, we are expected to meet a 3% end point tier 1 leverage ratio, calculated using the CRD IV definition of capital for the numerator and the Basel 2014 exposure measure for the denominator.

In October 2014, the European Commission adopted a delegated act to establish a common definition of the leverage ratio for EU banks (based on the Basel revised definition). This was published in the EU's Official Journal in January 2015.

Under CRD IV, the legislative proposals and final calibration of the leverage ratio are expected to be determined following a review of the revised Basel proposals and the basis of the EBA's assessment of the impact and effectiveness of the leverage ratio during a monitoring period between 1 January 2014 and 30 June 2016.

In January 2015, the PRA issued a letter setting out the approach to be taken for calculating the leverage ratio for 2014 year end disclosures. While the numerator continues to be calculated using the final CRD IV end point tier 1 capital definition, the exposure measure is now calculated based on the EU delegated act (rather than the Basel 2014 definition used in the *Interim Report 2014*). Reporting on the basis of the EU Delegated Act (rather than the Basel 2014 definition) results in an immaterial 2bps positive difference.

Our leverage ratio for 2013 as disclosed above was based on the Basel 2010 text at the direction of the PRA. The change to reporting on the EU Delegated Act in 2014 from the Basel 2010 text in 2013 contributes a US$115bn increase in the exposure measure. Key changes include:

- A change to the regulatory scope of consolidation increases the exposure measure by US$132bn.
- The netting of securities financing transactions ('SFT's) is based on the accounting criteria and an additional add-on for counterparty risk increases the exposure measure by US$66bn.
- The inclusion of written credit derivatives at a notional amount increases the exposure measure by US$23bn.
- The offsetting of cash variation margin against derivative assets and liabilities results in a decrease in the exposure measure of US$65bn.

- A change to the CCFs applied to off-balance sheet exposures decreases the exposure measure by US$41bn.

For further details on the basis of preparation, see below.

It should be noted that the UK specific leverage ratio proposals published in October 2014 by the FPC are conceptually different to the Basel and CRD IV leverage frameworks and are not yet in place. Further details of the UK proposals can be found under 'Leverage ratio proposals' on page 9.

Basis of preparation

The numerator, capital measure, is calculated using the 'end point' definition of tier 1 capital applicable from 1 January 2022, which is set out in the final CRD IV rules. This is supplemented with the EBA's Own Funds' RTS to the extent that these have been published in the EU's Official Journal of the European Commission as at the reporting date, as well as making reference to the PRA Rulebook where appropriate. The denominator, exposure measure, is calculated on the basis of the Leverage Ratio Delegated Act adopted by the European Commission in October 2014 and published in the EU's Official Journal in January 2015, which is aligned to the Basel 2014 leverage ratio framework. This follows the same scope of regulatory consolidation used for the risk-based capital framework, which differs to the 2010 Basel text that required banks to include items using their accounting balance sheet. The exposure measure generally follows the accounting value, adjusted as follows:

- on-balance sheet, non-derivative exposures are included in the exposure measure net of specific provisions or accounting valuation adjustments (e.g. accounting credit valuation adjustments);
- loans are not netted with deposits;
- the scope of netting for derivatives is extended to all scenarios where we would recognise a netting agreement for regulatory purposes;
- the scope for offsetting of cash variation margin against derivative assets and liabilities is extended subject to certain additional conditions including the requirement that the margin be exchanged daily and be in the same currency as the currency of settlement of the derivative contract. For these purposes we have considered this to include any currency that can be used to make payments under the derivative contract, the governing qualifying master netting agreement, or its associated credit support annex. Such offsetting is not permitted under the Basel 2010 text;
- the approach to netting SFTs is aligned to that permitted under IFRS, though for the purposes of the leverage ratio there is an additional counterparty credit risk add-on to the extent that an SFT is under collateralised. This represents a stricter requirement compared with the Basel 2010 text;
- there is an add-on for potential future exposure for both OTC and exchange-traded derivatives;
- the notional amount of written credit derivatives is included in the exposure measure, subject to offsets for purchased protection. This represents a stricter requirement compared with the Basel 2010 text;
- off-balance sheet items are converted into credit exposure equivalents through the use of CCFs. Depending on the risk category of the exposure a CCF of 10%, 20%, 50% or 100% is applied. In contrast, the Basel 2010 text requires that off-balance sheet items are included in full except for commitments that are unconditionally cancellable at any time by HSBC without prior notice, where only 10% of the exposures are included; and
- items deducted from the end point tier 1 capital such as goodwill and intangible assets, are excluded.

Risk management

Overview

All our activities involve, to varying degrees, the measurement, evaluation, acceptance and management of risk or a combination of risks, which we assess on a Group-wide basis. Our risk management framework, employed at all levels of the organisation, ensures that our risk profile remains conservative and aligned to our risk appetite and strategy by fostering a continuous monitoring of the risk environment and an integrated evaluation of risks and their interactions. It also ensures that we have a robust and consistent approach to risk management at all levels of the organisation and across all risk types.

The Group's three strategic priorities are reflected in our management of risk:

- Grow the business and dividends – we ensure risk is maintained at an acceptable and appropriate level while creating value and generating profits.
- Implement Global Standards – we are transforming how we detect, deter and protect against financial crime through the deployment of Global Standards, which govern how we do business and with whom.
- Streamline processes and procedures – our disposal programme has made HSBC easier to manage and control. By focusing on streamlining our processes and procedures, we will make HSBC less complex to operate, creating capacity for growth.

Risk management is embedded through:

- a strong risk culture, with personal accountability for decisions;
- a formal risk governance framework, with clear and well understood risk ownership, standards and policies;
- the alignment of risk and business objectives, with integration of risk appetite into business planning and capital management;
- the alignment of remuneration with our risk framework and risk outcomes; and
- an independent, expert global risk function ('Global Risk').

A more comprehensive description of our approach to risk management, including risk appetite, is set out in the Risk Overview of our Strategic Report on pages 21 to 25 of the *Annual Report and Accounts 2014*.

Risk culture

HSBC has long recognised the importance of a strong risk culture, the fostering of which is a key responsibility of senior executives. Our risk management framework is underpinned by our strong risk culture, which is reinforced by the HSBC Values and our Global Standards. Our risk culture is instrumental in aligning the behaviours of individuals with the Group's attitude to assuming and managing risk and ensuring that our risk profile remains in line with our risk appetite and strategy.

Our risk culture is also reinforced by our approach to remuneration, which is discussed further on page 300 of the *Annual Report and Accounts 2014*.

Risk governance and risk appetite

Our strong risk governance reflects the importance placed by the Board and the Group Risk Committee ('GRC') on shaping the Group's risk strategy and managing risks effectively.

Strong risk governance is supported by:

- a clear policy framework of risk ownership;
- a risk appetite process through which the types and levels of risk that we are prepared to accept in executing our strategy are articulated and monitored;
- performance scorecards cascaded from the GMB that align business and risk objectives; and
- the accountability of all staff for identifying, assessing and managing risks within the scope of their assigned responsibilities.

This personal accountability, reinforced by the governance structure, documented standards, policy and procedures, and experience and mandatory learning, helps to foster a disciplined and constructive culture of risk management and control throughout HSBC.

Our risk governance framework is described on page 112 of the *Annual Report and Accounts 2014*. The executive and non-executive risk governance structures for the management of risk are set out on page 204 of the *Annual Report and Accounts 2014.* Other directorships held by Board members and Board recruitment and diversity policies are set out on pages 264 and 284 of the *Annual Report and Accounts 2014*, respectively.

Risk appetite is a key component in our management of risk. It describes the types and quantum of risks that we are willing to accept in achieving our medium and long-term strategic objectives. The Risk Appetite Statement ('RAS') is approved by the Board on the advice of the Group Risk Committee.

The RAS guides the annual planning process by defining the desired forward looking risk profile of the Group in achieving our strategic objectives and plays an important role in our six filters process. Our risk appetite may be revised in response to our assessment of the top and emerging risks we have identified.

Diversification is an important aspect of our management of risk. The diversification of our lending portfolio across global businesses and regions, together with our broad range of products, ensures that we are not overly dependent on a limited number of countries or markets to generate income and growth.

Global Risk

Global Risk, headed by the Group Chief Risk Officer, is responsible for enterprise-wide risk oversight including the establishment of global policy, the monitoring of risk profiles, and forward looking risk identification and management. Global Risk also has functional responsibility for risk management in support of HSBC's global businesses and regions through an integrated network of Risk sub-functions which are independent from the sales and trading functions of our businesses. This independence ensures the necessary balance in risk/return decisions.

Global Risk:

- forms part of the second line of defence, with responsibility for setting policy and for providing oversight and challenge of the activities conducted by the first line;
- supports our global businesses, regions, countries and global functions in the development and achievement of strategic objectives;
- fosters development of a conservative but constructive Group risk culture;
- works with global businesses, regions and global functions in the setting and monitoring of risk appetite;
- carries out central approvals, controls, risk systems leadership and the analysis and reporting of management information;
- addresses risk issues in dealings with external stakeholders including regulators and analysts;
- is jointly responsible with Global Finance for the delivery of enterprise-wide stress testing; and
- in addition to 'business as usual' operations, engages with business development activities such as new product approval and post-implementation review, and acquisition due diligence.

Risk management and internal control systems

The Directors are responsible for maintaining and reviewing the effectiveness of risk management and internal control systems and for determining the nature and extent of the significant risks they are willing to take in achieving the Group's strategic objectives. On behalf of the Board, the GAC has responsibility for oversight of risk management and internal controls over financial reporting, and the GRC has responsibility for oversight of risk management and internal controls other than over financial reporting, including enterprise-wide stress testing.

HSBC's key risk management and internal control procedures are described on page 288 of the *Annual Report and Accounts 2014,* where the Directors' Report

on the effectiveness of internal controls can also be found.

The Directors, through the GRC and the GAC, have conducted an annual review of the effectiveness of our system of risk management and internal control covering all material controls, including financial, operational and compliance controls, risk management systems, the adequacy of resources, qualifications and experience of staff of the accounting and financial reporting function and the risk function, and their training programmes and budget. The review does not extend to joint ventures or associates.

The GRC and the GAC have received confirmation that executive management has taken or is taking the necessary actions to remedy any failings or weaknesses identified through the operation of our framework of controls.

Risk measurement and reporting systems

The purpose of our risk measurement and reporting systems is to ensure that, as far as possible, risks are comprehensively captured with all the attributes necessary to support well-founded decisions, that those attributes are accurately assessed and that information is delivered in a timely way for those risks to be successfully managed and mitigated.

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

We continue to invest significant resources in IT systems and processes in order to maintain and improve our risk management capabilities as well as to comply with the principles for effective risk data aggregation and risk reporting as set out by the Basel Committee on Banking Supervision. Group policy promotes the deployment of preferred technology where practicable. Group standards govern the procurement and operation of systems used in our subsidiaries to process risk information within business lines and risk functions.

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

Risk analytics and model governance

Global Risk manages a number of analytics disciplines supporting rating and scoring models for different risk types and business segments, economic capital and stress testing. It formulates technical responses to industry developments and regulatory policy in the field of risk analytics, develops HSBC's global risk models, and oversees local model development and use around the Group in progress toward our implementation targets for the IRB advanced approach.

Model governance is under the general oversight of Group Model Oversight Committee ('Group MOC'). Group MOC is supported by specific global functional MOCs for Wholesale Credit and Market Risk ('WCMR') and RBWM, and has regional and entity-level counterparts with comparable terms of reference. The Group MOC meets bi-monthly and reports to RMM. It is chaired by the Risk function, and its membership is drawn from Risk, Finance and global businesses.

Its primary responsibilities are to bring a strategic approach to model-related issues across the Group and to oversee the governance of our risk rating models, their consistency and approval, within the Basel framework. Through its oversight of the functional WCMR and RBWM MOCs, it identifies emerging risks for all aspects of the risk rating system, ensuring that model risk is managed within our RAS, and formally advises RMM on any material model-related issues.

The development and use of data and models to meet local requirements are the responsibility of regional and/or local entities under the governance of their own management, subject to overall Group policy and oversight.

Credit risk

Overview and responsibilities

Credit risk represents our largest regulatory capital requirement.

The principal objectives of our credit risk management function are:

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

The credit risk functions within WCMR and RBWM are the constituent parts of Global Risk that support the GCRO in overseeing credit risks at the highest level. For this, their major duties comprise: undertaking independent reviews of large and high-risk credit proposals, large exposure policy and reporting oversight of our wholesale and retail credit risk management disciplines, ownership of our credit policy and credit systems programmes, portfolio management oversight and reporting on risk matters to senior executive management and to regulators.

These credit risk functions work closely with other parts of Global Risk, for example: with Security and Fraud Risk on enhancement of protection against retail product fraud, with Operational Risk on the internal control framework and with Risk Strategy on the risk appetite process. In addition, they work jointly with Risk Strategy and Global Finance on stress testing.

The credit responsibilities of Global Risk are described on page 204 of the Annual Report and Accounts 2014.

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

We operate through a hierarchy of personal credit limit approval authorities, not committee structures. Operating company chief executives, acting under authorities delegated by their boards and group standards, are accountable for credit risk and other risks in their business. In turn, chief executives delegate authority to operating company Chief Risk Officers and management teams on an individual basis. Each operating company is responsible for the quality and performance of its credit portfolios, and for monitoring and controlling all credit risks in those portfolios in accordance with Group standards. Above these thresholds of delegated personal credit limited approval authorities, approval or concurrence must be sought from the Regional and, as appropriate, global credit risk function before facilities are advised to the customer.

Moreover, risk proposals in certain portfolios – sovereign obligors, banks, some non-bank financial institutions and intra-Group exposures – are approved centrally in Global Risk to facilitate efficient control and the reporting of regulatory large and cross-border exposures.

Credit risk management

Our exposure to credit risk arises from a wide range of customer and product types, and the risk rating systems in place to measure and monitor these risks are correspondingly diverse. Each major subsidiary typically has some exposures across this range, and requirements may differ according to jurisdictions in which it operates.

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

Risk rating systems for retail exposures are generally quantitative in nature, applying techniques such as behavioural analysis across product portfolios comprising large numbers of homogeneous transactions. Rating systems for individually managed relationships typically use customer financial statements and market data analysis, but also qualitative elements and a final subjective overlay to better reflect any idiosyncratic elements of the customer's risk profile, see 'Application of the IRB Approach' on page 44.

Whatever the nature of the exposure, a fundamental principle of our policy and approach is that analytical risk rating systems and scorecards are all valuable tools at the disposal of management, informing judgemental decisions for which individual approvers are ultimately accountable.

In the case of automated decision-making processes, as used in retail credit origination where risk decisions may be taken 'at the point of sale' with no management intervention, that accountability rests with those responsible for the parameters built into those processes/systems and the governance and controls surrounding their use.

The credit process provides for at least an annual review of facility limits granted. Review may be more frequent, as required by circumstances, such as the emergence of adverse risk factors, and any consequent amendments to risk ratings must be promptly implemented.

We constantly seek to improve the quality of our risk management. For central management and reporting purposes, Group IT systems are deployed to process credit risk data. A central database is used, which covers substantially all of our direct lending exposures and holds the output of risk rating systems Group-wide. This continues to be enhanced in order to deliver both comprehensive management information in support of business strategy and solutions to evolving regulatory reporting requirements. The latter continue to present major challenges in view of the number and scope of

concurrent initiatives, requiring more frequent and faster provision of regulatory, risk and financial data at an increasingly granular level. Given the global nature of our business we typically need to generate this granular information both at local and Group level, but often in materially different ways. The new stress testing and G-SIB reporting requirements are prime examples of significant data requirements and related processes that have to be embedded into existing or enhanced systems architecture at various levels in the Group.

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

Like other facets of risk management, analytical risk rating systems are not static and are subject to review and modification in the light of the changing environment, the greater availability and quality of data and any deficiencies identified through internal and external regulatory review. Structured processes and metrics are in place to capture relevant data and feed this into continuous model improvement. See also the comments on 'Model performance' on page 62.

Credit risk models governance

All new or materially changed IRB capital models require PRA approval, as set out in more detail on page 44 below, and throughout HSBC such models fall directly under the remit of the global functional MOCs. Additionally the global functional MOCs are also responsible for the approval of stress testing models used for regulatory stress testing exercises such as those carried out by the EBA and Bank of England.

The global functional MOCs are responsible for defining the thresholds above which models require their approval, supporting both internal governance and the PRA approval process, for example if they cover exposures generating credit risk capital requirements exceeding a prescribed threshold or are otherwise deemed material on grounds of risk, portfolio size, or business type.

WCMR MOC requires all credit risk models for which it is responsible to be approved by delegated senior managers in WCMR with notification to the MOC which retains the responsibility for oversight. RBWM MOC applies different thresholds for approval at the committee depending on model type. The final approval for models falling below the RBWM MOC materiality thresholds is delegated to the Regional RBWM MOC or the Regional Head of RBWM Risk where the model will be utilised. The Regional RBWM MOC and Regional Head of RBWM Risk are responsible for notifying RBWM MOC of any material model decisions and issues.

The RBWM MOC model materiality thresholds for approval are:

- all new IRB models as part of the IRB Roll-out from standardised to advanced approach;
- existing IRB models exceeding, or estimated to exceed, US$2bn in RWAs;
- all significant changes to approved IRB models which will require notification to the PRA prior to implementation;
- stress testing models being used in portfolios with RWA exceeding, or estimated to exceed, US$2bn in RWAs;
- application models with annual proposed value of new business sourced through the model exceeding US$2bn for secured lending and US$0.5bn for unsecured lending;
- behavioural models with managed total exposure exceeding US$2bn for secured lending and US$1bn for unsecured lending; and
- provisioning models with impairment change impact exceeding US$0.1bn.

Global Risk utilises HSBC standards for the development, validation, independent review, approval, implementation and performance monitoring of credit risk rating models, and oversight of respective local standards for local models. All models must be reviewed at least annually, or more frequently as the need arises.

Compliance with HSBC standards is subject to examination both by risk oversight and review from within the risk function itself, and by internal audit. While the standards set out minimum general requirements, Global Risk has discretion to approve dispensations exceptionally, and fosters best practice between offices.

The following tables set out credit risk exposure values, RWAs and regulatory capital requirements calculated at 8% of RWAs. Table 22 presents exposure values analysed across geographical regions, tables 23 and 24 respectively RWAs and RWA density by geographical region. Exposure values are allocated to a region based on the country of incorporation of the HSBC subsidiary or associate where the exposure was originated. In table 25, allocation to industry sectors is based on the Standard Industrial Classification codes. Table 26 shows exposures by period outstanding from the reporting date to the maturity date. The full exposure value is allocated to a residual maturity band based on the contractual end date.

In these tables, and in others in the Credit Risk section of this document unless stated otherwise, the data is presented according to a 'guarantor view', i.e. assigning exposures to the exposure class of the protection provider where applicable, compared with an 'obligor view' in the prior year. This is to align our disclosure with our supervisory reporting. The impact is immaterial, mainly consisting in minor re-allocations from the corporates exposure classes to central governments and central banks and to Institutions.

Table 21: Credit risk – summary

	Exposure value US$bn	Average exposure value US$bn	RWAs US$bn	Capital required US$bn
IRB advanced approach	**1,593.8**	**1,679.5**	**581.6**	**46.5**
Retail:				
– secured by mortgages on immovable property SME[1]	**3.1**	**2.6**	**0.6**	**–**
– secured by mortgages on immovable property non-SME	**288.9**	**302.8**	**71.6**	**5.7**
– qualifying revolving retail	**66.2**	**66.6**	**15.3**	**1.2**
– other SME[1]	**13.9**	**15.9**	**6.2**	**0.5**
– other non-SME	**47.3**	**46.8**	**12.4**	**1.0**
Total retail	**419.4**	**434.7**	**106.1**	**8.4**
Central governments and central banks	**327.4**	**332.1**	**54.1**	**4.3**
Institutions	**130.4**	**139.0**	**38.7**	**3.1**
Corporates[2]	**625.8**	**675.0**	**328.5**	**26.3**
Securitisation positions[3]	**38.3**	**42.4**	**40.7**	**3.3**
Non-credit obligation assets	**52.5**	**56.3**	**13.5**	**1.1**
IRB foundation approach	**25.8**	**24.7**	**16.8**	**1.3**
Central governments and central banks	**0.1**	**0.1**	**–**	**–**
Institutions	**0.1**	**–**	**–**	**–**
Corporates	**25.6**	**24.6**	**16.8**	**1.3**
Standardised approach	**590.5**	**606.5**	**356.9**	**28.6**
Central governments and central banks	**189.3**	**207.7**	**19.7**	**1.6**
Institutions	**30.1**	**34.2**	**11.2**	**0.9**
Corporates	**240.1**	**235.3**	**224.7**	**18.0**
Retail	**47.9**	**46.6**	**35.2**	**2.8**
Secured by mortgages on immovable property	**38.6**	**42.0**	**13.8**	**1.1**
Exposures in default	**4.7**	**5.6**	**6.1**	**0.5**
Regional governments or local authorities	**1.1**	**1.1**	**0.6**	**–**
Equity	**13.2**	**5.8**	**26.9**	**2.2**
Other[4]	**25.5**	**28.2**	**18.7**	**1.5**
At 31 December 2014	**2,210.1**	**2,310.7**	**955.3**	**76.4**
IRB advanced approach	1,468.8	1,459.5	521.2	41.6
Retail:				
– secured on real estate property	310.7	310.5	105.4	8.4
– qualifying revolving retail	66.9	64.4	15.4	1.2
– SMEs[1]	18.6	15.8	8.9	0.7
– other retail	46.8	55.1	11.0	0.9
Total retail	443.0	445.8	140.7	11.2
Central governments and central banks	341.7	343.8	53.0	4.1
Institutions	130.0	136.0	28.0	2.2
Corporates[2]	508.7	486.8	279.7	22.5
Equity[5]	–	0.2	–	–
Securitisation positions[3]	45.4	46.9	19.8	1.6
IRB foundation approach	23.6	20.8	13.6	1.1
Corporates	23.6	20.8	13.6	1.1
Standardised approach	667.7	658.7	329.5	26.4
Central governments and central banks	220.0	192.3	0.7	0.1
Institutions	35.2	39.2	12.1	1.0
Corporates	221.8	237.1	202.1	16.2
Retail	47.7	49.7	36.1	2.9
Secured on real estate property	50.4	45.9	28.4	2.2
Past due items	4.1	4.2	5.4	0.4
Regional governments or local authorities	0.8	1.0	0.8	0.1
Equity	3.3	3.2	3.5	0.3
Other items[6]	84.4	86.1	40.4	3.2
At 31 December 2013	2,160.1	2,139.0	864.3	69.1

1 *In 2013, exposures to SMEs were allowed to be treated under the Retail IRB approach where the total amount owed to the Group by the counterparty was less than €1m and the customer was not managed individually as a corporate counterparty. In 2014, the general SME criteria under CRD IV additionally apply, namely: the customer is an 'enterprise' whose employees number fewer than 250 FTE, and which has either turnover less than or equal to €50m or total assets less than or equal to €40m.*

2 *Corporates includes specialised lending exposures of US$30.5bn (2013: US$32.7bn) and RWAs of US$23.0bn (2013: US$24.1bn).*

3 *This excludes trading book securitisation positions and, in 2013, securitisation positions deducted from regulatory capital. From 2014, securitisation positions previously deducted from regulatory capital are risk-weighted at 1250% and are therefore included.*

4 *This includes the exposure class 'Other items' with an exposure value of US$17.0bn, average exposure value of US$19.7bn and RWAs of US$11.3bn as well as other less material standardised exposure classes not individually shown above.*

5 *All equity exposures have been treated under the standardised approach since 2013. Therefore the IRB equity exposure class only appears in this table, in the 2013 comparatives, reflecting a position at 31 December 2012 included due to averaging of five quarters' exposure values.*

6 *Primarily includes such items as fixed assets, prepayments, accruals and Hong Kong Government certificates of indebtedness.*

Table 22: Credit risk exposure – by region

	Exposure value						
	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn	RWAs US$bn
IRB advanced approach	**592.6**	**649.7**	**29.3**	**292.5**	**29.7**	**1,593.8**	**581.6**
Retail:							
– secured by mortgages on immovable property SME[1]	**2.4**	**0.7**	**–**	**–**	**–**	**3.1**	**0.6**
– secured by mortgages on immovable property non-SME	**144.1**	**88.2**	**–**	**56.6**	**–**	**288.9**	**71.6**
– qualifying revolving retail	**34.9**	**27.3**	**–**	**4.0**	**–**	**66.2**	**15.3**
– other SME[1]	**13.2**	**0.1**	**–**	**0.6**	**–**	**13.9**	**6.2**
– other non-SME	**34.6**	**6.0**	**–**	**6.7**	**–**	**47.3**	**12.4**
Total retail	**229.2**	**122.3**	**–**	**67.9**	**–**	**419.4**	**106.1**
Central governments and central banks	**37.4**	**166.0**	**19.3**	**81.4**	**23.3**	**327.4**	**54.1**
Institutions	**32.8**	**74.0**	**8.8**	**11.7**	**3.1**	**130.4**	**38.7**
Corporates[2]	**247.7**	**250.8**	**0.4**	**126.9**	**–**	**625.8**	**328.5**
Securitisation positions[3]	**34.9**	**0.4**	**–**	**3.0**	**–**	**38.3**	**40.7**
Non-credit obligation assets	**10.6**	**36.2**	**0.8**	**1.6**	**3.3**	**52.5**	**13.5**
IRB foundation approach	**19.2**	**–**	**6.6**	**–**	**–**	**25.8**	**16.8**
Central governments and central banks	**–**	**–**	**0.1**	**–**	**–**	**0.1**	**–**
Institutions	**0.1**	**–**	**–**	**–**	**–**	**0.1**	**–**
Corporates	**19.1**	**–**	**6.5**	**–**	**–**	**25.6**	**16.8**
Standardised approach	**177.6**	**279.0**	**49.1**	**27.5**	**57.3**	**590.5**	**356.9**
Central governments and central banks	**127.0**	**50.3**	**4.9**	**5.2**	**1.9**	**189.3**	**19.7**
Institutions	**0.2**	**28.6**	**1.3**	**–**	**–**	**30.1**	**11.2**
Corporates	**25.8**	**132.9**	**31.6**	**15.2**	**34.6**	**240.1**	**224.7**
Retail	**5.8**	**22.2**	**5.7**	**1.9**	**12.3**	**47.9**	**35.2**
Secured by mortgages on immovable property	**5.9**	**24.1**	**3.1**	**1.0**	**4.5**	**38.6**	**13.8**
Exposures in default	**1.1**	**0.3**	**1.2**	**0.6**	**1.5**	**4.7**	**6.1**
Regional governments or local authorities	**–**	**–**	**0.3**	**–**	**0.8**	**1.1**	**0.6**
Equity	**2.4**	**8.1**	**0.2**	**1.9**	**0.6**	**13.2**	**26.9**
Other[4]	**9.4**	**12.5**	**0.8**	**1.7**	**1.1**	**25.5**	**18.7**
At 31 December 2014	**789.4**	**928.7**	**85.0**	**320.0**	**87.0**	**2,210.1**	**955.3**
IRB advanced approach	513.5	605.2	26.0	297.8	26.3	1,468.8	521.2
Retail:							
– secured on real estate property	154.8	86.5	–	69.4	–	310.7	105.4
– qualifying revolving retail	36.9	25.3	–	4.7	–	66.9	15.4
– SMEs[1]	17.2	0.8	–	0.6	–	18.6	8.9
– other retail	37.8	5.8	–	3.2	–	46.8	11.0
Total retail	246.7	118.4	–	77.9	–	443.0	140.7
Central governments and central banks	39.7	166.8	20.5	91.7	23.0	341.7	53.0
Institutions	23.7	86.9	5.3	10.8	3.3	130.0	28.0
Corporates[2]	163.3	232.6	0.2	112.6	–	508.7	279.7
Securitisation positions[3]	40.1	0.5	–	4.8	–	45.4	19.8
IRB foundation approach	16.7	–	6.9	–	–	23.6	13.6
Corporates	16.7	–	6.9	–	–	23.6	13.6
Standardised approach	236.1	291.0	50.5	26.0	64.1	667.7	329.5
Central governments and central banks	170.6	43.2	5.6	0.6	–	220.0	0.7
Institutions	3.6	30.4	1.2	–	–	35.2	12.1
Corporates	25.0	126.5	32.0	3.2	35.1	221.8	202.1
Retail	7.9	16.9	5.4	2.2	15.3	47.7	36.1
Secured on real estate property	7.5	26.0	3.5	8.5	4.9	50.4	28.4
Past due items	0.7	0.4	0.8	0.5	1.7	4.1	5.4
Regional governments or local authorities	–	–	0.1	–	0.7	0.8	0.8
Equity	0.8	0.1	0.2	1.7	0.5	3.3	3.5
Other items[6]	20.0	47.5	1.7	9.3	5.9	84.4	40.4
At 31 December 2013	766.3	896.2	83.4	323.8	90.4	2,160.1	864.3

For footnotes, see page 36.

Key points

- Credit risk exposure value has increased by US$50.0bn over the year. Foreign exchange movements driven by a strengthening of the US dollar against other currencies decreased exposure value by US$83.0bn. Of the foreign exchange movement, US$53.2bn relates to the IRB approach, predominantly affecting corporates US$20.4bn, Retail US$19.4bn and central governments and central banks US$9.6bn. The decrease in the standardised approach due to foreign exchange movements of US$29.8bn is predominantly in corporates US$8.8bn and central governments and central banks US$12.4bn.
- Corporate exposures have increased under both the IRB advanced approach and standardised approach, reflecting higher corporate lending, including term and trade-related lending in Asia, Europe and North America. This includes growth in our associate Bank of Communications.
- CRD IV includes the requirement to report exposure gross of any cash collateral. As a result, at 31 December 2014 an increase in exposure value of US$91.9bn was observed, representing the amount of the credit risk exposure that is fully cash collateralised. This change principally impacted corporate and institution exposures in Europe. See page 23.
- In North America, the continued run-off of the US CML retail mortgage portfolio resulted in a reduction of Retail exposures under the advanced approach.
- In GB&M, the sale of ABSs in North America reduced securitisation exposures under the advanced approach. Additionally, GB&M continued to manage down securitisation positions held through the sale of certain structured investment conduit positions in Europe. This was partially offset by the impact of CRD IV, as securitisations positions previously deducted from capital are now included in exposure and risk-weighted at 1250%.
- CRD IV requires non credit obligation assets to be reported separately under the IRB approach, thereby reducing exposures in the 'Other' exposure class under the standardised approach. See page 27.
- Equity exposures under the standardised approach increased primarily in Asia as a result of significant investments re-classified from capital deductions under Basel 2.5 to being subject to a threshold approach under CRD IV. Since we are below the relevant thresholds, these exposures are risk-weighted at 250%.
- Exposures to central government and central banks under the standardised approach have reduced in Europe due to lower deposits with central banks, partially offset by an increase in sovereign exposure in Asia.

Table 23: Credit risk exposure – RWAs by region

	RWAs					
	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
IRB advanced approach	**203.3**	**213.1**	**11.6**	**142.0**	**11.6**	**581.6**
Retail:						
– secured by mortgages on immovable property SME[1]	**0.6**	**–**	**–**	**–**	**–**	**0.6**
– secured by mortgages on immovable property non-SME	**8.0**	**9.3**	**–**	**54.3**	**–**	**71.6**
– qualifying revolving retail	**6.9**	**7.1**	**–**	**1.3**	**–**	**15.3**
– other SME[1]	**5.9**	**–**	**–**	**0.3**	**–**	**6.2**
– other non-SME	**5.7**	**1.3**	**–**	**5.4**	**–**	**12.4**
Total retail	**27.1**	**17.7**	**–**	**61.3**	**–**	**106.1**
Central governments and central banks	**5.8**	**23.4**	**8.9**	**7.9**	**8.1**	**54.1**
Institutions	**12.4**	**18.8**	**2.4**	**3.0**	**2.1**	**38.7**
Corporates[2]	**112.5**	**147.8**	**–**	**68.2**	**–**	**328.5**
Securitisation positions[3]	**40.1**	**0.2**	**–**	**0.4**	**–**	**40.7**
Non-credit obligation assets	**5.4**	**5.2**	**0.3**	**1.2**	**1.4**	**13.5**
IRB foundation approach	**12.8**	**–**	**4.0**	**–**	**–**	**16.8**
Central governments and central banks	**–**	**–**	**–**	**–**	**–**	**–**
Institutions	**–**	**–**	**–**	**–**	**–**	**–**
Corporates	**12.8**	**–**	**4.0**	**–**	**–**	**16.8**
Standardised approach	**47.1**	**186.0**	**39.0**	**29.6**	**55.2**	**356.9**
Central governments and central banks	**3.3**	**2.7**	**0.5**	**8.9**	**4.3**	**19.7**
Institutions	**0.2**	**10.4**	**0.6**	**–**	**–**	**11.2**
Corporates	**25.2**	**119.2**	**30.0**	**15.2**	**35.1**	**224.7**
Retail	**4.2**	**16.7**	**4.3**	**1.3**	**8.7**	**35.2**
Secured by mortgages on immovable property	**2.1**	**8.4**	**1.3**	**0.4**	**1.6**	**13.8**
Exposures in default	**1.4**	**0.5**	**1.4**	**0.8**	**2.0**	**6.1**
Regional governments or local authorities	**–**	**–**	**–**	**–**	**0.6**	**0.6**
Equity	**4.6**	**19.1**	**0.3**	**1.9**	**1.0**	**26.9**
Other[4]	**6.1**	**9.0**	**0.6**	**1.1**	**1.9**	**18.7**
At 31 December 2014	**263.2**	**399.1**	**54.6**	**171.6**	**66.8**	**955.3**

	RWAs					
	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
IRB advanced approach	157.1	182.9	11.2	161.5	8.5	521.2
Retail:						
– secured on real estate property	9.4	7.1	–	88.9	–	105.4
– qualifying revolving retail	7.8	6.0	–	1.6	–	15.4
– SMEs[1]	8.5	–	–	0.4	–	8.9
– other retail	8.1	1.3	–	1.6	–	11.0
Total retail	33.8	14.4	–	92.5	–	140.7
Central governments and central banks	5.5	21.8	10.0	8.8	6.9	53.0
Institutions	8.5	15.2	1.2	1.5	1.6	28.0
Corporates[2]	90.4	131.3	–	58.0	–	279.7
Securitisation positions[3]	18.9	0.2	–	0.7	–	19.8
IRB foundation approach	9.8	–	3.8	–	–	13.6
Corporates	9.8	–	3.8	–	–	13.6
Standardised approach	44.5	165.9	40.0	22.7	56.4	329.5
Central governments and central banks	–	0.6	–	0.1	–	0.7
Institutions	0.1	11.4	0.6	–	–	12.1
Corporates	21.0	112.7	30.9	2.9	34.6	202.1
Retail	6.3	12.7	4.0	1.7	11.4	36.1
Secured by mortgages on immovable property	3.0	12.7	2.0	7.8	2.9	28.4
Past due items	0.9	0.4	1.0	0.6	2.5	5.4
Regional governments or local authorities	–	–	0.1	–	0.7	0.8
Equity	0.9	0.1	0.2	1.8	0.5	3.5
Other items[6]	12.3	15.3	1.2	7.8	3.8	40.4
At 31 December 2013	211.4	348.8	55.0	184.2	64.9	864.3

For footnotes, see page 36.

