

The Hongkong and Shanghai Banking Corporation Limited

Banking Disclosure Statement at 31 December 2017

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Introduction

Purpose

The information contained in this document is for The Hongkong and Shanghai Banking Corporation Limited ('the Bank') and its subsidiaries (together 'the group'). It should be read in conjunction with the group's *Annual Report and Accounts 2017*. The group's *Annual Report and Accounts 2017*, the Banking Disclosure Statement and the Regulatory Capital Instruments document, taken together, comply with the Banking (Disclosure) Rules ('BDR') made under section 60A of the Banking Ordinance. They also serve to comply with the disclosures on remuneration as required by the Hong Kong Monetary Authority ('HKMA') Supervisory Policy Manual CG-5 'Guideline on a Sound Remuneration System'.

References to 'HSBC', 'the Group' or 'the HSBC Group' within this document mean HSBC Holdings plc 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'. The abbreviations 'HK\$m' and 'HK\$bn' represent millions and billions (thousands of millions) of Hong Kong dollars respectively.

These banking disclosures are governed by the group's disclosure policy, which has been approved by the Board of Directors. The disclosure policy sets out the governance, control and assurance requirements for publication of the document. While the disclosure statement is not required to be externally audited, the document has been subject to independent review in accordance with the group's policies on disclosure and its financial reporting and governance processes.

Basis of preparation

Except where indicated otherwise, the financial information contained in this Banking Disclosure Statement has been prepared on a consolidated basis. The basis of consolidation for regulatory purposes is different from that for accounting purposes. Information regarding subsidiaries that are not included in the consolidation for regulatory purposes is set out in the 'Basis of consolidation' section in this document.

The information in this document is not audited and does not constitute statutory accounts.

Certain financial information in this document is extracted from the statutory accounts for the year ended 31 December 2017 which will be delivered to the Registrar of Companies and the HKMA. The Auditors expressed an unqualified opinion on those statutory accounts in their report dated 20 February 2018. The Auditor's Report did not include a reference to any matters to which the auditor drew any attention by way of emphasis without qualifying their report; and did not contain a statement under sections 406(2), 407(2) or (3) of the Hong Kong Companies Ordinance (Cap.622). The group's *Annual Report and Accounts 2017*, which include the statutory accounts, can be obtained on request from Communications (Asia), The Hongkong and Shanghai Banking Corporation Limited, 1 Queen's Road Central, Hong Kong, and can be viewed on our website: www.hsbc.com.hk.

The Banking Disclosure Statement

The HKMA has implemented the Basel Committee on Banking Supervision ('BCBS') standards on revised Pillar 3 disclosures issued in January 2015. These disclosures are supplemented by specific additional requirements of the HKMA set out in the BDR.

According to the BDR, disclosure of comparative information is not required unless otherwise specified in the standard disclosure templates.

The Banking Disclosure Statement includes the majority of the information required under the BDR. The remainder of the disclosure requirements are covered in the Regulatory Capital Instruments document and the group's *Annual Report and Accounts 2017* which can be found in the Regulatory Disclosure section of our website, www.hsbc.com.hk.

BDR requirements covered in the Regulatory Capital Instruments document:

- The main features of the capital instruments
- The full terms and conditions of the capital instruments

BDR requirements covered in the group's Annual Report and Accounts 2017:

	References:
• Section 16J - The group's definition of 'Impaired' and 'Renegotiated' and the methods adopted for determining impairments	Page 21
• Section 25(4) - Impaired loans and advances to customers by geographical segment	Note 11
• Section 29 - Net structural foreign currency exposures	Page 28
• Section 46 - The general disclosure of the major business activities and product lines	Pages 9 & 60, Note 34
• Section 51, 51A(6), 51A(7) - Liquidity information	Pages 24–25
• Section 52 - Corporate governance	Pages 3–8

Overview of risk management

Our risk management framework

We use an enterprise-wide risk management framework across the organisation and across all risk types. It is underpinned by our risk culture and is reinforced by the HSBC Values and our Global Standards programme.

The framework fosters continuous monitoring of the risk environment and an integrated evaluation of risks and their interactions. It also ensures we have a consistent approach to monitoring, managing and mitigating the risks we accept and incur in our activities. Further information on our risk management framework is set out on page 12 of the group's *Annual Report and Accounts 2017*. The management and mitigation of principal risks facing the group is described in our top and emerging risks on page 16 of the group's *Annual Report and Accounts 2017*.

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 culture is reinforced by the HSBC Values and our Global Standards programme. It is instrumental in aligning the behaviours of individuals with our attitude to assuming and managing risk, which helps to ensure that our risk profile remains in line with our risk appetite.

Our risk culture is further reinforced by our approach to remuneration. Individual awards, including those for senior executives, are based on compliance with the HSBC Values and the achievement of financial and non-financial objectives that are aligned to our risk appetite and strategy.

Risk governance

The Board has ultimate responsibility for the effective management of risk and approves HSBC's risk appetite. It is advised by the Risk Committee on risk appetite and its alignment with strategy, risk governance and internal controls, and high-level risk related matters.

Executive accountability for the ongoing monitoring, assessment and management of the risk environment and the effectiveness of the risk management framework resides with the group's Chief Risk Officer, supported by the Risk Management Meeting ('RMM').

Day-to-day responsibility for risk management is delegated to senior managers with individual accountability for decision making. All employees have a role to play in risk management. These roles are defined using the Three Lines of Defence model, which takes into account the group's business and functional structures.

Our executive risk governance structures ensure appropriate oversight and accountability for risk, which facilitates the reporting and escalation to the RMM.

Risk appetite

Risk appetite is a key component of our management of risk. It describes the aggregate level and risk types that we are willing to accept in achieving our medium- to long-term business objectives. Within HSBC, risk appetite is managed through a global risk appetite framework and articulated in a risk appetite statement ('RAS'), which is approved biannually by the Board on the advice of the group's Risk Committee.

The group's risk appetite informs our strategic and financial planning process, defining the desired forward-looking risk profile of the Group. It is also integrated within other risk management tools, such as the top and emerging risks report and stress testing, to ensure consistency in risk management. Information on our risk management tools is set out on page 13 of the group's *Annual Report and Accounts 2017*. Details on the group's overarching risk appetite are set out on page 13 of the group's *Annual Report and Accounts 2017*.

Stress testing

HSBC operates a comprehensive stress testing programme that supports our risk management and capital planning. It includes execution of stress tests mandated by our regulators, as well as internal stress tests. Our stress testing is supported by dedicated teams and infrastructure.

Our testing programme assesses our capital strength through a rigorous examination of our resilience to external shocks. It also helps us understand and mitigate risks, and informs our decision about capital levels.

Global Risk and the group's Risk functions

We have a dedicated Global Risk function, headed by the Group Chief Risk Officer, which is responsible for the Group's risk management framework. This includes establishing global policy, monitoring risk profiles, and forward-looking risk identification and management. Global Risk is made up of sub-functions covering all risks to our operations. It is independent from the global businesses, including sales and trading functions, helping to ensure balance in risk/return decisions. The Global Risk function operates in line with the Three Lines of Defence model. Similarly, the group's Risk function headed by the group's Chief Risk Officer, is independent from the global businesses and responsible for the group's risk management framework.

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 aggregate level and risk types they are willing to accept in achieving the group's business objectives.

On behalf of the Board, the group's Audit Committee has responsibility for oversight of risk management and internal controls over financial reporting, and the group's Risk Committee has responsibility for oversight of risk management and internal controls other than for financial reporting.

The Directors, through the group's Risk Committee and the group's Audit Committee, conduct an annual review of the effectiveness of our system of risk management and internal control. The group's Risk Committee and the group's Audit Committee 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

Our risk measurement and reporting systems are designed to help ensure that 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 manner 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 functioning appropriately. Risk information 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. A number of key initiatives and projects to enhance consistent data aggregation, reporting and management, and work towards meeting our Basel Committee data obligations are in progress. 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 and reporting structures deployed at Group level are applied throughout 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

The Global Risk and the group's Risk functions manage a number of analytics disciplines supporting model development and management, including rating, scoring, economic capital and stress testing models for different risk types and business segments. They formulate technical responses to industry developments and regulatory policy in the field of risk analytics, develop HSBC's global risk models, and oversee local model development and use around the Group toward our implementation targets for Internal ratings-based ('IRB') approaches.

Model governance is under the general oversight of the Global Model Oversight Committee ('MOC'). Global MOC is supported by specific global functional MOCs for wholesale credit risk, market risk, Retail Banking and Wealth Management ('RBWM'), Global Private Banking ('GPB'), Finance, regulatory compliance, operational risk, fraud risk and financial intelligence, pensions risk and financial crime risk, and has functional and/or regional and entity-level counterparts with comparable terms of reference where required.

Linkage to the Annual Report and Accounts 2017

Basis of consolidation

The basis of consolidation for financial accounting purposes is in accordance with Hong Kong Financial Reporting Standards ('HKFRS'), as described in Note 1 on the financial statements in the group's *Annual Report and Accounts 2017*.

The basis of consolidation for regulatory purposes is different from that for accounting purposes. Subsidiaries included in the consolidation for regulatory purposes are specified in a notice from the HKMA in accordance with section 3C(1) of the Banking (Capital) Rules ('BCR'). Subsidiaries not included in consolidation for regulatory purposes are securities and insurance companies that are authorised and supervised by regulators, and are subject to supervisory arrangements regarding the maintenance of adequate capital to support business activities comparable to those prescribed for authorised institutions under the BCR and the Banking Ordinance. The capital invested by the group in these subsidiaries is deducted from the capital base, subject to certain thresholds, as determined in accordance with Part 3 of the BCR.

For insurance entities, the present value of in-force long-term insurance business asset of HK\$44,621m and the related deferred

tax liability are only recognised on consolidation in financial reporting, and are therefore not included in the asset or equity positions for the stand-alone entities presented in the below table.

There are no subsidiaries that are included within both the accounting scope of consolidation and the regulatory scope of consolidation, but where the method of consolidation differs at 31 December 2017.

There are no subsidiaries that are included within the regulatory scope of consolidation, but not included within the accounting scope of consolidation at 31 December 2017.

The group operates subsidiaries in a number of countries and territories where capital is governed by local rules, and there may be restrictions on the transfer of regulatory capital and funds between members of the banking group.

The Bank and its banking subsidiaries maintain regulatory reserves to satisfy the provisions of the Banking Ordinance and local regulatory requirements for prudential supervision purposes. At 31 December 2017, the effect of this requirement is to reduce the amount of reserves which can be distributed to shareholders by HK\$27,703m.

There are no relevant capital shortfalls in any of the group's subsidiaries at 31 December 2017 which are not included in its consolidation group for regulatory purposes.