Key point

- See commentary on RWA movement for IRB approach RWAs on page 27 and standardised approach on page 25.

Table 24: Credit risk exposure – RWA density by region

	RWA density					
	Europe %	Asia %	MENA %	North America %	Latin America %	Total %
IRB advanced approach	**34**	**33**	**40**	**49**	**39**	**36**
Retail:						
– secured by mortgages on immovable property SME[1]	**24**	**–**	**–**	**–**	**–**	**21**
– secured by mortgages on immovable property non-SME	**6**	**10**	**–**	**96**	**–**	**25**
– qualifying revolving retail	**20**	**26**	**–**	**31**	**–**	**23**
– other SME[1]	**45**	**–**	**–**	**50**	**–**	**45**
– other non-SME	**17**	**22**	**–**	**80**	**–**	**26**
Total retail	**12**	**14**	**–**	**90**	**–**	**25**
Central governments and central banks	**16**	**14**	**46**	**10**	**35**	**17**
Institutions	**38**	**25**	**28**	**26**	**67**	**30**
Corporates[2]	**45**	**59**	**–**	**54**	**–**	**52**
Securitisation positions[3]	**115**	**46**	**–**	**12**	**–**	**106**
Non-credit obligation assets	**51**	**14**	**40**	**77**	**41**	**26**
IRB foundation approach	**67**	**–**	**60**	**–**	**–**	**65**
Central governments and central banks	**–**	**–**	**–**	**–**	**–**	**–**
Institutions	**–**	**–**	**–**	**–**	**–**	**–**
Corporates	**67**	**–**	**60**	**–**	**–**	**65**

	Europe %	Asia %	MENA %	North America %	Latin America %	Total %
Standardised approach	**27**	**67**	**79**	**108**	**96**	**60**
Central governments and central banks	**3**	**5**	**10**	**174**	**226**	**10**
Institutions	**76**	**37**	**43**	**–**	**–**	**37**
Corporates	**98**	**90**	**95**	**99**	**102**	**94**
Retail	**72**	**75**	**75**	**72**	**71**	**74**
Secured by mortgages on immovable property	**36**	**35**	**41**	**36**	**37**	**36**
Exposures in default	**126**	**128**	**118**	**143**	**134**	**129**
Regional governments or local authorities	**–**	**–**	**–**	**–**	**72**	**57**
Equity	**192**	**236**	**126**	**100**	**172**	**204**
Other[4]	**65**	**72**	**89**	**64**	**160**	**74**
At 31 December 2014	**33**	**43**	**64**	**54**	**77**	**43**
IRB advanced approach	31	30	43	54	32	35
Retail:						
– secured on real estate property	6	8	–	128	–	34
– qualifying revolving retail	21	24	–	34	–	23
– SMEs[1]	49	3	–	63	–	48
– other retail	21	23	–	50	–	23
Total retail	14	12	–	119	–	32
Central governments and central banks	14	13	49	10	30	16
Institutions	36	18	23	14	48	22
Corporates[2]	55	56	–	52	–	55
Securitisation positions[3]	47	40	–	15	–	44
IRB foundation approach	59	–	55	–	–	58
Corporates	59	–	55	–	–	58
Standardised approach	19	57	79	87	88	49
Central governments and central banks	–	1	1	10	–	–
Institutions	3	38	53	–	–	34
Corporates	84	89	96	89	99	91
Retail	79	75	75	78	74	76
Secured on real estate property	41	49	56	92	60	56
Past due items	122	100	124	124	141	131
Regional governments or local authorities	–	–	100	–	92	93
Equity	124	100	100	100	100	105
Other items[6]	61	32	69	85	64	48
At 31 December 2013	28	39	66	57	72	40

For footnotes, see page 36.

Key points

- The CRD IV requirement to report exposure gross of any cash collateral has caused a reduction in RWA density primarily within corporates in Europe as a result of the increase in exposure value.
- Retail IRB density has improved due to the continued run-off of the US CML retail mortgage portfolio resulting in an improved residual portfolio. The IRB RWA densities remain high in North America compared to other regions due to the continuing challenging conditions in the US mortgage market.
- Standardised institutions RWA density in Europe has worsened due to immaterial movements on a small portfolio (exposure is US$0.2bn).

Table 25: Credit risk exposure – by industry sector

	Exposure value								
	Personal US$bn	Manu-facturing US$bn	Inter-national trade and services US$bn	Property and other business activities US$bn	Government and public admin-istration US$bn	Other commercial US$bn	Financial US$bn	Non-customer assets US$bn	Total US$bn
IRB advanced approach	**404.2**	**140.4**	**149.2**	**181.1**	**113.1**	**88.4**	**464.9**	**52.5**	**1,593.8**
Retail:									
– secured by mortgages on immovable property SME[1]	**0.5**	**–**	**0.2**	**2.4**	**–**	**–**	**–**	**–**	**3.1**
– secured by mortgages on immovable property non-SME	**288.7**	**–**	**–**	**0.1**	**–**	**–**	**0.1**	**–**	**288.9**
– qualifying revolving retail	**66.2**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**66.2**
– other SME[1]	**–**	**0.9**	**2.5**	**7.3**	**0.8**	**2.1**	**0.3**	**–**	**13.9**
– other non-SME	**47.1**	**–**	**–**	**–**	**0.2**	**–**	**–**	**–**	**47.3**
Total retail	**402.5**	**0.9**	**2.7**	**9.8**	**1.0**	**2.1**	**0.4**	**–**	**419.4**
Central governments and central banks	**–**	**–**	**0.1**	**–**	**94.7**	**–**	**232.6**	**–**	**327.4**
Institutions	**–**	**–**	**–**	**–**	**0.7**	**–**	**129.7**	**–**	**130.4**
Corporates[2]	**1.7**	**139.5**	**146.4**	**171.3**	**16.7**	**86.3**	**63.9**	**–**	**625.8**
Securitisation positions[3]	**–**	**–**	**–**	**–**	**–**	**–**	**38.3**	**–**	**38.3**
Non-credit obligation assets	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**52.5**	**52.5**
IRB foundation approach	**0.2**	**8.9**	**6.0**	**1.5**	**0.5**	**4.9**	**3.8**	**–**	**25.8**
Central governments and central banks	**–**	**–**	**–**	**–**	**–**	**–**	**0.1**	**–**	**0.1**
Institutions	**–**	**–**	**–**	**–**	**–**	**–**	**0.1**	**–**	**0.1**
Corporates	**0.2**	**8.9**	**6.0**	**1.5**	**0.5**	**4.9**	**3.6**	**–**	**25.6**
Standardised approach	**88.0**	**63.0**	**52.0**	**46.2**	**89.0**	**44.0**	**187.7**	**20.6**	**590.5**
Central governments or central banks	**–**	**–**	**–**	**–**	**62.4**	**–**	**119.3**	**7.6**	**189.3**
Institutions	**–**	**–**	**–**	**–**	**–**	**–**	**30.1**	**–**	**30.1**
Corporates	**5.4**	**61.6**	**49.4**	**42.3**	**22.2**	**41.9**	**17.3**	**–**	**240.1**
Retail	**43.9**	**0.7**	**1.5**	**1.0**	**0.2**	**0.4**	**0.2**	**–**	**47.9**
Secured by mortgages on immovable property	**36.8**	**0.1**	**0.1**	**1.5**	**–**	**0.1**	**–**	**–**	**38.6**
Exposures in default	**1.9**	**0.6**	**0.8**	**0.6**	**0.1**	**0.6**	**0.1**	**–**	**4.7**
Regional governments or local authorities	**–**	**–**	**–**	**–**	**0.8**	**–**	**0.3**	**–**	**1.1**
Equity	**–**	**–**	**–**	**0.4**	**–**	**–**	**3.8**	**9.0**	**13.2**
Other[4]	**–**	**–**	**0.2**	**0.4**	**3.3**	**1.0**	**16.6**	**4.0**	**25.5**
At 31 December 2014	**492.4**	**212.3**	**207.2**	**228.8**	**202.6**	**137.3**	**656.4**	**73.1**	**2,210.1**

	Exposure value								
	Personal US$bn	Manu-facturing US$bn	Inter-national trade and services US$bn	Property and other business activities US$bn	Government and public admin-istration US$bn	Other commercial US$bn	Financial US$bn	Non-customer assets US$bn	Total US$bn
IRB advanced approach	426.7	118.9	113.8	151.7	107.2	73.8	476.7	–	1,468.8
Retail:									
– secured on real estate property	310.7	–	–	–	–	–	–	–	310.7
– qualifying revolving retail	66.9	–	–	–	–	–	–	–	66.9
– SMEs[1]	–	0.9	1.7	14.2	0.4	0.9	0.5	–	18.6
– other retail	46.7	–	–	–	0.1	–	–	–	46.8
Total retail	424.3	0.9	1.7	14.2	0.5	0.9	0.5	–	443.0
Central governments and central banks	–	–	–	–	90.4	0.2	251.1	–	341.7
Institutions	–	–	–	–	0.2	–	129.8	–	130.0
Corporates[2]	2.4	118.0	112.1	137.5	16.1	72.7	49.9	–	508.7
Securitisation positions[3]	–	–	–	–	–	–	45.4	–	45.4
IRB foundation approach	–	8.6	5.9	1.1	0.4	4.2	3.4	–	23.6
Corporates	–	8.6	5.9	1.1	0.4	4.2	3.4	–	23.6
Standardised approach	89.4	58.9	50.7	44.0	81.0	46.2	238.8	58.7	667.7
Central governments and central banks	–	–	–	–	56.9	–	163.1	–	220.0
Institutions	–	–	–	–	–	–	35.2	–	35.2
Corporates	3.2	57.5	47.4	35.1	21.1	44.1	13.4	–	221.8
Retail	42.5	1.0	1.9	1.2	0.2	0.6	0.3	–	47.7
Secured on real estate property	41.3	0.1	1.1	7.0	–	0.9	–	–	50.4
Past due items	2.4	0.3	0.3	0.4	0.1	0.6	–	–	4.1
Regional governments or local authorities	–	–	–	–	0.8	–	–	–	0.8
Equity	–	–	–	–	–	–	3.3	–	3.3
Other items[6]	–	–	–	0.3	1.9	–	23.5	58.7	84.4
At 31 December 2013	516.1	186.4	170.4	196.8	188.6	124.2	718.9	58.7	2,160.1

For footnotes, see page 36.

Key points

- The CRD IV requirement to report exposure gross of any cash collateral has resulted in an increase of exposure value across a number of industries.
- The decrease in exposure to financial is primarily driven by reduced central bank exposures under both the standardised approach and the IRB advanced approach due primarily to lower deposits with central banks.
- Higher corporate lending, including term and trade-related lending, has led to an increase of exposure across industry sectors, primarily manufacturing, property and other business services and other commercial within corporate under the IRB advanced approach.
- The decrease in personal sector is primarily due to the continued run-off of the US CML retail mortgage portfolio.

Table 26: Credit risk exposure – by residual maturity

	Exposure value					
	Less than 1 year US$bn	Between 1 and 5 years US$bn	More than 5 years US$bn	Undated US$bn	Total US$bn	RWAs US$bn
IRB advanced approach	**729.1**	**382.5**	**429.8**	**52.4**	**1,593.8**	**581.6**
Retail:						
– secured by mortgages on immovable property SME[1]	**0.1**	**0.2**	**2.8**	**–**	**3.1**	**0.6**
– secured by mortgages on immovable property non-SME[1]	**2.9**	**4.1**	**281.9**	**–**	**288.9**	**71.6**
– qualifying revolving retail	**66.2**	**–**	**–**	**–**	**66.2**	**15.3**
– other SME[1]	**3.3**	**7.0**	**3.6**	**–**	**13.9**	**6.2**
– other non-SME	**13.8**	**12.7**	**20.8**	**–**	**47.3**	**12.4**
Total retail	**86.3**	**24.0**	**309.1**	**–**	**419.4**	**106.1**
Central governments and central banks	**212.7**	**80.2**	**34.5**	**–**	**327.4**	**54.1**
Institutions	**100.9**	**25.4**	**4.1**	**–**	**130.4**	**38.7**
Corporates[2]	**318.6**	**247.1**	**60.1**	**–**	**625.8**	**328.5**
Securitisation positions[3]	**10.6**	**5.7**	**22.0**	**–**	**38.3**	**40.7**
Non-credit obligation assets	**–**	**0.1**	**–**	**52.4**	**52.5**	**13.5**
IRB foundation approach	**10.5**	**12.9**	**2.4**	**–**	**25.8**	**16.8**
Central governments and central banks	**–**	**0.1**	**–**	**–**	**0.1**	**–**
Institutions	**–**	**0.1**	**–**	**–**	**0.1**	**–**
Corporates	**10.5**	**12.7**	**2.4**	**–**	**25.6**	**16.8**
Standardised approach	**242.1**	**201.6**	**116.8**	**30.0**	**590.5**	**356.9**
Central governments and central banks	**123.5**	**37.7**	**20.5**	**7.6**	**189.3**	**19.7**
Institutions	**16.2**	**0.9**	**13.0**	**–**	**30.1**	**11.2**
Corporates	**70.2**	**142.6**	**27.2**	**0.1**	**240.1**	**224.7**
Retail	**17.1**	**12.8**	**18.0**	**–**	**47.9**	**35.2**
Secured by mortgages on immovable property	**1.9**	**3.0**	**33.7**	**–**	**38.6**	**13.8**
Exposures in default	**2.2**	**1.3**	**1.2**	**–**	**4.7**	**6.1**
Regional governments or local authorities	**0.4**	**0.3**	**0.4**	**–**	**1.1**	**0.6**
Equity	**–**	**–**	**–**	**13.2**	**13.2**	**26.9**
Other[4]	**10.6**	**3.0**	**2.8**	**9.1**	**25.5**	**18.7**
At 31 December 2014	**981.7**	**597.0**	**549.0**	**82.4**	**2,210.1**	**955.3**
IRB advanced approach	642.5	405.0	421.3	–	1,468.8	521.2
Retail:						
– secured on real estate property	2.8	5.0	302.9	–	310.7	105.4
– qualifying revolving retail	66.9	–	–	–	66.9	15.4
– SMEs[1]	3.8	8.7	6.1	–	18.6	8.9
– other retail	7.0	23.1	16.7	–	46.8	11.0
Total retail	80.5	36.8	325.7	–	443.0	140.7
Central governments and central banks	206.4	106.1	29.2	–	341.7	53.0
Institutions	99.1	29.9	1.0	–	130.0	28.0
Corporates[2]	223.1	230.6	55.0	–	508.7	279.7
Securitisation positions[3]	33.4	1.6	10.4	–	45.4	19.8
IRB foundation approach	10.6	11.5	1.5	–	23.6	13.6
Corporates	10.6	11.5	1.5	–	23.6	13.6
Standardised approach	248.0	233.5	101.2	85.0	667.7	329.5
Central governments and central banks	154.9	50.4	14.7	–	220.0	0.7
Institutions	17.9	4.3	13.0	–	35.2	12.1
Corporates	53.7	146.7	21.2	0.2	221.8	202.1
Retail	15.7	19.6	12.4	–	47.7	36.1
Secured on real estate property	2.7	9.2	38.5	–	50.4	28.4
Past due items	2.4	1.0	0.7	–	4.1	5.4
Regional governments or local authorities	0.3	0.1	0.4	–	0.8	0.8
Equity	–	–	–	3.3	3.3	3.5
Other items[5]	0.4	2.2	0.3	81.5	84.4	40.4
At 31 December 2013	901.1	650.0	524.0	85.0	2,160.1	864.3

For footnotes, see page 36.

Key points

- The impact of foreign exchange movements on exposure value is discussed under table 22.
- The CRD IV requirement to report exposure gross of any cash collateral has resulted in an increase of exposure value primarily in the Less than 1 year and Between 1 and 5 years bandings.
- The impact of higher corporate lending, including term and trade-related lending, is reflected in the increase in exposure value, primarily in the Less than 1 year banding.
- The reduction in the Other Undated residual maturity banding is driven by the reclassification of Non Credit Obligation Assets to be reported separately under IRB approach. See table 9 for further information on CRD IV impacts.
- The reduction in deposits with central banks in Europe in Central governments and central banks under the standardised approach is reflected primarily in the Less than 1 year banding.
- Sale of government bonds in North America in Central governments and central banks under the IRB approach has resulted in a decrease in the Between 1 and 5 years banding.
- The decrease in retail IRB approach in the More than 5 years banding is primarily due to the continued run-off of the US CML retail mortgage portfolio in North America.

Application of the IRB approach

The narrative explanations that follow relate to the IRB approaches: advanced and foundation IRB for distinct customers and advanced IRB for the portfolio-managed retail business. Details of our use of the standardised approach can be found on page 70.

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

Use of internal estimates

PDs, LGDs, and EAD applied in the calculation of regulatory capital requirements are also extensively used for other purposes, for example:

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

Roll-out of the IRB approach

With PRA permission, we have adopted the Basel advanced approach for the majority of our business. At the end of 2014, portfolios in much of Europe, Asia and North America were on advanced IRB approaches. Others remain on the standardised or foundation approaches pending the definition of local regulations or model approval in line with our Basel IRB roll-out plans, or under exemptions or exclusion from IRB treatment. Additionally, in some instances, regulators have allowed us to transition from advanced to standardised approaches for a limited number of immaterial portfolios.

In June 2014 the EBA published a consultation on the thresholds for the application of the Standardised Approach for exposures treated under permanent partial use and the IRB roll-out plan. Subject to the publication of the finalised RTS it is expected that the roll-out plan will set target thresholds for IRB rather than the advanced IRB approach specifically.

Under the advanced IRB approach, banks are allowed to develop their own empirical models to quantify required capital for credit risk. All such models developed by us, and any material changes to those models, must be approved by the PRA, subject to *de minimis* exceptions. Material changes are those that individually have a high impact, or where a number of small changes in aggregate have a high impact. Quantitative and qualitative materiality thresholds for these model changes are determined by CRD IV which also requires us to obtain PRA approval before implementation where these thresholds are breached.

The effectiveness of this process is monitored by the PRA through an annual review of IRB usage, focusing on the proportion of total credit risk assets for which IRB approaches are used.

Banks have experienced difficulties in adopting advanced IRB in some cases, for example in portfolios which have very low levels of default, such that the PD, LGD and EAD cannot be assessed to a sufficiently high degree of confidence due to a lack of default or loss data. Difficulties also arise in countries where the rules and requirements of the local regulator's implementation of Basel requirements are different from those of the PRA, or where the regulators have introduced capital floors and overlays to mitigate perceived model deficiencies. Tables 27 and 31 below detail several material regulatory thresholds and overlays. Whilst recognising the complexity of adopting IRB in some situations, we remain committed to working constructively with our regulators to achieve acceptable roll-out plans.

The wholesale risk rating system

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

PDs for wholesale customer segments, that is central governments and central banks, financial institutions and corporate customers, and for certain individually assessed personal customers, are estimated using a Customer Risk Rating ('CRR') master scale of 23 grades. Of these, 21 are non-default grades representing varying degrees of strength of financial condition, and two are default grades.

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

The finally assigned CRR determines the applicable master-scale PD range from which the reference PD, generally the arithmetical mid-point, is used in the regulatory capital calculation.

Reviewing the initial model score, relationship managers may propose a different CRR from that indicated, where they believe this more appropriate. Such amendments may only be made through an override process and must be approved by the Credit function. Overrides for each model are recorded, and override levels are reviewed, as part of the model management process.

The CRR is assigned at obligor level, which means that separate exposures to the same obligor are generally subject to a single, consistent rating. Where unfunded credit risk mitigants such as guarantees apply, these may also influence the final assignment of a CRR to an obligor. The impact of unfunded risk mitigants is considered for IRB approaches on page 69 and for the standardised approach on page 70.

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

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

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

Thus, over the economic cycle, a cycle will also appear in CRR migration. The influence of longer-term economic cycle factors implied by the model's calibration, combined with the effect of ongoing credit review, will result in long-term PDs generally above the actual default frequency during benign economic periods, but not changing so fast in a downturn. In practice, under a hybrid approach, ratings tend to be more volatile than would be the case in a pure TTC system, but less volatile than in a pure PIT one.

Moreover, our policy requires approvers to downgrade ratings on expectations but to upgrade them only on performance. Therefore, ratings will typically migrate during a downturn in response to higher perceived risks, but be upgraded more slowly in an upswing. This leads to expected defaults overall typically exceeding actual defaults.

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

EAD is estimated to a 12-month forward time horizon and represents the current exposure plus an estimate for future increases in exposure, taking into account such factors as available but undrawn facilities, and the realisation of contingent exposures post-default.

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

Wholesale models

To determine credit ratings for the different types of wholesale obligor, many different models and scorecards are used for PD, LGD, and EAD; there are over 100 wholesale IRB models in use or under development within HSBC. These models may be differentiated by region, customer segment and/or customer size. For example, PD models are differentiated for all of our key customer segments, including sovereigns, financial institutions, large, medium and small sized corporates.

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

Local PD models, specific to a particular country, region, or sector, are developed for other obligors. This includes corporate clients when they show distinct characteristics in common in a particular geography. The most material local Corporate PD models are the UK mid-market PD model, and the Hong Kong and Asia-Pacific mid-market models.

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

judgement may still form an important part of the overall model development methodology.

Most LGD and EAD models are developed according to local circumstances taking into account legal and procedural differences in the recovery and workout processes. However, our approach to EAD and LGD also encompasses global models for central governments and central banks, and for institutions, as exposures to these customer types are managed centrally by Global Risk. In 2013 the PRA required all firms to apply an LGD floor of 45% for senior unsecured exposure to sovereign entities. This floor was applied to reflect the relative paucity of loss observations across all firms in relation to these obligors. This floor is applied for the purposes of regulatory capital reporting.

In addition, the PRA has published guidance on the appropriateness of LGD models for low default portfolios generally. The PRA has determined that there should be at least 20 defaults per country per collateral type for LGD models to be approved. Where there are insufficient defaults, an LGD floor will be applied. As a result, in 2014, we were required to apply LGD floors for our banks portfolio and some Asia corporate portfolios where there are insufficient loss observations.

In the same guidance, the PRA also indicated that it considered income producing real estate to be an asset class that would be difficult to model. As a result, we have migrated to the supervisory slotting approach for our UK CRE portfolio and have migrated our US Income Producing CRE portfolio on to the standardised approach.

Local models for the corporate exposure class are developed using various data inputs, including collateral information and geography (for LGD) and product type (for EAD). The most material corporate models are the UK and Asia models, all of which are developed using more than 10 years' worth of data. The LGD models are calibrated to a period of credit stress or downturn in economic conditions. The global LGD models for sovereigns and for banks reflect the expected increase in observed losses during an economic downturn period.

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

Table 27 below sets out the key characteristics of the significant wholesale credit risk models that drive the capital calculation split by Basel wholesale asset class, with their associated RWAs, including the number of models for each component, the model method or approach and the number of years of loss data used.

Table 27: Wholesale IRB credit risk models

Basel asset classes measured	RWAs for associated asset class US$bn	Compo-nent	Number of significant models	Model description and methodology	Number of years loss data
Central governments and central banks	**54.1**	PD	1	A constrained expert judgement model using a combination of expert judgement and quantitative analysis. The model inputs include macro-economic and political factors.	7
		LGD	1	An unsecured model built on assessment of structural factors that influence country's long term economic performance. Floor of 45%, applied as required by the PRA.	7
		EAD	1	Because of limited internal default experience and sparse historical data on utilisations and limits, the model was developed based on a combination of expert judgement and similar exposure types.	7
Institutions	**38.7**	PD	1	The model is a combination of expert judgement and statistical analysis. The model inputs include balance sheet information, country risk factors and qualitative data.	9
		LGD	1	Regression model that produces a downturn LGD and expected LGD. Inputs include collateral and country risk data. Floor of 45%, applied as required by the PRA.	9
		EAD	1	Regression based model that predicts Credit Conversion Factors taking into account current utilisation, available headroom, product type, and committed/uncommitted indicator.	9
Corporates[1]	**322.3**				
Global large corporates		PD	1	Even though the portfolio is low-default, the model is statistically built and calibrated on 15 years of data. The inputs include balance sheet information, market data, macroeconomic and country risk indicators and qualitative factors.	>10
Other corporates		PD	5	Corporates that fall below the Global large corporate threshold are rated through local PD models, which reflect regional circumstances. These models use balance sheet data, behavioural data and qualitative information to derive a statistically built PD.	>10
All corporates		LGD	3	Local statistical models covering all corporates including Global large corporates developed using various data inputs, including collateral information, recoveries and geography.	>7
		EAD	3	Local statistical models developed using various data inputs, including product type and geography.	>7

1 *Excludes specialised lending exposures subject to supervisory slotting approach (see table 29).*

Table 28 below sets out Basel metrics broken down by region, table 30 shows the same metrics, however these are broken down by CRR band. Table 29 sets out an analysis of those exposures to which a supervisory slotting approach is applied.

Table 28: Wholesale IRB portfolio analysis

	Europe %	Asia %	MENA %	North America %	Latin America %	Total %
At 31 December 2014						
Exposure weighted average PD						
IRB advanced approach						
Central governments and central banks	**0.09**	**0.09**	**1.23**	**0.01**	**0.57**	**0.17**
Institutions	**0.66**	**0.22**	**0.55**	**0.13**	**0.76**	**0.36**
Corporates[1]	**2.62**	**1.44**	**0.09**	**1.26**	**–**	**1.85**
IRB foundation approach						
Central governments and central banks	**–**	**–**	**0.04**	**–**	**–**	**0.04**
Institutions	**0.13**	**–**	**0.03**	**–**	**–**	**0.10**
Corporates[1]	**1.36**	**–**	**2.86**	**–**	**–**	**1.74**
Exposure weighted average LGD						
IRB advanced approach						
Central governments and central banks	**45.0**	**45.0**	**45.0**	**45.4**	**45.0**	**45.1**
Institutions	**35.3**	**45.3**	**39.8**	**40.6**	**45.4**	**42.0**
Corporates[1]	**25.8**	**44.3**	**13.7**	**36.6**	**–**	**35.6**

1 *Excludes specialised lending exposures subject to supervisory slotting approach (see table 29).*

Table 29: Wholesale IRB exposures under the Slotting Approach

	Remaining maturity less than 2.5 years		Remaining maturity greater than 2.5 years		Total	
	Exposure value US$bn	RWAs US$bn	Exposure value US$bn	RWAs US$bn	Exposure value US$bn	RWAs US$bn
Supervisory Category						
Category 1 – Strong	**7.0**	**3.4**	**9.7**	**6.7**	**16.7**	**10.1**
Category 2 – Good	**4.4**	**3.1**	**3.7**	**3.2**	**8.1**	**6.3**
Category 3 – Satisfactory	**1.4**	**1.7**	**1.5**	**1.7**	**2.9**	**3.4**
Category 4 – Weak	**0.9**	**2.4**	**0.3**	**0.8**	**1.2**	**3.2**
Category 5 – Default	**1.4**	**–**	**0.2**	**–**	**1.6**	**–**
At 31 December 2014	**15.1**	**10.6**	**15.4**	**12.4**	**30.5**	**23.0**

Table 30 and the graphs below set out IRB exposures by obligor grade for central governments and central banks, institutions and corporates, all of which are assessed using our 23-grade CRR master scale. We benchmark the master scale against the ratings of external rating agencies. Each CRR band is associated with an external rating grade by reference to long-run default rates for that grade, represented by the average of issuer-weighted historical default rates.

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

For further details of the Group's approach to credit quality classification, please see the definition of 'obligor grade' in the glossary, and also page 207 of the Annual Report and Accounts 2014.

Table 30a: Wholesale IRB exposure – by obligor grade[1] – Central governments and central banks

	CRR	PD range %	Exposure value[2] US$bn	Average PD[3] %	Average LGD[3] %	RWA density[3] %	RWAs US$bn	Mapped external rating
Default risk								
Minimal	0.1	**0.000 to 0.010**	**122.8**	**0.01**	**45.2**	**7**	**8.7**	**AAA**
	1.1	**0.011 to 0.028**	**60.3**	**0.02**	**45.0**	**7**	**4.4**	**AA+ to AA**
	1.2	**0.029 to 0.053**	**59.2**	**0.04**	**45.4**	**13**	**7.4**	**AA- to A+**
Low	2.1	**0.054 to 0.095**	**51.6**	**0.07**	**45.0**	**20**	**10.4**	**A**
	2.2	**0.096 to 0.169**	**6.0**	**0.13**	**45.2**	**25**	**1.5**	**A-**
Satisfactory	3.1	**0.170 to 0.285**	**11.3**	**0.22**	**45.0**	**43**	**4.9**	**BBB+**
	3.2	**0.286 to 0.483**	**3.6**	**0.37**	**45.0**	**53**	**1.9**	**BBB**
	3.3	**0.484 to 0.740**	**1.6**	**0.63**	**45.0**	**63**	**1.0**	**BBB-**
Fair	4.1	**0.741 to 1.022**	**1.7**	**0.87**	**45.0**	**81**	**1.4**	**BB+**
	4.2	**1.023 to 1.407**	**0.4**	**1.16**	**45.0**	**125**	**0.5**	**BB**
	4.3	**1.408 to 1.927**	**0.2**	**1.65**	**43.3**	**100**	**0.2**	**BB-**
Moderate	5.1	**1.928 to 2.620**	**0.9**	**2.25**	**45.0**	**111**	**1.0**	**BB-**
	5.2	**2.621 to 3.579**	**0.7**	**3.05**	**45.0**	**129**	**0.9**	**B+**
	5.3	**3.580 to 4.914**	**5.6**	**4.20**	**45.0**	**130**	**7.3**	**B**
Significant	6.1	**4.915 to 6.718**	**0.7**	**5.75**	**45.2**	**157**	**1.1**	**B**
	6.2	**6.719 to 8.860**	**0.1**	**7.85**	**45.0**	**200**	**0.2**	**B-**
High	7.1	**8.861 to 11.402**	**0.7**	**10.00**	**45.0**	**186**	**1.3**	**CCC+**
	7.2	**11.403 to 15.000**	**–**	**–**	**–**	**–**	**–**	**CCC+**
Special management	8.1	**15.001 to 22.000**	**–**	**–**	**–**	**–**	**–**	**CCC+**
	8.2	**22.001 to 50.000**	**–**	**–**	**–**	**–**	**–**	**CCC+**
	8.3	**50.001 to 99.999**	**–**	**–**	**–**	**–**	**–**	**CCC to C**
Default[4]	9/10	**100.000**	**–**	**–**	**–**	**–**	**–**	**Default**
At 31 December 2014			**327.4**	**0.17**	**45.1**	**17**	**54.1**	
Default risk								
Minimal	0.1	0.000 to 0.010	132.4	0.01	45.1	7	9.3	AAA to AA+
	1.1	0.011 to 0.028	74.3	0.02	45.0	6	4.8	AA to AA–
	1.2	0.029 to 0.053	38.7	0.04	45.0	14	5.6	A+
Low	2.1	0.054 to 0.095	64.1	0.07	45.0	18	11.7	A
	2.2	0.096 to 0.169	11.4	0.13	45.0	29	3.3	A–
Satisfactory	3.1	0.170 to 0.285	5.3	0.22	45.0	42	2.2	BBB+
	3.2	0.286 to 0.483	3.7	0.37	45.0	49	1.8	BBB to BBB–
	3.3	0.484 to 0.740	2.4	0.63	45.0	67	1.6	BBB–
Fair	4.1	0.741 to 1.022	1.1	0.87	45.0	82	0.9	BB+
	4.2	1.023 to 1.407	0.2	1.20	45.0	100	0.2	BB
	4.3	1.408 to 1.927	0.3	1.65	45.2	–	–	BB–
Moderate	5.1	1.928 to 2.620	0.9	2.25	45.0	111	1.0	BB–
	5.2	2.621 to 3.579	1.4	3.05	45.0	121	1.7	B+
	5.3	3.580 to 4.914	1.1	4.20	45.0	136	1.5	B+
Significant	6.1	4.915 to 6.718	0.3	5.75	45.4	167	0.5	B
	6.2	6.719 to 8.860	3.7	7.85	45.0	168	6.2	B–
High	7.1	8.861 to 11.402	0.4	10.00	45.0	175	0.7	B–
	7.2	11.403 to 15.000	–	–	–	–	–	CCC+
Special management	8.1	15.001 to 22.000	–	–	–	–	–	CCC
	8.2	22.001 to 50.000	–	–	–	–	–	CCC–
	8.3	50.001 to 99.999	–	–	–	–	–	CC to C
Default[4]	9/10	100.000	–	–	–	–	–	Default
At 31 December 2013			341.7	0.17	45.0	16	53.0	

For footnotes, see page 50.

Table 30b: Wholesale IRB exposure – by obligor grade[1] – Institutions (continued)

	CRR	PD range %	Exposure value[2] US$bn	Average PD[3] %	Average LGD[3] %	RWA density[3] %	RWAs US$bn	Mapped external rating
Default risk								
Minimal	0.1	**0.000 to 0.010**	**1.8**	**0.02**	**50.2**	**22**	**0.4**	**AAA**
	1.1	**0.011 to 0.028**	**15.3**	**0.03**	**41.0**	**12**	**1.8**	**AA+ to AA**
	1.2	**0.029 to 0.053**	**27.4**	**0.04**	**31.7**	**11**	**3.0**	**AA-**
Low	2.1	**0.054 to 0.095**	**44.0**	**0.07**	**45.2**	**20**	**8.5**	**A+ to A**
	2.2	**0.096 to 0.169**	**14.3**	**0.13**	**45.4**	**34**	**4.8**	**A-**
Satisfactory	3.1	**0.170 to 0.285**	**9.3**	**0.22**	**44.7**	**42**	**3.9**	**BBB+**
	3.2	**0.286 to 0.483**	**6.1**	**0.37**	**45.1**	**56**	**3.4**	**BBB**
	3.3	**0.484 to 0.740**	**4.2**	**0.63**	**46.7**	**74**	**3.1**	**BBB-**
Fair	4.1	**0.741 to 1.022**	**1.9**	**0.87**	**48.3**	**100**	**1.8**	**BB+**
	4.2	**1.023 to 1.407**	**2.3**	**1.20**	**31.3**	**65**	**1.5**	**BB**
	4.3	**1.408 to 1.927**	**0.9**	**1.65**	**45.8**	**133**	**1.2**	**BB-**
Moderate	5.1	**1.928 to 2.620**	**0.3**	**2.25**	**54.3**	**167**	**0.5**	**BB-**
	5.2	**2.621 to 3.579**	**0.3**	**3.05**	**47.6**	**167**	**0.5**	**B+**
	5.3	**3.580 to 4.914**	**0.6**	**4.20**	**55.7**	**180**	**0.9**	**B**
Significant	6.1	**4.915 to 6.718**	**0.3**	**5.75**	**76.0**	**267**	**0.8**	**B-**
	6.2	**6.719 to 8.860**	**0.4**	**7.85**	**28.8**	**100**	**0.4**	**B-**
High	7.1	**8.861 to 11.402**	**0.6**	**10.00**	**57.4**	**250**	**1.5**	**CCC+**
	7.2	**11.403 to 15.000**	**0.3**	**13.00**	**51.2**	**233**	**0.7**	**CCC+**
Special management	8.1	**15.001 to 22.000**	**–**	**–**	**–**	**–**	**–**	**CCC**
	8.2	**22.001 to 50.000**	**–**	**–**	**–**	**–**	**–**	**CCC- to CC**
	8.3	**50.001 to 99.999**	**–**	**–**	**–**	**–**	**–**	**C**
Default[4]	9/10	**100.000**	**0.1**	**100.00**	**64.7**	**–**	**–**	**Default**
At 31 December 2014			**130.4**	**0.36**	**42.0**	**30**	**38.7**	
Default risk								
Minimal	0.1	0.000 to 0.010	4.2	0.03	27.5	7	0.3	AAA to AA+
	1.1	0.011 to 0.028	13.9	0.03	28.1	6	0.9	AA to AA–
	1.2	0.029 to 0.053	15.4	0.04	28.5	8	1.2	A+
Low	2.1	0.054 to 0.095	48.1	0.07	34.2	12	5.7	A
	2.2	0.096 to 0.169	17.9	0.13	34.5	20	3.6	A–
Satisfactory	3.1	0.170 to 0.285	10.7	0.22	35.6	28	3.0	BBB+
	3.2	0.286 to 0.483	8.6	0.37	36.3	37	3.2	BBB to BBB–
	3.3	0.484 to 0.740	3.9	0.63	37.3	54	2.1	BBB–
Fair	4.1	0.741 to 1.022	2.0	0.87	38.4	60	1.2	BB+
	4.2	1.023 to 1.407	1.4	1.20	35.8	71	1.0	BB
	4.3	1.408 to 1.927	0.7	1.65	44.1	100	0.7	BB–
Moderate	5.1	1.928 to 2.620	0.4	2.25	45.4	100	0.4	BB–
	5.2	2.621 to 3.579	0.7	3.05	34.5	100	0.7	B+
	5.3	3.580 to 4.914	0.3	4.20	59.7	167	0.5	B+
Significant	6.1	4.915 to 6.718	0.3	5.75	69.7	200	0.6	B
	6.2	6.719 to 8.860	0.2	7.85	72.7	250	0.5	B–
High	7.1	8.861 to 11.402	0.9	10.00	49.7	211	1.9	B–
	7.2	11.403 to 15.000	0.2	13.00	52.5	200	0.4	CCC+
Special management	8.1	15.001 to 22.000	–	–	–	–	–	CCC
	8.2	22.001 to 50.000	–	–	–	–	–	CCC–
	8.3	50.001 to 99.999	–	–	–	–	–	CC to C
Default[4]	9/10	100.000	0.2	100.00	47.0	50	0.1	Default
At 31 December 2013			130.0	0.46	33.6	22	28.0	

For footnotes, see page 50.

Table 30c: Wholesale IRB exposure – by obligor grade[1] – Corporates[5] (continued)

	CRR	PD range %	Exposure value[2] US$bn	Average PD[3] %	Average LGD[3] %	RWA density[3] %	RWAs US$bn	Mapped external rating
Default risk								
Minimal	**0.1[6]**	**0.000 to 0.010**	**–**	**–**	**–**	**–**	**–**	
	1.1	**0.011 to 0.028**	**11.5**	**0.03**	**43.6**	**16**	**1.8**	**AAA to AA**
	1.2	**0.029 to 0.053**	**43.0**	**0.04**	**30.4**	**13**	**5.6**	**AA-**
Low	**2.1**	**0.054 to 0.095**	**70.7**	**0.07**	**32.8**	**18**	**12.5**	**A+ to A**
	2.2	**0.096 to 0.169**	**91.3**	**0.13**	**32.8**	**25**	**22.9**	**A-**
Satisfactory	**3.1**	**0.170 to 0.285**	**82.9**	**0.22**	**37.0**	**38**	**31.5**	**BBB+**
	3.2	**0.286 to 0.483**	**71.9**	**0.37**	**39.7**	**53**	**38.2**	**BBB**
	3.3	**0.484 to 0.740**	**71.1**	**0.63**	**35.0**	**60**	**42.7**	**BBB-**
Fair	**4.1**	**0.741 to 1.022**	**47.4**	**0.87**	**36.1**	**70**	**33.1**	**BB+**
	4.2	**1.023 to 1.407**	**33.0**	**1.20**	**37.9**	**81**	**26.7**	**BB**
	4.3	**1.408 to 1.927**	**32.6**	**1.65**	**40.3**	**101**	**32.8**	**BB-**
Moderate	**5.1**	**1.928 to 2.620**	**22.6**	**2.24**	**38.0**	**100**	**22.6**	**BB-**
	5.2	**2.621 to 3.579**	**12.8**	**3.07**	**40.8**	**116**	**14.9**	**B+**
	5.3	**3.580 to 4.914**	**11.6**	**4.16**	**38.7**	**121**	**14.0**	**B**
Significant	**6.1**	**4.915 to 6.718**	**4.7**	**5.74**	**36.9**	**123**	**5.8**	**B-**
	6.2	**6.719 to 8.860**	**3.6**	**7.85**	**39.7**	**158**	**5.7**	**B-**
High	**7.1**	**8.861 to 11.402**	**1.7**	**10.03**	**32.9**	**139**	**2.5**	**CCC+**
	7.2	**11.403 to 15.000**	**0.9**	**13.00**	**38.0**	**178**	**1.6**	**CCC+**
Special management	**8.1**	**15.001 to 22.000**	**0.7**	**19.01**	**34.5**	**175**	**1.4**	**CCC**
	8.2	**22.001 to 50.000**	**0.3**	**36.00**	**31.2**	**167**	**0.5**	**CCC- to CC**
	8.3	**50.001 to 99.999**	**0.3**	**75.00**	**45.1**	**133**	**0.4**	**C**
Default[4]	**9/10**	**100.000**	**6.3**	**100.00**	**40.8**	**81**	**5.1**	**Default**
At 31 December 2014			**620.9**	**1.85**	**36.0**	**52**	**322.3**	
Default risk								
Minimal	0.1[6]	0.000 to 0.010	–	–	–	–	–	
	1.1	0.011 to 0.028	12.5	0.03	42.7	15	1.9	AAA to AA–
	1.2	0.029 to 0.053	30.1	0.04	37.5	14	4.2	A+
Low	2.1	0.054 to 0.095	55.7	0.07	39.0	21	11.7	A
	2.2	0.096 to 0.169	64.5	0.13	41.5	31	20.3	A–
Satisfactory	3.1	0.170 to 0.285	71.3	0.22	39.9	40	28.7	BBB+
	3.2	0.286 to 0.483	64.2	0.37	38.8	52	33.1	BBB to BBB–
	3.3	0.484 to 0.740	49.1	0.63	37.9	64	31.6	BBB–
Fair	4.1	0.741 to 1.022	32.8	0.87	36.9	73	23.8	BB+
	4.2	1.023 to 1.407	28.1	1.20	37.1	81	22.8	BB
	4.3	1.408 to 1.927	29.3	1.65	36.3	89	26.0	BB–
Moderate	5.1	1.928 to 2.620	20.2	2.25	33.9	93	18.8	BB–
	5.2	2.621 to 3.579	12.9	3.05	38.5	112	14.6	B+
	5.3	3.580 to 4.914	9.8	4.20	35.5	115	11.3	B+
Significant	6.1	4.915 to 6.718	4.4	5.75	33.7	125	5.5	B
	6.2	6.719 to 8.860	3.1	7.85	38.0	158	4.9	B–
High	7.1	8.861 to 11.402	2.1	10.00	32.6	148	3.1	B–
	7.2	11.403 to 15.000	0.7	13.00	28.9	171	1.2	CCC+
Special management	8.1	15.001 to 22.000	1.0	19.00	35.5	190	1.9	CCC
	8.2	22.001 to 50.000	0.4	36.00	26.8	150	0.6	CCC–
	8.3	50.001 to 99.999	0.3	75.00	34.5	100	0.3	CC toC
Default[4]	9/10	100.000	7.1	100.00	36.2	41	2.9	Default
At 31 December 2013			499.6	2.32	38.5	54	269.2	

1 *See glossary for definition of obligor grade.*
2 *Central governments and central banks exposure value includes US$1.2bn (2013: US$1.5bn) in undrawn commitments, institutions exposure value includes US$15.4bn (2013: US$12.7bn) and corporates exposure value includes US$358.2bn (2013: U$313.1bn).*
3 *Average PD, average LGD and RWA density percentages represent an exposure weighted average.*
4 *There is a requirement to hold additional capital for unexpected losses on defaulted exposures where LGD exceeds best estimate of EL. As a result, in some cases, RWAs arise for exposures in default.*
5 *Excludes specialised lending exposures subject to the supervisory slotting approach (EAD: US$30.5bn; RWA: US$23.0bn).*
6 *The top band of the wholesale CRR master scale is not available to entities in the corporates exposure class, but restricted to the strongest central governments, central banks and institutions.*

Key points

Central Governments and Central Banks

- The decrease in CRR 1.1 has been primarily driven by the sovereign rating downgrades in Middle East and North Africa to CRR 1.2 and reduced government debt in Asia.
- The movements in CRR 1.2 and CRR 2.1 bands are primarily driven by a sovereign rating upgrade in Asia.

Institutions

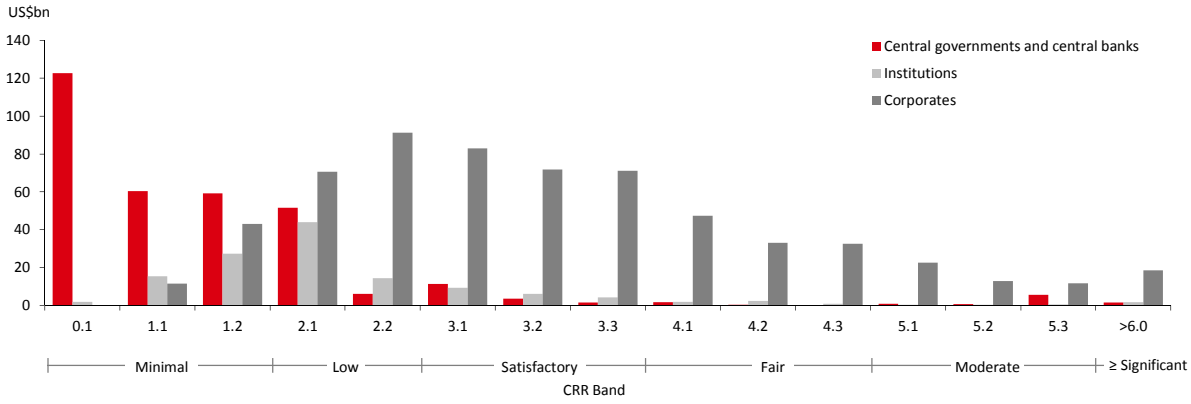
- LGD weightings have been impacted by the introduction of LGD floors applied to institutions.
- The movement in CRR 1.2 has been primarily driven by the CRD IV requirement to report exposure gross of any cash collateral and increased lending in Asia.

Corporates

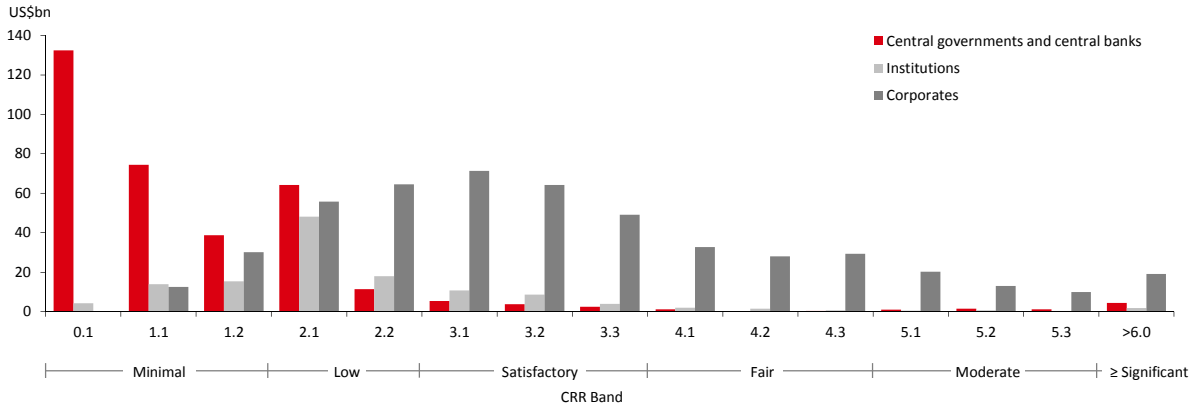
- The increased exposure across Corporate CRR bandings was primarily driven by the CRD IV requirement to report exposure gross of any cash collateral. The additional increase in CRR 1.2, CRR 3.1, CRR 3.2, CRR 3.3 and CRR 4.1 reflects higher Corporate lending, including term and trade-related lending in Asia, Europe and North America.
- This increase in exposure is principally in the upper PD bandings resulting in the decrease in average PD.
- Average LGDs remain broadly consistent overall, with a decrease resulting from the inclusion of cash collateral in the LGD calculation for exposures under CRD IV, offset by an increase due to the introduction of LGD floors applied to certain corporates.

Wholesale exposures by CRR Band

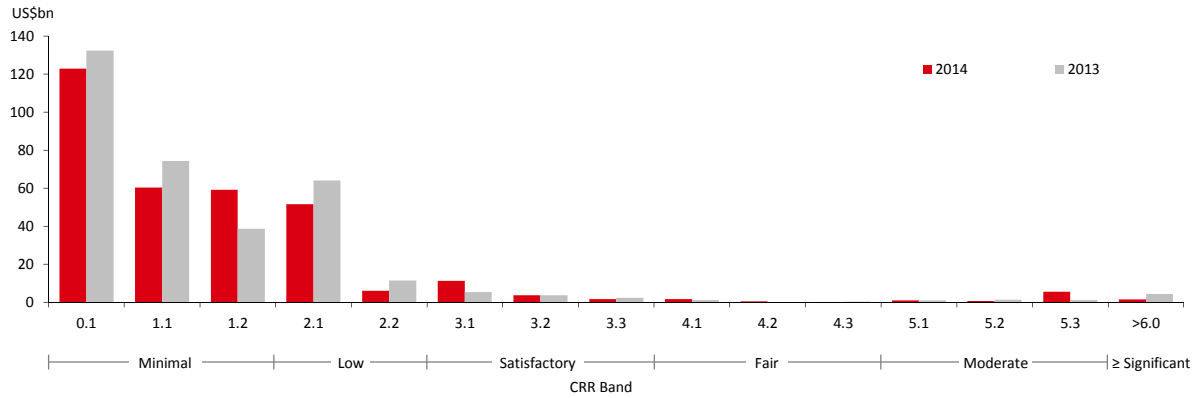
Wholesale 2014



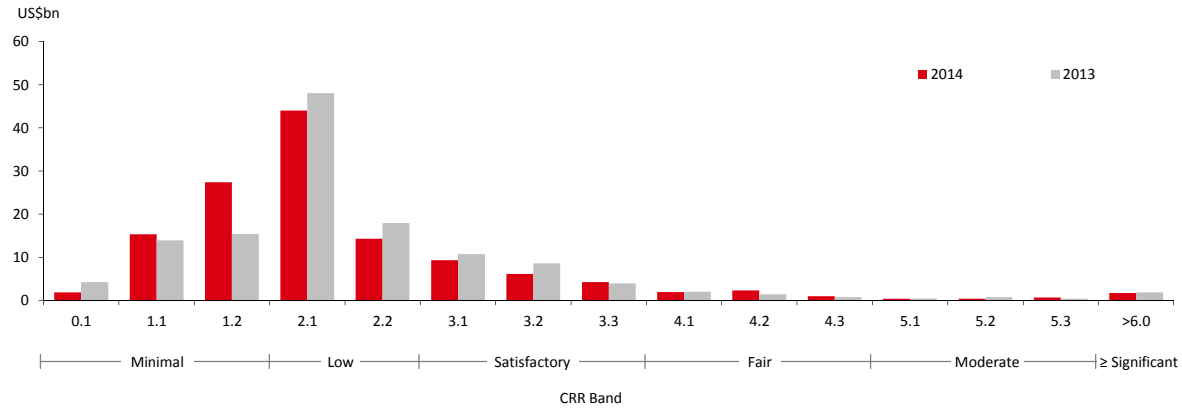
Wholesale 2013



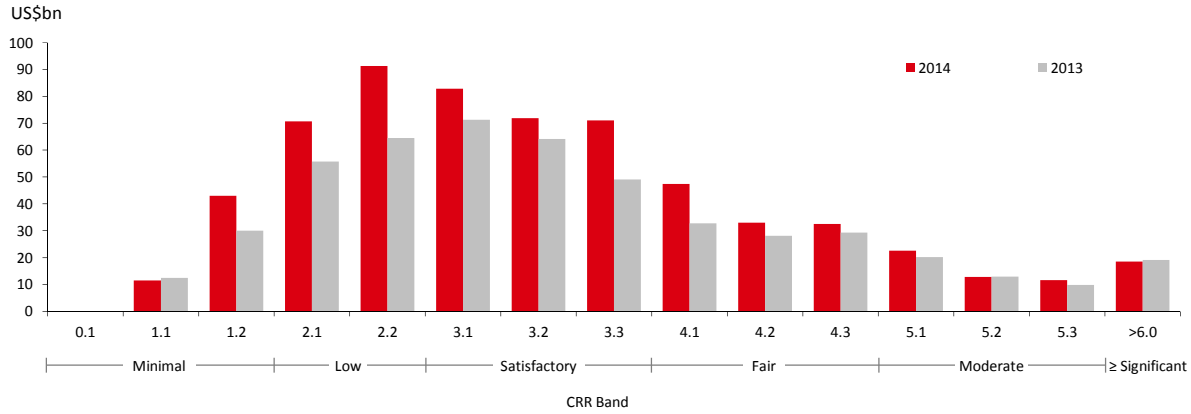
Central governments and central banks



Institutions



Corporates



Retail risk rating systems

Owing to the different country-level portfolio performance characteristics and loss history, there are no global models for our retail portfolios. Our retail models are developed at a local level, based on portfolio behaviour and observed defaults. Across the Group, we maintain over 1,000 retail risk predictive scorecards and models. Of these, just under 300 are used with the PRA's approval under our IRB permission, the remainder being application scorecards, behavioural scorecards, or forecasting models.

We classify approximately 40% of the total number of retail IRB models as constituting globally or regionally material risk rating systems, based on the criteria set out on page 33 and taking account of strategic importance to the Group. These material risk rating systems represented approximately 86% of our total retail IRB RWAs of US$106bn as of 31 December 2014.

The ten most material risk rating systems based on the above criteria, for which we disclose details of modelling methodology in table 31 below and performance data in table 37, represented RWAs of approximately US$74bn or 70% of the total retail IRB RWAs, the majority being attributable to the five risk rating systems for residential mortgages, our most material retail exposure class.

All newly adopted IRB models for retail portfolios, irrespective of size, require PRA approval. For changes to existing IRB models, a PRA approval process applies to all but a list of *de minimis* exemptions representing an immaterial percentage of total Group credit risk RWAs. This approval process sets various quantitative and qualitative thresholds to ensure that all significant model changes go forward for approval.

When developing retail models, segmentation based on risk characteristics is often adopted to enhance the models' discrimination and accuracy. The majority of our retail models are designed for a particular product or group of products in a specific country. We have developed and issued global internal model governance, development, validation and monitoring standards to ensure that locally developed models adhere, as far as possible, to consistent global standards. These permit specific variances in model approach, depending on local regulatory, legal or data requirements, which are used to determine and predict the risks in these portfolios.

Our models incorporate conservatism where required under regulatory rules. Additional levels of conservatism, varying from region to region, may arise from a methodological choice of ours or from a specific regulatory intervention, depending on the local assessment of the risk factors by us and the regulatory authorities. Regulators may additionally impose 'floor' values for various metrics where data is scarce.

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

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

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

Our approach to LGD estimates has more variation, particularly in respect of the downturn period calculation that they generally include. For instance, UK mortgage models use a regulatory-defined downturn based on a minimum 40% decline in house prices from peak to trough.

In Hong Kong and the US, the downturn LGD for the mortgage model is defined to be the period when historical default rates and property price declines were at their most severe. This was observed in 2003-2004 in Hong Kong when it experienced the Severe Acute Respiratory Syndrome. In the US, this coincided with the US recession and subprime mortgage crisis covering the periods 2003 to 2008.

Table 31: Material Retail IRB risk rating systems

Portfolio	CRD IV asset class	RWA US$bn	Component model	Number of material component models	Model description and methodology	Number of years loss data[1]	Applicable Pillar 1 regulatory thresholds and overlays
UK HSBC residential mortgages	Retail – secured by mortgages on immovable property non-SME	5.86	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	7-10	PD floor of 0.03%
			LGD	1	Statistical estimates of loss and probability of possession in combination with the workout process and using the 1990's recession in benchmarking the downturn LGD.	> 10	LGD floor of 10% at portfolio level
			EAD	1	Statistical model based on historical data and uses balance at observation and expected number of months to default.	7-10	EAD must at least be equal to current balance
UK HSBC credit cards	Retail – qualifying revolving	2.24	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	7-10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future recoveries.	7-10	
			EAD	1	Statistical model which derives a credit conversion factor to determine the proportion of undrawn limit to be added to the balance at observation.	7-10	EAD must at least be equal to current balance
UK HSBC personal loans	Retail – other non-SME	2.45	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	7-10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future recoveries.	7-10	
			EAD	1	Rule-based calculation based on current balance which continues to be a conservative estimate for EAD.	7-10	EAD must at least be equal to current balance
UK business banking	Retail – other SME	4.50	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	7-10	PD floor of 0.03%
			LGD	2	Two sets of models – one for secured and another for unsecured exposures. The secured model uses the value to loan as a key component for estimation while the unsecured model estimates the amount of future recoveries and undrawn portion.	7-10	
			EAD	1	Statistical model using segmentation according to limit and utilisation and estimation of the undrawn exposure.	7-10	EAD must at least be equal to current balance
Hong Kong HSBC personal residential mortgages[2]	Retail – secured by mortgages on immovable property non-SME	3.70	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	> 10	PD floor of 0.03%
			LGD	1	Statistical model based on estimate of loss incurred over a recovery period derived from historical data with downturn LGD based on the worst observed default rate.	> 10	LGD floor of 10% at portfolio level
			EAD	1	Rule-based calculation based on current balance which continues to be a conservative estimate for EAD.	> 10	EAD must at least be equal to current balance
Hong Kong HSBC credit cards	Retail – qualifying revolving	2.90	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	> 10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future recoveries.	> 10	
			EAD	1	Statistical model which derives a credit conversion factor to determine the proportion of undrawn limit to be added to the balance at observation.	> 10	EAD must at least be equal to current balance

Portfolio	CRD IV asset class	RWA US$bn	Component model	Number of material component models	Model description and methodology	Number of years loss data[1]	Applicable Pillar 1 regulatory thresholds and overlays
Hong Kong HSBC personal instalment loans	Retail – other non-SME	1.22	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	> 10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future recoveries.	> 10	
			EAD	1	Rule-based calculation based on current balance which continues to be a conservative estimate for EAD.	> 10	EAD must at least be equal to current balance
US Consumer Lending first lien[3]	Retail – secured by mortgages on immovable property non-SME	28.7	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	> 10	PD floor of 0.03%
			LGD	1	Statistical model based on identifying the main risk drivers of loss and recovery and grouping them into homogeneous pools. Downturn LGD is derived based on the peak default rate observed while additional assumptions and estimations are done on incomplete workouts.	> 10	LGD floor of 10% at portfolio level 10% uplift on the total LGD for first lien portfolio LGD floor at the segment level based on the value notified to the PRA and ranges from c.60% to c.98%
			EAD	1	Rule-based calculation based on current balance which continues to be a conservative estimate for EAD.	> 10	EAD must at least be equal to current balance
US Mortgage Services first lien[3]	Retail – secured by mortgages on immovable property non-SME	13.3	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	> 10	PD floor of 0.03%
			LGD	1	Statistical model based on identifying the main risk drivers of loss and recovery and grouping them into homogeneous pools. Downturn LGD is derived based on the peak default rate observed while additional assumptions and estimations are done on incomplete workouts.	> 10	LGD floor of 10% at portfolio level 10% uplift on the total LGD for first lien portfolio LGD floor at the segment level based on the value notified to the PRA and ranges from c.60% to c.98%
			EAD	1	Rule-based calculation based on current balance which continues to be a conservative estimate for EAD.	> 10	EAD must at least be equal to current balance
US HSBC Mortgage Corporation first lien[3]	Retail – secured by mortgages on immovable property non-SME	9.0	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	> 10	PD floor of 0.03% Uplift in RWA and EL based on comparison of outputs between existing and new models
			LGD	1	Statistical model based on identifying the main risk drivers of loss and recovery and grouping them into homogeneous pools. Downturn LGD is derived based on the peak default rate observed while additional assumptions and estimations are done on incomplete workouts.	> 10	LGD floor of 10% at portfolio level Uplift in RWA and EL based on comparison of outputs between existing and new models
			EAD	1	Rule-based calculation based on current balance which continues to be a conservative estimate for EAD.	> 10	EAD must at least be equal to current balance Uplift in RWA and EL based on comparison of outputs between existing and new models

1 *Defined as the number of years from the data period used for model development up to the present.*

2 *The Hong Kong Monetary Authority also introduced a 15% risk weight floor for all residential mortgages granted after 22 February 2013 in Hong Kong. This risk weight floor is also reflected in Group reported numbers.*

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

In December 2013, the PRA approved our use of a new set of models (referred to as Gen2 models) for the CML portfolios, subject to certain conditions with regard to LGD floors and regular assessment of the capital difference in applying the US instead of the PRA rules, mainly on the definition of default used for modelling.

For the HSBC Mortgage Corporation first lien portfolio, we continue to include agreed adjustments to the existing model outputs based on a new set of models which are yet to be approved by the PRA.

Table 32a below sets out the exposure-weighted average PDs by retail exposure class while table 32b below provides the exposure value, exposure-weighted average PDs and LGDs, RWA density and RWAs for our most material residential mortgages risk rating systems.

In table 32b, the regulatory LGD and PD floors of 10% and 0.03%, respectively, are included. In this table, the UK HSBC residential mortgages include the HSBC branded portfolios of HSBC Bank plc but not those of First Direct, Hong Kong residential mortgages consist of HSBC and Hang Seng portfolios, and the US residential mortgages cover the CML and the US HSBC Mortgage Corporation portfolios. The PD and LGD values in the US residential mortgages are before the quantitative adjustment due to the existing deficiencies of the US HSBC Mortgage Corporation Gen1 model. This quantitative adjustment is applied at the total portfolio RWA and EL levels.

Within table 32b, the RWAs and other Basel metrics have decreased in 2014 due to the increasing house prices in the UK and the continued sale of defaulted assets and improving economic conditions in the US. On the other hand, the implementation of the 15% risk weight floor for new residential mortgages in 2014 increased the RWAs and RWA density in Hong Kong.

Tables 33 and 34 show IRB exposures by exposure sub-class and portfolio quality bands: at Group level by internal PD band and by geographic region using a composite EL measure, respectively.

In table 33, band seven has lower RWAs because, as assets approach and go into default, our capital requirements are increasingly reflected in an EL deduction from capital, rather than a direct RWA impact.

Table 32a: Retail IRB portfolio analysis

	Europe %	Asia %	North America %	Total %
At 31 December 2014				
Exposure-weighted average PD				
Retail – secured by mortgages on immovable property non-SME	**0.98**	**1.00**	**11.54**	**3.06**
Retail – secured by mortgages on immovable property SME	**8.81**	**0.76**	**–**	**7.06**
Retail – qualifying revolving	**1.41**	**1.09**	**1.74**	**1.30**
Retail – other SME	**10.09**	**0.12**	**3.75**	**9.73**
Retail – other non-SME	**1.90**	**1.76**	**7.54**	**2.68**
Exposure-weighted average LGD				
Retail – secured by mortgages on immovable property non-SME	**13.5**	**12.1**	**51.5**	**20.5**
Retail – secured by mortgages on immovable property SME	**19.0**	**11.1**	**–**	**17.5**
Retail – qualifying revolving	**84.5**	**100.2**	**90.1**	**91.3**
Retail – other SME	**48.7**	**9.1**	**61.0**	**49.0**
Retail – other non-SME	**22.0**	**22.8**	**77.7**	**30.0**

Table 32b: Retail IRB exposures secured by mortgages on immovable property (non-SME)

	Exposure value US$bn	Average PD %	Average LGD %	RWA density %	RWAs US$bn
At 31 December 2014					
Total Retail IRB exposures secured by mortgages on immovable property (non-SME)	**288.9**	**3.06**	**20.5**	**25**	**71.6**
Of which:					
– US first lien residential mortgages	**37.3**	**14.83**	**56.4**	**136**	**50.9**
– UK HSBC residential mortgages	**98.3**	**0.93**	**15.5**	**6**	**5.9**
– Hong Kong residential mortgages	**56.3**	**0.78**	**10.1**	**10**	**5.8**
At 31 December 2013					
Total Retail IRB exposures secured on real estate property	310.7	4.02	20.1	34	105.4
Of which:					
– US first lien residential mortgages	42.8	18.13	59.6	176	75.3
– UK HSBC residential mortgages	104.4	1.11	16.4	7	7.3
– Hong Kong residential mortgages	52.1	0.74	10.1	7	3.8

Table 33: Retail IRB exposure – by internal PD band

	PD range %	Exposure value[1] US$bn	Average PD[2] %	Average LGD[2] %	RWA density[2] %	RWAs US$bn
At 31 December 2014						
Secured by mortgages on immovable property SME						
Band 1	0.000 to 0.483	0.5	0.10	11.9	0	0.0
Band 2	0.484 to 1.022	0.6	0.80	16.8	17	0.1
Band 3	1.023 to 4.914	1.5	2.45	18.3	20	0.3
Band 4	4.915 to 8.860	0.2	6.94	23.0	50	0.1
Band 5	8.861 to 15.000	0.1	11.25	26.4	0	0.0
Band 6	15.001 to 50.000	0.1	25.01	18.8	100	0.1
Band 7	50.001 to 100.000	0.1	100.00	16.8	0	0.0
		3.1	7.06	17.5	21	0.6
Secured by mortgages on immovable property Non-SME						
Band 1	0.000 to 0.483	219.7	0.12	15.2	6	12.1
Band 2	0.484 to 1.022	27.2	0.69	27.5	31	8.5
Band 3	1.023 to 4.914	24.1	2.01	36.2	82	19.8
Band 4	4.915 to 8.860	5.8	5.89	52.0	221	12.8
Band 5	8.861 to 15.000	2.2	12.31	36.7	200	4.4
Band 6	15.001 to 50.000	3.2	23.72	57.7	378	12.1
Band 7	50.001 to 100.000	6.7	97.17	59.4	28	1.9
		288.9	3.06	20.5	25	71.6
Qualifying revolving retail exposures						
Band 1	0.000 to 0.483	47.8	0.12	91.9	6	3.1
Band 2	0.484 to 1.022	6.6	0.71	91.3	29	1.9
Band 3	1.023 to 4.914	9.1	2.26	89.8	65	5.9
Band 4	4.915 to 8.860	1.4	6.64	87.8	136	1.9
Band 5	8.861 to 15.000	0.5	11.06	89.1	200	1.0
Band 6	15.001 to 50.000	0.5	24.44	90.3	260	1.3
Band 7	50.001 to 100.000	0.3	89.52	64.5	67	0.2
		66.2	1.30	91.3	23	15.3
Other SME						
Band 1	0.000 to 0.483	1.8	0.29	57.1	17	0.3
Band 2	0.484 to 1.022	2.3	0.74	46.0	30	0.7
Band 3	1.023 to 4.914	6.3	2.56	49.4	52	3.3
Band 4	4.915 to 8.860	1.5	6.68	45.7	60	0.9
Band 5	8.861 to 15.000	0.6	11.00	52.7	67	0.4
Band 6	15.001 to 50.000	0.5	24.99	54.1	100	0.5
Band 7	50.001 to 100.000	0.9	99.27	37.9	11	0.1
		13.9	9.73	49.0	45	6.2
Other non-SME						
Band 1	0.000 to 0.483	27.0	0.19	25.7	11	3.0
Band 2	0.484 to 1.022	6.3	0.71	33.3	30	1.9
Band 3	1.023 to 4.914	11.3	1.98	30.1	42	4.7
Band 4	4.915 to 8.860	0.9	7.24	60.6	100	0.9
Band 5	8.861 to 15.000	0.5	12.25	71.2	160	0.8
Band 6	15.001 to 50.000	0.6	28.20	63.4	150	0.9
Band 7	50.001 to 100.000	0.7	95.81	66.5	29	0.2
		47.3	2.68	30.0	26	12.4
Total retail						
Band 1	0.000 to 0.483	296.8	0.13	28.8	6	18.5
Band 2	0.484 to 1.022	43.0	0.70	39.0	30	13.1
Band 3	1.023 to 4.914	52.3	2.13	45.2	65	34.0
Band 4	4.915 to 8.860	9.8	6.27	56.2	169	16.6
Band 5	8.861 to 15.000	3.9	11.91	51.0	169	6.6
Band 6	15.001 to 50.000	4.9	24.47	60.7	304	14.9
Band 7	50.001 to 100.000	8.7	97.05	57.3	28	2.4
		419.4	2.99	33.7	25	106.1