Table 1: List of subsidiaries outside the regulatory scope of consolidation

	Principal activities	At 31 Dec 2017	
		Total assets HK\$m	Total equity HK\$m
HSBC Broking Futures (Hong Kong) Ltd	Futures broking	3,406	597
HSBC Broking Services (Asia) Ltd and its subsidiaries	Broking services	18,300	3,028
HSBC Corporate Advisory (Malaysia) Sdn Bhd	Financial services	15	13
HSBC Global Asset Management Holdings (Bahamas) Ltd	Asset management	127	126
HSBC Global Asset Management (Hong Kong) Ltd	Asset management	852	476
HSBC Investment Funds (Hong Kong) Ltd	Asset management	675	236
HSBC Global Asset Management (Japan) K.K.	Asset management	198	107
HSBC Global Asset Management (Singapore) Ltd	Asset management	84	57
HSBC Insurance (Asia-Pacific) Holdings Ltd and its subsidiaries	Insurance	402,421	31,592
HSBC InvestDirect (India) Ltd and its subsidiaries	Financial services	721	587
HSBC Securities (Asia) Ltd and its subsidiaries	Broking services	425	423
HSBC Securities (Japan) Ltd	Broking services	150,505	1,613
HSBC Securities (Singapore) Pte Ltd	Broking services	172	66
HSBC Securities Brokers (Asia) Ltd	Broking services	13,323	3,553
HSBC Qianhai Securities Ltd ¹	Broking services	2,101	1,949
Hang Seng Futures Ltd	Futures broking	102	102
Hang Seng Insurance Co. Ltd and its subsidiaries	Insurance	130,584	10,996
Hang Seng Investment Management Ltd	Asset management	1,553	1,535
Hang Seng Investment Services Ltd	Investment services	9	9
Hang Seng Securities Ltd	Broking services	3,655	1,307
Hang Seng Qianhai Fund Management Co. Ltd	Asset management	179	164

¹ The entity was established in 2017.

The approaches used in calculating the group's regulatory capital and risk-weighted assets ('RWAs') are in accordance with the BCR. The group uses the advanced internal ratings-based approach to calculate its credit risk for the majority of its non-securitisation exposures and the internal ratings-based (securitisation) approach to determine credit risk for its banking book securitisation exposures. For market risk, the group uses an internal models approach to calculate its general market risk

for the risk categories of interest rate and foreign exchange (including gold) exposures, and equity exposures. The group also uses an internal models approach to calculate its market risk in respect of specific risk for interest rate exposures and equity exposures. The group uses the standardised (market risk) approach for calculating other market risk positions, as well as trading book securitisation exposures, and the standardised (operational risk) approach to calculate its operational risk.

Banking Disclosure Statement at 31 December 2017

Balance sheet reconciliation

The following tables together provide a reconciliation of the group's consolidated statement of financial position, as published in the group's *Annual Report and Accounts 2017*, to the transition disclosures template in Table 6 of this document.

The following table sets out the group's consolidated statement of financial position based on the accounting scope of consolidation and the corresponding balances based on the regulatory scope of consolidation.

Table 2: Reconciliation of balance sheets – accounting to regulatory scope of consolidation

	At 31 Dec 2017	
	Balance sheet in published financial statements	Under regulatory scope of consolidation
	HK\$m	HK\$m
Assets		
Cash and sight balances at central banks	208,073	206,009
Items in the course of collection from other banks	25,714	25,714
Hong Kong Government certificates of indebtedness	267,174	267,174
Trading assets	496,434	474,119
Derivatives	300,243	301,168
Financial assets designated at fair value	122,646	463
Reverse repurchase agreements – non-trading	330,890	210,008
Placings with and advances to banks	433,005	418,453
Loans and advances to customers	3,328,980	3,324,224
Financial investments	1,720,873	1,369,959
Amounts due from Group companies	227,729	340,653
Investments in subsidiaries	–	16,902
Interests in associates and joint ventures	144,717	141,855
Goodwill and intangible assets	59,865	12,466
Property, plant and equipment	116,336	113,327
Deferred tax assets	2,156	2,111
Prepayments, accrued income and other assets	158,511	87,788
Total assets	7,943,346	7,312,393
Liabilities		
Hong Kong currency notes in circulation	267,174	267,174
Items in the course of transmission to other banks	38,283	38,283
Repurchase agreements – non-trading	47,170	47,170
Deposits by banks	201,697	201,528
Customer accounts	5,138,272	5,123,267
Trading liabilities	231,365	231,365
Derivatives	309,353	310,884
Financial liabilities designated at fair value	49,278	11,010
Debt securities in issue	38,394	38,514
Retirement benefit liabilities	2,222	2,222
Amounts due to Group companies	265,688	254,730
Accruals and deferred income, other liabilities and provisions	110,687	67,968
Liabilities under insurance contracts	438,017	–
Current tax liabilities	3,242	2,535
Deferred tax liabilities	24,391	16,309
Subordinated liabilities	4,090	4,090
Preference shares	21,037	20,930
Total liabilities	7,190,360	6,637,979
Equity		
Share capital	151,360	151,360
Other equity instruments	14,737	14,737
Other reserves	123,417	119,638
Retained earnings	406,966	340,763
Total shareholders' equity	696,480	626,498
Non-controlling interests	56,506	47,916
Total equity	752,986	674,414
Total equity and liabilities	7,943,346	7,312,393

The following table expands the balance sheet under the regulatory scope of consolidation to show separately the capital components that are reported in the transition disclosures

template in Table 6. The capital components in this table contain a reference that shows how these amounts are included in Table 6.

Table 3: Detailed reconciliation of balance sheets to transition disclosures template

	At 31 Dec 2017		Cross-referenced to Definition of Capital Components
	Balance sheet in published financial statements	Under regulatory scope of consolidation	
	HK\$m	HK\$m	
Assets			
Cash and sight balances at central banks	208,073	206,009	
Items in the course of collection from other banks	25,714	25,714	
Hong Kong Government certificates of indebtedness	267,174	267,174	
Trading assets	496,434	474,119	
<i>of which: significant capital investments in financial sector entities exceeding 10% threshold</i>		8	1
<i>of which: significant capital investments in financial sector entities</i>		4	2
Derivatives	300,243	301,168	
Financial assets designated at fair value	122,646	463	
Reverse repurchase agreements – non-trading	330,890	210,008	
Placings with and advances to banks	433,005	418,453	
Loans and advances to customers	3,328,980	3,324,224	
<i>of which: impairment allowances eligible for inclusion in Tier 2 capital</i>		(2,176)	3
Financial investments	1,720,873	1,369,959	
<i>of which: significant capital investments in financial sector entities exceeding 10% threshold</i>		1,266	4
Amounts due from Group companies	227,729	340,653	
<i>of which: significant capital investments in financial sector entities exceeding 10% threshold</i>		1,900	5
<i>of which: significant capital investments in financial sector entities</i>		3,772	6
Investments in subsidiaries	–	16,902	
<i>of which: significant capital investments in financial sector entities exceeding 10% threshold</i>		16,902	7
Interests in associates and joint ventures	144,717	141,855	
<i>of which: goodwill</i>		3,958	8
<i>of which: significant capital investments in financial sector entities exceeding 10% threshold</i>		85,423	9
Goodwill and intangible assets	59,865	12,466	
<i>of which: goodwill</i>		5,092	10
<i>of which: intangible assets</i>		7,374	11
Property, plant and equipment	116,336	113,327	
Deferred tax assets	2,156	2,111	
<i>of which: deferred tax assets net of related tax liabilities</i>		2,237	12
<i>of which: deferred tax liabilities related to goodwill</i>		(92)	13
<i>of which: deferred tax liabilities related to intangible assets</i>		(34)	14
Prepayments, accrued income and other assets	158,511	87,788	
<i>of which: defined benefit pension fund net assets</i>		88	15
<i>of which: significant capital investments in financial sector entities exceeding 10% threshold</i>		297	16
Total assets	7,943,346	7,312,393	

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Table 3: Detailed reconciliation of balance sheets to transition disclosures template (continued)

	At 31 Dec 2017		Cross-referenced to Definition of Capital components
	Balance sheet in published financial statements	Under regulatory scope of consolidation	
	HK\$m	HK\$m	
Liabilities			
Hong Kong currency notes in circulation	267,174	267,174	
Items in the course of transmission to other banks	38,283	38,283	
Repurchase agreements – non-trading	47,170	47,170	
Deposits by banks	201,697	201,528	
Customer accounts	5,138,272	5,123,267	
Trading liabilities	231,365	231,365	
<i>of which: gains and losses due to changes in own credit risk on fair valued liabilities</i>		(113)	17
Derivatives	309,353	310,884	
<i>of which: gains and losses due to changes in own credit risk on fair valued liabilities</i>		(201)	18
Financial liabilities designated at fair value	49,278	11,010	
<i>of which: gains and losses due to changes in own credit risk on fair valued liabilities</i>		3	19
Debt securities in issue	38,394	38,514	
Retirement benefit liabilities	2,222	2,222	
Amounts due to Group companies	265,688	254,730	
<i>of which: qualifying Tier 2 capital instruments</i>		17,820	20
<i>of which: gains and losses due to changes in own credit risk on fair valued liabilities</i>		128	21
Accruals and deferred income, other liabilities and provisions	110,687	67,968	
Liabilities under insurance contracts	438,017	–	
Current tax liabilities	3,242	2,535	
Deferred tax liabilities	24,391	16,309	
<i>of which: deferred tax liabilities related to intangible assets</i>		951	22
<i>of which: deferred tax liabilities related to defined benefit pension fund net assets</i>		9	23
Subordinated liabilities	4,090	4,090	
<i>of which: portion eligible for Tier 2 capital instruments, subject to phase-out arrangements</i>		3,126	24
<i>of which: portion eligible for Tier 2 capital instruments issued by subsidiaries, subject to phase-out arrangements</i>		598	25
Preference shares	21,037	20,930	
<i>of which: portion eligible for AT1 capital instruments, subject to phase-out arrangements</i>		19,367	26
<i>of which: portion eligible for Tier 2 capital instruments, subject to phase-out arrangements</i>		1,563	27
Total liabilities	7,190,360	6,637,979	
Equity			
Share capital	151,360	151,360	
<i>of which: portion eligible for inclusion in CET1 capital</i>		149,906	28
<i>of which: revaluation reserve capitalisation issue</i>		1,454	29
Other equity instruments	14,737	14,737	
<i>of which: qualifying AT1 capital instruments</i>		14,737	30
Other reserves	123,417	119,638	31
<i>of which: fair value gains arising from revaluation of land and buildings</i>		58,381	32
<i>of which: cash flow hedging reserves</i>		(135)	33
<i>of which: valuation adjustment</i>		610	34
Retained earnings	406,966	340,763	35
<i>of which: regulatory reserve for general banking risks</i>		27,703	36
<i>of which: regulatory reserve eligible for inclusion in Tier 2 capital</i>		13,548	37
<i>of which: fair value gains arising from revaluation of land and buildings</i>		4,704	38
<i>of which: valuation adjustment</i>		875	39
Total shareholders' equity	696,480	626,498	
Non-controlling interests	56,506	47,916	
<i>of which: portion allowable in CET1 capital</i>		24,416	40
<i>of which: portion allowable in AT1 capital</i>		1,630	41
<i>of which: portion in AT1 capital, subject to phase-out arrangements</i>		3,469	42
Total equity	752,986	674,414	
Total equity and liabilities	7,943,346	7,312,393	