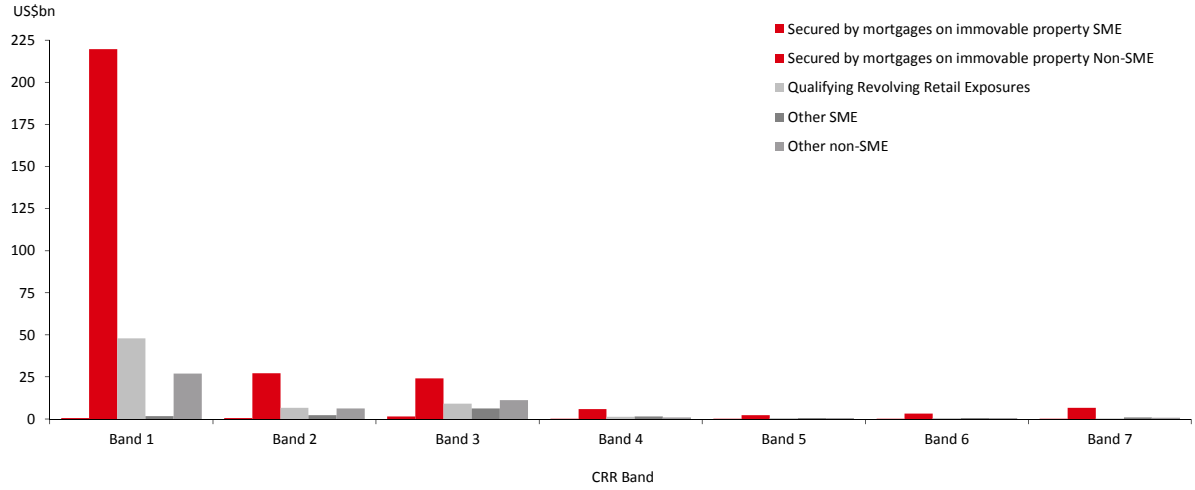
	PD range %	Exposure value US$bn	Average PD[2] %	Average LGD[2] %	RWA density[2] %	RWAs US$bn
At 31 December 2013						
Secured on real estate property						
Band 1	0.000 to 0.483	215.1	0.12	14.2	4	9.3
Band 2	0.484 to 1.022	42.2	0.65	23.4	29	12.2
Band 3	1.023 to 4.914	30.0	2.30	34.9	106	31.9
Band 4	4.915 to 8.860	5.1	5.91	54.3	308	15.7
Band 5	8.861 to 15.000	3.6	12.25	44.6	300	10.8
Band 6	15.001 to 50.000	4.9	24.16	50.2	445	21.8
Band 7	50.001 to 100.000	9.8	96.17	49.6	38	3.7
		310.7	4.02	20.1	34	105.4
Qualifying revolving retail exposures						
Band 1	0.000 to 0.483	47.9	0.12	90.7	6	2.9
Band 2	0.484 to 1.022	6.3	0.70	91.3	29	1.8
Band 3	1.023 to 4.914	9.5	2.18	88.7	62	5.9
Band 4	4.915 to 8.860	1.6	6.59	85.8	131	2.1
Band 5	8.861 to 15.000	0.7	10.90	84.9	157	1.1
Band 6	15.001 to 50.000	0.5	27.63	86.9	240	1.2
Band 7	50.001 to 100.000	0.4	88.27	78.4	100	0.4
		66.9	1.40	90.2	23	15.4
SMEs						
Band 1	0.000 to 0.483	2.6	0.25	38.3	19	0.5
Band 2	0.484 to 1.022	2.8	0.76	30.4	29	0.8
Band 3	1.023 to 4.914	8.1	2.64	40.5	57	4.6
Band 4	4.915 to 8.860	2.3	6.71	37.8	61	1.4
Band 5	8.861 to 15.000	0.8	11.08	46.3	88	0.7
Band 6	15.001 to 50.000	0.7	25.47	48.4	114	0.8
Band 7	50.001 to 100.000	1.3	99.27	34.9	8	0.1
		18.6	10.63	38.5	48	8.9
Other retail						
Band 1	0.000 to 0.483	24.6	0.20	17.7	9	2.1
Band 2	0.484 to 1.022	8.1	0.70	30.6	27	2.2
Band 3	1.023 to 4.914	11.4	1.98	28.6	39	4.5
Band 4	4.915 to 8.860	1.0	7.07	41.4	70	0.7
Band 5	8.861 to 15.000	0.5	11.76	55.7	100	0.5
Band 6	15.001 to 50.000	0.6	27.91	35.5	100	0.6
Band 7	50.001 to 100.000	0.6	93.52	56.1	67	0.4
		46.8	2.64	24.3	24	11.0
Total retail						
Band 1	0.000 to 0.483	290.2	0.12	27.3	5	14.8
Band 2	0.484 to 1.022	59.4	0.67	32.0	29	17.0
Band 3	1.023 to 4.914	59.0	2.26	43.1	79	46.9
Band 4	4.915 to 8.860	10.0	6.32	54.2	199	19.9
Band 5	8.861 to 15.000	5.6	11.88	50.6	234	13.1
Band 6	15.001 to 50.000	6.7	24.88	51.3	364	24.4
Band 7	50.001 to 100.000	12.1	96.13	49.2	38	4.6
		443.0	3.76	31.9	32	140.7

1 *Secured by mortgages on immovable property – SME exposure value includes nil in undrawn commitments, secured by mortgages on immovable property – non-SME exposure value includes US$17.9bn, qualifying revolving retail exposures exposure value includes US$93.0bn, other SME exposure value includes US$4.4bn and other non-SME exposure value includes US$14.4bn.*

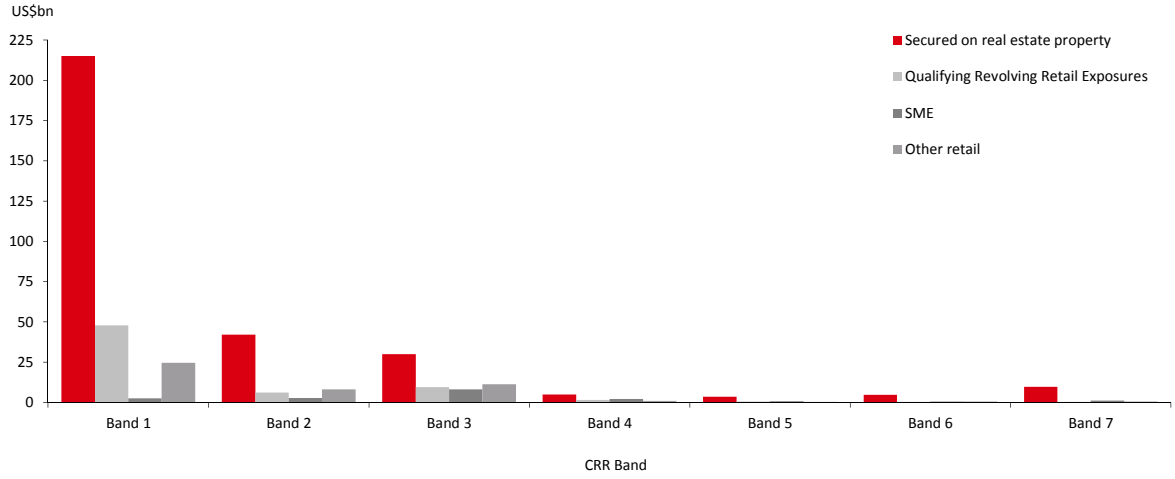
2 *Average PD, average LGD and RWA density percentages represent exposure-weighted averages.*

Retail exposures by internal PD band

2014



2013



Key points

Secured by mortgages on immovable property

- Favourable shifts in PD bands are driven by the US run-off portfolio, due to book quality improvement driven by continued run-off that resulted in an improvement in the residual portfolio.
- The re-classification of part of the mortgage portfolio in North America has driven the movement between secured by mortgages on immovable property and other non-SME.

The possible variation between jurisdictions' definitions underlying retail PD and LGD diminishes the usefulness of these measures as comparators for the purposes of global retail portfolio management. To address this, we also maintain an EL scale for retail business, combining obligor and facility/product risk factors in a composite measure of PD and LGD. This scale, summarised in the table below, enables the diverse risk profiles of retail portfolios across the Group to be assessed using a common denominator instead of their disparate PD and LGD measures.

Table 34: Retail IRB exposure – by region[1]

	Exposure value			
	Europe US$bn	Asia US$bn	North America US$bn	Total exposure US$bn
Secured by mortgages on immovable property SME				
Expected loss band				
– less than 1%	**1.8**	**0.7**	**–**	**2.5**
– greater than or equal to 1% and less than 5%	**0.5**	**–**	**–**	**0.5**
– greater than or equal to 5% and less than 10%	**–**	**–**	**–**	**–**
– greater than or equal to 10% and less than 20%	**–**	**–**	**–**	**–**
– greater than or equal to 20% and less than 40%	**–**	**–**	**–**	**–**
– greater than or equal to 40% or exposures in default	**0.1**	**–**	**–**	**0.1**
	2.4	**0.7**	**–**	**3.1**
Secured by mortgages on immovable property non-SME				
Expected loss band				
– less than 1%	**142.2**	**87.6**	**35.9**	**265.7**
– greater than or equal to 1% and less than 5%	**0.7**	**0.2**	**10.7**	**11.6**
– greater than or equal to 5% and less than 10%	**0.2**	**–**	**1.9**	**2.1**
– greater than or equal to 10% and less than 20%	**0.1**	**–**	**2.0**	**2.1**
– greater than or equal to 20% and less than 40%	**–**	**–**	**0.7**	**0.7**
– greater than or equal to 40% or exposures in default	**0.9**	**0.4**	**5.4**	**6.7**
	144.1	**88.2**	**56.6**	**288.9**
Qualifying revolving retail exposures				
Expected loss band				
– less than 1%	**29.4**	**23.4**	**3.2**	**56.0**
– greater than or equal to 1% and less than 5%	**4.4**	**3.1**	**0.7**	**8.2**
– greater than or equal to 5% and less than 10%	**0.6**	**0.4**	**0.1**	**1.1**
– greater than or equal to 10% and less than 20%	**0.2**	**0.3**	**–**	**0.5**
– greater than or equal to 20% and less than 40%	**0.1**	**0.1**	**–**	**0.2**
– greater than or equal to 40% or exposures in default	**0.2**	**–**	**–**	**0.2**
	34.9	**27.3**	**4.0**	**66.2**
Other SME				
Expected loss band				
– less than 1%	**6.3**	**0.1**	**0.4**	**6.8**
– greater than or equal to 1% and less than 5%	**5.1**	**–**	**0.2**	**5.3**
– greater than or equal to 5% and less than 10%	**0.6**	**–**	**–**	**0.6**
– greater than or equal to 10% and less than 20%	**0.2**	**–**	**–**	**0.2**
– greater than or equal to 20% and less than 40%	**0.1**	**–**	**–**	**0.1**
– greater than or equal to 40% or exposures in default	**0.9**	**–**	**–**	**0.9**
	13.2	**0.1**	**0.6**	**13.9**
Other non-SME				
Expected loss band				
– less than 1%	**32.6**	**5.4**	**3.9**	**41.9**
– greater than or equal to 1% and less than 5%	**1.5**	**0.5**	**1.6**	**3.6**
– greater than or equal to 5% and less than 10%	**0.2**	**0.1**	**0.3**	**0.6**
– greater than or equal to 10% and less than 20%	**–**	**–**	**0.4**	**0.4**
– greater than or equal to 20% and less than 40%	**–**	**–**	**0.2**	**0.2**
– greater than or equal to 40% or exposures in default	**0.3**	**–**	**0.3**	**0.6**
	34.6	**6.0**	**6.7**	**47.3**
Total retail				
Expected loss band				
– less than 1%	**212.3**	**117.2**	**43.4**	**372.9**
– greater than or equal to 1% and less than 5%	**12.2**	**3.8**	**13.2**	**29.2**
– greater than or equal to 5% and less than 10%	**1.6**	**0.5**	**2.3**	**4.4**
– greater than or equal to 10% and less than 20%	**0.5**	**0.3**	**2.4**	**3.2**
– greater than or equal to 20% and less than 40%	**0.2**	**0.1**	**0.9**	**1.2**
– greater than or equal to 40% or exposures in default	**2.4**	**0.4**	**5.7**	**8.5**
At 31 December 2014	**229.2**	**122.3**	**67.9**	**419.4**

	Exposure value			
	Europe US$bn	Asia US$bn	North America US$bn	Total exposure US$bn
Secured on real estate property				
Expected loss band				
– less than 1%	152.1	85.1	40.4	277.6
– greater than or equal to 1% and less than 5%	1.2	1.1	13.2	15.5
– greater than or equal to 5% and less than 10%	0.3	–	3.5	3.8
– greater than or equal to 10% and less than 20%	0.1	–	2.6	2.7
– greater than or equal to 20% and less than 40%	–	–	1.7	1.7
– greater than or equal to 40% or exposures in default	1.1	0.3	8.0	9.4
	154.8	86.5	69.4	310.7
Qualifying revolving retail exposures				
Expected loss band				
– less than 1%	30.2	21.2	3.5	54.9
– greater than or equal to 1% and less than 5%	5.2	3.3	0.8	9.3
– greater than or equal to 5% and less than 10%	1.0	0.5	0.2	1.7
– greater than or equal to 10% and less than 20%	0.2	0.2	–	0.4
– greater than or equal to 20% and less than 40%	–	0.1	0.1	0.2
– greater than or equal to 40% or exposures in default	0.3	–	0.1	0.4
	36.9	25.3	4.7	66.9
SMEs				
Expected loss band				
– less than 1%	9.0	0.8	0.3	10.1
– greater than or equal to 1% and less than 5%	5.8	–	0.3	6.1
– greater than or equal to 5% and less than 10%	0.7	–	–	0.7
– greater than or equal to 10% and less than 20%	0.3	–	–	0.3
– greater than or equal to 20% and less than 40%	0.1	–	–	0.1
– greater than or equal to 40% or exposures in default	1.3	–	–	1.3
	17.2	0.8	0.6	18.6
Other retail				
Expected loss band				
– less than 1%	33.9	5.1	2.6	41.6
– greater than or equal to 1% and less than 5%	2.9	0.6	0.3	3.8
– greater than or equal to 5% and less than 10%	0.3	0.1	0.1	0.5
– greater than or equal to 10% and less than 20%	0.1	–	0.1	0.2
– greater than or equal to 20% and less than 40%	0.1	–	0.1	0.2
– greater than or equal to 40% or exposures in default	0.5	–	–	0.5
	37.8	5.8	3.2	46.8
Total retail				
Expected loss band				
– less than 1%	225.2	112.2	46.8	384.2
– greater than or equal to 1% and less than 5%	15.1	5.0	14.6	34.7
– greater than or equal to 5% and less than 10%	2.3	0.6	3.8	6.7
– greater than or equal to 10% and less than 20%	0.7	0.2	2.7	3.6
– greater than or equal to 20% and less than 40%	0.2	0.1	1.9	2.2
– greater than or equal to 40% or exposures in default	3.2	0.3	8.1	11.6
At 31 December 2013	246.7	118.4	77.9	443.0

1 *The MENA and Latin America regions are not included in this table as retail exposures in these regions are calculated under the standardised approach.*

Model performance

Model validation within HSBC is subject to global internal standards. All material models whose outputs are used in calculations of IRB capital requirements fall under this governance framework. These arrangements are designed to support a comprehensive quantitative and qualitative process within a cycle of model monitoring and validation that includes:

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

The purpose of periodic monitoring and validation is therefore:

- to determine that the model continues to produce accurate outputs, suitable for the intended purposes;
- to confirm that the model remains conceptually sound, that the model design is still appropriate and the assumptions made at development remain valid;
- to ensure that the model is used for its intended purpose and for appropriate exposures only (use test); and
- to prompt corrective actions when the model outputs move away from the expected levels.

Models are validated against a series of metrics and triggers approved by the governance committee. The metrics and quantitative checks for periodic validation include a review of the data inputs and overall population stability, and an assessment of the model's discriminatory power or rank order capability, its calibration accuracy, and its performance against available benchmarks. The qualitative checks include and reconfirm all elements assessed at design phase, including the model's conceptual soundness.

The results of periodic in-depth validation must be presented to a model governing committee at least annually. A subset of the key performance metrics is produced and reviewed as part of the ongoing monitoring process.

A large number of models are used within the Group, and data at individual model level is, in most cases, immaterial in the context of the Group overall. We therefore disclose data covering most wholesale models including corporate models on an aggregated basis, and on our individually most material retail models as set out in table 31 above. The tables below show estimated values at the beginning of the relevant observation periods, and subsequent actual experienced values, for key Basel calculation metrics. Values for wholesale models are shown in tables 35 and 36, and for retail models in table 37. The basis of preparation of each table is set out below and in footnotes.

Wholesale credit models

For wholesale portfolios, we disclose the performance of models covering sovereign obligors, banks and corporates. As explained on page 45, we operate global models for the first two of these customer groups. In the case of corporates, we have aggregated data on models covering a customer population ranging from large multinational companies to medium-sized and smaller corporates. The PD analysis for this group includes mainly advanced IRB exposures but also a small element of foundation IRB.

In table 35 below, the data for sovereigns and banks are based on such a small number of defaults that the comparison of estimated with actual results, even where these are available, is not fully reflective of a model's performance. To mitigate this characteristic of low-default portfolios, additional analysis is carried out on these models at annual validation. This analysis shows that they discriminate risk well and are appropriately calibrated. The latter reflects both a prudent modelling approach and the conservatism required by regulations. As noted on page 46, sovereign and institutions exposures are subject to an explicit regulatory floor applied for the calculation of regulatory capital.

Within table 35, for back-testing purposes, a customer's CRR/PD is observed at a point in time and then their default or non-default status in the following one-year period is recorded against that PD grade. The PD presentation in table 35 is expressed for all exposure classes on an obligor basis, as model performance is judged on this basis in validation. The LGD and EAD refer to observations for the defaulted population, being the appropriate focus of an assessment of these models' performance.

Table 35: IRB models – estimated and actual values (wholesale)[8]

	PD[1]		LGD[2]		EAD[3]	
	Estimated %	Actuals %	Estimated[4] %	Actuals[4] %	Estimated %	Actuals %
2014						
Sovereigns model[5]	**2.27**	**–**	**–**	**–**	**–**	**–**
Banks model[6]	**3.28**	**–**	**–**	**–**	**–**	**–**
Corporates models[7]	**1.88**	**1.16**	**36.83**	**16.06**	**0.47**	**0.34**
2013						
Sovereigns model[5]	4.14	–	–	–	–	–
Banks model[6]	3.18	0.20	40.01	–	0.06	0.04
Corporates models[7]	2.63	1.20	33.09	18.69	0.54	0.48

1 *Estimated PD for all models is average PD calculated on the number of obligors covered by the model(s).*
2 *Average LGD values are EAD-weighted.*
3 *Expressed as a percentage of total EAD which includes all defaulted and non-defaulted exposures for the relevant population.*
4 *For sovereigns and banks models, estimated and actuals LGD represents the average LGD for customers that have defaulted in the period. For corporates models, they represent the average LGD for customers that have defaulted and which have been resolved in the period.*
5 *No defaults have been observed in the Sovereign portfolio since 31 December 2012. In 2014 the estimated PD excludes inactive Sovereign obligors.*
6 *No defaults were observed in the Banks portfolio in 2014. During 2014 two defaults that occurred prior to 2013 were resolved resulting in an actual LGD of 7.86% against an originally estimated LGD of 55%.*
7 *Covers the combined populations of the global large corporates model, all regional IRB models for large, medium and small corporates and non-bank financial institutions. In 2014 the estimated and observed PDs has been calculated only for unique obligors.*
8 *Data represents an annual view, analysed as at 30 September.*

Table 36 below expands upon the estimated and actual corporate PD in table 35, as sufficient defaults in this population make analysis at this level meaningful. This analysis is conducted as part of regular validation to ensure that, throughout the entire population, there is a satisfactory degree of conservative performance at all grades. Table 36 is not comparable with table 30c on page 50, mainly because table 36 is a distribution of facility limits, rather than exposure value, and for a back-testing population that does not exactly match the exposure class population of table 28 and table 30c.

Table 36: IRB models – corporate PD models – performance by CRR grade

	Corporates[1]				
	Facility[2] %	Defaulted[3] %	Estimated PD[4] %	Actual PD[5] %	Diff. in PD %
2014					
CRR 0.1[6]	**0.01**	**0.00**	**0.01**	**0.00**	**0.01**
CRR 1.1	**6.32**	**0.00**	**0.02**	**0.00**	**0.02**
CRR 1.2	**6.68**	**0.00**	**0.04**	**0.00**	**0.04**
CRR 2.1	**16.71**	**0.01**	**0.07**	**0.04**	**0.03**
CRR 2.2	**13.07**	**0.00**	**0.13**	**0.00**	**0.13**
CRR 3.1	**10.38**	**0.06**	**0.22**	**0.10**	**0.12**
CRR 3.2	**12.50**	**0.11**	**0.37**	**0.23**	**0.14**
CRR 3.3	**6.62**	**0.25**	**0.63**	**0.54**	**0.09**
CRR 4.1	**10.41**	**0.28**	**0.87**	**0.54**	**0.33**
CRR 4.2	**4.12**	**0.79**	**1.20**	**0.81**	**0.39**
CRR 4.3	**3.49**	**0.83**	**1.65**	**0.91**	**0.74**
CRR 5.1	**2.50**	**0.53**	**2.25**	**0.97**	**1.28**
CRR 5.2	**2.09**	**0.54**	**3.05**	**1.24**	**1.81**
CRR 5.3	**1.47**	**1.74**	**4.20**	**2.70**	**1.50**
CRR 6.1	**0.59**	**3.02**	**5.75**	**4.11**	**1.64**
CRR 6.2	**0.30**	**1.12**	**7.85**	**4.27**	**3.58**
CRR 7.1	**0.29**	**14.59**	**10.00**	**11.35**	**(1.35)**
CRR 7.2	**0.08**	**2.78**	**13.00**	**10.11**	**2.89**
CRR 8.1	**2.31**	**1.17**	**19.00**	**13.77**	**5.23**
CRR 8.2	**0.04**	**32.32**	**36.00**	**22.33**	**13.67**
CRR 8.3	**0.02**	**4.85**	**75.00**	**14.89**	**60.11**
Total	**100.00**				

	Corporates[1]				
	Facility[2] %	Defaulted[3] %	Estimated PD[4] %	Actual PD[5] %	Diff. in PD %
2013					
CRR 0.1[6]	0.00	0.00	0.01	0.00	0.01
CRR 1.1	4.83	0.00	0.02	0.00	0.02
CRR 1.2	7.47	0.00	0.04	0.00	0.04
CRR 2.1	20.85	0.00	0.07	0.00	0.07
CRR 2.2	10.38	0.01	0.13	0.03	0.10
CRR 3.1	10.79	0.07	0.22	0.16	0.06
CRR 3.2	9.49	0.13	0.37	0.22	0.15
CRR 3.3	8.33	0.15	0.63	0.27	0.36
CRR 4.1	6.40	0.35	0.87	0.48	0.39
CRR 4.2	5.84	0.93	1.20	0.80	0.40
CRR 4.3	4.22	0.47	1.65	0.67	0.98
CRR 5.1	4.18	0.72	2.25	0.76	1.49
CRR 5.2	3.07	0.97	3.05	1.03	2.02
CRR 5.3	1.85	2.77	4.20	1.89	2.31
CRR 6.1	0.98	4.37	5.75	3.28	2.47
CRR 6.2	0.46	5.74	7.85	3.77	4.08
CRR 7.1	0.44	12.69	10.00	7.95	2.05
CRR 7.2	0.15	7.84	13.00	8.68	4.32
CRR 8.1	0.15	9.48	19.00	11.44	7.56
CRR 8.2	0.07	14.94	36.00	13.70	22.30
CRR 8.3	0.05	13.12	75.00	13.64	61.36
Total	100.00				

1 *Covers the combined populations of the global large corporates model, all regional IRB models for large, medium and small corporates and non-bank financial institutions.*
2 *Total facility limits for each CRR grade, expressed as a percentage of total limits granted.*
3 *Defaulted facilities as a percentage of total facility limits at that grade.*
4 *The estimated PD is before application of the 0.03% regulatory floor.*
5 *Actual PD is based on the number of defaulted obligors covered by the model(s), without taking into account the size of the facility granted or the exposures to the obligor.*
6 *The top band of the wholesale CRR master scale is not available to entities in the corporates exposure class, but restricted to the strongest central governments, central banks and institutions.*

Retail credit models

In the case of retail portfolios, we do not operate global models due to the different country-level portfolio performance characteristics and loss history. Given the large number of retail IRB models globally, we disclose information on our most material local models.

The actual and estimated values are derived from the model monitoring and calibration processes performed at a local level. Within the discipline of our Global modelling policies, our analytics teams adopt back-testing criteria specific to local conditions in order to assess the accuracy of their models.

Table 37 below contains the estimated and actual values from the back-testing of our material IRB models covering the HSBC Brand portfolios in the UK, the HSBC portfolios under the Area Management Office in Hong Kong, and the residential mortgage portfolios in the US.

The PD, LGD and EAD estimated values here were calculated to compare with the reported actual values and have a different basis of preparation to the estimates reported in tables 32a and 32b.

Within table 37, for back-testing purposes, a customer's PD is observed at a point in time and their default or non-default status in the following one-year period is recorded against that PD grade. The PD presentation here is expressed on an obligor count basis consisting of non-defaulted obligors at the time of observation. The LGD and EAD refer to observations for the defaulted population, being the appropriate focus of an assessment of these models' performance. The LGD values represent the amount of loss as a percentage of EAD and are calculated based on defaulted accounts that got fully resolved or have completed the modelled recovery outcome period as of the reporting date. The EAD values are presented as a percentage of the total EAD which includes all defaulted and non-defaulted exposures for the relevant population. The regulatory PD and LGD floors of 0.03% and 10%, respectively, are applied during final capital calculation and hence not reflected in the below estimates where applicable.

The UK estimated values in table 37 are based on model outputs including required regulatory downturn adjustments. In conducting the back-testing, our UK HSBC residential mortgage LGD model uses a recovery outcome period of 24 months starting at the date of default. The significant proportion of defaulted population, which has not reached a fully resolved outcome as at the reporting date, contributed to the low actual LGD while the estimated LGD increased as a result of the required downturn adjustments. Overall, UK estimates in table 37 remain conservative and higher than calculated actual values.

The Hong Kong estimated PD and LGD values in table 37 include required stressed factors to reflect downturn conditions, especially in the case of the residential mortgage model. The LGD model for our Hong Kong HSBC residential mortgage portfolio uses a recovery

outcome period of 24 months starting at the date of default. The estimates for our Hong Kong HSBC residential mortgage LGD remain higher than the calculated actual values but significantly below the 10% regulatory floor. There is minor under-estimation observed in our Hong Kong HSBC credit card EAD model; however this is already being remediated with model redevelopment expected to be completed by the end of 2015.

The US estimates in table 37 include downturn adjustments and model overlays agreed with the PRA. The LGD models for our Consumer Lending and Mortgage Services portfolios use a recovery outcome period of 30 months, and 36 months in the case of HSBC Mortgage Corporation portfolio, reflecting the longer recovery process due to foreclosure moratoria.

The LGD estimates for our Consumer Lending and Mortgage Services portfolios increased in 2014 when the Gen2 models with additional LGD model overlays as required in the PRA approval were implemented. However, actual LGD values are decreasing due to the continuing sale of defaulted assets and improving US economic conditions.

For the HSBC Mortgage Corporation portfolio, we still report the estimates from the existing Gen1 models. The new Gen2 models for this portfolio are under development and will be submitted for the PRA's approval during 2015. In the meantime, we continue to make the agreed quantitative adjustment to the amount of capital we hold against this portfolio to reflect the underperformance of the existing Gen1 models. The quantitative adjustment is performed at the portfolio RWA and EL levels and hence not reflected in table 37.

Table 37 is not comparable with tables 32a and 32b due to different population and methodology used for the purpose of back-testing, as described above.

Table 37: IRB models – estimated and actual values (retail)

	PD		LGD		EAD	
	Estimated %	Actuals %	Estimated %	Actuals %	Estimated %	Actuals %
2014						
UK						
HSBC residential mortgage	**0.50**	**0.31**	**15.82**	**4.68**	**0.24**	**0.23**
HSBC credit card	**1.37**	**1.07**	**91.11**	**86.30**	**1.83**	**1.78**
HSBC personal loans	**2.28**	**1.57**	**81.56**	**80.45**	**1.52**	**1.46**
Business Banking (Retail SME)	**2.83**	**2.57**	**73.04**	**68.17**	**2.00**	**1.88**
Hong Kong						
HSBC personal residential mortgage	**0.72**	**0.04**	**1.26**	**0.35**	**0.03**	**0.03**
HSBC credit card	**0.62**	**0.32**	**92.91**	**88.13**	**0.55**	**0.59**
HSBC personal instalment loans	**2.37**	**2.04**	**89.69**	**87.66**	**1.77**	**1.63**
US						
Consumer Lending real estate first lien	**7.31**	**7.72**	**77.16**	**60.29**	**7.83**	**7.72**
Mortgage Services real estate first lien	**9.43**	**8.12**	**71.40**	**60.17**	**7.51**	**7.43**
HSBC Mortgage Corporation first lien	**5.24**	**2.28**	**29.63**	**39.36**	**1.00**	**1.00**
2013						
UK						
HSBC residential mortgage	0.55	0.38	17.30	6.40	0.32	0.31
HSBC credit card	1.54	1.27	88.10	84.10	1.70	1.67
HSBC personal loans	3.57	2.35	85.40	73.00	2.19	2.11
Business Banking (Retail SME)	2.39	2.61	78.00	70.00	2.03	1.99
Hong Kong						
HSBC personal residential mortgage	0.71	0.03	1.84	0.43	0.03	0.03
HSBC credit card	0.63	0.33	91.41	84.58	0.56	0.59
HSBC personal instalment loans	2.20	1.99	90.07	96.16	1.69	1.55
US						
Consumer Lending real estate first lien	7.74	8.22	67.13	64.93	7.08	6.72
Mortgage Services real estate first lien	10.15	9.68	60.04	62.92	6.12	5.88
HSBC Mortgage Corporation first lien	4.64	4.43	49.85	37.17	2.40	2.40

EL and credit risk adjustments

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

This analysis includes comparison of the EL calculated in the use of IRB risk rating models, which drives part of the regulatory capital calculation, with other reported measures of credit loss within financial statements prepared under IFRSs. These measures include loan impairment allowances, value adjustments and credit related provisions for off-balance sheet amounts, collectively referred to as credit risk adjustments ('CRA's). The excess of EL over CRAs is treated as a capital deduction in the composition of regulatory capital.

The disclosures below set out:

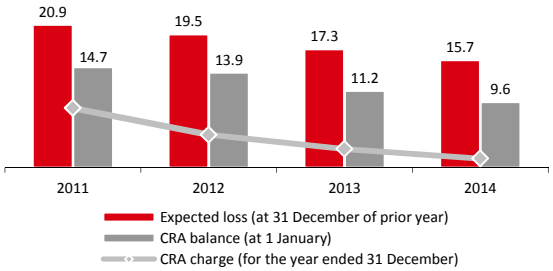
- commentary on aspects of the relationship between regulatory EL and CRAs recognised in our financial statements; and
- tables of EL and CRA balances and charges during the period by exposure class (within retail IRB, also by sub-class) and by region.

When comparing EL with measures of credit losses under IFRSs, it is necessary to take into account differences in the definition and scope of each. Below are examples of matters that can give rise to material differences in the way economic, business and methodological drivers are reflected quantitatively in the accounting and regulatory measures of loss.

Tables 38 and 39 set out, for IRB credit exposures, the EL, CRA balances and the actual loss experience reflected in the charges for CRAs.

CRA balances represent management's best estimate of losses incurred in the loan portfolios at the balance sheet date. Charges for CRAs represent a movement in the CRA balance during the year, reflecting loss events which occurred during the financial year and changes in estimates of losses arising on events which occurred prior to the current year. EL represents the one-year regulatory expected loss accumulated in the book and is calculated at a point in time.

EL and credit risk adjustments
IRB only (US$bn)



Examples of differences in definition and scope between EL and CRA balances

- Under IAS 39 our estimates of loss in impairment allowances are required to reflect the current circumstances and specific cash flow expectations of a customer. EL is based on modelled estimates and although the estimates may be individually assigned to specific exposures, the statistical nature of these models means that they are influenced by the behaviour of the overall portfolio;
- EL is based on exposure values that incorporate expected future drawings of committed credit lines, while CRAs are recognised in respect of financial assets recognised on the balance sheet and in respect of committed credit lines where a loss is probable;
- EL is generally based on TTC estimates of PD over a one-year future horizon, determined via statistical analysis of historical default experience. CRAs are recognised for losses that have been incurred at the balance sheet date;
- In the majority of cases, EL is based on economic downturn estimates of LGD, while CRAs are measured using estimated future cash flows as at the balance sheet date;
- EL incorporates LGD, which may discount recoveries at a different rate from the effective interest rate employed in discounted cash flow analysis for CRAs;
- LGDs typically include all costs associated with recovery, whereas the accounting measurement considers only the costs of obtaining and selling collateral;
- The LGD and EAD used for the EL calculation in the Foundation IRB approach is set by regulations and may differ significantly from the accounting assumptions about estimated cash flows used;
- For EL, certain exposures are subject to regulatory minimum thresholds for one or more parameters, whereas credit losses under IFRSs are determined using management's judgement about estimated future cash flows; and
- In the case of EL, to meet regulatory prudential standards, HSBC's model philosophy favours the incorporation of conservative estimation to accommodate uncertainty, for instance where modelling portfolios with limited data. Under IFRSs, uncertainty is considered when forming management's estimates of future cash flows, using balanced and neutral judgement.

Table 38: IRB expected loss and CRAs – by exposure class[1]

		CRA	
	Expected loss US$bn	Balances US$bn	Charge for the year US$bn
IRB exposure classes			
Central governments and central banks	**0.3**	**–**	**–**
Institutions	**0.3**	**–**	**–**
Corporates	**5.2**	**4.2**	**1.1**
Retail	**7.2**	**3.1**	**0.2**
– secured by mortgages on immovable property SME	**–**	**–**	**–**
– secured by mortgages on immovable property non-SME	**5.1**	**1.9**	**(0.1)**
– qualifying revolving retail	**0.7**	**0.3**	**0.1**
– other SME	**0.7**	**0.4**	**–**
– other non-SME	**0.7**	**0.5**	**0.2**
At 31 December 2014	**13.0**	**7.3**	**1.3**
IRB exposure classes			
Central governments and central banks	0.3	–	–
Institutions	0.3	0.1	–
Corporates	5.8	4.4	1.5
Retail	9.3	5.1	1.2
– secured on real estate property	7.2	3.6	0.8
– qualifying revolving retail	0.7	0.4	0.3
– SMEs	0.9	0.7	–
– other retail	0.5	0.4	0.1
At 31 December 2013	15.7	9.6	2.7
IRB exposure classes			
Central governments and central banks	0.2	–	–
Institutions	0.3	–	–
Corporates	4.3	3.9	1.3
Retail	12.5	7.3	3.5
– secured on real estate property	9.9	5.3	2.4
– qualifying revolving retail	0.8	0.4	0.6
– SMEs	0.7	1.0	–
– other retail	1.1	0.6	0.5
At 31 December 2012	17.3	11.2	4.8

1 *Excludes securitisation exposures because EL is not calculated for this exposure class.*

Table 39: IRB expected loss and CRAs – by region[1]

	Expected loss US$bn	CRA Balances US$bn	CRA Charge for the year US$bn
Europe	**4.8**	**3.5**	**0.7**
Asia	**2.2**	**1.1**	**0.4**
Middle East and North Africa	**0.2**	**0.1**	**–**
North America	**5.7**	**2.6**	**0.2**
Latin America	**0.1**	**–**	**–**
At 31 December 2014	**13.0**	**7.3**	**1.3**
Europe	6.0	4.5	1.4
Asia	1.9	1.0	0.2
Middle East and North Africa	0.4	0.2	–
North America	7.4	3.9	1.1
Latin America	–	–	–
At 31 December 2013	15.7	9.6	2.7

1 *Excludes securitisation exposures because EL is not calculated for this exposure class.*

Key points

- Excess expected loss decreased in North America, primarily due to the continued run-off of the US CML retail mortgage portfolio and the sale of lower quality loans, partially offset by some new defaults.
- In Europe, excess expected loss increased as result of the application of a LGD floor to UK corporates and the introduction of LGD floors to selected portfolios with a low default history.

Details of the Group's impaired loans and advances, past due but not impaired assets and impairment allowances and charges are set out from page 136 of the Annual Report and Accounts 2014.

Our approach for determining impairment allowances is explained on page 349 of the Annual Report and Accounts 2014, *and the Group's definitions for accounting purposes of 'past due' and 'impaired' are set out on pages 136 and 137.*

Under the accounting standards currently adopted by HSBC, impairment allowances, value adjusted and credit related provisions for off-balance sheet amounts are treated as specific CRAs.

Risk mitigation

Our approach when granting credit facilities is to do so on the basis of capacity to repay rather than placing primary reliance on credit risk mitigants. Depending on a customer's standing and the type of product, facilities may be provided unsecured. Mitigation of credit risk is nevertheless a key aspect of effective risk management and, in a diversified financial services organisation such as HSBC, takes many forms.

Our general policy is to promote the use of credit risk mitigation, justified by commercial prudence and good practice as well as capital efficiency. Specifically, detailed policies cover the acceptability, structuring and terms of various types of business with regard to the availability of credit risk mitigation, for example in the form of collateral security. These policies, together with the setting of suitable valuation parameters, are subject to regular review to ensure that they are supported by empirical evidence and continue to fulfil their intended purpose.

Collateral

The most common method of mitigating credit risk is to take collateral. In our retail residential and CRE businesses, a mortgage over the property is usually taken to help secure claims. Physical collateral is also taken in various forms of specialised lending and leasing transactions where income from the physical assets that are financed is also the principal source of facility repayment. In the commercial and industrial sectors, charges are created over business assets such as premises, stock and debtors. Loans to private banking clients may be made against a pledge of eligible marketable securities, cash or real estate. Facilities to SMEs are commonly granted against guarantees given by their owners and/or directors. Guarantees from third parties can arise where the Group extends facilities without the benefit of any alternative form of security, e.g. where it issues a bid or performance bond in favour of a non-customer at the request of another bank.

For credit risk mitigants comprising immovable property the key determinant of concentration at Group level is geographic, which, in the majority of cases, is the same as the reported geographic location of the related exposures. Use of immovable property mitigants for risk management purposes is predominantly in Asia and Europe. Further information regarding collateral held over CRE and residential property is provided on pages 147 and 156 respectively of the *Annual Report and Accounts 2014*.

Financial collateral

In the institutional sector, trading facilities are supported by charges over financial instruments such as cash, debt securities and equities. Financial collateral in the form of marketable securities is used in much of the Group's OTC derivatives activities and in SFTs such as repos, reverse repos, securities lending and borrowing. Netting is used extensively and is a prominent feature of market standard documentation. Further information regarding collateral held for trading exposures can be found on page 73.

In the banking book we provide customers with working capital management products. Some of these products have loans and advances to customers and customer accounts where we have rights of offset and comply with the regulatory requirements for on balance sheet netting. Under on-balance netting the customer accounts are treated as cash collateral and the effects of this collateral are incorporated in our LGD estimates. For risk management purposes the net amounts of such exposures are subject to limits which are monitored and the relevant customer agreements are subject to review and update, as necessary, to ensure the legal right of offset remains appropriate. At 31 December 2014 in the region of US$90bn of customer accounts were treated as cash collateral, mainly in the UK.

Other forms of collateral

Our Global Banking and Markets business utilises credit risk mitigation to manage the credit risk of its portfolios, with the goal of reducing concentrations in individual names, sectors or portfolios. The techniques in use include credit default swap ('CDS') purchases, structured credit notes and securitisation structures. Buying credit protection creates credit exposure against the protection provider, which is monitored as part of the overall credit exposure to them. Where applicable the transaction is entered into directly with a central clearing house counterparty, otherwise our exposure to CDS protection providers is diversified among mainly banking counterparties with strong credit ratings.

Policy and procedures

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

Valuing collateral

Valuation strategies are established to monitor collateral mitigants to ensure that they will continue to provide the anticipated secure secondary repayment source. Where collateral is subject to high volatility, valuation is frequent; where stable, less so. Market trading activities such as collateralised OTC derivatives and SFTs typically carry out daily valuations in support of margining arrangements. In the residential mortgage business, Group policy prescribes re-valuation at intervals of up to three years, or more frequently as the need arises, for example where market conditions are subject to significant change. Residential property collateral values are determined through a combination of professional appraisals, house price indices or statistical analysis.

Local market conditions determine the frequency of valuation for CRE. Re-valuations are sought where, for example, as part of the regular credit assessment of the obligor, material concerns arise in relation to the performance of the collateral. CRE re-valuation also occurs commonly in circumstances where an obligor's credit quality has declined sufficiently to cause concern that the principal payment source may not fully meet the obligation. Where such concerns exist the re-valuation method selected will depend upon the loan to value relationship, the direction in which the local CRE market has moved since last valuation, and most importantly the specific characteristics of the underlying commercial real estate which is of concern.

Recognition of risk mitigation under the IRB approach

Within an IRB approach, risk mitigants are considered in two broad categories: first, those which reduce the intrinsic PD of an obligor and therefore operate as determinants of PD; and second, those which affect the estimated recoverability of obligations and require adjustment of LGD or, in certain limited circumstances, EAD.

The first typically include full parental guarantees – where one obligor within a group of companies guarantees another. This is usually factored into the estimate of the latter's PD, as it is assumed that the guarantor's performance materially informs the PD of the guaranteed entity. PD estimates are also subject to supplementary methodologies in respect of a 'sovereign ceiling', constraining the risk ratings assigned to obligors in countries of higher risk, and where only partial parental support exists. In addition, in certain jurisdictions, certain types of third party guarantee are recognised through substitution of the obligor's PD by the guarantor's PD.

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

The main types of provider of guarantees are banks, other financial institutions and corporates, the latter typically in support of subsidiaries of their company group. Across HSBC, the nature of such customers and transactions is very diverse and the creditworthiness of guarantors accordingly spans a wide spectrum. The creditworthiness of providers of unfunded credit risk mitigation is taken into consideration as part of the guarantor's risk profile when, for example, assessing the risk of other exposures such as direct lending to the guarantor. Internal limits for such contingent exposure are approved in the same way as direct exposures.

EAD and LGD values, in the case of individually assessed exposures, are determined by reference to regionally approved internal risk parameters based on the nature of the exposure. For retail portfolios, credit risk mitigation data is incorporated into the internal risk parameters for exposures and feeds into the calculation of the EL band value summarising both customer delinquency and product or facility risk. Credit and credit

risk mitigation data form inputs submitted by all Group offices to centralised databases and processing, including performance of calculations to apply the relevant Basel rules and approach. A range of collateral recognition approaches are applied to IRB capital treatments:

- unfunded protection, which includes credit derivatives and guarantees, is reflected through adjustment or determination of PD, or LGD. Under the IRB advanced approach, recognition may be through PD (as a significant factor in grade determination) or LGD, or both;
- eligible financial collateral under the IRB advanced approach is taken into account in LGD models. Under the IRB foundation approach, regulatory LGD values are adjusted. The adjustment to LGD is based on the degree to which the exposure value would be adjusted notionally if the Financial Collateral Comprehensive Method ('FCCM') were applied; and
- for all other types of collateral, including real estate, the LGD for exposures calculated under the IRB advanced approach will be calculated by models. For IRB foundation, base regulatory LGDs are adjusted depending on the value and type of the asset taken as collateral relative to the exposure. The types of eligible mitigant recognised under the IRB foundation approach are more limited.

The table below sets out, for IRB exposures, the exposure value and the effective value of credit risk mitigation expressed as the exposure value covered by the credit risk mitigant. IRB credit risk mitigation reductions of EAD were immaterial at 31 December 2014.

Table 40: IRB exposure – credit risk mitigation

	At 31 December 2014		At 31 December 2013	
	Exposure value covered by credit derivatives or guarantees[1] US$bn	**Total exposure value US$bn**	Exposure value covered by credit derivatives or guarantees US$bn	Total exposure value US$bn
Exposures under the IRB advanced approach				
Central governments and central banks	**0.3**	**327.4**	–	341.7
Institutions	**0.8**	**130.4**	2.1	130.0
Corporates	**82.3**	**625.8**	55.9	508.7
Retail	**21.3**	**419.4**	29.6	443.0
Securitisation positions	**–**	**38.3**	–	45.4
Non-credit obligation assets	**–**	**52.5**	–	–
		1,593.8		1,468.8
Exposures under the IRB foundation approach				
Central governments and central banks	**–**	**0.1**	–	–
Institutions	**–**	**0.1**	–	–
Corporates[2]	**0.5**	**25.6**	0.1	23.6

1 *Figures presented in an 'obligor view'.*

2 *The value of exposures under the IRB foundation approach covered by eligible financial and other collateral was US$0.5bn (2013: US$0.6bn).*

Application of the standardised approach

The standardised approach is applied where exposures do not qualify for use of an IRB approach and/or where an exemption from IRB has been granted. The standardised approach requires banks to use risk assessments prepared by External Credit Assessment Institutions ('ECAI's) or Export Credit Agencies to determine the risk weightings applied to rated counterparties.

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

- Central governments and central banks;
- Institutions;
- Corporates;
- Securitisation positions;
- Short-term claims on institutions and corporates;
- Regional governments and local authorities; and
- Multilateral development banks.

We have nominated three ECAIs for this purpose – Moody's Investors Service ('Moody's'), S&P and Fitch Group ('Fitch'). We have not nominated any Export Credit Agencies.

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

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

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

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

Exposures to, or guaranteed by, central governments and central banks of EEA States are risk-weighted at 0% using the standardised approach, provided they would be eligible under that approach for a 0% risk weighting.

Associates' exposures are calculated under the standardised approach and, at 31 December 2014, represented approximately 16% (2013: 17%) of Group credit risk RWAs.

Recognition of risk mitigation under the standardised approach

Where credit risk mitigation is available in the form of an eligible guarantee, non-financial collateral, or credit derivatives, the exposure is divided into covered and uncovered portions. The covered portion, which is determined after applying an appropriate 'haircut' for currency and maturity mismatch (and for omission of restructuring clauses for credit derivatives, where appropriate) to the amount of the protection provided, attracts the risk weight of the protection provider. The uncovered portion attracts the risk weight of the obligor. For exposures fully or partially covered by eligible financial collateral, the value of the exposure is adjusted under the FCCM using supervisory volatility adjustments, including those arising from currency mismatch, which are determined by the specific type of collateral (and, in the case of eligible debt securities, their credit quality) and its liquidation period. The adjusted exposure value is subject to the risk weight of the obligor.

Table 41 sets out the credit risk mitigation for exposures under the standardised approach, expressed as the exposure value covered by the credit risk mitigant, and table 42 sets out the distribution of standardised exposures across credit quality steps. This analysis excludes regional governments or local authorities, short-term claims, securitisation positions, collective investment undertakings and multilateral development banks, as these exposures continue to be immaterial as a percentage of total standardised exposures. Also excluded, because the credit quality step methodology does not apply, are retail, equity, exposures in default and exposures secured by mortgages on immovable property.

Table 41: Standardised exposure – credit risk mitigation

	At 31 December 2014			At 31 December 2013		
	Exposure value covered by eligible financial and other collateral[1] US$bn	**Exposure value covered by credit derivatives or guarantees[1] US$bn**	**Total exposure value US$bn**	Exposure value covered by eligible financial and other collateral US$bn	Exposure value covered by credit derivatives or guarantees US$bn	Total Exposure value US$bn
Exposures under the standardised approach						
Central governments and central banks	**–**	**–**	**189.3**	–	4.4	220.0
Institutions	**–**	**2.5**	**30.1**	–	3.4	35.2
Corporates	**14.8**	**4.8**	**240.1**	13.1	5.5	221.8
Retail	**0.8**	**0.1**	**47.9**	1.0	–	47.7
Secured by mortgages on immovable property	**0.2**	**–**	**38.6**	–	–	50.4
Exposures in default	**–**	**–**	**4.7**	–	–	4.1
Regional governments or local authorities	**–**	**–**	**1.1**	–	–	0.8
Equity	**–**	**–**	**13.2**	–	–	3.3
Other[2]	**–**	**–**	**25.5**	0.2	–	84.4
At 31 December			**590.5**			667.7

1 *Figures presented in an 'obligor view'.*

2 *This includes the exposure class 'other items' with an exposure value of US$17.0bn as well as other less material standardised exposure classes not individually shown above.*

Table 42: Standardised exposure – by credit quality step

	At 31 December 2014			At 31 December 2013	
	Original exposure[1] US$bn	Exposure value[2] US$bn	RWAs US$bn	Exposure value[2] US$bn	RWAs US$bn
Central governments and central banks					
Credit quality step 1	**171.0**	**177.1**		218.8	
Credit quality step 2	**0.7**	**0.8**		–	
Credit quality step 3	**0.6**	**0.9**		–	
Credit quality step 4	**0.5**	**0.5**		–	
Credit quality step 5	**–**	**–**		0.1	
Credit quality step unrated	**9.9**	**10.0**		1.1	
	182.7	**189.3**	**19.7**	220.0	0.7
Institutions					
Credit quality step 1	**1.2**	**0.6**		3.5	
Credit quality step 2	**2.1**	**1.1**		–	
Credit quality step unrated	**28.7**	**28.4**		31.7	
	32.0	**30.1**	**11.2**	35.2	12.1
Corporates					
Credit quality step 1	**2.3**	**1.3**		4.1	
Credit quality step 2	**7.3**	**4.8**		2.2	
Credit quality step 3	**2.7**	**1.6**		2.8	
Credit quality step 4	**2.7**	**1.7**		0.8	
Credit quality step 5	**1.6**	**1.0**		0.7	
Credit quality step 6	**3.1**	**2.3**		0.3	
Credit quality step unrated	**345.9**	**227.4**		210.9	
	365.6	**240.1**	**224.7**	221.8	202.1

1 *Figures presented in an 'obligor view.'*
2 *Exposure value is based on guarantor basis for 2014 in accordance with CRD IV reporting requirements and obligor basis for 2013.*

Counterparty credit risk

Counterparty credit risk arises for OTC derivatives and SFTs. It is calculated in both the trading and non-trading books, and is the risk that a counterparty may default before settlement of the transaction. An economic loss occurs if the transaction or portfolio of transactions with the counterparty has a positive economic value at the time of default.

Three approaches are used under Basel III to calculate exposure values for counterparty credit risk: standardised, mark-to-market and IMM. Exposure values calculated under these approaches are used to determine RWAs. Across the Group, we use both the mark-to-market and IMM approaches. Under the IMM approach, EAD is calculated by multiplying the effective expected positive exposure with a multiplier called 'alpha'.

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

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

The effective expected exposure is derived from simulation, pricing and aggregation internal models approved by regulators. These models cover a range of asset classes including interest rate products, foreign exchange products, credit derivatives and equity derivatives.

The IMM model is subject to on-going model validation including monthly model performance monitoring. We also perform quarterly backtesting of the model's risk measures on a set of hypothetical portfolios as well as the market risk factor predictions. Calibration is performed using a minimum of three years historical data.

Our main IMM site is London where approximately 85% of the trade population falls under the IMM approach.

From a risk management perspective, including daily monitoring of credit limit utilisation, products not covered by IMM are subject to conservative asset class add-on tables calculated outside of the IMM framework.

Limits for counterparty credit risk exposures are assigned within the overall credit process. The measure used for counterparty credit risk management is the 95th percentile of potential future exposure.

The credit risk function assigns a limit against each counterparty to cover derivatives exposure which may arise as a result of a counterparty default. The magnitude of this limit will depend on the overall risk appetite and type of derivatives trading undertaken with the counterparty. Risk is then assessed for each counterparty using models that consider volatility, trade maturity and the counterparty legal documentation.

The models and methodologies used in the calculation of counterparty risk are approved by the Markets MOC. Models are subject to ongoing monitoring and validation. Additionally they are subject to independent review at inception and annually thereafter.

Credit valuation adjustment

As shown in table 12, CRD IV introduced a new regulatory capital charge to cover the risk of mark-to-market losses on expected counterparty risk to derivatives: CVA risk.

Further details about CVA risk may be found on page 259 of the Annual Report and Accounts 2014*. For modelling details refer to Note 13, CVA methodology found on page 382 of the* Annual Report and Accounts 2014.

Collateral arrangements

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

Eligible collateral types are controlled under a policy to ensure price transparency, price stability, liquidity, enforceability, independence, reusability and eligibility for regulatory purposes. A valuation 'haircut' policy reflects the fact that collateral may fall in value between the date the collateral was called and the date of liquidation or enforcement. At least 95% of collateral held as credit risk mitigation under Credit Support Annex ('CSA's) is either cash or liquid government securities.

Credit ratings downgrade

A Credit Rating Downgrade clause in a Master Agreement or a Credit Rating Downgrade Threshold clause in a CSA are designed to trigger a series of events if the credit rating of the affected party falls below a specified level. These events may include the requirement to pay or increase collateral, the termination of transactions by the non-affected party or the assignment of transactions by the affected party.

We control the inclusion of credit ratings downgrade language in a Master Agreement or a CSA by requiring each Group office to obtain the endorsement of the relevant credit authority together with the approval of the Regional Global Markets COO via a Documentation Approval Committee.

Relevant management information is in place to enable us to identify any additional collateral requirements, where the threshold levels for these are affected by a credit ratings downgrade clause within a collateral agreement.

At 31 December 2014, the potential value of the additional collateral (pertaining to ISDA CSA downgrade thresholds only) that we would need to post with counterparties in the event of a one-notch downgrade of our rating was US$0.5bn (2013: US$0.5bn) and for a two-notch downgrade US$1.2bn (2013: US$0.9bn).

Counterparty credit risk exposures

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

Table 43: Counterparty credit risk exposure – credit derivative transactions[1]

	At 31 December 2014			At 31 December 2013		
	Protection bought US$bn	**Protection sold US$bn**	**Total US$bn**	Protection bought US$bn	Protection sold US$bn	Total US$bn
Credit derivative products used for own credit portfolio						
Credit default swaps	**1.9**	**0.1**	**2.0**	2.7	–	2.7
Total notional value	**1.9**	**0.1**	**2.0**	2.7	–	2.7
Credit derivative products used for intermediation[2]						
Credit default swaps	**263.3**	**262.5**	**525.8**	328.3	322.5	650.8
Total return swaps	**7.2**	**15.2**	**22.4**	8.5	16.3	24.8
Total notional value	**270.5**	**277.7**	**548.2**	336.8	338.8	675.6
Total credit derivative notional value at 31 December	**272.4**	**277.8**	**550.2**	339.5	338.8	678.3

1 *This table provides a further breakdown of totals reported on page 396 of the* Annual Report and Accounts 2014 *on an accounting consolidation basis.*

2 *This is where we act as intermediary for our clients, enabling them to take a position in the underlying securities but without having to take on the risks ourselves.*

Table 44: Counterparty credit risk – net derivative credit exposure[1]

	2014 US$bn	2013 US$bn
Counterparty credit risk[2]		
Gross total fair values	**595.5**	569.6
Accounting offset arrangements	**(250.5)**	(287.3)
Total gross derivatives	**345.0**	282.3
Less: netting benefits[3]	**(263.4)**	(209.0)
Netted current credit exposure	**81.6**	73.3
Less: collateral held	**(49.9)**	(43.3)
Net derivative credit exposure at 31 December	**31.7**	30.0

1 *This table provides a further breakdown of totals reported on page 395 in the* Annual Report and Accounts 2014 *on an accounting consolidation basis.*
2 *Excludes add-on for potential future credit exposure.*
3 *This is the netting benefit available for regulatory capital purposes which is not recognised under accounting rules.*

Under IFRSs, netting is only permitted if legal right of set-off exists and the cash flows are intended to be settled on a net basis. Under PRA regulatory rules, however, netting is applied for capital calculations if there is legal certainty and the positions are managed on a net collateralised basis. As a consequence, we recognise greater netting under the PRA rules, reflecting the close-out provisions that would take effect in the event of default of a counterparty rather than just those transactions that are actually settled net in the normal course of business.

Table 45 shows how the total OTC derivative regulatory exposures in table 46 are derived from the gross total fair values reported in table 44.

Table 45: Comparison of derivative accounting balances and counterparty credit risk exposure

	At 31 December 2014	
	Accounting balances US$bn	**Regulatory exposures US$bn**
Gross total fair values		
OTC derivatives	**578.0**	**578.0**
Spot transactions[1]	**13.7**	**–**
Exchange traded derivatives	**3.8**	**3.8**
	595.5	**581.8**
Initial margin posted to central counterparties[2]	**–**	**9.9**
Accounting offset arrangements		
IFRS basis	**(250.5)**	**–**
Mark-to-market method		
Potential future credit exposure	**–**	**157.5**
Legal right of offset[3]	**–**	**(314.3)**
IMM method		
Modelling impact[4]	**–**	**(286.8)**
Total derivative exposures at 31 December 2014	**345.0**	**148.1**

	At 31 December 2013	
	Accounting balances US$bn	Regulatory exposures US$bn
Gross total fair values		
OTC derivatives	556.0	556.0
Exchange traded derivatives and spot transactions[1]	13.6	–
	569.6	556.0
Central counterparties[2]	–	(283.6)
Accounting offset arrangements		
IFRS basis	(287.3)	–
Mark-to-market method		
Potential future credit exposure	–	95.1
Legal right of offset[3]	–	(157.0)
IMM method		
Modelling impact[4]	–	(104.7)
Total derivative exposures at 31 December 2013	282.3	105.8

1 *Spot transactions attract a zero risk-weight under CRD IV rules.*
2 *Under CRD IV rules, in addition to derivatives transacted with central counterparties, initial margin posted to central counterparties is included in the regulatory exposures when calculating the RWA. Under Basel II OTC derivative exposures transacted with central counterparties were excluded from the counterparty credit risk calculation.*
3 *Legal right of offset derivative netting is a component of the US$313.3bn derivatives offset in the 'Maximum Exposure to Credit Risk' table on page 131 of the* Annual Report and Accounts 2014*.*
4 *The modelling impact for IMM exposures represents the difference between fair value and the EAD (calculated as 1.4 times the Effective Expected Potential Exposure) resulting from the model; the model incorporates offsets for netting benefits, correlation impacts and collateral as well as simulating the impact of potential market movements.*

Table 46: Counterparty credit risk exposure – by exposure class, product and method

	IMM		Mark-to-market method		Total counterparty credit risk	
	Exposure value US$bn	RWAs US$bn	Exposure value US$bn	RWAs US$bn	Exposure value US$bn	RWAs US$bn
By exposure class						
IRB advanced approach	**27.1**	**14.4**	**107.6**	**45.3**	**134.7**	**59.7**
Central governments and central banks	**1.5**	**0.3**	**7.7**	**0.8**	**9.2**	**1.1**
Institutions	**9.0**	**4.4**	**62.8**	**21.8**	**71.8**	**26.2**
Corporates	**16.6**	**9.7**	**37.1**	**22.7**	**53.7**	**32.4**
IRB foundation approach	**–**	**–**	**5.6**	**2.3**	**5.6**	**2.3**
Corporates	**–**	**–**	**5.6**	**2.3**	**5.6**	**2.3**
Standardised approach	**3.0**	**–**	**8.3**	**4.4**	**11.3**	**4.4**
Central governments and central banks	**3.0**	**–**	**3.7**	**–**	**6.7**	**–**
Institutions	**–**	**–**	**0.3**	**0.1**	**0.3**	**0.1**
Corporates	**–**	**–**	**4.3**	**4.3**	**4.3**	**4.3**
CVA advanced	**–**	**3.5**	**–**	**–**	**–**	**3.5**
CVA standardised	**–**	**–**	**–**	**18.0**	**–**	**18.0**
CCP standardised	**0.1**	**–**	**49.4**	**2.8**	**49.5**	**2.8**
	30.2	**17.9**	**170.9**	**72.8**	**201.1**	**90.7**
By product						
Derivatives (OTC and ETP)	**30.2**	**14.4**	**117.9**	**42.8**	**148.1**	**57.2**
Securities financing transactions	**–**	**–**	**44.5**	**7.7**	**44.5**	**7.7**
Other[1]	**–**	**–**	**8.5**	**2.6**	**8.5**	**2.6**
CVA advanced	**–**	**3.5**	**–**	**–**	**–**	**3.5**
CVA standardised	**–**	**–**	**–**	**18.0**	**–**	**18.0**
CCP default funds	**–**	**–**	**–**	**1.7**	**–**	**1.7**
At 31 December 2014	**30.2**	**17.9**	**170.9**	**72.8**	**201.1**	**90.7**
By exposure class						
IRB advanced approach	23.9	8.8	105.7	31.9	129.6	40.7
Central governments and central banks	1.2	0.2	3.0	0.7	4.2	0.9
Institutions	6.7	2.1	58.3	11.4	65.0	13.5
Corporates	16.0	6.5	44.4	19.8	60.4	26.3
IRB foundation approach	–	–	3.1	1.5	3.1	1.5
Corporates	–	–	3.1	1.5	3.1	1.5
Standardised approach	1.4	–	9.3	3.6	10.7	3.6
Central governments and central banks	1.4	–	5.1	–	6.5	–
Institutions	–	–	0.5	0.1	0.5	0.1
Corporates	–	–	3.7	3.5	3.7	3.5
	25.3	8.8	118.1	37.0	143.4	45.8
By product						
OTC derivatives	25.3	8.8	80.5	30.2	105.8	39.0
Securities financing transactions	–	–	29.7	4.7	29.7	4.7
Other[1]	–	–	7.9	2.1	7.9	2.1
At 31 December 2013	25.3	8.8	118.1	37.0	143.4	45.8

1 *Includes free deliveries not deducted from regulatory capital.*

Key points

- The year on year RWA increase of US$44.9bn is driven by a US$50.0bn increase upon the implementation of CRD IV rules. Further details of these impacts are shown in table 12. A further increase of US$9.7bn was observed under the IRB approach following the implementation of the LGD floor of 45% used in the calculation of risk weights for institution and corporate counterparties in London and corporate counterparties in the rest of the group.
- Offsetting the increases described above, decreases occurred across the portfolio. A reduction of US$3.2bn was due to the incorporation of residual collateral offsets from the internal model method within the exposures under the mark to market method in London. A US$3.9bn net reduction in RWAs was driven by reduced exposures as Bermudan Swaption positions were onboarded to the internal model method and the internal model was calibrated to market data. The calibration of the internal model along with the utilisation of index hedges also contributed to a reduction in the CVA advanced charge of US$1.0bn. A fall of US$2.8bn in the RWA against central counterparties since the implementation of CRD IV was driven by reductions in the c-factors calculated by the central counterparty and used to convert default fund contributions to capital charges. Remaining movements were driven by reductions in exposures in derivatives and security financing transactions.

Table 47: Counterparty credit risk exposure – by exposure class, product and geographical region

	Exposure value					
	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
By exposure class						
IRB advanced approach	**69.2**	**38.3**	**0.6**	**25.1**	**1.5**	**134.7**
Central governments and central banks	**5.8**	**2.5**	**–**	**0.6**	**0.3**	**9.2**
Institutions	**32.7**	**23.6**	**0.6**	**13.7**	**1.2**	**71.8**
Corporates	**30.7**	**12.2**	**–**	**10.8**	**–**	**53.7**
IRB foundation approach	**5.3**	**–**	**0.3**	**–**	**–**	**5.6**
Corporates	**5.3**	**–**	**0.3**	**–**	**–**	**5.6**
Standardised approach	**6.7**	**0.3**	**1.7**	**0.1**	**2.5**	**11.3**
Central governments and central banks	**5.8**	**–**	**0.9**	**–**	**–**	**6.7**
Institutions	**0.1**	**–**	**0.2**	**–**	**–**	**0.3**
Corporates	**0.8**	**0.3**	**0.6**	**0.1**	**2.5**	**4.3**
CVA advanced[1]	**–**	**–**	**–**	**–**	**–**	**–**
CVA standardised[1]	**–**	**–**	**–**	**–**	**–**	**–**
CCP standardised	**25.1**	**5.1**	**–**	**19.1**	**0.2**	**49.5**
	106.3	**43.7**	**2.6**	**44.3**	**4.2**	**201.1**
By product						
Derivatives (OTC and ETP)	**76.5**	**34.7**	**1.7**	**31.5**	**3.7**	**148.1**
Securities financing transactions	**27.4**	**2.9**	**0.9**	**12.8**	**0.5**	**44.5**
Other	**2.4**	**6.1**	**–**	**–**	**–**	**8.5**
CVA advanced[1]	**–**	**–**	**–**	**–**	**–**	**–**
CVA standardised[1]	**–**	**–**	**–**	**–**	**–**	**–**
CCP default funds[2]	**–**	**–**	**–**	**–**	**–**	**–**
At 31 December 2014	**106.3**	**43.7**	**2.6**	**44.3**	**4.2**	**201.1**
By exposure class						
IRB advanced approach	68.3	33.6	0.3	25.7	1.7	129.6
Central governments and central banks	2.3	0.8	–	0.7	0.4	4.2
Institutions	29.3	22.7	0.3	11.4	1.3	65.0
Corporates	36.7	10.1	–	13.6	–	60.4
IRB foundation approach	2.9	–	0.2	–	–	3.1
Corporates	2.9	–	0.2	–	–	3.1
Standardised approach	5.8	0.3	2.3	–	2.3	10.7
Central governments and central banks	4.7	–	1.8	–	–	6.5
Institutions	0.4	–	0.1	–	–	0.5
Corporates	0.7	0.3	0.4	–	2.3	3.7
	77.0	33.9	2.8	25.7	4.0	143.4
By product						
OTC derivatives	51.5	27.2	1.0	22.9	3.2	105.8
Securities financing transactions	23.4	0.9	1.8	2.8	0.8	29.7
Other	2.1	5.8	–	–	–	7.9
At 31 December 2013	77.0	33.9	2.8	25.7	4.0	143.4

1 *The RWA impact due to the CVA capital charge is calculated based on the exposures under the IRB and standardised approaches. No additional exposures are taken into account.*

2 *Default fund contributions are cash balances posted to central counterparties by all members. These cash balances are not included in the total reported exposure.*

Table 48: Counterparty credit risk – RWAs by exposure class, product and geographical region

	RWAs					
	Europe US$bn	Asia US$bn	MENA US$bn	North America US$bn	Latin America US$bn	Total US$bn
By exposure class						
IRB advanced approach	**28.5**	**16.4**	**0.2**	**13.9**	**0.7**	**59.7**
Central governments and central banks	**0.6**	**0.3**	**–**	**0.1**	**0.1**	**1.1**
Institutions	**12.4**	**7.6**	**0.2**	**5.4**	**0.6**	**26.2**
Corporates	**15.5**	**8.5**	**–**	**8.4**	**–**	**32.4**
IRB foundation approach	**2.1**	**–**	**0.2**	**–**	**–**	**2.3**
Corporates	**2.1**	**–**	**0.2**	**–**	**–**	**2.3**
Standardised approach	**0.8**	**0.3**	**0.7**	**–**	**2.6**	**4.4**
Central governments and central banks	**–**	**–**	**–**	**–**	**–**	**–**
Institutions	**–**	**–**	**0.1**	**–**	**–**	**0.1**
Corporates	**0.8**	**0.3**	**0.6**	**–**	**2.6**	**4.3**
CVA advanced	**3.5**	**–**	**–**	**–**	**–**	**3.5**
CVA standardised	**4.4**	**4.7**	**0.1**	**8.1**	**0.7**	**18.0**
CCP Standardised	**1.3**	**0.5**	**–**	**1.0**	**–**	**2.8**
	40.6	**21.9**	**1.2**	**23.0**	**4.0**	**90.7**
By product						
Derivatives (OTC and ETP)	**26.1**	**15.0**	**1.1**	**11.9**	**3.1**	**57.2**
Securities financing transactions	**4.5**	**0.5**	**–**	**2.5**	**0.2**	**7.7**
Other	**1.3**	**1.3**	**–**	**–**	**–**	**2.6**
CVA advanced	**3.5**	**–**	**–**	**–**	**–**	**3.5**
CVA standardised	**4.4**	**4.7**	**0.1**	**8.1**	**0.7**	**18.0**
CCP default funds	**0.8**	**0.4**	**–**	**0.5**	**–**	**1.7**
At 31 December 2014	**40.6**	**21.9**	**1.2**	**23.0**	**4.0**	**90.7**
By exposure class						
IRB advanced approach	20.8	10.6	0.2	8.5	0.6	40.7
Central governments and central banks	0.4	0.2	–	0.2	0.1	0.9
Institutions	6.8	4.0	0.2	2.0	0.5	13.5
Corporates	13.6	6.4	–	6.3	–	26.3
IRB foundation approach	1.4	–	0.1	–	–	1.5
Corporates	1.4	–	0.1	–	–	1.5
Standardised approach	0.8	0.3	0.4	–	2.1	3.6
Central governments and central banks	–	–	–	–	–	–
Institutions	–	–	0.1	–	–	0.1
Corporates	0.8	0.3	0.3	–	2.1	3.5
	23.0	10.9	0.7	8.5	2.7	45.8
By product						
OTC derivatives	18.4	9.9	0.6	7.8	2.3	39.0
Securities financing transactions	3.3	0.2	0.1	0.7	0.4	4.7
Other	1.3	0.8	–	–	–	2.1
At 31 December 2013	23.0	10.9	0.7	8.5	2.7	45.8

Wrong-way risk

Wrong-way risk occurs when a counterparty's exposures are adversely correlated with its credit quality. There are two types of wrong-way risk.

- General wrong-way risk occurs when the probability of counterparty default is positively correlated with general risk factors such as where the counterparty is resident and/or incorporated in a higher-risk country and seeks to sell a non-domestic currency in exchange for its home currency.
- Specific wrong-way risk occurs when the exposure to a particular counterparty is positively correlated with the probability of counterparty default such as a reverse repo on the counterparty's own bonds. HSBC policy sets out that specific wrong-way transactions are approved on a case by case basis.

We use a range of tools to monitor and control wrong-way risk, including requiring the business to obtain prior approval before undertaking wrong-way risk transactions outside pre-agreed guidelines. The regional Traded Risk functions are responsible for the control and the monitoring process. This includes the monthly submission of wrong-way risk information to the GB&M Risk Management Committee.

Table 49: Counterparty credit risk – RWA density by exposure class, product and geographical region

	RWA density					
	Europe %	Asia %	MENA %	North America %	Latin America %	Total %
By exposure class						
IRB advanced approach						
Central governments and central banks	**10**	**14**	**–**	**17**	**38**	**12**
Institutions	**38**	**32**	**34**	**39**	**48**	**36**
Corporates	**50**	**70**	**–**	**78**	**–**	**60**
IRB foundation approach						
Corporates	**40**	**–**	**57**	**–**	**–**	**41**
Standardised approach						
Central governments and central banks	**–**	**–**	**–**	**–**	**–**	**–**
Institutions	**–**	**–**	**37**	**–**	**–**	**37**
Corporates	**100**	**100**	**97**	**–**	**102**	**99**
CVA advanced	**–**	**–**	**–**	**–**	**–**	**–**
CVA standardised	**–**	**–**	**–**	**–**	**–**	**–**
CCP standardised	**5**	**9**	**–**	**5**	**–**	**6**
	38	**50**	**47**	**52**	**95**	**45**
By product						
Derivatives (OTC and ETP)	**34**	**43**	**62**	**38**	**82**	**39**
Securities financing transactions	**17**	**18**	**–**	**19**	**40**	**17**
Other	**52**	**22**	**–**	**–**	**–**	**31**
CVA advanced	**–**	**–**	**–**	**–**	**–**	**–**
CVA standardised	**–**	**–**	**–**	**–**	**–**	**–**
CCP default funds	**–**	**–**	**–**	**–**	**–**	**–**
At 31 December 2014	**38**	**50**	**47**	**52**	**95**	**45**
By exposure class						
IRB advanced approach						
Central governments and central banks	20	25	–	23	21	22
Institutions	24	18	41	17	34	21
Corporates	37	63	–	46	–	44
IRB foundation approach						
Corporates	48		54	–	–	48
Standardised approach						
Central governments and central banks	–	–	–	–	–	–
Institutions	–	–	42	–	–	12
Corporates	97	100	98	100	95	96
	30	32	23	33	67	32
By product						
OTC derivatives	36	36	62	34	72	37
Securities financing transactions	14	22	3	26	47	16
Other	61	14	–	–	–	27
At 31 December 2013	30	32	23	33	67	32

Central counterparties

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

A dedicated CCP credit team has been established to manage the interface with CCPs and undertake in-depth due diligence of the unique risks associated with these organisations. This is to address an implication of the regulations that the Group's risk will be transferred from being distributed among individual, bilateral counterparties to a significant level of risk concentration on CCPs. We have developed a risk appetite framework to manage risk accordingly, on an individual CCP and global basis.