Table 4: LI1 – Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories

	a	b	c	d	e	f	g
	Carrying values of items:						
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	subject to credit risk framework	subject to counterparty credit risk framework	subject to securitisation framework ¹	subject to market risk framework	not subject to capital requirements or subject to deduction from capital
Footnotes	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
Assets							
Cash and sight balances at central banks	208,073	206,009	206,009	–	–	–	–
Items in the course of collection from other banks	25,714	25,714	25,714	–	–	–	–
Hong Kong Government certificates of indebtedness	267,174	267,174	267,174	–	–	–	–
Trading assets ²	496,434	474,119	–	8,953	–	447,557	26,562
Derivatives ²	300,243	301,168	–	301,168	–	301,168	–
Financial assets designated at fair value	122,646	463	463	–	–	–	–
Reverse repurchase agreements – non-trading	330,890	210,008	–	210,008	–	–	–
Placings with and advances to banks	433,005	418,453	381,900	36,553	–	–	–
Loans and advances to customers	3,328,980	3,324,224	3,255,921	34,326	32,218	–	1,759
Financial investments	1,720,873	1,369,959	1,368,520	126	47	–	1,266
Amounts due from Group companies ²	227,729	340,653	72,808	245,045	–	17,142	5,672
Investments in subsidiaries	–	16,902	–	–	–	–	16,902
Interests in associates and joint ventures	144,717	141,855	52,474	–	–	–	89,381
Goodwill and intangible assets ⁴	59,865	12,466	–	–	–	–	11,515
Property, plant and equipment	116,336	113,327	113,327	–	–	–	–
Deferred tax assets	2,156	2,111	–	–	–	–	2,111
Prepayments, accrued income and other assets ^{3, 4}	158,511	87,788	76,054	8,634	35	–	3,056
Total assets at 31 Dec 2017	7,943,346	7,312,393	5,820,364	844,813	32,300	765,867	158,224
Liabilities							
Hong Kong currency notes in circulation	267,174	267,174	–	–	–	–	267,174
Items in the course of transmission to other banks	38,283	38,283	–	–	–	–	38,283
Repurchase agreements – non-trading	47,170	47,170	–	47,170	–	–	–
Deposits by banks	201,697	201,528	–	530	–	–	200,998
Customer accounts	5,138,272	5,123,267	–	240	–	–	5,123,027
Trading liabilities ²	231,365	231,365	–	687	–	204,109	27,256
Derivatives ²	309,353	310,884	–	310,884	–	310,884	–
Financial liabilities designated at fair value	49,278	11,010	–	–	–	–	11,010
Debt securities in issue	38,394	38,514	–	–	–	–	38,514
Retirement benefit liabilities	2,222	2,222	–	–	–	–	2,222
Amounts due to Group companies	265,688	254,730	–	2,682	–	–	252,048
Accruals and deferred income, other liabilities and provisions ³	110,687	67,968	–	152	–	–	67,816
Liabilities under insurance contracts	438,017	–	–	–	–	–	–
Current tax liabilities	3,242	2,535	–	–	–	–	2,535
Deferred tax liabilities	24,391	16,309	–	–	–	–	16,309
Subordinated liabilities	4,090	4,090	–	–	–	–	4,090
Preference shares	21,037	20,930	–	–	–	–	20,930
Total liabilities at 31 Dec 2017	7,190,360	6,637,979	–	362,345	–	514,993	6,072,212

- ¹ The amounts shown in the column 'subject to securitisation framework' only include non-trading book. Trading book securitisation positions are included in the market risk column.
- ² Assets/liabilities arising from derivative contracts held in the regulatory trading book are subject to both market risk and counterparty credit risk because derivative contracts are marked to market and there is a risk that the counterparty may not be able to fulfil the contractual obligations. As a result, the amounts shown in column (b) do not equal the sum of columns (c) to (g).
- ³ The difference in the carrying values reported in the financial statements in column (a) and the scope of regulatory consolidation in column (b) mainly represents the amounts of acceptance and endorsements being included as contingencies in accordance with the BCR, whilst for accounting purposes, acceptances and endorsements are recognised on the balance sheet in accordance with HKAS39 'Financial instruments: Recognition and Measurement'.
- ⁴ The assets disclosed in column (g) are net of any associated deferred tax liability.

Table 5: LI2 – Main sources of differences between regulatory exposure amounts and carrying values in financial statements

	a	b	c	d	e	
	Items subject to:					
	Total	credit risk framework	securitisation framework	counterparty credit risk framework	market risk framework	
	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	
1	Asset carrying value amount under scope of regulatory consolidation (as per template LI1)	7,154,169	5,820,364	32,300	844,813	765,867
2	Liabilities carrying value amount under regulatory scope of consolidation (as per template LI1)	565,767	–	–	362,345	514,993
3	Total net amount under regulatory scope of consolidation	6,588,402	5,820,364	32,300	482,468	250,874
4	Off-balance sheet amounts and potential future exposure for counterparty risk	2,828,048	791,320	792	209,840	–
5	Differences in netting rules	413	(1,437)	–	1,850	–
6	Differences due to financial collateral on standardised approach	(118,236)	(118,236)	–	–	–
7	Differences due to impairments on IRB approach	12,071	12,071	–	–	–
8	Differences due to credit risk mitigation	(281,834)	–	–	(281,835)	–
9	Exposure amounts considered for regulatory purposes at 31 Dec 2017	9,028,864	6,504,082	33,092	412,323	250,874

Explanations of differences between accounting and regulatory exposure amounts

Off-balance sheet amounts and potential future exposure for counterparty risk

Off-balance sheet amounts subject to credit risk or the securitisation frameworks include the undrawn portion of committed facilities, various trade finance commitments and guarantees, by applying credit conversion factors ('CCF') to these items and consideration of potential future exposures ('PFE') for counterparty credit risk ('CCR').

Differences in netting rules

Under HKFRS, netting is only permitted if a legal right of set-off exists and the cash flows are intended to be settled on a net basis. Under the BCR, however, netting is applied when there is a valid bilateral netting agreement. As a consequence, we recognise greater netting under the BCR, 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.

Differences due to financial collateral

The exposure value under the standardised approach is calculated after deducting credit risk mitigation ('CRM'), whereas the accounting value is before such deductions.

Differences due to impairments

The carrying value of assets is net of credit risk adjustments. The regulatory exposure value under the IRB approach is before deducting credit risk adjustments.

Differences due to credit risk mitigation

In CCR, differences arise between accounting carrying values and regulatory exposure as a result of the application of CRM.

Explanation of differences between accounting fair value and regulatory prudent valuation

Fair value is defined as the best estimate of the price that would be received to sell an asset or be paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Some fair value adjustments already reflect valuation uncertainty to some degree. These are market data uncertainty, model uncertainty and concentration adjustments.

However, it is recognised that a variety of valuation techniques using stressed assumptions and combined with the range of plausible market parameters at a given point in time may still generate unexpected uncertainty beyond fair value.

A series of additional valuation adjustments ('AVAs') are therefore required to reach a specified degree of confidence (the 'Prudent Value') set by regulators and that differ both in terms of scope and measurement from HSBC's own quantification for disclosure purposes.

AVAs should consider at the minimum: market price uncertainty, bid/offer (close out) uncertainty, model risk, concentration, administrative cost, unearned credit spread and funding fair value adjustment ('FFVA').

AVAs are not limited to Level 3 exposures, for which a 95% uncertainty range is already computed and disclosed, but must also be calculated for any exposure for which the exit price cannot be determined with a high degree of certainty.

Capital and RWAs

Regulatory capital disclosures

The following table sets out the detailed composition of the

group's regulatory capital using the transition disclosures template, as specified by the HKMA. The table also shows those items that are currently benefiting from the Basel III transitional arrangements, and are consequently subject to the pre-Basel III treatment, as set out in Schedule 4H to the BCR.

Table 6: Transition disclosures template

		At 31 Dec 2017		
		Component of regulatory capital	Amounts subject to pre-Basel III treatment*	Cross-referenced to Table 3
		HK\$m	HK\$m	
Common equity tier 1 ('CET1') capital: instruments and reserves				
1	Directly issued qualifying CET1 capital instruments plus any related share premium	149,906		28
2	Retained earnings	340,763		35
3	Disclosed reserves	119,638		31
4	Directly issued capital subject to phase out from CET1 capital (only applicable to non-joint stock companies)	Not applicable		
	Public sector capital injections grandfathered until 1 January 2018	Not applicable		
5	Minority interests arising from CET1 capital instruments issued by consolidated bank subsidiaries and held by third parties (amount allowed in CET1 capital of the consolidation group)	24,416		40
6	CET1 capital before regulatory deductions	634,723		
CET1 capital: regulatory deductions				
7	Valuation adjustments	1,485		34+39
8	Goodwill (net of associated deferred tax liability)	8,958		8+10+13
9	Other intangible assets (net of associated deferred tax liability)	6,389	–	11+14-22
10	Deferred tax assets net of deferred tax liabilities	2,237		12
11	Cash flow hedge reserve	(135)		33
12	Excess of total EL amount over total eligible provisions under the IRB approach	–	–	
13	Gain-on-sale arising from securitisation transactions	–		
14	Gains and losses due to changes in own credit risk on fair valued liabilities	183	–	-(17+18+19+21)
15	Defined benefit pension fund net assets (net of associated deferred tax liabilities)	79	–	15-23
16	Investments in own CET1 capital instruments (if not already netted off paid-in capital on reported balance sheet)	–	–	
17	Reciprocal cross-holdings in CET1 capital instruments	–	–	
18	Insignificant capital investments in CET1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation (amount above 10% threshold)	–	–	
19	Significant capital investments in CET1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation (amount above 10% threshold)	86,046	19,750	1+4+5+7+9+16 -43 ^t -44 ^t
20	Mortgage servicing rights (amount above 10% threshold)	Not applicable		
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability)	Not applicable		
22	Amount exceeding the 15% threshold	Not applicable		
23	<i>of which: significant investments in the common stock of financial sector entities</i>	Not applicable		
24	<i>of which: mortgage servicing rights</i>	Not applicable		
25	<i>of which: deferred tax assets arising from temporary differences</i>	Not applicable		
26	National specific regulatory adjustments applied to CET1 capital	90,788		
26a	Cumulative fair value gains arising from the revaluation of land and buildings (own-use and investment properties)	63,085		32+38
26b	Regulatory reserve for general banking risks	27,703		36
27	Regulatory deductions applied to CET1 capital due to insufficient Additional Tier 1 (AT1) capital and Tier 2 capital to cover deductions	–		
28	Total regulatory deductions to CET1 capital	196,030		
29	CET1 capital	438,693		
Additional tier 1 ('AT1') capital: instruments				
30	Qualifying AT1 capital instruments plus any related share premium	14,737		30
31	<i>of which: classified as equity under applicable accounting standards</i>	14,737		30
32	<i>of which: classified as liabilities under applicable accounting standards</i>	–		
33	Capital instruments subject to phase out arrangements from AT1 capital	19,367		26
34	AT1 capital instruments issued by consolidated bank subsidiaries and held by third parties (amount allowed in AT1 capital of the consolidated group)	5,099		41+42
35	<i>of which: AT1 capital instruments issued by subsidiaries subject to phase out arrangements</i>	3,469		42

^t Cross-referenced within Table 6.