Securitisation

Group securitisation strategy

HSBC acts as originator, sponsor, liquidity provider and derivative counterparty to its own originated and sponsored securitisations, as well as those of third-party securitisations. Our strategy is to use securitisations to meet our needs for aggregate funding or capital management, to the extent that market, regulatory treatments and other conditions are suitable, and for customer facilitation. We have senior exposures to the securities investment conduits ('SIC's): Mazarin Funding Limited, Barion Funding Limited, Malachite Funding Limited and Solitaire Funding Limited. These are not considered core businesses, and exposures are being repaid as the securities they hold amortise.

Group securitisation roles

Our roles in the securitisation process are as follows:

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

HSBC as originator

We use SPEs to securitise customer loans and advances and other debt that we have originated, in order to diversify our sources of funding for asset origination and for capital efficiency purposes. In such cases, we transfer the loans and advances to the SPEs for cash, and the SPEs issue debt securities to investors to fund the cash purchases. This activity is conducted in a number of regions and across a number of asset classes. We also act as a derivative counterparty. Credit enhancements to the underlying assets may be used to obtain investment grade ratings on the senior debt issued by the SPEs. The majority of these securitisations are consolidated for accounting purposes (see page 80 for the regulatory treatment). We have also established multi-seller conduit securitisation programmes for the purpose of providing access to flexible market-based sources of finance for our clients to finance discrete pools of third-party originated trade and vehicle finance loan receivables.

In addition, we use SPEs to mitigate the capital absorbed by some of our customer loans and advances we have originated. Credit derivatives are used to transfer the credit risk associated with such customer loans and advances to an SPE, using securitisations commonly known as synthetic securitisations by which the SPE writes CDS protection to HSBC. These SPEs are consolidated for accounting purposes when the substance of the relationship indicates that we control them.

HSBC as sponsor

We are sponsor to a number of types of securitisation entity, including:

- a multi-seller conduit vehicle established to provide finance to clients – Regency Assets Limited – to which we provide senior liquidity facilities and programme-wide credit enhancement. Assets at the start of 2014 funded via the Bryant Park conduit in the US have now largely been disposed of and Bryant Park is no longer active; and
- four SICs established to provide tailored investments to third-party clients, backed primarily by senior tranches of securitisations and securities issued by financial institutions. Solitaire Funding Limited and Mazarin Funding Limited are asset-backed commercial paper conduits to which we provide transaction-specific liquidity facilities; Barion Funding Limited and Malachite Funding Limited are vehicles to which we provide senior term funding. We also provide a first loss letter of credit to Solitaire Funding Limited. The performance of our exposure to these vehicles is primarily subject to the credit risk of the underlying securities.

Further details of these entities may be found on page 443 of the Annual Report and Accounts 2014.

HSBC as investor

We have exposure to third-party securitisations across a wide range of sectors in the form of investments, liquidity facilities and as a derivative counterparty. These are primarily legacy exposures that are expected to be held to maturity.

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

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

Valuation of securitisation positions

The valuation process of our investments in securitisation exposures primarily focuses on quotations from third parties, observed trade levels and calibrated valuations from market standard models. This process did not change in 2014.

We perform hedging in respect of our sponsored SICs interest rate and currency exposures. We make limited use of credit default swaps to hedge credit risk in respect of some securitisation positions.

Securitisation accounting treatment

For accounting purposes, we consolidate SPEs when the substance of the relationship indicates that we control them. In assessing control, all relevant factors are considered, including qualitative and quantitative aspects.

Full details of these assessments may be found on page 348 of the Annual Report and Accounts 2014.

We reassess the required consolidation whenever there is a change in the substance of the relationship between HSBC and an SPE, for example, when the nature of our involvement or the governing rules, contractual arrangements or capital structure of the SPE change.

The transfer of assets to an SPE may give rise to the full or partial derecognition of the financial assets concerned. Only in the event that derecognition is achieved are sales and any resultant gains on sales recognised in the financial statements. In a traditional securitisation, assets are sold to an SPE and no gain or loss on sale is recognised at inception.

Full derecognition occurs when we transfer our contractual right to receive cash flows from the financial assets, or retain the right but assume an obligation to pass on the cash flows from the assets, and transfer substantially all the risks and rewards of ownership. The risks include credit, interest rate, currency, prepayment and other price risks.

Partial derecognition occurs when we sell or otherwise transfer financial assets in such a way that some but not substantially all of the risks and rewards of ownership are transferred but control is retained. These financial assets are recognised on the balance sheet to the extent of our continuing involvement.

A small portion of financial assets that do not qualify for derecognition relate to loans, credit cards, debt securities and trade receivables that have been securitised under arrangements by which we retain a continuing involvement in such transferred assets. Continuing involvement may entail retaining the rights to future cash flows arising from the assets after investors have received their contractual terms (for example, interest rate strips); providing subordinated interest; liquidity support; continuing to service the underlying asset; or entering into derivative transactions with the securitisation vehicles. As such, we continue to be exposed to risks associated with these transactions.

Where assets have been derecognised in whole or in part, the rights and obligations that we retain from our continuing involvement in securitisations are initially recorded as an allocation of the fair value of the financial asset between the part that is derecognised and the part that continues to be recognised on the date of transfer.

Securitisation regulatory treatment

For regulatory purposes, where significant risk in SPEs has been transferred to third parties, these SPEs are not consolidated but exposure to them, including derivatives or liquidity facilities, is risk-weighted as securitisation positions. Of the US$0.8bn (2013: US$1.6bn) of unrealised losses on AFS asset-backed securities disclosed in the *Annual Report and Accounts 2014*, nil (2013: US$0.1bn) relates to assets within SPEs that are not consolidated for regulatory purposes.

Analysis of securitisation exposures

HSBC's involvement in securitisation activities continued to reduce in the year, which is reflected in the following:

- no securitisation positions backed by revolving exposures other than trade receivables in Regency Assets Limited;
- no facilities subject to early amortisation provisions;
- no material positions held as synthetic transactions (2013: nil);
- no assets awaiting securitisation; and
- we do not provide financial support for securitised assets.

Realised losses were US$0.2bn (2013: US$0.3bn) on securitisation asset disposals during the year. Total exposure includes off-balance sheet assets of US$21.4bn (2013: US$27.3bn) which relate to liquidity lines to securitisation vehicles.

Further details of securitisation legacy positions may be found on page 161 of the Annual Report and Accounts 2014.

Table 50: Securitisation exposure – by approach

	At 31 December 2014			At 31 December 2013		
	Trading book US$bn	Non-trading book US$bn	Total US$bn	Trading book US$bn	Non-trading book US$bn	Total US$bn
IRB approach	**2.9**	**38.3**	**41.2**	2.6	48.6	51.2
Ratings based	**2.9**	**23.6**	**26.5**	2.6	31.1	33.7
Internal assessment approach[1]	**–**	**14.7**	**14.7**	–	17.1	17.1
Supervisory method	**–**	**–**	**–**	–	0.4	0.4
Standardised	**–**	**0.4**	**0.4**	–	0.4	0.4
At 31 December	**2.9**	**38.7**	**41.6**	2.6	49.0	51.6

1 *Applies to exposures in Regency Assets Limited.*

Table 51: Securitisation exposure – movement in the year

	Total at 1 January US$bn	Movement in year			Total at 31 December US$bn
		As originator US$bn	As sponsor US$bn	As investor US$bn	
Aggregate amount of securitisation exposures					
Residential mortgages[1]	**2.5**	**–**	**–**	**1.7**	**4.2**
Commercial mortgages[1]	**4.8**	**–**	**–**	**(0.6)**	**4.2**
Leasing	**–**	**–**	**–**	**0.1**	**0.1**
Loans to corporates or SMEs	**0.2**	**–**	**–**	**0.9**	**1.1**
Consumer loans	**0.4**	**–**	**–**	**(0.1)**	**0.3**
Trade receivables[2]	**17.7**	**–**	**(1.8)**	**–**	**15.9**
Re-securitisations[1]	**25.6**	**(0.3)**	**(8.8)**	**(0.7)**	**15.8**
Other assets	**0.4**	**–**	**(0.4)**	**–**	**–**
2014	**51.6**	**(0.3)**	**(11.0)**	**1.3**	**41.6**
Aggregate amount of securitisation exposures					
Residential mortgages[1]	4.2	–	–	(1.7)	2.5
Commercial mortgages[1]	3.9	–	(0.3)	1.2	4.8
Leasing	–	–	–	–	–
Loans to corporates or SMEs	0.2	–	–	–	0.2
Consumer loans	0.7	–	–	(0.3)	0.4
Trade receivables[2]	14.2	–	3.6	(0.1)	17.7
Re-securitisations[1]	31.6	(0.4)	(3.8)	(1.8)	25.6
Other assets	0.5	–	(0.1)	–	0.4
2013	55.3	(0.4)	(0.6)	(2.7)	51.6

1 *Residential and Commercial motgages and re-securitisations principally include exposures to Solitaire Funding Limited, Mazarin Funding Limited, Barion Funding Limited and Malachite Funding Limited and restructured on-balance sheet assets. The pools primarily comprise the senior tranches of retail mortgage backed securities, commercial mortgage backed securities, auto ABS, credit card ABS, student loans, collateralised debt obligations, and also include bank subordinated debt.*

2 *Trade receivables largely relate to Regency Assets Limited and pools are senior with a maturity less than 10 years.*

Table 52: Securitisation exposure – by trading and non-trading book

	At 31 December 2014			At 31 December 2013		
	Trading book US$bn	Non-trading book US$bn	Total US$bn	Trading book US$bn	Non-trading book US$bn	Total US$bn
As originator	**–**	**2.1**	**2.1**	–	2.4	2.4
Re-securitisations	**–**	**2.1**	**2.1**	–	2.4	2.4
As sponsor	**–**	**27.9**	**27.9**	–	39.2	39.2
Commercial mortgages	**–**	**–**	**–**	–	–	–
Loans to corporates or SMEs	**–**	**–**	**–**	–	–	–
Trade receivables	**–**	**15.3**	**15.3**	–	17.1	17.1
Re-securitisations	**–**	**12.6**	**12.6**	–	21.7	21.7
Other assets	**–**	**–**	**–**	–	0.4	0.4
As investor	**2.9**	**8.7**	**11.6**	2.6	7.4	10.0
Residential mortgages	**1.7**	**2.5**	**4.2**	1.1	1.4	2.5
Commercial mortgages	**0.8**	**3.4**	**4.2**	0.9	3.9	4.8
Leasing	**–**	**0.1**	**0.1**	–	–	–
Loans to corporates or SMEs	**0.1**	**1.0**	**1.1**	–	0.2	0.2
Consumer loans	**0.1**	**0.2**	**0.3**	0.1	0.3	0.4
Trade receivables	**0.1**	**0.5**	**0.6**	–	0.6	0.6
Re-securitisations	**0.1**	**1.0**	**1.1**	0.5	1.0	1.5
At 31 December	**2.9**	**38.7**	**41.6**	2.6	49.0	51.6

Table 53: Securitisation – asset values and impairments

	At 31 December 2014			At 31 December 2013		
	Underlying assets[1]		Securitisation exposures impairment US$bn	Underlying assets[1]		Securitisation exposures impairment US$bn
	Total US$bn	Impaired and past due US$bn		Total US$bn	Impaired and past due US$bn	
As originator	**2.2**	**2.1**	**0.7**	4.1	3.4	0.9
Residential mortgages	**0.3**	**–**	**–**	0.4	–	–
Commercial mortgages	**–**	**–**	**–**	–	–	–
Re-securitisations[2]	**1.9**	**2.1**	**0.7**	3.7	3.4	0.9
As sponsor	**28.9**	**0.3**	**0.2**	37.9	0.3	0.3
Commercial mortgages	**2.3**	**–**	**–**	2.3	–	–
Loans to corporates and SMEs	**–**	**–**	**–**	–	–	–
Trade receivables	**12.4**	**–**	**–**	12.9	–	–
Re-securitisations[2]	**14.2**	**0.3**	**0.2**	20.7	0.3	0.3
Other assets	**–**	**–**	**–**	2.0	–	–
As investor[3]			**–**			–
Residential mortgages			**–**			–
Commercial mortgages			**–**			–
Re-securitisations			**–**			–
At 31 December			**0.9**			1.2[4]

1 *Securitisation exposures may exceed the underlying asset values when HSBC provides liquidity facilities while also acting as derivative counterparty and a note holder in the SPE.*
2 *For re-securitisations where HSBC has derived regulatory capital requirements based on the underlying pool of assets, the asset value used for the regulatory capital calculation is used in the disclosure of total underlying assets. For other re-securitisations, the carrying value of the assets per the* Annual Report and Accounts 2014 *is disclosed.*
3 *For securitisations where HSBC acts as investor, information on third-party underlying assets is not available.*
4 *The net effect of a number of insignificant movements, compared with prior year, was immaterial.*

Table 54: Securitisation exposure – by risk weighting

	Exposure value[1]				Capital required			
	Trading book		Non-trading book[2]		Trading book[3]		Non-trading book	
	S[4] US$bn	R[5] US$bn	S[4] US$bn	R[5] US$bn	S[4] US$bn	R[5] US$bn	S[4] US$bn	R[5] US$bn
Long-term category – risk weights								
– less than or equal to 10%	**0.9**	**–**	**16.7**	**–**	**–**	**–**	**–**	**–**
– > 10% and ≤ 20%	**0.9**	**0.1**	**8.0**	**5.6**	**–**	**–**	**–**	**–**
– > 20% and ≤ 50%	**0.2**	**–**	**1.1**	**1.4**	**–**	**–**	**–**	**0.1**
– > 50% and ≤ 100%	**0.3**	**–**	**1.5**	**0.7**	**–**	**–**	**–**	**0.1**
– > 100% and ≤ 650%	**0.3**	**–**	**0.1**	**1.3**	**0.2**	**–**	**0.1**	**0.3**
– > 650% and < 1250%	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
1250%	**0.2**	**–**	**1.1**	**1.2**	**0.2**	**–**	**1.1**	**1.2**
At 31 December 2014	**2.8**	**0.1**	**28.5**	**10.2**	**0.4**	**–**	**1.2**	**1.7**
Long-term category – risk weights								
– less than or equal to 10%	0.8	–	18.2	–	–	–	0.1	–
– > 10% and ≤ 20%	0.4	–	7.0	0.3	–	–	0.1	–
– > 20% and ≤ 50%	0.4	0.4	1.4	13.6	–	–	–	0.5
– > 50% and ≤ 100%	0.1	–	1.9	0.5	–	–	0.1	–
– > 100% and ≤ 650%	0.3	–	0.3	2.4	0.1	0.1	0.1	0.6
– > 650% and < 1250%	–	0.1	–	0.1	–	–	–	–
Deductions from capital	0.1	–	1.6	1.7	0.1	–	1.6	1.7
At 31 December 2013	2.1	0.5	30.4	18.6	0.2	0.1	2.0	2.8

1 *There are no short-term category exposures at 31 December 2014 (2013: nil).*
2 *Non-trading book figures at 31 December 2014 include US$0.4bn exposures treated under the standardised approach (2013: US$0.4bn).*
3 *Trading book securitisation capital requirements included under the market risk disclosures were US$0.4bn (2013: US$0.2bn).*
4 *Securitisation.*
5 *Re-securitisation. The total re-securitisation exposure value is less than that presented in tables 51 and 52, reflecting a differing treatment of Solitaire Funding Limited. In tables 51 and 52, Solitaire is treated as a re-securitisation, while the figures above are based on the fact that Solitaire is consolidated for regulatory purposes, and present the exposure values as securitisations, allocated to the RWA bands of Solitaire's underlying pool of assets.*

Key points

- The exposure movement in the year represents any purchase or sale of securitisation assets, the repayment of capital on amortising or maturing securitisation assets.
- The reductions in capital required reflect vertical slicing and sales of assets from re-securitisation vehicles for US$0.2bn and sales of assets held in North America for US$0.3bn.
- External rating upgrades on re-securitisation vehicles reduced capital required by US$0.3bn.
- The implementation of the AFS offset reduced capital required by US$0.7bn.
- The positions reported in the previous year as deductions are reported as risk weight of 1250% in the current year as required under CRD IV.

Market risk

Overview and objectives

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

Exposure to market risk

Exposure to market risk is separated into two portfolios:

- *Trading portfolios* comprise positions arising from market-making and the warehousing of customer-derived positions.
- *Non-trading portfolios* comprise positions that primarily arise from the interest rate management of our retail and commercial banking assets and liabilities, financial investments designated as available for sale and held to maturity, and exposures arising from our insurance operations.

Where appropriate, we apply similar risk management policies and measurement techniques to both trading and non-trading portfolios. Our objective is to manage and control market risk exposures in order to optimise return on risk while maintaining a market profile consistent with our status as one of the world's largest banking and financial services organisations.

The nature of the hedging and risk mitigation strategies performed across the Group corresponds to the market risk management instruments available within each operating jurisdiction. These strategies range from the use of traditional market instruments, such as interest rate swaps, to more sophisticated hedging strategies to address a combination of risk factors arising at portfolio level.

Overview of market risk in global businesses

The diagram below illustrates the main business areas where trading and non-trading market risks reside and market risk measures to monitor and limit exposures.

	Trading risk	Non-trading risk			
Risk types	– Foreign exchange & commodities – Interest rates – Credit spreads – Equities	– Structural foreign exchange – Interest rates[1] – Credit spreads			
Global businesses	GB&M, incl BSM	GB&M, incl BSM	GPB	CMB	RBWM
Risk measure	VaR | Sensitivity | Stress testing	VaR | Sensitivity | Stress testing			

1 *The interest rate risk on the fixed-rate securities issued by HSBC Holdings is not included in the Group VaR.*

Market risk governance

Market risk is managed and controlled through limits approved by the Risk Management Meeting of the GMB for HSBC Holdings and our various global businesses. These limits are allocated across business lines and to the Group's legal entities.

The management of market risk is principally undertaken in Global Markets, where 77% of the total value at risk of HSBC (excluding insurance) and almost all trading VaR resides, using risk limits approved by the GMB. VaR limits are set for portfolios, products and risk types, with market liquidity being a primary factor in determining the level of limits set.

Group Risk, an independent unit within Group Head Office, is responsible for our market risk management policies and measurement techniques. Each major operating entity has an independent market risk management and control function which is responsible for measuring market risk exposures in accordance with the policies defined by Group Risk, and monitoring and reporting these exposures against the prescribed limits on a daily basis. The market risk limits are governed according to the framework illustrated to the right.

Each operating entity is required to assess the market risks arising on each product in its business and to transfer them to either its local Markets unit for management, or to separate books managed under the supervision of the local ALCO.

Our aim is to ensure that all market risks are consolidated within operations that have the necessary skills, tools, management and governance to manage them. In certain cases where the market risks cannot be fully transferred, we identify the impact of varying scenarios on valuations or on net interest income resulting from any residual risk positions.

Model risk is governed through MOCs at the regional and global wholesale credit and market risk levels. They have direct oversight and approval responsibility for all traded risk models utilised for risk measurement and management and stress testing. The MOCs prioritise the development of models, methodologies and practices used for trading risk management within the Group and ensure that they remain within our risk appetite and business plans. The Markets MOC reports into the Group MOC, which oversees all model risk types at Group level. Group MOC informs the Group RMM about material issues at least on a bi-annual basis. The RMM is the Group's 'Designated Committee' according to the regulatory rules and it has delegated day-to-day governance of all trading risk models to the Markets MOC.

Our control of market risk in the trading and non-trading portfolios is based on a policy of restricting individual operations to trading within a list of permissible instruments authorised for each site by Group Risk, of enforcing new product approval procedures, and of restricting trading in the more complex derivative products only to offices with appropriate levels of product expertise and robust control systems.

Table 55: Market risk – RWAs and capital required

	At 31 December 2014		At 31 December 2013	
	Capital required US$bn	**RWAs US$bn**	Capital required US$bn	RWAs US$bn
Internal model based	**3.6**	**44.6**	4.2	52.2
VaR	**0.6**	**7.3**	0.4	4.9
Stressed VaR	**0.8**	**10.4**	0.8	9.4
Incremental risk charge	**1.6**	**20.1**	1.8	23.1
Comprehensive risk measure	**–**	**–**	0.2	2.6
Other VaR and stressed VaR[1]	**0.6**	**6.8**	1.0	12.2
PRA standard rules	**0.9**	**11.4**	0.9	11.2
Interest rate position risk	**0.4**	**4.8**	0.6	7.8
Foreign exchange position risk	**0.1**	**0.7**	0.1	1.1
Equity position risk	**–**	**0.3**	–	0.2
Commodity position risk	**–**	**0.1**	–	0.1
Securitisations	**0.4**	**5.5**	0.2	2.0
At 31 December	**4.5**	**56.0**	5.1	63.4

1 *These are results from countries which cannot be included in the consolidated VaR permission because regulatory permission to do so has not been received, and which must therefore be aggregated rather than consolidated.*

Key points

- Other VaR and stressed VaR decreased by US$5.4bn over the period due to PRA permission being granted to consolidate further sites within the global aggregated portfolio and a reduction in the positions within the sites outside of the global aggregated portfolio.
- Incremental risk charge decreased US$2.0bn due to PRA permission being granted to consolidate further sites within the global aggregated portfolio and a further US$1.0bn reduction driven by a re-calibration of matrices within the model.
- Comprehensive risk measure decreased over the period due to the disposal of the US Correlation Trading book.
- VaR and stressed VaR increased by a total of US$3.4bn over the period due to the loss of diversification benefit within the RNIV framework and the treatment of cross currency collateral in VaR, partially offset following a reduction in the positions for the Equities and FX desk and refinements in the RNIV calculations.
- Securitisation increased US$3.5bn over the period largely due to positions previously deducted from capital now being treated as 1250% RWAs under CRD IV.
- Interest Rate position risk decreased over the period primarily in Latin America due to the introduction of the Scenario Matrix Method for options and a general reduction in positions resulting in an RWA reduction of US$1.0bn. A further US$1.7bn reduction occurred in the US.

Market risk measures

Monitoring and limiting market risk exposures

Our objective is to manage and control market risk exposures while maintaining a market profile consistent with our risk appetite.

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

Sensitivity analysis

Sensitivity analysis measures the impact of individual market factor movements on specific instruments or portfolios including interest rates, foreign exchange rates and equity prices, such as the effect of a one basis point change in yield. We use sensitivity measures to monitor the market risk positions within each risk type. Sensitivity limits are set for portfolios, products and risk types, with the depth of the market being one of the principal factors in determining the level of limits set.

Value at risk

VaR is a technique that estimates the potential losses on risk positions in the trading portfolio as a result of movements in market rates and prices over a specified time horizon and to a given level of confidence. The use of VaR is integrated into market risk management and is calculated for all trading positions regardless of how we capitalise those exposures. Where there is not an approved internal model, we use the appropriate local rules to capitalise exposures locally.

In addition, we calculate VaR for non-trading portfolios in order to have a complete picture of risk. Our models are predominantly based on historical simulation. VaR is calculated at a 99% confidence level for a one-day holding period. Where we do not calculate VaR explicitly, we use alternative tools as described summarised in the Market Risk Stress Testing table found in the Stress testing section below.

Our VaR models derive plausible future scenarios from past series of recorded market rates and prices, taking into account inter-relationships between different markets and rates such as interest rates and foreign exchange rates. The models also incorporate the effect of option features on the underlying exposures.

The historical simulation models used incorporate the following features:

- historical market rates and prices are calculated with reference to foreign exchange rates and commodity prices, interest rates, equity prices and the associated volatilities;
- potential market movements utilised for VaR are calculated with reference to data from the past two years; and
- VaR measures are calculated to a 99% confidence level and use a one-day holding period.

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

VaR model limitations

Although a valuable guide to risk, VaR should always be viewed in the context of its limitations, for example:

- the use of historical data as a proxy for estimating future events may not encompass all potential events, particularly those which are extreme in nature;
- the use of a holding period assumes that all positions can be liquidated or the risks offset during that period. This may not fully reflect the market risk arising at times of severe illiquidity, when the holding period may be insufficient to liquidate or hedge all positions fully;
- the use of a 99% confidence level by definition does not take into account losses that might occur beyond this level of confidence;
- VaR is calculated on the basis of exposures outstanding at close of business and therefore does not necessarily reflect intra-day exposures; and
- VaR is unlikely to reflect loss potential on exposures that only arise under conditions of significant market movement.

Risk-not-in-VaR framework

Our VaR model is designed to capture significant basis risk such as credit default swap versus bond, asset swap spreads and cross-currency basis. Other basis risks which are not completely covered in VaR, such as the Libor tenor basis, are complemented by our RNIV calculations and are integrated into our capital framework.

The RNIV framework therefore aims to capture and capitalise material market risks that are not adequately covered in the VaR model. An example of this is Libor-overnight index swap basis risk for minor currencies. In such instances the RNIV framework uses stress tests to quantify the capital requirement. On average in 2014, the capital requirement derived from these stress tests represented 2.6% of the total internal model-based market risk requirement.

Risks covered by RNIV represent 18% of market risk RWAs for models with regulatory approval and include those resulting from underlying risk factors which are not observable on a daily basis across asset classes and products, such as dividend risk and correlation risks.

Risk factors are reviewed on a regular basis and either incorporated directly in the VaR models, where possible, or quantified through the VaR-based RNIV approach or a stress test approach within the RNIV framework. The severity of the scenarios is calibrated to be in line with the capital adequacy requirements. The outcome of the VaR-based RNIV is included in the VaR calculation and back-testing; a stressed VaR RNIV is also computed for the risk factors considered in the VaR-based RNIV approach.

In 2014, we modified our RNIV model on a non-diversified basis across risk factors to comply with new PRA CRDIV implementation guidelines.

Level 3 assets

The fair values of Level 3 assets and liabilities in trading portfolios are disclosed on page 380 of the *Annual Report and Accounts 2014*, and represent only a small

proportion of the overall trading portfolio. Market risk arising from Level 3 instruments is managed by various market risk techniques such as stress testing and notional limits.

Back-testing

We routinely validate the accuracy of our VaR models by back-testing them against both clean and hypothetical profit and loss against the corresponding VaR numbers. Hypothetical profit and loss excludes non-modelled items such as fees, commissions and revenues of intra-day transactions.

We would expect on average to see two or three profits, and two or three losses, in excess of VaR at the 99% confidence level over a one-year period. The actual number of profits or losses in excess of VaR over this period can therefore be used to gauge how well the models are performing. To ensure a conservative approach to calculating our risk exposures, it is important to note that profits in excess of VaR are only considered when back-testing the accuracy of our models and are not used to calculate the VaR numbers used for risk management or capital purposes.

We back-test our Group VaR at various levels which reflect a full legal entity scope of HSBC, including entities that do not have local permission to use VaR for regulatory purposes.

Stress testing

Stress testing is an important tool that is integrated into our market risk management tool to evaluate the potential impact on portfolio values of more extreme, although plausible, events or movements in a set of financial variables. In such abnormal scenarios, losses can be much greater than those predicted by VaR modelling.

Stress testing is implemented at legal entity, regional and overall Group levels. A standard set of scenarios is utilised consistently across all regions within the Group. Scenarios are tailored to capture the relevant events or market movements at each level. The risk appetite around potential stress losses for the Group is set and monitored against referral limits.

Market Risk Stress Testing				
Sensitivities	Technical	Hypothetical	Historical	
Impact of a single risk factor, e.g. break of a currency peg	Impact of the largest move in each risk factor without consideration of any underlying market correlation	Impact of potential macroeconomic events, e.g. slowdown in mainland China	Scenarios that incorporate historical observations of market movements, e.g. Black Monday 1987 for equities	Reverse Stress Testing

Market risk reverse stress tests are undertaken on the premise that there is a fixed loss. The stress test process identifies which scenarios lead to this loss. The rationale behind the reverse stress test is to understand scenarios which are beyond normal business settings that could have contagion and systemic implications.

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

Market Risk Capital Models

From a capital perspective, the model limitations are somewhat mitigated by the addition of Stressed VaR detailed below, which by definition incorporates 10-day scenarios in a period of stress.

The Incremental Risk Charge and Comprehensive Risk Measure detailed below, longer capital and liquidity horizons. Capital add-ons also exist to capture event risk including foreign exchange risk on pegged currencies and concentration risk associated with large equity holdings.

Table 56: Market risk models[1]

Model component	RWAs for associated asset class US$bn	Confidence level	Horizon	Model description and methodology
VaR	**7.3**	99%	10 day	Uses most recent two years' worth of daily returns to determine a loss distribution. The result is scaled from one day to provide an equivalent 10-day loss.
Stressed VaR	**10.4**	99%	10 day	Stressed VaR is calibrated to a one-year period of stress observed in history.
IRC	**20.1**	99.9%	1 year	Uses a multi-factor Gaussian Monte-Carlo simulation which includes product basis, concentration, hedge mismatch, recovery rate and liquidity as part of the simulation process. A minimum liquidity horizon of three months is applied and is based on a combination of factors including issuer type, currency and size of exposure.
CRM	**–**	99.9%	1 year	Calibrated to the same soundness standard as the IRC above, and the risk factors covered include credit migration, default, credit spread, correlation, recovery rate and basis risks. Following the sale of the correlation portfolio we no longer calculate a capital requirement for CRM.

1 *Non-proprietary details are available in the Financial Services Register on the PRA website.*

Stressed VaR

Stressed VaR is primarily used for regulatory capital purposes and is integrated into the risk management process to ensure prudent capital management. Stressed VaR complements other risk measures by providing the potential losses arising from market turmoil. Calculations are based on a continuous one-year period of stress for the trading portfolio, based on the assessment at the Group level.

Stress VaR modelling follows the same approach as our VaR risk measure except for the following:

- potential market movements employed for stressed VaR calculations are based on a continuous one-year period of stress for the trading portfolio;
- the choice of period (November 2007 to November 2008) is based on the assessment at the Group level of the most volatile period in recent history; and
- it is calculated to a 99% confidence using a 10-day holding period.

Information on our VaR risk measure is included on pages 177 and 178 of the Annual Report and Accounts 2014.

Stressed value at risk (one-day equivalent)

	2014 US$m
At 31 December	**83.3**
Maximum	**108.1**
Minimum	**21.7**
Average	**65.4**

Stressed VaR exposures contribute to the capital held by HSBC against market risk factors. Stressed VaR fluctuated through 2014, reflecting the changing positions held by HSBC. Additionally stressed VaR increased due to modelling changes that removed certain diversification benefits.

Incremental Risk Charge

The IRC measures the default and migration risk of issuers of traded instruments.

Risk factors covered by it include credit migration, default, product basis, concentration, hedge mismatch, recovery rate and liquidity. The PDs are floored to reflect the lack of historical data on defaults and a period of stress is used to calibrate the spread changes for the relevant ratings. The IRC model is validated quarterly by stressing key model parameters and reviewing the response of the model.

The IRC is a standalone charge generating no diversification benefit with other charges.

The IRC model was updated to account for the dependency of the recovery rate and the economic cycle. Additionally, further granularity in parameters was introduced, in order to better represent the risk profile. As part of normal model oversight the IRC model is periodically recalibrated in order to continue accurately to capture the risk profile in a stressed environment.

Incremental risk charge

	2014 US$m
At 31 December	**1,781**
Maximum	**2,980**
Minimum	**1,754**
Average	**2,308**

Comprehensive Risk Measure

The CRM is used to measure all price risks emanating from the correlation trading portfolio within a bank and also reflects the associated impact of liquidity, concentration and hedging. This measure is subject to a minimum capital requirement of 8% of RWA calculated under the standard rules for the portfolio. CRM is a standalone charge generating no diversification benefit with other charges.

Following the sale of our correlation portfolio in 2014 we no longer calculate a capital requirement for this measure.

Trading portfolios

Gap risk

Certain products are structured in such a way that they give rise to enhanced gap risk, being the risk that loss is incurred upon occurrence of a gap event. A gap event is a significant and sudden change in market price with no accompanying trading opportunity. Such movements may occur, for example, when, in reaction to an adverse event or unexpected news announcement, some parts of the market move far beyond their normal volatility range and become temporarily illiquid. In 2014 gap risk principally arose from non-recourse loan transactions, mostly for corporate clients, where the collateral against the loan is limited to the posted shares. Upon occurrence of a gap event, the value of the equity collateral could fall below the outstanding loan amount. Given their characteristics, these transactions make little or no contribution to VaR nor to traditional market risk sensitivity measures. We capture their risks within our stress testing scenarios and monitor gap risk on an ongoing basis. We did not incur any notable gap loss in 2014.

De-peg risk

For certain currencies (pegged or managed) the spot exchange rate is pegged at a fixed rate (typically to US dollars or euros), or managed within a pre-defined band around a pegged rate. De-peg risk is the risk of the peg or managed band changing or being abolished, and moving to a floating regime.

HSBC has a lot of experience in managing fixed and managed currency regimes. Using stressed scenarios on spot rates, we are able to analyse how de-peg events would impact the positions held by HSBC. We monitor such scenarios to pegged or managed currencies, such as the Hong Kong dollar, renminbi, Middle Eastern currencies and the Swiss franc with appreciation capped

against the euro during 2014, and limit any potential losses that would occur. This complements traditional market risk metrics, such as historical VaR, which may not fully capture the risk involved in holding positions in pegged or managed currencies. Historical VaR relies on past events to determine the likelihood of potential profits or losses. However, pegged or managed currencies may not have experienced a de-peg event during the historical timeframe being considered.

ABS/MBS exposures

The ABS/MBS exposures within the trading portfolios are managed within sensitivity and VaR limits as described on page 176 of the *Annual Report and Accounts*, and are included within the stress testing scenarios described above.

Non-trading portfolios

Most of the Group's non-trading VaR relates to Balance Sheet Management ('BSM') or local treasury management functions. Contributions to Group non-trading VaR are driven by interest rates and credit spread risks arising from all global businesses. There is no commodity market risk in the non-trading portfolios.

Non-trading VaR also includes the interest rate risk of non-trading financial instruments held by the global businesses and transferred into portfolios managed by BSM or local treasury functions. In measuring, monitoring and managing risk in our non-trading portfolios, VaR is just one of the tools used. The management of interest rate risk in the banking book is described further in 'Non-trading interest rate risk' below, including the role of BSM.

Non-trading VaR excludes equity risk on available-for-sale securities, structural foreign exchange risk, and interest rate risk on fixed rate securities issued by HSBC Holdings, the scope and management of which are described in the relevant sections below.