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Table 6: Transition disclosures template (continued)

	At 31 Dec 2017		Cross-referenced to Table 3
	Component of regulatory capital	Amounts subject to pre-Basel III treatment*	
	HK\$m	HK\$m	
36	AT1 capital before regulatory deductions	39,203	
	AT1 capital: regulatory deductions		
37	Investments in own AT1 capital instruments	—	
38	Reciprocal cross-holdings in AT1 capital instruments	—	
39	Insignificant capital investments in AT1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation (amount above 10% threshold)	—	
40	Significant capital investments in AT1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	—	
41	National specific regulatory adjustments applied to AT1 capital	9,875	
41a	Portion of deductions applied 50:50 to core capital and supplementary capital based on pre-Basel III treatment which, during transitional period, remain subject to deduction from Tier 1 capital	9,875	
vii	<i>of which: Significant capital investments in CET1 capital instruments, AT1 capital instruments and Tier 2 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation</i>	9,875	43 [†]
42	Regulatory deductions applied to AT1 capital due to insufficient Tier 2 capital to cover deductions	—	
43	Total regulatory deductions to AT1 capital	9,875	
44	AT1 capital	29,328	
45	Tier 1 capital (Tier 1 = CET1 + AT1)	468,021	
	Tier 2 capital: instruments and provisions		
46	Qualifying Tier 2 capital instruments plus any related share premium	17,820	20
47	Capital instruments subject to phase out arrangements from Tier 2 capital	4,689	24+27
48	Tier 2 capital instruments issued by consolidated bank subsidiaries and held by third parties (amount allowed in Tier 2 capital of the consolidation group)	598	25
49	<i>of which: capital instruments issued by subsidiaries subject to phase out arrangements</i>	598	25
50	Collective impairment allowances and regulatory reserve for general banking risks eligible for inclusion in Tier 2 capital	15,724	37-3
51	Tier 2 capital before regulatory deductions	38,831	
	Tier 2 capital: regulatory deductions		
52	Investments in own Tier 2 capital instruments	—	
53	Reciprocal cross-holdings in Tier 2 capital instruments	—	
54	Insignificant capital investments in Tier 2 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation (amount above 10% threshold)	—	
55	Significant capital investments in Tier 2 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	3,776	2 + 6
56	National specific regulatory adjustments applied to Tier 2 capital	(19,168)	
56a	Add back of cumulative fair value gains arising from the revaluation of land and buildings (own-use and investment properties) eligible for inclusion in Tier 2 capital	(29,043)	(29+32+38)×45%
56b	Portion of deductions applied 50:50 to core capital and supplementary capital based on pre-Basel III treatment which, during transitional period, remain subject to deduction from Tier 2 capital	9,875	
vii	<i>of which: Significant capital investments in CET1 capital instruments, AT1 capital instruments and Tier 2 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation</i>	9,875	44 [†]
57	Total regulatory deductions to Tier 2 capital	(15,392)	
58	Tier 2 capital	54,223	
59	Total capital (Total capital = Tier 1 + Tier 2)	522,244	
60	Total risk weighted assets	2,758,609	
	Capital ratios (as a percentage of risk-weighted assets)		
61	CET1 capital ratio	15.90%	
62	Tier 1 capital ratio	16.97%	
63	Total capital ratio	18.93%	
64	Institution specific buffer requirement (minimum CET1 capital requirement as specified in s.3A, or s.3B, as the case requires, of the BCR plus capital conservation buffer plus countercyclical buffer requirements plus G-SIB or D-SIB requirements)	7.70%	
65	<i>of which: capital conservation buffer requirement</i>	1.25%	
66	<i>of which: bank specific countercyclical buffer requirement</i>	0.70%	
67	<i>of which: G-SIB or D-SIB buffer requirement</i>	1.25%	
68	CET1 capital surplus over the minimum CET1 requirement and any CET1 capital used to meet the Tier 1 and Total capital requirement under s.3A, or s.3B, as the case requires, of the BCR	10.93%	

[†] Cross-referenced within Table 6.

Table 6: Transition disclosures template (continued)

		At 31 Dec 2017		Cross-referenced to Table 3
		Component of regulatory capital	Amounts subject to pre-BaseI III treatment*	
		HK\$m	HK\$m	
National minima (if different from Basel 3 minimum)				
69	National CET1 minimum ratio	Not applicable		
70	National Tier 1 minimum ratio	Not applicable		
71	National Total capital minimum ratio	Not applicable		
Amounts below the thresholds for deduction (before risk weighting)				
72	Insignificant capital investments in CET1 capital instruments, AT1 capital instruments and Tier 2 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	18,367		
73	Significant capital investments in CET1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	52,474		
74	Mortgage servicing rights (net of related tax liability)	Not applicable		
75	Deferred tax assets arising from temporary differences (net of related tax liability)	Not applicable		
Applicable caps on the inclusion of provisions in Tier 2 capital				
76	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to the basic approach and the standardised (credit risk) approach (prior to application of cap)	4,081		
77	Cap on inclusion of provisions in Tier 2 under the basic approach and the standardised (credit risk) approach	3,409		
78	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to the IRB approach (prior to application of cap)	19,776		
79	Cap for inclusion of provisions in Tier 2 under the IRB approach	12,315		
Capital instruments subject to phase-out arrangements				
80	Current cap on CET1 capital instruments subject to phase out arrangements	Not applicable		
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	Not applicable		
82	Current cap on AT1 capital instruments subject to phase out arrangements	25,785		
83	Amount excluded from AT1 capital due to cap (excess over cap after redemptions and maturities)	–		
84	Current cap on Tier 2 capital instruments subject to phase out arrangements	22,788		
85	Amount excluded from Tier 2 capital due to cap (excess over cap after redemptions and maturities)	–		

* This refers to the position under the BCR in force on 31 December 2012.

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Table 6: Transition disclosures template (continued)

Notes to the template:

Elements where a more conservative definition has been applied in the BCR relative to that set out in Basel III capital standards:

		At 31 Dec 2017	
		Hong Kong basis	Basel III basis
		HK\$m	HK\$m
10	Deferred tax assets net of deferred tax liabilities	2,237	99

Explanation:

As set out in paragraphs 69 and 87 of the Basel III text issued by the Basel Committee (December 2010), Deferred Tax Assets ('DTAs') that rely on future profitability of the bank to be realised are to be deducted, whereas DTAs which relate to temporary differences may be given limited recognition in CET1 capital (and hence be excluded from deduction from CET1 capital up to the specified threshold). In Hong Kong, an authorised institution ('AI') is required to deduct all DTAs in full, irrespective of their origin, from CET1 capital. Therefore, the amount to be deducted as reported in row 10 may be greater than that required under Basel III.

The amount reported under the column 'Basel III basis' in this box represents the amount reported in row 10 (i.e. the amount reported under the 'Hong Kong basis') adjusted by reducing the amount of DTAs to be deducted which relate to temporary differences to the extent not in excess of the 10% threshold set for DTAs arising from temporary differences and the aggregate 15% threshold set for Mortgage Servicing Rights ('MSRs'), DTAs arising from temporary differences and significant investments in CET1 capital instruments issued by financial sector entities (excluding those that are loans, facilities and other credit exposures to connected companies) under Basel III.

		At 31 Dec 2017	
		Hong Kong basis	Basel III basis
		HK\$m	HK\$m
19	Significant capital investments in CET1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation (amount above 10% threshold)	105,796	103,896

Explanation:

For the purpose of determining the total amount of significant capital investments in CET1 capital instruments issued by financial sector entities, an AI is required to aggregate any amount of loans, facilities or other credit exposures provided by it to any of its connected companies, where the connected company is a financial sector entity, as if such loans, facilities or other credit exposures were direct holdings, indirect holdings or synthetic holdings of the AI in the capital instruments of the financial sector entity, except where the AI demonstrates to the satisfaction of the Monetary Authority that any such loan was made, any such facility was granted, or any such other credit exposure was incurred, in the ordinary course of the AI's business.

Therefore, the amount to be deducted as reported in row 19 may be greater than that required under Basel III. The amount reported under the column 'Basel III basis' in this box represents the amount reported in row 19 (i.e. the amount reported under the 'Hong Kong basis') adjusted by excluding the aggregate amount of loans, facilities or other credit exposures to the AI's connected companies which were subject to deduction under the Hong Kong approach.

Remarks:

The amount of the 10%/15% thresholds mentioned above is calculated based on the amount of CET1 capital determined under the BCR.

The following is a summary of the group's common equity tier 1 ('CET1') capital, additional tier 1 ('AT1') capital and tier 2 capital instruments.

Table 7: Capital instruments

	At 31 Dec 2017	
	Total amount	Amount recognised in regulatory capital HK\$m
CET1 capital instruments		
Ordinary shares:		
46,440,991,798 issued and fully paid ordinary shares	HK\$151,360m	149,906
AT1 capital instruments		
Floating rate perpetual subordinated loans, callable from 2019	US\$1,900m	14,737
Perpetual non-cumulative preference shares	US\$2,478m	19,367
Tier 2 capital instruments		
Perpetual cumulative preference shares	US\$200m	1,563
Primary capital undated floating rate notes	US\$400m	3,126
Subordinated loan due 2023	US\$500m	3,908
Subordinated loan due 2024, callable from 2019	US\$1,600m	12,505
Subordinated loan due 2025, callable from 2020	US\$180m	1,407
Fixed rate (5.05%) subordinated bonds due 2027, callable from 2022	MYR500m	598

A description of the main features and the full terms and conditions of the group's capital instruments can be found in the Regulatory Disclosures section of our website, www.hsbc.com.hk.

Capital ratios and buffer requirements

The following tables show the capital ratios and capital buffer requirements as contained in the 'Capital Adequacy Ratio' return submitted to the HKMA on a consolidated basis under the requirements of section 3C(1) of the BCR.