Our control of market risk in the non-trading portfolios is based on transferring the assessed market risk of non-trading assets and liabilities created outside BSM or Markets, to the books managed by BSM, provided the market risk can be neutralised. The net exposure is typically managed by BSM through the use of fixed rate government bonds (liquid assets held in available-for-sale books) and interest rate swaps. The interest rate risk arising from fixed rate government bonds held within available-for-sale portfolios is reflected within the Group's non-traded VaR. Interest rate swaps used by BSM are typically classified as either a fair value hedge or a cash flow hedge and are included within the Group's non-traded VaR. Any market risk that cannot be neutralised in the market is managed by local ALCO in segregated ALCO books.

Credit spread risk for available-for-sale debt instruments

The risk associated with movements in credit spreads is primarily managed through sensitivity limits, stress testing and VaR. The VaR shows the effect on income from a one-day movement in credit spreads over a two-year period, calculated to a 99% confidence interval.

Available-for-sale equity securities

Potential new commitments are subject to risk appraisal to ensure that industry and geographical concentrations remain within acceptable levels for the portfolio. Regular reviews are performed to substantiate the valuation of the investments within the portfolio and investments held to facilitate ongoing business, such as holdings in government-sponsored enterprises and local stock exchanges.

Refer to Other risks – Non-trading book exposures in equities on page 93 for additional information.

Structural foreign exchange exposures

Structural foreign exchange exposures represent net investments in subsidiaries, branches and associates, the functional currencies of which are currencies other than the US dollar. An entity's functional currency is that of the primary economic environment in which the entity operates.

Exchange differences on structural exposures are recognised in 'Other comprehensive income'. We use the US dollar as our presentation currency in our consolidated financial statements because the US dollar and currencies linked to it form the major currency bloc in which we transact and fund our business. Our consolidated balance sheet is, therefore, affected by exchange differences between the US dollar and all the non-US dollar functional currencies of underlying subsidiaries.

We hedge structural foreign exchange exposures only in limited circumstances. Our structural foreign exchange exposures are managed with the primary objective of ensuring, where practical, that our consolidated capital ratios and the capital ratios of individual banking subsidiaries are largely protected from the effect of changes in exchange rates. This is usually achieved by ensuring that, for each subsidiary bank, the ratio of structural exposures in a given currency to RWAs denominated in that currency is broadly equal to the capital ratio of the subsidiary in question.

We may also transact hedges where a currency in which we have structural exposures is considered likely to revalue adversely, and it is possible in practice to transact a hedge. Any hedging is undertaken using forward foreign exchange contracts which are accounted for under IFRSs as hedges of a net investment in a

foreign operation, or by financing with borrowings in the same currencies as the functional currencies involved. We evaluate residual structural foreign exchange exposures using an expected shortfall method.

Details of our structural foreign exchange exposures are provided in Note 33 to the Financial Statements, on page 435 of the Annual Report and Accounts 2014.

Non-trading interest rate risk

Non-trading book interest rate risk arises principally from mismatches between the future yield on assets and their funding cost, as a result of interest rate changes. Analysis of this risk is complicated by having to make assumptions on embedded optionality within certain product areas such as the incidence of mortgage prepayments, and from behavioural assumptions regarding the economic duration of liabilities which are contractually repayable on demand such as current accounts, and the re-pricing behaviour of managed rate products. These assumptions around behavioural features are captured in our interest rate risk behaviouralisation framework, which is described below.

We aim, through our management of market risk in non-trading portfolios, to mitigate the effect of prospective interest rate movements which could reduce future net interest income, while balancing the cost of such hedging activities on the current net revenue stream.

Our funds transfer pricing policies give rise to a two stage funds transfer pricing approach. For details see page 219 of the *Annual Report and Accounts 2014*.

The economic capital requirement for non-trading interest rate risk under Pillar 2 is measured by or Economic Value of Equity ('EVE') sensitivity. EVE sensitivity considers all re-pricing mismatches assuming a run-off of the current balance sheet, and quantifies the larger loss in economic value of the Group's net asset position (including off balance sheet positions) under a +/-200bps shock to interest rates.

Asset, Liability and Capital Management ('ALCM') is responsible for measuring and controlling non-trading interest rate risk under the supervision of the RMM. Its primary responsibilities are:

- to define the rules governing the transfer of interest rate risk from the commercial bank to BSM;
- to ensure that all market interest rate risk that can be hedged is effectively transferred from the global businesses to BSM; and
- to define the rules and metrics for monitoring the residual interest rate risk in the global businesses.

The different types of non-trading interest rate risk and the controls which the Group uses to quantify and limit its exposure to these risks can be categorised as follows:

- risk which is transferred to BSM and managed by BSM within a defined risk mandate;
- risk which remains outside BSM because it cannot be hedged or which arises due to our behaviouralised transfer pricing assumptions. This risk will be captured by our net interest income EVE sensitivity, and corresponding limits are part of our global and regional risk appetite statements for non-trading interest rate risk. A typical example would be margin compression created by unusually low rates in key currencies;
- basis risk which is transferred to BSM when it can be hedged. Any residual basis risk remaining in the global businesses is reported to ALCO. A typical example would be a managed rate savings product transfer-priced using a Libor-based interest rate curve; and
- model risks which cannot be captured by net interest income or EVE sensitivity but are controlled by our stress testing framework. A typical example would be prepayment risk on residential mortgages or pipeline risk.

Details of the Group's monitoring of the sensitivity of projected net interest income under varying interest rate scenarios may be found on page 181 of the Annual Report and Accounts 2014.

Interest rate risk behaviouralisation

Unlike liquidity risk which is assessed on the basis of a very severe stress scenario, non-trading interest rate risk is assessed and managed according to 'business-as-usual' conditions. In many cases the contractual profile of non-trading assets/liabilities arising from assets/liabilities created outside Markets or BSM does not reflect the behaviour observed. Behaviouralisation is therefore used to assess the market interest rate risk of non-trading assets/liabilities and this assessed market risk is transferred to BSM, in accordance with the rules governing the transfer of interest rate risk from the global businesses to BSM.

Behaviouralisation is applied in three key areas:

- the assessed re-pricing frequency of managed rate balances;
- the assessed duration of non-interest bearing balances, typically capital and current accounts; and
- the base case expected prepayment behaviour or pipeline take-up rate for fixed rate balances with embedded optionality.

Interest rate behaviouralisation policies have to be formulated in line with the Group's behaviouralisation policies and approved at least annually by local ALCO and regional ALCM, in conjunction with local, regional and Group market risk monitoring teams.

The extent to which balances can be behaviouralised is driven by:

- the amount of the current balance that can be assessed as 'stable' under business-as-usual conditions; and
- for managed rate balances the historic market interest rate re-pricing behaviour observed; or
- for non-interest bearing balances the duration for which the balance is expected to remain under business-as-usual conditions. This assessment is often

driven by the re-investment tenors available to BSM to neutralise the risk through the use of fixed rate government bonds or interest rate derivatives, and for derivatives the availability of cash flow hedging capacity.

Balance Sheet Management

Effective governance across BSM is supported by the dual reporting lines it has to the CEO of GB&M and to the Group Treasurer. In each operating entity, BSM is responsible for managing liquidity and funding under the supervision of the local ALCO (which usually meets on a monthly basis). It also manages the non-trading interest rate positions transferred to it within a Global Markets limit structure.

In executing the management of the liquidity risk on behalf of ALCO, and managing the non-trading interest rate positions transferred to it, BSM invests in highly-rated liquid assets in line with the Group's liquid asset policy. The majority of the liquidity is invested in central bank deposits and government, supranational and agency securities with most of the remainder held in short-term interbank and central bank loans.

Withdrawable central bank deposits are accounted for as cash balances. Interbank loans, statutory central bank reserves and loans to central banks are accounted for as loans and advances to banks. BSM's holdings of securities are accounted for as available-for-sale or, to a lesser extent, held-to-maturity assets.

Statutory central bank reserves are not recognised as liquid assets. The statutory reserves that would be released in line with the Group's stressed customer deposit outflow assumptions are reflected as stressed inflows.

BSM is permitted to use derivatives as part of its mandate to manage interest rate risk. Derivative activity is predominantly through the use of vanilla interest rate swaps which are part of cash flow hedging and fair value hedging relationships.

Credit risk in BSM is predominantly limited to short-term bank exposure created by interbank lending, exposure to central banks and high quality sovereigns, supranationals or agencies which constitute the majority of BSM's liquidity portfolio. BSM does not manage the structural credit risk of any Group entity balance sheets.

BSM is permitted to enter into single name and index credit derivatives activity, but it does so to manage credit risk on the exposure specific to its securities portfolio in limited circumstances only. The risk limits are extremely limited and closely monitored. At 31 December 2014 and 31 December 2013 BSM had no open credit derivative index risk.

VaR is calculated on both trading and non-trading positions held in BSM. It is calculated by applying the same methodology used for the Markets business and utilised as a tool for market risk control purposes.

BSM holds trading portfolio instruments in only very limited circumstances. Positions and the associated VaR were not significant during 2014 and 2013.

Sensitivity of net interest income

A principal part of our management of market risk in non-trading portfolios is to monitor the sensitivity of projected net interest income under varying interest rate scenarios (simulation modelling). This monitoring is undertaken at an entity level by local ALCOs.

Entities apply a combination of scenarios and assumptions relevant to their local businesses, and standard scenarios which are required throughout HSBC. The latter are consolidated to illustrate the combined pro forma effect on our consolidated net interest income.

Projected net interest income sensitivity figures represent the effect of the pro forma movements in net interest income based on the projected yield curve scenarios and the Group's current interest rate risk profile. This effect, however, does not incorporate actions which would probably be taken by BSM or in the business units to mitigate the effect of interest rate risk. In reality, BSM seeks proactively to change the interest rate risk profile to minimise losses and optimise net revenues. The net interest income sensitivity calculations assume that interest rates of all maturities move by the same amount in the 'up-shock' scenario. Rates are not assumed to become negative in the 'down-shock' scenario which may, in certain currencies, effectively result in non-parallel shock. In addition, the net interest income sensitivity calculations take account of the effect on net interest income of anticipated differences in changes between interbank interest rates and interest rates over which the entity has discretion in terms of the timing and extent of rate changes.

Defined benefit pension schemes

Market risk arises within our defined benefit pension schemes to the extent that the obligations of the schemes are not fully matched by assets with determinable cash flows. Pension scheme obligations fluctuate with changes in long-term interest rates, inflation, salary levels and the longevity of scheme members. Pension scheme assets include equities and debt securities, the cash flows of which change as equity prices and interest rates (and credit risk) vary. There is a risk that market movements in equity prices and interest rates could result in asset values which, taken together with regular ongoing contributions, are insufficient over time to cover the level of projected obligations and these, in turn, could increase with a rise in inflation and members living longer. Management, and in certain instances trustees (who act on behalf of the pension schemes' beneficiaries), assess these risks using reports prepared by independent external consultants, take action and, where appropriate, adjust investment strategies and contribution levels accordingly.

Refer to Other risks – Pension Risk on page 92 for additional information.

Operational risk

Overview and objectives

Operational risk is defined as 'the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events, including legal risk'.

The current Basel requirements include a capital requirement for operational risk, utilising three levels of sophistication as stated on page 18. We have historically adopted, and currently use, the standardised approach in determining our operational risk capital requirements. We are in the process of developing and implementing an AMA compliant model which we will use for economic capital calculation purposes, and it is our medium-term aim to move to the AMA for our operational risk regulatory capital requirement calculation. The table below sets out an analysis of our operational risk capital requirement by region and global business.

Operational risk is relevant to every aspect of our business, and covers a wide spectrum of issues, in particular legal, compliance, security and fraud. Losses arising from breaches of regulation and law, unauthorised activities, error, omission, inefficiency, fraud, systems failure or external events all fall within the definition of operational risk.

We have historically experienced operational risk losses in the following major categories:

- possible mis-selling of products;
- breach of regulatory requirements;
- fraudulent and other external criminal activities;
- breakdowns in processes/procedures due to human error, misjudgement or malice;
- terrorist attacks;
- system failure or non-availability; and
- in certain parts of the world, vulnerability to natural disasters.

Table 57: Operational risk RWAs

	At 31 December 2014		At 31 December 2013	
	Capital required US$bn	**RWAs US$bn**	Capital required US$bn	RWAs US$bn
By geographical region				
Europe	**2.8**	**35.5**	2.8	35.1
Asia	**3.7**	**45.8**	3.5	44.1
Middle East and North Africa	**0.5**	**6.2**	0.5	6.0
North America	**1.2**	**15.2**	1.4	17.2
Latin America	**1.2**	**15.1**	1.3	16.8
At 31 December	**9.4**	**117.8**	9.5	119.2
By global business				
Retail Banking and Wealth Management	**2.9**	**36.7**	3.1	38.8
Commercial Banking	**2.6**	**33.2**	2.6	32.9
Global Banking and Markets	**3.6**	**44.5**	3.5	43.3
Global Private Banking	**0.3**	**3.6**	0.3	3.9
Other	**–**	**(0.2)**	–	0.3
At 31 December	**9.4**	**117.8**	9.5	119.2

During 2014, our operational risk profile continued to be dominated by compliance and legal risks as referred to in the 'Top and emerging risks' section and Note 40 on the Financial Statements on pages 22 and 446, respectively, of the *Annual Report and Accounts 2014.* A number of material losses were realised in 2014, which related largely to events that occurred in previous years. These events included the possible historical mis-selling of payment protection insurance ('PPI') products in the UK (see Note 29 on page 420 of the *Annual Report and Accounts 2014*). A number of mitigating actions continue to be taken to prevent future mis-selling incidents.

The regulatory environment in which we operate is increasing the cost of doing business and could reduce our future profitability. The implementation of Global Standards remains one of the key strategic priorities for the Group and is ongoing.

For further details on Compliance Risk, refer to page 189 of the Annual Report and Accounts 2014.

We recognise that operational risk losses can be incurred for a wide variety of reasons, including rare but extreme events.

The objective of our operational risk management is to manage and control operational risk in a cost-effective manner and within our risk appetite, as defined by GMB.

Organisation and responsibilities

Responsibility for minimising operational risk management lies primarily with HSBC's management and staff. Each regional, global business, country, business unit and functional head is required to maintain oversight over operational risk and internal control, covering all businesses and operational activities for which they are responsible.

The Group Operational Risk function and the Operational Risk Management Framework ('ORMF') assist business management in discharging their responsibilities.

The ORMF defines minimum standards and processes, and the governance structure for operational risk and internal control across the Group. To implement the ORMF a 'Three lines of defence' model is used for the management of risk. The first line of defence is every employee at HSBC, the second consists of the Global Functions and the third is Internal Audit.

More details on the 'Three lines of defence' model and our ORMF may be found on page 186 of the Annual Report and Accounts 2014.

The Global Operational Risk Committee, which reports to RMM, meets at least quarterly to discuss key risk issues and review the effective implementation of the ORMF.

Operational risk is organised as a specific risk discipline within Global Risk. The Group Operational Risk function reports to the GCRO and supports the Global Operational Risk Committee. It is responsible for establishing and maintaining the ORMF, monitoring the level of operational losses and the effectiveness of the control environment. It is also responsible for operational risk reporting at Group level, including preparation of reports for consideration by RMM and GRC.

Measurement and monitoring

We have codified our ORMF in a high level standard, supplemented by detailed policies. These policies explain our approach to identifying, assessing, monitoring and controlling operational risk and give guidance on mitigating actions to be taken when weaknesses are identified.

In 2014, we continued to enhance our ORMF policies and procedures, and undertook various activities, such as a global training programme, to further embed the use of the framework in the management of the business.

Articulation of risk appetite for material operational risks helps the business to understand the level of risk our organisation is willing to take. Monitoring operational risk exposure against risk appetite on a regular basis, and setting out our risk acceptance process, drives risk awareness in a more forward-looking manner. It assists management in determining whether further action is required.

In addition, an enhanced Risk Scenario Analysis process has been implemented across material legal entities to improve the quantification and management of material risks. This provides a top down, forward-looking view of risks to help determine whether they are being effectively managed within our risk appetite or whether further management action is required.

In each of our subsidiaries, business managers are responsible for maintaining an acceptable level of internal control, commensurate with the scale and nature of operations. They are responsible for identifying and assessing risks, designing controls and monitoring the effectiveness of these controls. The ORMF helps managers to fulfil these responsibilities by defining a standard risk assessment methodology and providing a tool for the systematic reporting of operational loss data.

Operational risk and control assessment approach

Operational risk and control assessments are performed by individual business units and functions. The risk and control assessment process is designed to provide business areas and functions with a forward-looking view of operational risks, an assessment of the effectiveness of controls, and a tracking mechanism for action plans so that they can proactively manage operational risks within acceptable levels. Risk and control assessments are reviewed and updated at least annually.

Appropriate means of mitigation and controls are considered. These include:

- making specific changes to strengthen the internal control environment; and
- investigating whether cost-effective insurance cover is available to mitigate the risk.

Recording

We use a centralised database to record the results of our operational risk management process. Operational risk and control assessments, as described above, are input and maintained by business units. Business management and Business Risk and Control Managers monitor and follow up the progress of documented action plans.

Operational risk loss reporting

To ensure that operational risk losses are consistently reported and monitored at Group level, all Group companies are required to report individual losses when the net loss is expected to exceed US$10,000 and to aggregate all other operational risk losses under US$10,000. Losses are entered into the Operational Risk IT system and are reported to the Group Operational Risk function on a quarterly basis.

Other risks

Pension risk

We operate a number of pension plans throughout the world. Some of them are defined benefit plans. Sponsoring Group companies (and in some instances, employees) make regular contributions in accordance with advice from actuaries and in consultation with the plans' trustees (where relevant). In situations where a funding deficit emerges, sponsoring Group companies agree to make additional contributions to the plans, to address the deficit over an appropriate repayment period.

The defined benefit plans invest these contributions in a range of investments designed to meet their long-term liabilities.

Pension risk principally arises from the potential for a deficit in a defined benefit plan to arise from a number of factors, including:

- investments delivering a return below that required to provide the projected plan benefits. This could

arise, for example, when there is a fall in the market value of equities, or when increases in long-term interest rates cause a fall in the value of fixed income securities held;

- the prevailing economic environment leading to corporate failures, thus triggering write-downs in asset values (both equity and debt);
- a change in either interest rates or inflation expectations, causing an increase in the value of the plan liabilities; and
- plan members living longer than expected (known as longevity risk).

Pension risk is assessed by way of an economic capital model that takes into account potential variations in these factors, using VaR methodology.

Non-trading book exposures in equities

Our non-trading equities exposures are reviewed by RMM at least annually. At 31 December 2014, on a regulatory consolidation basis, we had equity investments in the non-trading book of US$10.9bn (2013: US$9.3bn). These consist of investments held for the purposes shown in table 58.

Table 58: Non-trading book equity investments

	At 31 December 2014			At 31 December 2013		
	Available-for-sale US$bn	**Designated at fair value US$bn**	**Total US$bn**	Available-for-sale US$bn	Designated at fair value US$bn	Total US$bn
Strategic investments	**7.5**	**0.1**	**7.6**	5.2	0.1	5.3
Private equity investments	**2.0**	**0.1**	**2.1**	2.7	0.1	2.8
Business facilitation[1]	**1.2**	**–**	**1.2**	1.2	–	1.2
	10.7	**0.2**	**10.9**	9.1	0.2	9.3

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

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

Exchange traded investments amounted to US$5.9bn (2013: US$4.0bn), with the remainder being unlisted. These investments are held at fair value in line with market prices and are mainly strategic in nature. The increase in strategic investments was largely due to the increase in the market value of the investment in Industrial Bank. This offset the decrease in private equity holdings from the disposal of various direct and private equity fund investments.

On a regulatory consolidation basis, the net gain from disposal of equity securities amounted to US$1.0bn (2013: US$0.5bn), while impairment of AFS equities amounted to US$0.4bn (2013: US$0.2bn). In 2014, unrealised gains on AFS equities were excluded from regulatory capital, because under the PRA's implementation of CRD IV they can only be recognised in CET1 capital from 1 January 2015, whereas in 2013 under the Basel 2.5 rules unrealised gains on equities of US$1.6bn were included in tier 2 capital.

Details of our accounting policy for AFS equity investments and the valuation of financial instruments may be found on pages 399 and 378, respectively, of the Annual Report and Accounts 2014. *A detailed description of the valuation techniques applied to private equity may be found on page 383 of the* Annual Report and Accounts 2014.

Risk management of insurance operations

We operate an integrated bancassurance model which provides insurance products principally for customers with whom we have a banking relationship. Insurance products are sold through all global businesses, but predominantly by RBWM and CMB through our branches and direct channels worldwide.

The insurance contracts we sell relate to the underlying needs of our banking customers, which we can identify from our point-of-sale contacts and customer knowledge. The majority of sales are of savings and investment products and term and credit life contracts. By focusing largely on personal and SME lines of business we are able to optimise volumes and diversify individual insurance risks.

Where we have operational scale and risk appetite, mostly in life insurance, these insurance products are manufactured by HSBC subsidiaries. Manufacturing insurance allows us to retain the risks and rewards associated with writing insurance contracts by keeping part of the underwriting profit, investment income and distribution commission within the Group.

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

We distribute insurance products in all of our geographical regions. We have core life insurance

manufacturing entities, the majority of which are direct subsidiaries of legal banking entities, in seven countries (Argentina, Brazil, Mexico, France, the UK, Hong Kong and Singapore). There are also life insurance manufacturing subsidiaries in mainland China, Ireland (in run-off), Malaysia and Malta.

We measure the risk profile of our insurance manufacturing businesses using an economic capital approach, where assets and liabilities are measured on a market value basis and a capital requirement is held to ensure that there is less than a 1 in 200 chance of insolvency over the next year, given the risks that the businesses are exposed to. In 2014, we aligned the measurement approach for market, credit and insurance risks in the economic capital model to the new pan-European Solvency II insurance capital regulations applicable from 2016.

Further details of the management of financial risks and insurance risk arising from the insurance operations are provided from page 190 of the Annual Report and Accounts 2014.

Residual risk

Residual risk is, primarily, the risk that mitigation techniques prove less effective than expected. This category also includes risks from specific business events that give rise to exposures not deemed to be included in the major risk categories. We conduct economic capital assessments of such risks on a regular, forward-looking basis to ensure that their impact is adequately covered by our capital base.

Liquidity and funding risk

Liquidity risk is the risk that the Group does not have sufficient financial resources to meet its obligations as they fall due, or will have to do so at an excessive cost. The risk arises from mismatches in the timing of cash flows.

The objective of our liquidity framework is to allow us to withstand very severe stresses. It is designed to be adaptable to changing business models, markets and regulations. Our Liquidity and funding risk management framework requires:

- liquidity to be managed by operating entities on a stand-alone basis with no implicit reliance on the Group or central banks;
- all operating entities to comply with their limits for the advances to core funding ratio; and
- all operating entities to maintain positive stressed cash flow positions out to three months under prescribed Group stress scenarios.

We do not manage liquidity through the explicit allocation of capital as, in common with standard industry practice, this is not considered to be an appropriate or adequate mechanism for managing these risks. However, we recognise that a strong capital base can help to mitigate liquidity risk.

Funding risk is a form of liquidity risk arising when the liquidity needed to fund illiquid asset positions cannot be obtained at the expected terms and when required. Our primary sources of funding are customer current accounts and customer savings deposits payable on demand or at short notice. We issue wholesale securities (secured and unsecured) to supplement our customer deposits and change the currency mix, maturity profile or location of our liabilities. In the normal course of business we do not seek to utilise secured financing as a source of funding to finance customer assets, beyond the collateralised security financing activities within Global Markets. The table in Appendix II summarises the total on and off-balance sheet assets that are encumbered and unencumbered on liquidity and funding risk basis and unencumbered assets that could be used to support potential future funding and collateral needs.

Details of our Liquidity and Funding Risk parameters are provided from page 164 of the Annual Report and Accounts 2014.

Reputational risk

Reputational risk is the failure to meet stakeholder expectations as a result of any event, behaviour, action or inaction, either by HSBC itself, our employees or those with whom we are associated, that might cause stakeholders to form a negative view of HSBC. Reputational risk relates to perceptions, whether based on fact or otherwise. Stakeholders' expectations are constantly changing and thus reputational risk is dynamic and varies between geographies, groups and individuals. As a global bank, HSBC shows unwavering commitment to operating, and to be seen to be operating, to the high standards we have set for ourselves in every jurisdiction. Reputational risk might result in financial or non-financial impacts, loss of confidence, adverse effects on our ability to keep and attract customers, or other consequences. Any lapse in standards of integrity, compliance, customer service or operating efficiency represents a potential reputational risk.

For further details, please refer to the Reputational Risk section on page 199 of the Annual Report and Accounts 2014.

Sustainability risk

Sustainability risks arise from the provision of financial services to companies or projects which run counter to the needs of sustainable development; in effect, this risk arises when the environmental and social effects outweigh economic benefits. Sustainability risk is implicitly covered for economic capital purposes in credit risk, where risks associated with lending to certain categories of customers and industries are embedded.

Business risk

The PRA specifies that banks, as part of their ICAAP, should review their exposure to business risk.

Business risk is the potential negative impact on profits and capital from the Group not meeting our strategic objectives, as a result of unforeseen changes in the business and regulatory environment, exposure to economic cycles and technological changes.

We manage and mitigate business risk through our risk appetite, business planning and stress testing processes, so that our business model and planned activities are monitored, resourced and capitalised consistent with the commercial, economic and risk environment in which the Group operates, and that any potential vulnerabilities of our business plans are identified at an early stage so that mitigating actions can be taken.

Dilution risk

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

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

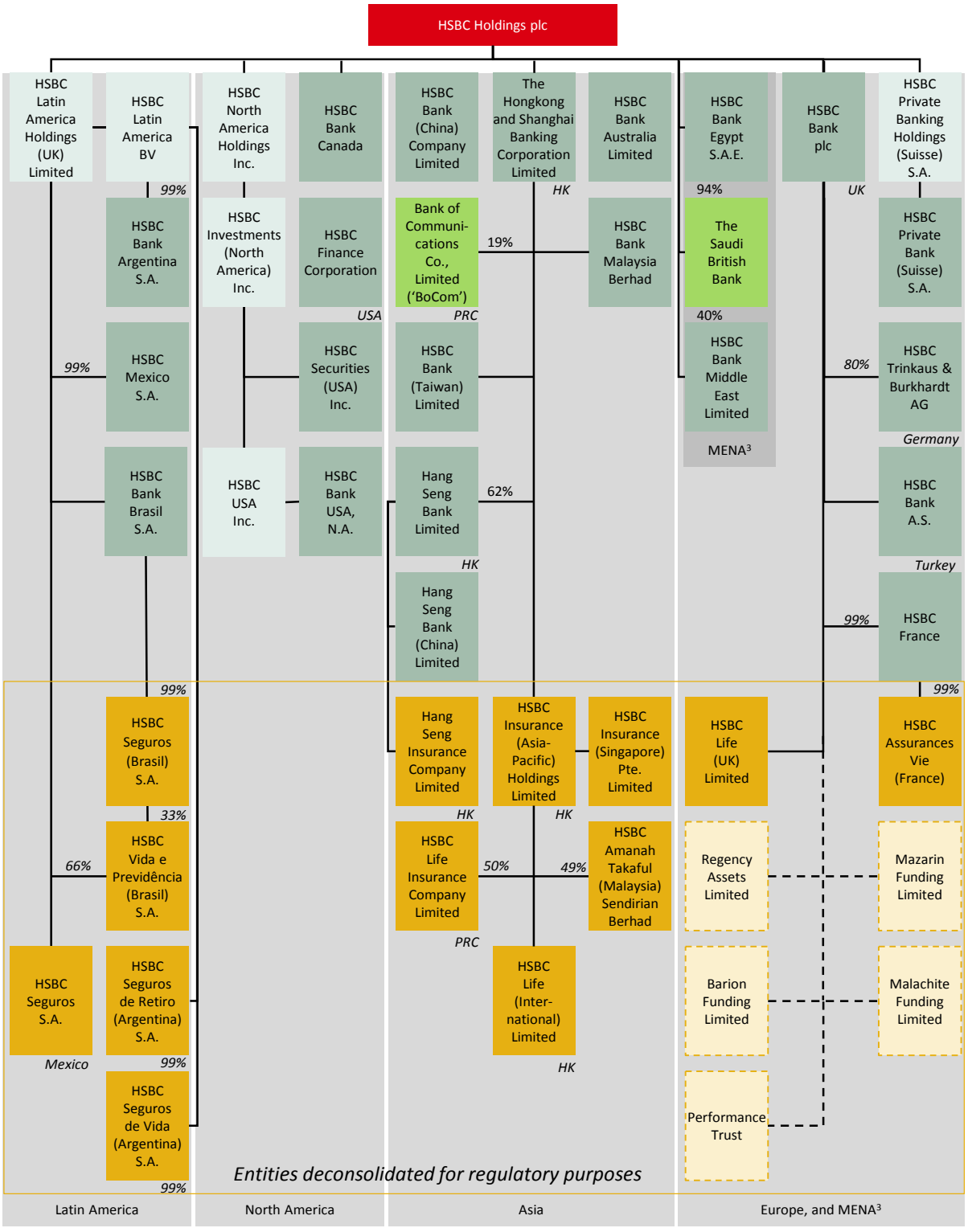
Details of our management of these risks may be found on the following pages of the Annual Report and Accounts 2014: *liquidity and funding 164, reputational 199 and sustainability 201.*

Remuneration

Details of the Group's remuneration policy, including details on the remuneration committee membership, activities, our remuneration strategy and tables showing the remuneration details of HSBC's Identified Staff and Material Risk Takers may be found on the Remuneration Policy on our website (http://www.hsbc.com/investor-relations/governance) and the Directors' Remuneration Report on pages 300-323 of the *Annual Report and Accounts 2014*.

Appendix I

Simplified organisation chart for regulatory purposes[1]



1 *At 31 December 2014 showing entities in Home and Priority Growth markets, wholly owned unless shown otherwise (part ownership rounded down to the nearest per cent), except 2, below.*
2 *Control of Special Purpose Entities is not based on ownership.*
3 *Middle East and North Africa.*

Appendix II

Asset encumbrance

The following is the disclosure of encumbered and unencumbered assets (as at 31 Dec 2014) based on the requirement in Part Eight of the Capital Requirements Regulation and in the related Guideline issued by the European Banking Authority on 27 June 2014.

Template A – Assets

		Carrying amount of encumbered assets 010 US$m	Fair value of encumbered assets 040 US$m	Carrying amount of unencumbered assets 060 US$m	Fair value of unencumbered assets 090 US$m
010	Assets of the reporting institution	**138,370**	**–**	**2,590,799**	**–**
030	Equity instruments	**10,857**	**10,857**	**75,486**	**75,364**
040	Debt securities	**112,294**	**112,288**	**442,741**	**442,605**
120	Other assets	**1,367**	**–**	**477,596**	**–**

Template B – Collateral received

		Fair value of encumbered collateral received or own debt securities issued 010 US$m	Fair value of collateral received or own debt securities issued available for encumbrance 040 US$m
130	Assets of the reporting institution	**141,701**	**118,173**
150	Equity instruments	**29,292**	**7,940**
160	Debt securities	**111,763**	**98,001**
230	Other collateral received	**–**	**995**
240	Own debt securities issued other than own covered bonds or ABSs	**–**	**–**

Template C – Encumbered assets/collateral received and associated liabilities

		Matching liabilities, contingent liabilities or securities lent 010 US$m	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered 030 US$m
010	Carrying amount of selected financial liabilities	**172,547**	**268,477**

Template D – Information on importance of encumbrance

We are a deposit-led bank and hence the majority of our funding is from customer accounts and customer savings deposits payable on demand or at short notice. This is part of our Group framework, where we have defined the limit for the ratio of Advances to Deposits to be below 90% (2014: 72%). Given this structural unsecured funding position we have little requirement to fund ourselves in secured markets, and therefore our overall low level of encumbrance reflects this position. However, we do provide collateralised financing services to clients as part of our Global Banking and Markets business model, providing cash financing or specific securities, and these result in off-balance sheet encumbrance. The other sources which contribute to encumbrance are securities pledged in derivative transactions, mostly for hedging purposes; issuance of asset-backed securities, and covered bond programmes in the UK, France and Australia. HSBC Holdings ALCO reviews the asset encumbrance of the institution as a whole quarterly and any events causing change in the asset encumbrance level are examined.

Appendix III

Transitional own funds disclosure

	At 31 December 2014 US$m	CRR prescribed residual amount US$m	Final CRD IV text US$m
Common equity tier 1 (CET1) capital: instruments and reserves			
Capital instruments and the related share premium accounts	20,122	–	20,122
of which: ordinary shares	20,122	–	20,122
Retained earnings	135,589	–	135,589
Accumulated other comprehensive income (and other reserves)	13,648	–	13,648
Minority interests (amount allowed in consolidated CET1)	4,640	–	4,640
Independently reviewed interim net profits net of any foreseeable charge or dividend[1]	(2,742)	–	(2,742)
Common equity tier 1 capital before regulatory adjustments	171,257	–	171,257
Common equity tier 1 capital: regulatory adjustments			
Additional value adjustments	(1,341)	–	(1,341)
Intangible assets (net of related deferred tax liability)	(22,475)	–	(22,475)
Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability)	(1,036)	–	(1,036)
Fair value reserves related to gains or losses on cash flow hedges	(57)	–	(57)
Negative amounts resulting from the calculation of expected loss amounts	(5,813)	–	(5,813)
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	570	–	570
Defined-benefit pension fund assets	(4,069)	–	(4,069)
Direct and indirect holdings of own CET1 instruments	(1,083)	–	(1,083)
Regulatory adjustments applied to common equity tier 1 in respect of amounts subject to pre-CRR treatment			
Regulatory adjustments relating to unrealised gains and losses	(2,753)	2,753	–
of which: unrealised gains on available-for-sale equities	(1,378)	1,378	–
of which: reserves arising from revaluation of property	(1,375)	1,375	–
Total regulatory adjustments to Common equity tier 1 (CET1)	(38,057)	2,753	(35,304)
Common equity tier 1 (CET1) capital	133,200	2,753	135,953
Additional Tier 1 (AT1) capital: instruments			
Capital instruments and the related share premium accounts	5,681	–	5,681
of which: classified as equity under applicable accounting standards	5,681	–	5,681
Amount of qualifying items and the related share premium accounts subject to phase out from AT1	9,874	(9,874)	–
Qualifying tier 1 capital included in consolidated AT1 capital (including minority interests not included in CET1) issued by subsidiaries and held by third parties	4,132	(3,735)	397
of which: instruments issued by subsidiaries subject to phase out	3,248	(3,248)	–
AT1 capital before regulatory adjustments	19,687	(13,609)	6,078
Additional Tier 1 capital: regulatory adjustments			
Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Tier 2 capital during the transitional period	(148)	148	–
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	(148)	148	–
Total regulatory adjustments to Additional Tier 1 (AT1) capital	(148)	148	–
Additional Tier 1 (AT1) capital	19,539	(13,461)	6,078
Tier 1 capital (T1 = CET1 + AT1)	152,739	(10,708)	142,031

	At 31 December 2014 US$m	CRR prescribed residual amount US$m	Final CRD IV text US$m
Tier 2 (T2) capital: instruments and provisions			
Capital instruments and the related share premium accounts	**14,143**	**–**	**14,143**
Amount of qualifying items and the related share premium accounts subject to phase out from T2	**7,594**	**(7,594)**	**–**
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	**16,476**	**(15,981)**	**495**
of which: instruments issued by subsidiaries subject to phase out	**16,137**	**(16,137)**	**–**
T2 capital before regulatory adjustments	**38,213**	**(23,575)**	**14,638**
Tier 2 (T2) capital: regulatory adjustments			
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)	**(222)**	**(148)**	**(370)**
Total regulatory adjustments to Tier 2 (T2) capital	**(222)**	**(148)**	**(370)**
Tier 2 (T2) capital	**37,991**	**(23,723)**	**14,268**
Total capital (TC = T1 + T2)	**190,730**	**(34,431)**	**156,299**
Total risk-weighted assets	**1,219,765**	**–**	**1,219,765**
Capital ratios and buffers			
Common equity Tier 1	**10.9%**		
Tier 1	**12.5%**		
Total capital	**15.6%**		
Institution specific buffer requirement			
of which: capital conservation buffer requirement			
of which: counter cyclical buffer requirement			
of which: systemic risk buffer requirement			
of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer			
Common Equity Tier 1 available to meet buffers	**6.9%**		
Amounts below the threshold for deduction (before risk weighting)			
Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	**2,459**		
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)	**9,123**		
Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability)	**7,660**		
Applicable caps on the inclusion of provisions in Tier 2			
Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)	**–**		
Cap on inclusion of credit risk adjustments in T2 under standardised approach	**4,453**		
Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	**–**		
Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	**3,266**		
Capital instruments subject to phase-out arrangements (only applicable between 1 January 2013 and 1 January 2022)			
Current cap on CET1 instruments subject to phase out arrangements	**–**		
Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	**–**		
Current cap on AT1 instruments subject to phase out arrangements	**13,122**		
Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	**833**		
Current cap on T2 instruments subject to phase out arrangements	**23,971**		
Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	**4,572**		

1 *Following regulatory guidance, the prospective fourth interim dividend, net of projected scrip, has been deducted from the fourth interim profits.*

CRD IV own funds disclosure requirements determine that firms must provide a detailed disclosure of the nature and amounts of specific items on own funds following an EBA specified uniform template. During the transitional period, the relevant template is the one set out in annex VI of Commission Implementing Regulation 1423/2013, which became applicable from 31 March 2014.