Table 8: Capital ratios

	Footnotes	31 Dec 2017 %
CET1 capital ratio	1	15.9
Tier 1 capital ratio	2	17.0
Total capital ratio	3	18.9
		HK\$m
CET1 capital		438,693
Tier 1 capital		468,021
Total capital		522,244
Total RWAs	4	2,758,609

- 1 CET1 capital ratio equals CET1 capital divided by Total RWAs.
2 Tier 1 capital ratio equals Tier 1 capital divided by Total RWAs.
3 Total capital ratio equals Total capital divided by Total RWAs.
4 The total RWAs is after application of the scaling factor of 1.06.

Table 9: Capital buffer requirements

	31 Dec 2017 %
Capital conservation buffer ratio	1.25
Countercyclical capital buffer ratio	0.70
Higher loss absorbency ratio	1.25
Total	3.20

Countercyclical capital buffer ratio

The countercyclical capital buffer ('CCyB') is calculated as the weighted average of the applicable CCyB ratios in effect in the jurisdictions in which banks have private sector credit exposures. The group uses booking country as the basis of geographical

allocation for credit risk and risk country for market risk, which is defined by considering the country of incorporation, location of guarantor, headquarter domicile, distribution of revenue and booking country. The CCyB ratio remained stable in the second half of 2017.

Table 10: Geographical breakdown of risk-weighted amounts (RWA) in relation to private sector credit exposures

Jurisdiction (J)		At 31 Dec 2017			
		Applicable JCCyB ratio in effect	Total RWA used in computation of CCyB ratio of AI	CCyB ratio of AI	CCyB amount of AI
		%	HK\$m	%	HK\$m
1	Hong Kong	1.25	1,116,446		
2	Mainland China	—	267,390		
3	Australia	—	96,939		
4	Bahamas	—	26		
5	Bangladesh	—	15,924		
6	Belgium	—	135		
7	Brunei	—	27		
8	Canada	—	4		
9	Cayman Islands	—	21		
10	Chinese Taipei	—	40,010		
11	France	—	4		
12	Germany	—	107		
13	India	—	84,080		
14	Indonesia	—	54,181		
15	Japan	—	14,677		
16	Jersey	—	25		
17	Macau SAR	—	21,517		
18	Malaysia	—	75,163		
19	Maldives	—	743		
20	Mauritius	—	9,124		
21	Mongolia	—	299		
22	Netherlands	—	98		
23	New Zealand	—	11,456		
24	Philippines	—	8,835		
25	Singapore	—	107,006		
26	South Korea	—	18,514		
27	Sri Lanka	—	13,325		
28	Switzerland	—	5		
29	Thailand	—	16,223		
30	United Kingdom	—	106		
31	United States	—	208		
32	Vietnam	—	14,565		
33	West Indies UK	—	30		
Total			1,987,213	0.70	13,956

Leverage ratio

The following table shows the leverage ratio, tier 1 capital and total exposure measure as contained in the 'Quarterly Template

on Leverage Ratio' submitted to the HKMA on a consolidated basis under the requirements specified in the 'Leverage Ratio Framework'.

Table 11: Leverage ratio

	Footnote	31 Dec 2017 %
Leverage ratio	1	6.3
Capital and leverage ratio exposure measure		HK\$m
Tier 1 capital		468,021
Total exposure measure		7,477,306

1 Leverage ratio equals Tier 1 capital divided by Total exposure measure.

Table 12: Leverage ratio common disclosure template

	Leverage ratio framework
	31 Dec 2017 HK\$m
On-balance sheet exposures	
1 On-balance sheet items (excluding derivatives and SFTs, but including collateral)	6,188,993
2 Less: Asset amounts deducted in determining Basel III Tier 1 capital (reported as negative amounts)	(207,176)
3 Total on-balance sheet exposures (excluding derivatives and SFTs) (sum of lines 1 and 2)	5,981,817
Derivative exposures	
4 Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	58,539
5 Add-on amounts for PFE associated with all derivatives transactions	282,239
6 Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the operative accounting framework	–
7 Less: Deductions of receivables assets for cash variation margin provided in derivatives transactions (reported as negative amounts)	–
8 Less: Exempted CCP leg of client-cleared trade exposures (reported as negative amounts)	(2,823)
9 Adjusted effective notional amount of written credit derivatives	316,348
10 Less: Adjusted effective notional offsets and add-on deductions for written credit derivatives (reported as negative amounts)	(303,603)
11 Total derivative exposures (sum of lines 4 to 10)	350,700
Securities financing transaction exposures	
12 Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	552,321
13 Less: Netted amounts of cash payables and cash receivables of gross SFT assets (reported as negative amounts)	–
14 CCR exposure for SFT assets	16,422
15 Agent transaction exposures	–
16 Total securities financing transaction exposures (sum of lines 12 to 15)	568,743
Other off-balance sheet exposures	
17 Off-balance sheet exposures at gross notional amount	2,828,048
18 Less: Adjustments for conversion to credit equivalent amounts (reported as negative amounts)	(2,252,002)
19 Off-balance sheet items (sum of lines 17 and 18)	576,046
Capital and total exposures	
20 Tier 1 capital	468,021
21 Total exposures (sum of lines 3, 11, 16 and 19)	7,477,306
Leverage ratio	
22 Basel III leverage ratio	6.26%

The leverage ratio was 6.26% at 31 December 2017, up from 6.09% at 30 June 2017. This was mainly due to an increase in the capital base, partly offset by an increase in the exposure measure driven by loan growth.

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Table 13: Summary comparison table

Item	Leverage ratio framework
	31 Dec 2017 HK\$m
1 Total consolidated assets as per published financial statements	7,943,346
2 Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation	(593,098)
3 Adjustment for fiduciary assets recognised on the balance sheet pursuant to the operative accounting framework but excluded from the leverage ratio exposure measure	—
4 Adjustments for derivative financial instruments	49,532
5 Adjustment for securities financing transactions (i.e. repos and similar secured lending)	16,422
6 Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	576,046
7 Other adjustments	(514,942)
8 Leverage ratio exposure	7,477,306

Other adjustments mainly represent the Hong Kong Government certificates of indebtedness and assets deducted in determining Basel III Tier 1 capital.

These are excluded for deriving the leverage ratio exposure in accordance with the 'Leverage Ratio Framework' issued by the HKMA.

Overview of the minimum capital requirements and RWAs

The following table provides an overview of the minimum capital requirements and RWAs by risk type and approach, as contained in the 'Capital Adequacy Ratio' return. Minimum capital requirement represents the Pillar1 capital charge at 8% of RWAs.

Table 14: OV1 – Overview of RWA

	a		b		c	
	RWA ¹				Minimum capital requirements	
	31 Dec 2017 HK\$m	30 Sep 2017 HK\$m	31 Dec 2017 HK\$m	30 Sep 2017 HK\$m	31 Dec 2017 HK\$m	30 Sep 2017 HK\$m
1 Credit risk for non-securitisation exposures	1,962,308	1,936,399	165,117			
2 <i>Of which: standardised credit risk ('STC') approach</i>	268,303	271,773	21,464			
3 <i>Of which: internal ratings-based ('IRB') approach</i>	1,694,005	1,664,626	143,653			
4 Counterparty credit risk	130,309	152,202	10,784			
5 <i>Of which: standardised approach for counterparty credit risk ('SA-CCR')</i>	73,041	80,917	6,171			
7 Equity exposures in banking book under the market-based approach	26,723	28,278	2,266			
11 Settlement risk	29	23	2			
12 Securitisation exposures in banking book	10,050	8,759	852			
13 <i>Of which: IRB(S) approach – ratings-based method</i>	10,050	8,759	852			
16 Market risk	115,077	125,794	9,206			
17 <i>Of which: standardised market risk ('STM') approach</i>	2,500	383	200			
18 <i>Of which: internal models ('IMM') approach</i>	112,577	125,411	9,006			
19 Operational risk	302,890	300,606	24,232			
21 <i>Of which: standardised operational risk ('STO') approach</i>	302,890	300,606	24,232			
23 Amounts below the thresholds for deduction (subject to 250% RW)	131,185	126,415	11,124			
24a Deduction to RWA	36,169	35,014	2,894			
24b <i>Of which: portion of regulatory reserve for general banking risks and collective provisions which is not included in Tier 2 Capital</i>	672	598	54			
24c <i>Of which: portion of cumulative fair value gains arising from the revaluation of land and buildings which is not included in Tier 2 Capital</i>	35,497	34,416	2,840			
25 Total	2,642,402	2,643,462	220,689			

¹ RWAs in this table are before the application of the 1.06 scaling factor, where applicable.

² Prior to the implementation of SA-CCR, exposures reported here are under the current exposure method.

Credit risk for non-securitisation exposures

RWAs increased by HK\$25,909m in the fourth quarter, including an increase of HK\$12,813m due to foreign currency translation differences. The underlying increase of HK\$13,096m was due to:

- growth in the corporate loan book in Hong Kong and mainland China; partially offset by
- improved asset quality and savings from RWA initiatives.

Counterparty credit risk

RWAs decreased by HK\$21,893m, primarily as a result of savings from RWA initiatives through the increased use of hedging.

Market risk

Market risk RWAs decreased by HK\$10,717m during the fourth quarter mainly from movements in risk levels and model updates.

RWA flow statements

RWA flow statement for credit risk

The following table shows movements in RWAs for credit risk determined under the IRB approach. The analysis is prepared in

accordance with the key drivers as specified in the standard template. For the purposes of this section, any reference to exposures related to 'credit risk' is referring to credit risk for non-securitisation exposures excluding counterparty credit risk.

Table 15: CR8 – RWA flow statement of credit risk exposures under IRB approach

		a
		HK\$m
1	RWA as at 30 Sep 2017	1,664,626
2	Asset size	44,970
3	Asset quality	(11,307)
4	Model updates	(154)
5	Methodology and policy	(14,555)
7	Foreign exchange movements	10,425
9	RWA as at 31 Dec 2017	1,694,005

Credit risk RWAs under the IRB approach increased by HK\$29,379m in the fourth quarter of the year, including an increase of HK\$10,425m due to foreign currency translation differences. The underlying increase was principally due to:

- an increase in asset size of HK\$44,970m, mainly as a result of corporate book growth in Hong Kong and mainland China; partly offset by
- a decrease in RWAs related to changes in methodology and policy of HK\$14,555m, mainly as a result of RWA initiatives.

- a decrease in RWAs due to improvements in asset quality of HK\$11,307m as a result of improved credit ratings in the wholesale portfolios.

RWA flow statement for market risk

The following table shows movements in RWAs for market risk determined under the internal models method ('IMM') approach. The analysis is prepared in accordance with the key drivers as specified in the standard template.

Table 16: MR2 – RWA flow statement of market risk exposures under IMM approach

		a	b	c	e	f
		VaR HK\$m	Stressed VaR HK\$m	IRC HK\$m	Other HK\$m	Total RWA HK\$m
1	RWA as at 30 Sep 2017	16,188	37,989	48,544	22,690	125,411
2	Movement in risk levels	(273)	(1,741)	(6,574)	(1,522)	(10,110)
3	Model updates/changes	(234)	(649)	(1,915)	–	(2,798)
6	Foreign exchange movements	10	22	29	13	74
8	RWA as at 31 Dec 2017	15,691	35,621	40,084	21,181	112,577

Market risk RWAs arising from internal models decreased by HK\$12,834m during the fourth quarter mainly from movements in risk levels and model updates.

Credit risk

Credit risk management

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 Wholesale Credit and Market Risk and RBWM are the constituent parts of the group's Risk functions that support the group's Chief Risk Officer in overseeing credit risks. Their major duties comprise undertaking independent review of large and high-risk credit proposals, overseeing large exposure policy and reporting on our wholesale and retail credit risk management disciplines, owning our credit policy and credit system programmes, overseeing portfolio management and reporting on risk matters to senior executive management and to regulators.

These credit risk functions work closely with other parts of the group's Risk function; for example, 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 Finance on stress testing.

The credit responsibilities of the group's Risk function are described on page 17 of the group's Annual Report and Accounts 2017.

Within the group, the credit risk functions comprise a network of credit risk management offices reporting within their respective local wholesale and retail credit risk functions, which in turn report to their relevant risk functions at group level. They fulfil an essential role as independent risk control units distinct from business line management in providing objective scrutiny of risk rating assessments, credit proposals for approval and other risk matters.

Credit risk operates through a hierarchy of personal credit limit approval authorities. 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 in accordance with Group standards. Above these thresholds of delegated personal credit limited approval authorities, approval must be sought from the regional and, as appropriate, global credit risk function.

Credit risk management

Our exposures to credit risk arise 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. Senior management receives a variety of reports on our credit risk exposures including loan impairments, total exposures and RWAs, as well as updates on specific portfolios that are considered to have heightened credit risk.

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 'Credit risk under internal ratings-based approach' on pages 26 to 29.

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.

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.

We constantly seek to improve the quality of our risk management. IT systems that process credit risk data continue to be enhanced in order to deliver both comprehensive management information in support of business strategy and solutions to evolving regulatory reporting requirements.

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; they are subject to review and modification in 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 'Model performance' on page 36.

Credit risk models governance

Model governance is under the general oversight of group Wholesale Model Oversight Committee ('WMOC') and Retail Banking and Wealth Management Risk MOC ('RMOC') and is described more fully on page 26.

Credit quality of assets

We are a universal bank with a conservative approach to credit risk. This is reflected in our credit risk profile being diversified across a number of asset classes and geographies with a credit quality profile mainly concentrated in the higher quality bands.

Credit quality of assets

Credit quality of exposures

Tables 17 to 21 analyse credit exposures between defaulted and non-defaulted, changes in defaulted loans and debt securities, exposures by geographical locations, industries and residual

maturity on a regulatory consolidation basis. The exposures covered in the tables include loans, debt securities and off-balance sheet exposures. Loans are generally referred to as any on-balance sheet exposures included as credit risk for non-securitisation exposures, covering exposures to customers, banks, sovereigns, etc. Cash items and non-financial assets are excluded.

Table 17: CR1 – Credit quality of exposures

	a	b	c	d
	Gross carrying amounts of			
	Defaulted exposures	Non-defaulted exposures	Allowances/impairments	Net values
	HK\$m	HK\$m	HK\$m	HK\$m
1 Loans	18,321	3,955,456	13,045	3,960,732
2 Debt securities	–	1,354,356	–	1,354,356
3 Off-balance sheet exposures	1,607	2,825,650	54	2,827,203
4 Total at 31 Dec 2017	19,928	8,135,462	13,099	8,142,291

Table 18: CR2 – Changes in defaulted loans and debt securities

	a
	HK\$m
1 Defaulted loans and debt securities at 30 Jun 2017	21,256
2 Loans and debt securities that have defaulted since 30 Jun 2017	5,063
3 Returned to non-defaulted status	(970)
4 Amounts written off	(2,870)
5 Other changes	(4,158)
6 Defaulted loans and debt securities at 31 Dec 2017	18,321

¹ Other changes included repayment and foreign exchange movements.

Table 19: CRB1 – Exposures by geographical location

	Gross carrying amounts at 31 Dec 2017
	HK\$m
Hong Kong	4,715,152
Mainland China	923,663
Others	2,516,575
Total	8,155,390

¹ Any segment which constitutes less than 10% of total gross carrying amounts is disclosed on an aggregated basis under the category 'others'.

Table 20: CRB2 – Exposures by industry

	Gross carrying amounts at 31 Dec 2017
	HK\$m
Property development and investment	891,844
Financial concerns	1,585,710
Individuals	1,951,892
Others	3,725,944
Total	8,155,390

¹ Any segment which constitutes less than 10% of total gross carrying amounts is disclosed on an aggregated basis under the category 'others'.

Table 21: CRB3 – Exposures by residual maturity

	Gross carrying amounts at 31 Dec 2017
	HK\$m
Less than 1 year	4,019,989
Between 1 and 5 years	2,228,159
More than 5 years	1,819,562
Undated	87,680
Total	8,155,390

Impaired exposures, past-due but not impaired exposures and renegotiated exposures

Tables 22 to 25 analyse impaired exposures, impairment allowances, past-due but not impaired exposures and renegotiated exposures on a regulatory consolidation basis.

Our approach for determining impairment allowances is explained in Note 1.2(d) of the group's *Annual Report and Accounts 2017*, and the group's definitions for accounting purposes of 'impaired' and 'renegotiated' are set out on page 21. The accounting

definition of impaired and the regulatory definition of default are generally aligned.

For individually assessed customer loans and advances, where the industry sector comprises not less than 10% of the group's total gross loans and advances to customers, the analysis of gross impaired loans and advances and allowances by major industry sectors based on categories and definitions used by the HSBC Group is as follows:

Table 22: CRB4 – Impaired exposures and related allowances and write-offs by industry

	Footnote	Total gross loans and advances to customers ¹	Gross impaired advances	Individually assessed allowances	Collectively assessed allowances	Net new impairment allowances	Advances written-off in a year
		HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
At 31 Dec 2017							
Residential mortgages		855,788	2,205	(190)	(51)	22	48
Commercial, industrial and international trade		911,376	8,642	(5,379)	(2,295)	1,910	1,951
Other property-related lending		360,757	576	(210)	(132)	160	74
Others	2	1,209,349	6,156	(2,450)	(2,338)	3,132	2,922
Total		3,337,270	17,579	(8,229)	(4,816)	5,224	4,995

1 The amounts shown in column 'Total gross loans and advances to customers' represent the loans and advances to customers gross of provisions in the financial statements under regulatory consolidation scope.

2 Any segment which constitutes less than 10% of total gross loans and advances to customers is disclosed on an aggregated basis under the category 'others'.

Impairment is assessed collectively to cover losses that have been incurred but have not yet been identified on loans subject to

individual assessment or for homogeneous groups of loans that are not considered individually significant.

Table 23: CRB5 – Impaired exposures and related allowances and write-offs by geographical location

	Footnote	Total gross loans and advances to customers ¹	Gross impaired advances	Individually assessed allowances	Collectively assessed allowances	Net new impairment allowances	Advances written-off in a year
		HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
At 31 Dec 2017							
Hong Kong		2,103,410	6,957	(3,429)	(2,240)	3,292	2,458
Mainland China		319,826	1,720	(1,181)	(676)	576	635
Others	2	914,034	8,902	(3,619)	(1,900)	1,356	1,902
Total		3,337,270	17,579	(8,229)	(4,816)	5,224	4,995

1 The amounts shown in column 'Total gross loans and advances to customers' represent the loans and advances to customers gross of provisions in the financial statements under regulatory consolidation scope.

2 Any segment which constitutes less than 10% of total gross loans and advances to customers is disclosed on an aggregated basis under the category 'others'.

Past-due but not impaired exposures are those loans where, although customers have failed to make payments in accordance with the contractual terms of their facilities, they have not met the impaired loan criteria.

The amounts in the following table reflect exposures designated as past due but not impaired. Examples of exposures designated as

past-due but not impaired include loans that have missed the most recent payment date but on which there is no evidence of impairment, and short-term trade facilities past due more than 90 days for technical reasons, such as delays in documentation, but where there is no concern over the creditworthiness of the counterparty.

Table 24: CRB6 – Ageing analysis of accounting past-due but not impaired exposures

	Up to 29 days	30-59 days	60-89 days	90-180 days	Over 180 days	Total
	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
At 31 Dec 2017						
Loans and advances to customers held at amortised cost	24,976	3,572	1,326	4	–	29,878
– personal	15,272	2,704	954	–	–	18,930
– corporate and commercial	7,498	868	372	4	–	8,742
– non-bank financial institutions	2,206	–	–	–	–	2,206
Placings with and advances to banks held at amortised cost	–	–	–	–	–	–
Other assets	74	28	27	18	103	250
Total	25,050	3,600	1,353	22	103	30,128

Table 25: CRB7 – Breakdown of renegotiated loans between impaired and not impaired

	31 Dec 2017 HK\$m
Neither past-due nor impaired	2,341
Past-due but not impaired	139
Impaired	4,713
Total	7,193

Loans and advances to customers

Tables 26 to 28 analyse loans and advances to customers by geographical locations, by industries and overdue and rescheduled loans and advances on an accounting consolidation basis which is different from the basis of regulatory consolidation.

As a result, the total gross loans and advances to customers in table 26 and 27 are different from that in tables 22 and 23.

The following analysis of loans and advances to customers by geographical areas is in accordance with the location of counterparties, after recognised risk transfer.

Table 26: Loans and advances to customers by geographical location

	Hong Kong HK\$m	Rest of Asia-Pacific HK\$m	Other HK\$m	Total HK\$m
At 31 Dec 2017				
Gross loans and advances to customers	1,699,956	1,337,057	305,012	3,342,025

Tables 27 and 28 analyse the group's loans and advances to customers based on the categories contained in the 'Quarterly Analysis of Loans and Advances and Provisions – (MA(BS)2A)'

return required to be submitted to the HKMA by branches of the Bank and by banking subsidiaries in Hong Kong.