The capital position is presented on a CRD IV Year 1 transitional basis. Where appropriate, additional line items have been included to accommodate certain amounts not captured by the template. We have also provided additional information in the column, 'CRR prescribed residual amount', for completeness, to facilitate the reading of the end point capital resources position which results from adding the two columns together.

A list of the features of our capital instruments in accordance with annex III of Commission Implementing Regulation 1423/2013 is also being published on our website with reference to our balance sheet on 31 December 2014. This is in addition to the full terms and conditions of our securities, also available on our website.

Appendix IV

Abbreviations

Abbreviation	Brief description
A	
ABS[1]	Asset-backed security
AFS[1]	Available-for-sale
ALCM	Asset, Liability and Capital Management
AMA	Advanced Measurement Approach
AT1 capital	Additional Tier 1 capital
B	
Basel Committee	Basel Committee on Banking Supervision
BIPRU	Prudential Sourcebook for Banks, Building Societies and Investment Firms
BoCom	Bank of Communications Co., Limited, one of China's largest banks
BRRD[1]	Bank Recovery and Resolution Directive
BSM	Balance Sheet Management
C	
CCB[1]	Capital conservation buffer
CCF[1]	Credit conversion factor
CCLB	Countercyclical leverage ratio buffer
CCP	Central counterparty
CCR[1]	Counterparty credit risk
CCyB[1]	Countercyclical capital buffer
CDS[1]	Credit default swap
CET1[1]	Common equity tier 1
CIU	Collective investment undertakings
CML	Consumer and Mortgage Lending (US)
CPB[1]	Capital planning buffer
CRA[1]	Credit risk adjustment
CRD[1]	Capital Requirements Directive
CRE[1]	Commercial real estate
CRM[1]	Comprehensive risk measure
CRR[1]	Customer risk rating
CSA[1]	Credit Support Annex
CVA[1]	Credit valuation adjustment
E	
EAD[1]	Exposure at default
EBA	European Banking Authority
ECAI[1]	External Credit Assessment Institutions
EDTF	Enhanced Disclosure Task Force
EEA	European Economic Area
EL[1]	Expected loss
EU	European Union
EVE[1]	Economic value of equity
F	
FCA[1]	Financial Conduct Authority (UK)
FCCM[1]	Financial collateral comprehensive method
Fitch	Fitch Group
FPC[1]	Financial Policy Committee (UK)
FSB	Financial Stability Board
G	
GB&M	Global Banking and Markets, a global business
GCRO	Group Chief Risk Officer
GENPRU	The PRA's rules, as set out in the General Prudential Sourcebook
GMB	Group Management Board
GPB	Global Private Banking, a global business
GPSP	Group Performance Share Plan
GRC	Group Risk Committee
Group	HSBC Holdings together with its subsidiary undertakings

Abbreviation	Brief description
G-SIB[1]	Global systemically important bank
G-SII	Global systemically important institution
H	
HBUS	HSBC Bank USA NA
HNAH	HSBC North America Holdings Inc
Hong Kong	The Hong Kong Special Administrative Region of the People's Republic of China
HSBC	HSBC Holdings together with its subsidiary undertakings
I	
IAA[1]	Internal Assessment Approach
ICAAP[1]	Internal Capital Adequacy Assessment Process
ICG	Individual capital guidance
IFRSs	International Financial Reporting Standards
IMM[1]	Internal Model Method
IRB[1]	Internal ratings-based approach
IRC[1]	Incremental risk charge
ISDA	International Swaps and Derivatives Association
ITS	Implementing Technical Standards
L	
LFRF	Liquidity and funding risk management framework
LGD[1]	Loss given default
Libor	London Interbank Offer Rate
M	
MENA	Middle East and North Africa
MOC	Model Oversight Committee
Moody's	Moody's Investor Service
O	
OIS	Overnight Index Swap
ORMF	Operational risk management framework
O-SII	Other systemically important institution
OTC[1]	Over-the-counter
P	
PD[1]	Probability of default
PFE	Potential future exposure
PIT[1]	Point-in-time
PPI	Payment protection insurance product
PRA[1]	Prudential Regulation Authority (UK)
PS	Policy Statement
PVA[1]	Prudent valuation adjustment
PVIF	Present value of in-force long-term insurance business
Q	
QIS	Quantitative Impact Study
R	
RAS	Risk Appetite Statement
RBM[1]	Ratings Based Method
Retail IRB[1]	Retail Internal Ratings Based approach
RMM	Risk Management Meeting
RNIV	Risks not in VaR
RTS	Regulatory Technical Standard
RWA[1]	Risk-weighted asset
S	
S&P	Standard and Poor's rating agency
SFM[1]	Supervisory Formula Method
SFT[1]	Securities Financing Transactions
SIC	Securities Investment Conduit
SME	Small and medium-sized enterprise
SPE[1]	Special Purpose Entity
SRB[1]	Systemic Risk Buffer
STD[1]	Standardised approach

Abbreviation	Brief description
T	
TLAC[1]	Total Loss Absorbing Capacity
TTC[1]	Through-the-cycle
T2 capital	Tier 2 capital
U	
UK	United Kingdom
US$	United States dollar
US	United States of America
V	
VaR[1]	Value at risk
W	
WCMR	Wholesale Credit and Market Risk

1 *Full definition included in Glossary at Appendix V.*

Appendix V

Glossary

Term	Definition
A	
Additional value adjustment	See 'Prudent valuation adjustment'.
Arrears	Customers are said to be in arrears (or in a state of delinquency) when they are behind in fulfilling their obligations, with the result that an outstanding loan is unpaid or overdue. When a customer is in arrears, the total outstanding loans on which payments are overdue are described as delinquent.
Asset-backed securities ('ABS's)	Securities that represent an interest in an underlying pool of referenced assets. The referenced pool can comprise any assets which attract a set of associated cash flows but are commonly pools of residential or commercial mortgages.
Available-for-sale ('AFS') financial assets	Those non-derivative financial assets that are designated as available for sale or are not classified as a) loans and receivables b) held-to-maturity investments or c) financial assets at fair value through profit or loss.
B	
Back-testing	A statistical technique used to monitor and assess the accuracy of a model, and how that model would have performed had it been applied in the past.
Bank Recovery and Resolution Directive ('BRRD')	A European legislative package issued by the European Commission and adopted by EU Member States. This directive was finalised in July 2014 with the majority of provisions coming into effect 1 January 2015. This introduces a common EU framework for how authorities should intervene to address banks which are failing or are likely to fail. The framework includes early intervention and measures designed to prevent failure and in the event of bank failure for authorities to ensure an orderly resolution.
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 2.5	The update to Basel II including changes to capital and disclosure requirements for securitisation and market risk, which took effect in December 2011.
Basel III	In December 2010, the Basel Committee issued 'Basel III rules: a global regulatory framework for more resilient banks and banking systems' and 'International framework for liquidity risk measurement, standards and monitoring'. Together these documents present the Basel Committee's reforms to strengthen global capital and liquidity rules with the goal of promoting a more resilient banking sector. In June 2011, the Basel Committee issued a revision to the former document setting out the finalised capital treatment for counterparty credit risk in bilateral trades.
Basis risk	The risk that prices of offsetting financial instruments in a hedging strategy will not move in entirely opposite directions from each other. There is therefore a risk that the imperfect correlation between the instruments used for the hedging strategy produces an overall gain or loss.
BIPRU	Prudential sourcebook for Banks, Building Societies and Investment Firms.
C	
Capital conservation buffer ('CCB')	A capital buffer prescribed by regulators under Basel III and designed to ensure banks build up capital buffers outside periods of stress which can be drawn down as losses are incurred. Should a bank's capital levels fall within the capital conservation buffer range, capital distributions will be constrained by the regulators.
Capital planning buffer ('CPB')	A capital buffer, prescribed by the PRA under Basel II, designed to ensure banks build up capital buffers outside periods of stress which can be drawn down as losses are incurred. Should a bank's capital levels fall within the capital planning buffer range, a period of heightened regulatory interaction would be triggered.
Capital required	Capital required represents the Pillar 1 capital charge calculated at 8% of RWAs.

Term	Definition
Capital requirements directive ('CRD')	A capital adequacy legislative package issued by the European Commission and adopted by EU member states. The first CRD legislative package gave effect to the Basel II proposals in the EU and came into force on 20 July 2006. CRD II, which came into force on 31 December 2010, subsequently updated the requirements for capital instruments, large exposure, liquidity risk and securitisation. A further CRD III amendment updated market risk capital and additional securitisation requirements and came into force on 31 December 2011. The CRD IV package comprises a recast Capital Requirements Directive and a new Capital Requirements Regulation. The package implements the Basel III capital proposals together with transitional arrangements for some of its requirements. CRD IV proposals came into force on 1 January 2014.
Capital resources	Capital held on balance sheet that is eligible to satisfy capital requirements.
CET 1 ratio	A Basel III measure, of CET 1 capital expressed as percentage of total risk exposure amount.
Code Staff	Senior management, risk takers, staff engaged in control functions, and any employee whose total remuneration takes them into the same remuneration bracket as senior management and risk takers and whose professional activities have a material impact on the firm's risk profile.
Commercial paper ('CP')	An unsecured, short-term debt instrument issued by a corporation, typically for the financing of accounts receivable, inventories and meeting short-term liabilities. The debt is usually issued at a discount, reflecting prevailing market interest rates.
Commercial real estate	Any real estate, comprising buildings or land, intended to generate a profit, either from capital gain or rental income.
Common equity tier 1 capital ('CET1')	The highest quality form of regulatory capital under Basel III that comprises common shares issued and related share premium, retained earnings and other reserves excluding the cash flow hedging reserve, less specified regulatory adjustments.
Comprehensive risk measure ('CRM')	The comprehensive risk measure model covers all positions that are part of the correlation trading portfolio. Comprehensive risk measure covers all price risks including spread, default and migration. Like incremental risk charge, it is calibrated to a 99.9 percentile loss and a one-year capital horizon to generate a capital add-on to VAR.
Conduits	HSBC sponsors and manages multi-seller conduits and SICs. The multi-seller conduits hold interests in diversified pools of third-party assets such as vehicle loans, trade receivables and credit card receivables funded through the issuance of short-dated commercial paper and supported by a liquidity facility. The SICs hold predominantly asset-backed securities referencing such items as commercial and residential mortgages, vehicle loans and credit card receivables funded through the issuance of both long-term and short-term debt.
Consumer and Mortgage Lending ('CML')	In the US, the CML portfolio consists of our Consumer Lending and Mortgage Services businesses, which are in run-off. The Consumer Lending business offered secured and unsecured loan products, such as first and second lien mortgage loans, open-ended home equity loans and personal non-credit card loans through branch locations and direct mail. The majority of the mortgage lending products were for refinancing and debt consolidation rather than home purchases. In the first quarter of 2009, we discontinued all originations by our Consumer Lending business. Prior to the first quarter of 2007, when we ceased loan purchase activity, the Mortgage Services business purchased non-conforming first and second lien real estate secured loans from unaffiliated third parties. The business also included the operations of Decision One Mortgage Company ('Decision One'), which historically originated mortgage loans sourced by independent mortgage brokers and sold these to secondary market purchasers. Decision One ceased originations in September 2007.
Core tier 1 capital	The highest quality form of regulatory capital under Basel II that comprised total shareholders' equity and related non-controlling interests, less goodwill and intangible assets and certain other regulatory adjustments.
Core tier 1 ratio	A Basel II measure, of core tier 1 capital expressed as a percentage of the total risk-weighted assets.
Countercyclical capital buffer ('CCyB')	A capital buffer prescribed by regulators under Basel III which aims to ensure that capital requirements take account of the macro-financial environment in which banks operate. This will provide the banking sector with additional capital to protect it against potential future losses, when excess credit growth in the financial system as a whole is associated with an increase in system-wide risk.
Counterparty credit risk ('CCR')	Counterparty credit risk, in both the trading and non-trading books, is the risk that the counterparty to a transaction may default before completing the satisfactory settlement of the transaction.

Term	Definition
CRD III	See 'Capital requirements directive'.
CRD IV	See 'Capital requirements directive'.
Credit Conversion Factor ('CCF')	CCFs are used in determining the EAD in relation to credit risk exposures. The CCF is an estimate of the proportion of undrawn commitments expected to have been drawn down at the point of default.
Credit default swap ('CDS')	A derivative contract whereby a buyer pays a fee to a seller in return for receiving a payment in the event of a defined credit event (e.g. bankruptcy, payment default on a reference asset or assets, or downgrades by a rating agency) on an underlying obligation (which may or may not be held by the buyer).
Credit enhancements	Facilities used to enhance the creditworthiness of financial obligations and cover losses due to asset default.
Credit quality step	A step in the PRA credit quality assessment scale which is based on the credit ratings of ECAIs. It is used to assign risk weights under the standardised approach.
Credit risk	Risk of financial loss if a customer or counterparty fails to meet an obligation under a contract. It arises mainly from direct lending, trade finance and leasing business but also from products such as guarantees, derivatives and debt securities.
Credit risk adjustment	Credit risk adjustments are all amounts by which CET 1 has been reduced in order to reflect losses exclusively related to credit risk under IFRSs, resulting from impairments, value adjustments or provisions for off-balance sheet items that are recognised in the profit or loss account.
Credit risk mitigation	A technique to reduce the credit risk associated with an exposure by application of credit risk mitigants such as collateral, guarantees and credit protection.
Credit spread option	A derivative that transfers risk from one party to another. The buyer pays an initial premium in exchange for potential cash flows if the credit spread changes from its current level.
Credit Support Annex ('CSA')	A legal document that regulates credit support (collateral) for OTC derivative transactions between two parties.
Customer risk rating ('CRR')	An internal scale of 23 grades measuring obligor PD.
CVA risk capital charge	A capital charge under CRD IV to cover the risk of mark-to-market losses on expected counterparty risk to derivatives.
D	
Debit valuation adjustment ('DVA')	An adjustment made by an entity to the valuation of OTC derivative liabilities to reflect within fair value the entity's own credit risk.
Debt securities	Financial assets on the Group's balance sheet representing certificates of indebtedness of credit institutions, public bodies or other undertakings, excluding those issued by central banks.
Delinquency	See 'Arrears'.
E	
Economic capital	The internally calculated capital requirement which is deemed necessary by HSBC to support the risks to which it is exposed.
Economic Value of Equity ('EVE')	Considers all re-pricing mismatches in the current balance sheet and calculates the change in market value that would result from a set of defined interest rate shocks.
Equity risk	The risk arising from positions, either long or short, in equities or equity-based instruments, which create exposure to a change in the market price of the equities or equity instruments.
Expected loss ('EL')	A regulatory calculation of the amount expected to be lost on an exposure using a 12-month time horizon and downturn loss estimates. EL is calculated by multiplying the PD (a percentage) by the EAD (an amount) and LGD (a percentage).
Exposure	A claim, contingent claim or position which carries a risk of financial loss.
Exposure at default ('EAD')	The amount expected to be outstanding after any credit risk mitigation, if and when the counterparty defaults. EAD reflects drawn balances as well as allowance for undrawn amounts of commitments and contingent exposures.
Exposure value	Exposure at default.
External Credit Assessment Institutions ('ECAI')	ECAIs include external credit rating agencies such as Standard & Poor's, Moody's and Fitch.
F	
Fair value	Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Term	Definition
Financial collateral comprehensive method	This method applies a volatility adjustment (or 'haircut') to the value of the collateral to allow for the fact that the collateral taken may fall in value when it comes to taking control of the collateral and selling it. This adjusted collateral value is then subtracted from the exposure to create an 'adjusted exposure'. Firms on the standardised approach will then apply the risk weight of the borrower to the adjusted exposure value, while firms using foundation IRB make a formulaic adjustment to the LGD number which has a similar effect. To calculate these 'haircuts', the firm can use either a table of supervisory numbers or its own numbers if it meets certain requirements.
Financial Conduct Authority ('FCA')	The Financial Conduct Authority regulates the conduct of financial firms and, for certain firms, prudential standards in the UK. It has a strategic objective to ensure that the relevant markets function well.
Financial Policy Committee ('FPC')	The Financial Policy Committee, at the Bank of England, is charged with a primary objective of identifying, monitoring and taking action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system. The FPC has a secondary objective to support the economic policy of the UK Government.
Firm Data Submission Framework	A comprehensive framework for the submission of the data by banks to the PRA for the purpose of conducting stress tests. Over the past two years it has been designed and implemented by the PRA (and before that the FSA) in collaboration with a number of large UK banks.
G	
Global Systemically Important Bank ('G-SIB')	The FSB established in November 2011 a methodology to identify G-SIBs based on 12 principal indicators. Designation will result in the application of a CET1 buffer between 1% and 3.5%, to be phased in by 1 January 2019. The list of G-SIBs is re-assessed through annual re-scoring of banks and a triennial review of the methodology. National regulators have discretion to introduce higher charges than the minima. In CRD IV this is implemented via the Global Systemically Important Institutions (G-SII) Buffer. The requirements, initially for those banks identified in November 2014 as G-SIBs, will be phased in from 1 January 2016, becoming fully effective on 1 January 2019. National regulators have discretion to introduce higher thresholds than the minima. In November 2014, the FSB published a revised list of G-SIBs and their current assessment of the appropriate capital charge. HSBC was assigned an add-on of 2.5%.
H	
Haircut	A discount applied by management when determining the amount at which an asset can be realised. The discount takes into account the method of realisation including the extent to which an active market for the asset exists. With respect to credit risk mitigation, a downward adjustment to collateral value to reflect any currency or maturity mismatches between the credit risk mitigant and the underlying exposure to which it is being applied. Also a valuation adjustment to reflect any fall in value between the date the collateral was called and the date of liquidation or enforcement.
Held-to-maturity	An accounting classification for investments acquired with the intention and ability of being held until they mature.
I	
Impaired loans	Loans where the Group does not expect to collect all the contractual cash flows or expects to collect them later than they are contractually due.
Impairment allowances	Management's best estimate of losses incurred in the loan portfolios at the balance sheet date.
Impairment charge	Impairment charges represent a movement in the impairment allowance balance during the year, reflecting loss events which occurred during the financial year and changes in estimates of losses arising on events which occurred prior to the current year.
Incremental risk charge ('IRC')	The IRC model captures the potential distribution of profit and loss due to default and migration for a portfolio of credit positions. For credit positions held on the trading book, and subject to specific interest rate risk VAR for regulatory capital, an IRC based on the 99.9th percentile of the IRC distribution, over a one-year capital horizon, is used as a capital add-on to VAR.
Institutions	Under the standardised approach, Institutions comprise credit institutions or investment firms. Under the IRB approach, Institutions also include regional governments and local authorities, public sector entities and multilateral development banks.

Term	Definition
Insurance risk	A risk, other than financial risk, transferred from the holder of a contract to the insurance provider. The principal insurance risk is that, over time, the combined cost of claims, administration and acquisition of the contract may exceed the aggregate amount of premiums received and investment income.
Interest rate risk ('IRR')	Exposure to adverse movements in interest rates. Accepting this risk is a normal part of banking and can be an important source of profitability and shareholder value.
Internal Assessment Approach ('IAA')	One of three calculation methods defined under the IRB approach to securitisations. The IAA is limited to exposures arising from asset-backed commercial paper programmes, mainly related to liquidity facilities and credit enhancement. Eligible ECAI rating methodology is applied to each asset class in order to derive the equivalent rating level for each transaction. This methodology is verified by the internal Credit function as part of the approval process for each new transaction. The performance of each underlying asset portfolio is monitored to confirm that the applicable equivalent rating level still applies and is independently verified.
Internal Capital Adequacy Assessment Process ('ICAAP')	The Group's own assessment of the levels of capital that it needs to hold through an examination of its risk profile from regulatory and economic capital viewpoints.
Internal Model Method ('IMM')	One of three approaches defined in the Basel framework to determine exposure values for counterparty credit risk.
Internal ratings-based approach ('IRB')	A method of calculating credit risk capital requirements using internal, rather than supervisory, estimates of risk parameters.
Invested capital	Equity capital invested in HSBC by its shareholders, adjusted for certain reserves and goodwill previously amortised or written off.
IRB advanced approach ('AIRB')	A method of calculating credit risk capital requirements using internal PD, LGD and EAD models.
IRB foundation approach ('FIRB')	A method of calculating credit risk capital requirements using internal PD models but with supervisory estimates of LGD and conversion factors for the calculation of EAD.
ISDA	International Swaps and Derivatives Association.
ISDA Master agreement	Standardised contract developed by ISDA used as an umbrella contract under which bilateral derivatives contracts are entered into.
L	
Leverage ratio	A measure, prescribed by regulators under Basel III, which is the ratio of tier 1 capital to total exposures. Total exposures include on-balance sheet items, off-balance sheet items and derivatives, and should generally follow the accounting measure of exposure. This supplementary measure to the risk-based capital requirements is intended to constrain the build-up of excess lending in the banking sector.
Liquidity risk	The risk that HSBC does not have sufficient financial resources to meet its obligations as they fall due, or will have to do so at an excessive cost. This risk arises from mismatches in the timing of cash flows.
Loss given default ('LGD')	The estimated ratio (percentage) of the loss on an exposure to the amount outstanding at default (EAD) upon default of a counterparty.
M	
Market risk	The risk that movements in market risk factors, including foreign exchange rates and commodity prices, interest rates, credit spreads and equity prices will reduce income or portfolio values.
Mark-to-market approach	One of three approaches defined by Basel II to determine exposure values for counterparty credit risk.
Minimum capital requirement	The minimum amount of regulatory capital that a financial institution must hold to meet the Pillar 1 requirements for credit, market and operational risk. Also see 'capital required'.
Model validation	The process of assessing how well a credit risk model performs using a predefined set of criteria including the discriminatory power of the model, the appropriateness of the inputs, and expert opinion.
Multilateral Development Bank	An institution created by a group of countries to provide financing for the purpose of development. Under the standardised approach to credit risk, eligible multilateral development banks attract a zero per cent risk weight.
N	
Net interest income	The amount of interest received or receivable on assets net of interest paid or payable on liabilities.

Term	Definition
O	
Obligor grade	Obligor grades, summarising a more granular underlying counterparty risk rating scale for estimates of PD, are defined as follows: • *'Minimal Default Risk':* The strongest credit risk, with a negligible PD. • *'Low Default Risk':* A strong credit risk, with a low PD. • *'Satisfactory Default Risk':* A good credit risk, with a satisfactory PD. • *'Fair Default Risk':* The risk of default remains fair, but identified weaknesses may warrant more regular monitoring. • *'Moderate Default Risk':* The overall position will not be causing any immediate concern, but more regular monitoring will be necessary as a result of sensitivities to external events that give rise to the possibility of risk of default increasing. • *'Significant Default Risk':* Performance may be limited by one or more troublesome aspects, known deterioration, or the prospect of worsening financial status. More regular monitoring required. • *'High Default Risk':* Continued deterioration in financial status, that requires frequent monitoring and ongoing assessment. The PD is of concern but the borrower currently has the capacity to meet its financial commitments. • *'Special Management':* The PD is of increasing concern and the borrower's capacity to fully meet its financial commitments is becoming increasingly less likely. • *'Default':* A default is considered to have occurred with regard to a particular obligor when either or both of the following events has taken place: the Group considers that the obligor is unlikely to pay its credit obligations in full, without recourse by the Group to actions such as realising security; or the obligor is past due more than 90 days, (90 days to 180 days for retail), on any material credit obligation to the Group.
Operational risk	The risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events, including legal risk.
Original exposure	Original exposure is the exposure value without taking into account value adjustments and provisions, credit conversion factors and the effect of credit risk mitigation techniques.
Over-the-counter ('OTC')	A bilateral transaction (e.g. derivatives) that is not exchange traded and that is valued using valuation models.
P	
Past due items	'Past due items' is an exposure class under the standardised approach to credit risk. A financial asset falls into this exposure class once it is more than 90 days past due. A financial asset such as a loan is past due when the counterparty has failed to make a payment when contractually due.
Pillar 1	Minimum capital requirements - the calculation of regulatory capital for credit, market, and operational risk.
Pillar 2	The supervisory review process - sets out the process by which a bank should review its overall capital adequacy and the processes under which the supervisors evaluate how well financial institutions are assessing their risks and take appropriate actions in response to the assessments.
Pillar 3	Market discipline – sets out the disclosure requirements for banks to publish certain details of their risks, capital and risk management, with the aim of strengthening market discipline.
Point-in-time ('PIT')	Estimates of PD (or other measures) generally covering a short time horizon (usually a 12-month period) and that are sensitive to changes in the economic cycle. This differs from a TTC basis which uses long run average economic and risk data to reduce such sensitivity.
Potential future exposure ('PFE')	The potential future credit exposure on derivatives contracts, calculated using the mark-to-market approach.
PRA Standard rules	The method prescribed by the PRA for calculating market risk capital requirements in the absence of VAR model approval.
Present value of in-force long-term insurance business ('PVIF')	An asset representing the present value of the equity holders' interest in the issuing insurance companies' profits, expected to emerge from long-term insurance business or long-term investment contracts with discretionary participating features, written at the balance sheet date.
Private equity investments	Equity securities in operating companies not quoted on a public exchange, often involving the investment of capital in private companies or the acquisition of a public company that results in its delisting.
Probability of default ('PD')	The probability that an obligor will default within one year.

Term	Definition
Prudential Regulation Authority ('PRA')	The Prudential Regulation Authority in the UK is responsible for prudential regulation and supervision of banks, building societies, credit unions, insurers and major investment firms.
Prudent Valuation Adjustment ('PVA')	A deduction from common equity tier 1 capital where the prudent value of trading assets or other financial assets measured at fair value is materially lower than the fair value recognised in the financial statements.
Q	
Qualifying revolving retail exposures	Retail IRB exposures that are revolving, unsecured, and, to the extent they are not drawn, immediately and unconditionally cancellable, such as credit cards.
R	
Ratings Based Method ('RBM')	One of three calculation methods defined under the IRB approach to securitisations. The approach uses risk weightings based on ECAI ratings, the granularity of the underlying pool and the seniority of the position and whether it is a re-securitisation.
Reference PD	HSBC's master CRR scale has been constructed using a set of PD points, falling at regular intervals along an exponential PD curve and determining the boundaries of 23 CRR bands. Reference PDs have been determined, which for most bands fall mid-way between that band's boundary PD points. The determination of the bands and corresponding reference PDs takes into account the need to avoid concentration in any one band, and to ensure effective mapping to risk management portfolio quality scales.
Regulatory capital	The capital which HSBC holds, determined in accordance with rules established by the PRA for the consolidated Group and by local regulators for individual Group companies.
Repo/reverse repo (or sale and repurchase agreement)	A short-term funding agreement that allows a borrower to create a collateralised loan by selling a financial asset to a lender. As part of the agreement the borrower commits to repurchase the security at a date in the future repaying the proceeds of the loan. For the party on the other end of the transaction (buying the security and agreeing to sell in the future) it is a reverse repurchase agreement or a reverse repo.
Re-securitisation	A securitisation of a securitisation exposure, where the risk associated with an underlying pool of exposures is tranched and at least one of the underlying exposures is a securitisation exposure.
Residential Mortgaged Backed Securities ('RMBSs')	A type of security whose cash flows come from residential debt such as mortgages, home-equity loans and subprime mortgages.
Residual maturity	The period outstanding from the reporting date to the maturity or end date of an exposure.
Retail Internal Ratings Based ('Retail IRB') approach	Retail exposures that are treated under the IRB approach.
Return on equity	Profit attributable to ordinary shareholders of the parent company divided by average ordinary shareholders' equity.
Risk appetite	The aggregate level and types of risk a firm is willing to assume within its risk capacity to achieve its strategic objectives and business plan.
Risk-weighted assets ('RWAs')	Calculated by assigning a degree of risk expressed as a percentage (risk weight) to an exposure value in accordance with the applicable Standardised or IRB approach rules.
RMM	Risk Management Meeting of the GMB.
Run-off portfolios	Legacy credit in GB&M, the US CML portfolio and other US run-off portfolios, including the treasury services related to the US CML businesses and commercial operations in run-off. Origination of new business in the run-off portfolios has been discontinued and balances are being managed down through attrition and sale.
RWA density	The average risk weight, expressed as a percentage of RWAs divided by exposure value, based on those RWA and exposure value numbers before they are rounded to the nearest US$0.1bn for presentation purposes.
S	
Securities Financing Transactions ('SFT')	The act of loaning a stock, derivative, or other security to an investor or firm.
Securitisation	A transaction or scheme whereby the credit risk associated with an exposure, or pool of exposures, is tranched and where payments to investors in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures. A traditional securitisation involves the transfer of the exposures being securitised to an SPE which issues securities. In a synthetic securitisation, the tranching is achieved by the use of credit derivatives and the exposures are not removed from the balance sheet of the originator.
Securitisation position	Securitisation position means an exposure to a securitisation.

Term	Definition
Significant Influence Function	PRA registered role, recognised as being a control function role.
Six filters	An internal measure designed to improve capital deployment across the Group. Five of the filters examine the strategic relevance of each business in each country, in terms of connectivity and economic development, and the current returns, in terms of profitability, cost efficiency and liquidity. The sixth filter requires adherence to global risk standards.
Sovereign exposures	Exposures to governments, ministries, departments of governments, embassies, consulates and exposures on account of cash balances and deposits with central banks.
Specialised lending exposure	Specialised lending exposures are defined by the PRA as exposures to an entity which was created specifically to finance and/or operate physical assets, where the contractual arrangements give the lender a substantial degree of control over the assets and the income that they generate and 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.
Special Purpose Entity ('SPE')	A corporation, trust or other non-bank entity, established for a narrowly defined purpose, including for carrying on securitisation activities. The structure of the SPE and its activities are intended to isolate its obligations from those of the originator and the holders of the beneficial interests in the securitisation.
Specific issuer risk	Specific issuer (credit spread) risk arises from a change in the value of debt instruments due to a perceived change in the credit quality of the issuer or underlying assets.
Standardised approach ('STD')	In relation to credit risk, a method for calculating credit risk capital requirements using ECAI ratings and supervisory risk weights. In relation to operational risk, a method of calculating the operational capital requirement by the application of a supervisory defined percentage charge to the gross income of eight specified business lines.
Stressed VaR	A market risk measure based on potential market movements for a continuous one-year period of stress for a trading portfolio.
Subordinated liabilities	Liabilities which rank after the claims of other creditors of the issuer in the event of insolvency or liquidation.
Supervisory Formula Method ('SFM')	An alternative Ratings Based Method to be used primarily on sponsored securitisations. It is used to calculate the capital requirements of exposures to a securitisation as a function of the collateral pool and contractual properties of the tranche or tranches retained.
Supervisory slotting approach	A method for calculating capital requirements for specialised lending exposures where the internal rating of the obligor is mapped to one of five supervisory categories, each associated with a specific supervisory risk weight.
Systemic Risk Buffer	A capital buffer prescribed in the EU under CRD IV, to address risks in the financial sector as a whole, or one or more sub-sectors, to be deployed as necessary by each EU member state with a view to mitigate structural macro-prudential risk. In the UK this was transposed in January 2015 and is to be applied to ring-fenced banks and building societies over a certain threshold.
T	
Through-the-cycle ('TTC')	A rating methodology which seeks to take cyclical volatility out of the estimation of default risk by assessing a borrower's performance over the business cycle.
Tier 2 capital	A component of regulatory capital, comprising eligible capital securities and any related share premium. Under Basel II, Tier 2 capital comprises of qualifying subordinated loan capital, related non-controlling interests, allowable collective impairment allowances and unrealised gains arising on the fair valuation of equity instruments held as available-for-sale. Tier 2 capital also includes reserves arising from the revaluation of properties.
Total Loss Absorbing Capacity	A proposal by the FSB and not yet finalised for global systemically important banks to have a sufficient amount of specific types of liabilities which can be used to absorb losses and recapitalise a bank in resolution. These proposals are intended to facilitate an orderly resolution that minimises any impact on financial stability, ensures the continuity of critical functions, and avoids exposing taxpayers to loss.
Total return swap	A credit derivative transaction that swaps the total return on a financial instrument (cash flows and capital gains and losses), for a guaranteed interest rate, such as an inter-bank rate, plus a margin.
Trading book	Positions in financial instruments and commodities held either with 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 completely.

Term	Definition
V	
Value at risk ('VaR')	A measure of the loss that could occur on risk positions as a result of adverse movements in market risk factors (e.g. rates, prices, volatilities) over a specified time horizon and to a given level of confidence.
W	
Write-down/write-off	When a financial asset is written down or written off, a customer balance is partially or fully removed, respectively, from the balance sheet. Loans (and related impairment allowance accounts) are normally written off, either partially or in full, when there is no realistic prospect of recovery. Where loans are secured, this is generally after receipt of any proceeds from the realisation of security. In circumstances where the net realisable value of any collateral has been determined and there is no reasonable expectation of further recovery, write-off may be earlier.
Wrong-way risk	An adverse correlation between the counterparty's PD and the mark-to-market value of the underlying transaction.

Appendix VI

Contacts

Enquiries relating to HSBC's strategy or operations may be directed to:

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