Table 27: Loans and advances to customers by industry

	Gross Advances at 31 Dec 2017 HK\$m	Collateral and other security at 31 Dec 2017 HK\$m
Industrial, commercial and financial	917,405	436,813
– property development	137,886	46,962
– property investment	305,491	194,711
– financial concerns	86,044	58,693
– stockbrokers	10,633	1,542
– wholesale and retail trade	94,809	25,341
– manufacturing	53,318	12,098
– transport and transport equipment	51,649	30,166
– recreational activities	1,560	451
– information technology	33,840	1,837
– others	142,175	65,012
Individuals	669,679	571,725
– advances for the purchase of flats under the Hong Kong Government's Home Ownership Scheme, Private Sector Participation Scheme and Tenants Purchase Scheme	36,976	36,976
– advances for the purchase of other residential properties	485,927	485,927
– credit card advances	60,204	–
– others	86,572	48,822
Gross loans and advances to customers for use in Hong Kong	1,587,084	1,008,538
Trade Finance	184,892	32,361
Gross loans and advances to customers for use outside Hong Kong	1,570,049	569,535
Gross loans and advances to customers	3,342,025	1,610,434

The categories of advances, and the relevant definitions, used by the HKMA differ from those used for internal purposes by the HSBC Group as disclosed in Note 10 in the group's *Annual Report and Accounts 2017*.

The geographical information shown above has been classified by the location of the principal operations of the subsidiary and by the location of the branch responsible for advancing the funds.

Collateral includes any tangible security that has a determinable fair market value and is readily marketable. This includes (but is not limited to) cash and deposits, stocks and bonds, mortgages over properties and charges over other fixed assets, such as plant and equipment. Where collateral values are greater than gross advances, only the amount of collateral up to the gross advance has been included.

Table 28: Overdue and rescheduled loans and advances to customers

	Hong Kong		Rest of Asia-Pacific		Total	
	HK\$m	% ¹	HK\$m	% ¹	HK\$m	% ¹
At 31 Dec 2017						
Gross amounts which have been overdue with respect to either principal or interest for:						
– more than three months but not more than six months	458	–	1,753	0.2	2,211	0.1
– more than six months but not more than one year	1,090	0.1	1,194	0.1	2,284	0.1
– more than one year	3,683	0.2	4,196	0.3	7,879	0.2
Total	5,231	0.3	7,143	0.6	12,374	0.4
Individually assessed impairment allowances made in respect of amounts overdue	(2,420)		(3,860)		(6,280)	
Fair value of collateral held in respect of amounts overdue	1,946		2,848		4,794	
Rescheduled loans and advances to customers	421	–	2,564	0.2	2,985	0.1

¹ Percentages shown are of gross loans and advances to customers.

Rescheduled loans and advances to customers are those loans and advances that have been restructured or renegotiated because of deterioration in the financial position of the borrower, or because of the inability of the borrower to meet the original repayment schedule. Rescheduled loans and advances to customers are stated net of any loans and advances that have subsequently become overdue for more than three months and which are included in 'Overdue loans and advances to customers'.

Off-balance sheet exposures other than derivative transactions

The following table gives the nominal contract amounts and risk-weighted amounts of contingent liabilities and commitments. The

information is consistent with that in the 'Capital Adequacy Ratio' return submitted to the HKMA by the group.

The return is prepared on a consolidated basis as specified by the HKMA under the requirements of section 3C(1) of the BCR.

For accounting purposes, acceptances and endorsements are recognised on the balance sheet in 'Other assets' in accordance with HKAS 39 'Financial Instruments: Recognition and Measurement'. For the purpose of the BCR, acceptances and endorsements are included in the capital adequacy calculation as if they were contingencies.

Table 29: Off-balance sheet exposures other than derivative transactions

	31 Dec 2017 HK\$m
Contract amounts	
Direct credit substitutes	62,760
Transaction-related contingencies	191,734
Trade-related contingencies	100,241
Forward asset purchases	6,312
Forward deposits placed	447
Commitments that are unconditionally cancellable without prior notice	2,135,488
Commitments which have an original maturity of not more than one year	76,692
Commitments which have an original maturity of more than one year	254,374
Total	2,828,048
Risk-weighted amounts	322,676

Credit risk under internal ratings-based approach

The internal ratings system and its risk components

Model governance

Model governance is under the general oversight of group WMOC and RMOC. The group WMOC and RMOC are supported by credit risk, businesses, Finance and Independent Model Review team with comparable terms of reference where required.

The group WMOC and RMOC meet regularly and report to both group RMM as well as Global MOC. The Global MOC is chaired by the Global Risk function, and its membership is drawn from Risk, Finance and businesses. Its primary responsibilities are to oversee the framework for the management of model risk, bring a strategic approach to model-related issues across the region, and to oversee the governance of our risk rating models, their consistency, within the regulatory framework. Through its oversight of the functional MOCs, it identifies emerging risks for all aspects of the risk rating system, ensuring that model risk is managed within our risk appetite statement, and formally advises RMM on any material model-related issues.

The MOCs are responsible for model risk management. The approval of models/model changes is the responsibility of individual approvers. Model Owner/Technical Expert ensures that the model is technically sound, has been developed robustly and follows the relevant modelling policies, standards, internal and regulatory requirements. Whereas the Model User/Steward for the function ensures that the model makes sense to the business or function where it will be used and that the model satisfies the requirements from the business, function and regulators.

Models are also subject to an independent model review and validation process led by the Independent Model Review team. The Independent Model Review team provides robust challenge to the modelling approaches used across the region, and ensures that the performance of those models is transparent and that their limitations are visible to key stakeholders.

Internal Audit, or a comparable independent model review unit, conducts regular reviews of the risk rating model application by the global businesses.

Nature of exposures within each IRB class

The group uses the advanced IRB approach for the majority of its business under the approval granted by the HKMA. This includes the following major classes of non-securitisation exposures:

- Corporate exposures, including exposures to global and local large corporates, middle-market corporates, non-bank financial institutions and specialised lending.
- Sovereign exposures, including exposures to central governments, central monetary institutions, multilateral development banks and relevant international organisations.
- Bank exposures, including exposures to banks and regulated securities firms.
- Retail exposures, including residential mortgages, qualifying revolving retail exposures and other retail exposures.
- Equity exposures.
- Other exposures, including cash items and other assets.

At 31 December 2017, the portions of exposure at default ('EAD') and RWAs within the group covered by IRB approach are summarised in the following table. The remaining portions not covered by IRB approach are under STC approach.

Table 30: Percentage of total EAD and RWAs covered by IRB approach

Portfolio	Percentage of total EAD under IRB approach	Percentage of total RWA under IRB approach
Corporate exposures (includes Small-and-medium sized corporates and other corporates and specialised lending)	94%	90%
Sovereign exposures	99%	100%
Bank exposures (including securities firms)	100%	99%
Residential mortgage loans	87%	71%
Other retail exposures	79%	50%
Equity exposures	100%	100%
Other exposures	100%	100%

The above table covers credit risk for non-securitisation exposures excluding counterparty credit risk. For counterparty credit risk, the percentage of total RWAs covered by models is 90% for corporate exposures and 100% for both bank and sovereign exposures.

Measurement and monitoring – risk rating systems

Exposure to credit risk arises from a very wide range of customers and product types, and the risk rating systems in place to measure and monitor these risks are correspondingly diverse.

Credit risk exposures are generally measured and managed in portfolios of either distinct customer types or product categories. Risk rating systems for the former are designed to assess the default risk of, and loss severity associated with, customers who are typically managed as individual relationships; these rating systems tend to have a higher subjective content. Risk rating systems for the latter are generally more analytical, applying techniques such as behavioural analysis across product portfolios comprising large numbers of homogeneous transactions.

A fundamental principle of the group's policy and approach is that analytical risk rating systems and scorecards are decision tools facilitating management, serving ultimately judgmental decisions for which individual approvers are accountable. In the case of automated decision-making processes, accountability rests with those responsible for the parameters built into those processes/systems and the controls surrounding their use. For distinct customers, the credit process requires at least annual review of facility limits granted. Review may be more frequent, as required by circumstances.

Group standards govern the process through which risk rating systems are initially developed, judged fit for purpose, approved and implemented; the conditions under which individual approvers can override analytical risk model outcomes; and the process of model performance monitoring and reporting. There is emphasis on an effective dialogue between business lines and risk management, appropriate independence of decision takers, and a

good understanding and robust reflection 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 and the greater availability and quality of data. Structured processes and metrics are in place to capture relevant data and feed it into continuous model improvement.

Application of IRB parameters

The group's credit risk rating framework incorporates the probability of default ('PD') of a borrower and the loss severity, expressed in terms of EAD and loss given default ('LGD'). These measures are used to calculate both expected loss ('EL') and capital requirements, subject to any floors required by the HKMA. They are also used in conjunction with other inputs to inform rating assessments for the purpose of credit approval and many other risk management decisions. The narrative explanations that follow relate to the IRB advanced approaches, that is, IRB advanced for distinct customers and retail IRB for the portfolio-managed retail business.

Wholesale business

PD for wholesale customer segments (Central Governments and Central Banks (Sovereigns), Institutions, Corporates) is estimated using a Customer Risk Rating ('CRR') scale of 23 grades, of which 21 are non-default grades representing varying degrees of strength of financial condition and two are default grades. A score generated by a model for the individual borrower type is mapped to the corresponding CRR. The process through which this, or a judgmentally amended CRR, is then recommended to and reviewed by a credit approver takes into account all additional information relevant to the risk rating determination, including external ratings where available. The approved CRR is mapped to a PD value range of which the 'mid-point' is used in the regulatory capital calculation. PD models are developed where the risk profile of corporate borrowers is specific to a country and sector. For illustration purposes, the CRR is also mapped to external ratings of Standard and Poor's ('S&P'), though we also benchmark against other agencies' ratings in an equivalent manner.

LGD and EAD estimation for the wholesale business is subject to a Group framework of basic principles. EAD is estimated to a 12-month horizon and broadly represents the current exposure, plus an estimate for future increases in exposure, taking into account such factors as available but undrawn facilities and the crystallisation of contingent exposures, post-default. LGD focuses on the facility and collateral structure, involving factors like facility priority/seniority, the type and value of collateral, type of client and variances in experience, and is expressed as a percentage of EAD.

The group uses the Supervisory Slotting Criteria approach in rating its specialised lending exposures. Under this approach, ratings are determined by considering both the borrower and the transaction risk characteristics.

Retail Business

The wide range of application and behavioral information used in the management of retail portfolios has been supplemented with models to derive the measures of PD, EAD and LGD required for Basel framework. For management information and reporting purposes, retail portfolios are segmented according to location and analytically derived PD bands, in nine composite PD grades, facilitating comparability across the group's retail customer segments, business lines and product types.

PD models are developed using statistical estimation generally based on a minimum of five years of historical data. The modelling approach is typically hybrid.

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

- Closed-end products without the facility for additional drawdowns, EAD is estimated as the outstanding balance of accounts at the time of observation; or

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- EAD for products with the facility for additional drawdowns is estimated as the outstanding balance of accounts at the time of observation plus a credit conversion factor applied to the undrawn portion of the facility.
- LGD estimates have more variation, particularly in respect of the time period that is used to quantify economic downturn assumptions.

Table 31: Wholesale IRB credit risk models

Regulatory asset classes measured	Component	Number of significant models	Model description and methodology	Number of years loss data	Regulatory Floors
Sovereign/Multilateral development banks	PD	1	A shadow rating approach that includes macroeconomic and political factors, constrained with expert judgement.	>10	No
	LGD	1	An unsecured model built on assessment of structural factors that influence the country's long-term economic performance. For unsecured LGD, a floor of 45% is applied.	8	45% ¹
	EAD	1	A cross-classification model that uses both internal data and expert judgement, as well as information on similar exposure types from other asset classes.	8	EAD must be at least equal to the current utilisation of the balance at account level
Bank/Securities firms	PD	2	Statistical models that combine quantitative analysis on financial information with expert inputs and macroeconomic factors.	10	0.03%
	LGD	1	A quantitative model that produces both downturn and expected LGD. Several securities types are included in the model to recognise collateral in the LGD calculation. For unsecured LGD, a floor of 45% is applied.	10	45% ²
	EAD	1	A quantitative model that assigns CCF taking into account product types and committed/uncommitted indicator to calculate EAD using current utilisation and available headroom.	10	EAD must be at least equal to the current utilisation of the balance at account level
Other Corporate/Small-and medium-sized corporates ³	PD	13	The corporate models use financial information, macroeconomic information and market-driven data, and is complemented by a qualitative assessment. The NBFIs models which are the predominantly statistical models that combine quantitative analysis on financial information with expert inputs.	>= 10	0.03%
	LGD	1	Regional statistical model covering all corporates, developed using historical loss/recovery data and various data inputs, including collateral information, facility seniority and customer geography.	>10	No
	EAD	1	Regional statistical model covering all corporates, developed using historical utilisation information and various data inputs, including product type and nature of commitment.	>10	EAD must be at least equal to the current utilisation of the balance at account level

¹ LGD floor exempted to the People's Republic of China and Hong Kong Special Administrative Region.

² LGD floor exempted to intra-group entities.

³ Excludes specialised lending exposures subject to supervisory slotting approach.

Table 32: Material retail IRB credit risk models

Retail Portfolio	Component	Number of significant models	Model description and methodology	Number of years loss data	Regulatory Floors
Hong Kong – HSBC Residential Mortgages (Residential mortgage exposures)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	>10	0.03%
	LGD	3	2 statistical models and 1 historical average model based on estimate of loss incurred over a recovery period derived from historical data with downturn adjustment.	>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 (Qualifying revolving retail exposures and Other retail exposures to individuals)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	>10	0.03%
	LGD	1	Statistical model based on forecasting the amount of expected losses. Downturn LGD derived using data from the period with highest observed default rate.	>10	
	EAD	1	Statistical model which derives a credit limit utilisation which is used to determine the EAD.	>10	EAD must at least be equal to current balance
Hong Kong – HSBC Personal Loans (Qualifying revolving retail exposures and Other retail exposures to individuals)	PD	1	Statistical model built on internal behavioural data 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. Downturn LGD derived using data from the period with highest observed default rate.	> 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
Hong Kong – HSBC Overdraft (Qualifying revolving retail exposures and Other retail exposures to individuals)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	> 10	PD floor of 0.03%
	LGD	1	Statistical model based on forecasting the amount of expected losses. Downturn LGD derived using data from the period with highest observed default rate.	> 10	
	EAD	1	Statistical model which derives a credit limit utilisation which is used to determine the EAD.	> 10	EAD must at least be equal to current balance
Hong Kong – Hang Seng Personal Residential Mortgages (Residential mortgage exposures)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	>10	0.03%
	LGD	3	2 statistical models and 1 historical average model based on estimate of loss incurred over a recovery period by different product types 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 – Hang Seng Credit Cards (Qualifying revolving retail exposures and Other retail exposures to individuals)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	>10	0.03%
	LGD	1	Statistical model based on forecasting the amount of expected future losses with downturn adjustment.	>10	
	EAD	1	Statistical model which derives a credit limit utilisation by segment which is used to determine the EAD.	>10	EAD must at least be equal to current balance
Hong Kong – Hang Seng Personal Loans (Qualifying revolving retail exposures and Other retail exposures to individuals)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	> 10	PD floor of 0.03%
	LGD	1	Statistical model based on forecasting the amount of expected future losses with downturn adjustment.	> 10	
	EAD	1	EAD derived by different product types. Statistical model which derives a credit conversion factor to determine the proportion of undrawn limit to be added to the balance at observation for revolving nature while rule based calculation based on current balance for non-revolving nature.	> 10	EAD must at least be equal to current balance
Other Asia Pacific countries – Residential Mortgage (Residential mortgage exposures)	PD	1	Statistical model built on internal behavioural data and calibrated to a long-run default rate by segment.	> 10	PD floor of 0.03%
	LGD	1	Statistical model or historical average model based on estimate of loss incurred over a recovery period derived from historical data with downturn adjustment.	> 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 or statistical model which derives a credit limit utilisation which is used to determine the EAD.	> 10	EAD must at least be equal to current balance

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Table 33.1: CR6 – Credit risk exposures by portfolio and PD range – for IRB approach (Wholesale)

	a	b	c	d	e	f	g	h	i	j	k	l
PD scale	Original on-balance sheet gross exposure HK\$m	Off-balance sheet exposures pre-CCF HK\$m	Average CCF %	EAD post-CRM and post-CCF HK\$m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWA HK\$m	RWA density %	EL HK\$m	Provisions HK\$m
Portfolio (i) – Sovereign												
0.00 to < 0.15	1,493,356	710	52.1	1,493,726	0.02	524	34.8	1.39	84,884	6	114	
0.15 to < 0.25	–	34	50.0	17	0.22	15	45.0	5.00	12	70	–	
0.25 to < 0.50	4,368	40	30.0	4,380	0.37	17	45.0	1.04	1,949	44	7	
0.50 to < 0.75	5,703	–	–	5,703	0.63	6	45.0	1.15	3,466	61	16	
0.75 to < 2.50	16,464	494	27.1	16,598	0.90	23	45.0	1.37	12,329	74	67	
2.50 to < 10.00	350	–	–	350	4.20	5	45.0	5.00	602	172	7	
10.00 to <100.00	–	–	–	–	–	–	–	–	–	–	–	
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
Sub-total at 31 Dec 2017	1,520,241	1,278	41.7	1,520,774	0.03	590	35.0	1.39	103,242	7	211	1,450
Portfolio (ii) – Bank												
0.00 to < 0.15	435,685	37,504	35.9	449,143	0.05	12,232	41.1	1.22	60,095	13	87	
0.15 to < 0.25	16,752	4,619	41.7	18,680	0.22	1,186	37.6	0.96	5,937	32	15	
0.25 to < 0.50	37,033	2,130	37.2	37,826	0.37	579	38.0	1.04	17,365	46	53	
0.50 to < 0.75	6,347	777	14.0	6,457	0.63	382	48.0	0.58	4,447	69	20	
0.75 to < 2.50	6,453	1,087	35.3	6,837	1.39	547	44.2	0.70	5,689	83	41	
2.50 to < 10.00	1,312	1,340	27.7	1,683	3.63	157	52.8	0.49	2,242	133	33	
10.00 to <100.00	14	2	20.0	14	12.57	10	60.1	0.51	36	249	1	
100.00 (Default)	203	–	–	203	100.00	2	61.1	0.55	–	–	123	
Sub-total at 31 Dec 2017	503,799	47,459	36.0	520,843	0.15	15,095	40.9	1.18	95,811	18	373	1,600
Portfolio (iii) – Corporate – small and-medium sized corporates												
0.00 to < 0.15	19,253	17,189	34.6	25,184	0.10	933	30.1	2.58	4,123	16	8	
0.15 to < 0.25	22,351	14,570	32.0	27,007	0.22	1,036	26.7	2.47	6,304	23	16	
0.25 to < 0.50	49,431	14,608	29.4	53,730	0.37	1,471	28.6	2.62	17,356	32	57	
0.50 to < 0.75	39,528	18,494	28.9	44,880	0.63	1,460	30.2	2.43	18,571	41	85	
0.75 to < 2.50	106,106	44,726	26.2	117,822	1.49	4,930	28.8	2.09	61,146	52	510	
2.50 to < 10.00	13,444	10,368	21.3	15,656	3.82	965	35.0	1.45	12,537	80	215	
10.00 to <100.00	925	567	18.3	1,029	21.21	60	46.9	0.87	1,804	175	110	
100.00 (Default)	1,075	193	79.0	1,228	100.00	63	55.1	1.74	–	–	677	
Sub-total at 31 Dec 2017	252,113	120,715	28.5	286,536	1.52	10,918	29.4	2.28	121,841	43	1,678	3,877
Portfolio (iv) – Corporate – other												
0.00 to < 0.15	560,992	584,832	33.3	755,467	0.08	21,433	46.5	2.02	181,987	24	298	
0.15 to < 0.25	176,942	217,478	31.4	245,225	0.22	4,710	43.6	1.77	93,195	38	235	
0.25 to < 0.50	162,374	189,416	30.8	220,139	0.37	3,998	43.8	1.61	107,873	49	357	
0.50 to < 0.75	144,131	140,727	27.5	182,799	0.63	3,469	43.8	1.67	118,380	65	504	
0.75 to < 2.50	359,700	322,498	24.3	437,250	1.40	10,641	41.2	1.47	349,326	80	2,493	
2.50 to < 10.00	67,248	85,063	27.2	90,356	4.14	2,408	45.9	1.31	115,867	128	1,726	
10.00 to <100.00	3,067	2,811	33.1	3,998	14.25	163	51.0	1.02	8,666	217	286	
100.00 (Default)	10,828	1,272	24.1	11,135	100.00	495	49.6	1.54	–	–	5,527	
Sub-total at 31 Dec 2017	1,485,282	1,544,097	30.0	1,946,369	1.27	47,317	44.4	1.75	975,294	50	11,426	26,266

Table 33.2: CR6 – Credit risk exposures by portfolio and PD range – for IRB approach (Retail)

	a	b	c	d	e	f	g	h	i	j	k	l
	Original on-balance sheet gross exposure	Off-balance sheet exposures pre-CCF	Average CCF	EAD post-CRM and post-CCF	Average PD	Number of obligors	Average LGD	Average maturity	RWA	RWA density	EL	Provisions
PD scale	HK\$m	HK\$m	%	HK\$m	%		%	years	HK\$m	%	HK\$m	HK\$m
Portfolio (v) – Retail – qualifying revolving retail exposures												
0.00 to < 0.15	18,346	272,931	43.1	136,084	0.07	3,274,276	102.2	–	5,935	4	94	
0.15 to < 0.25	4,016	53,286	43.7	27,277	0.20	649,046	101.5	–	2,958	11	56	
0.25 to < 0.50	9,505	54,394	39.7	31,079	0.37	635,005	99.1	–	5,370	17	113	
0.50 to < 0.75	8,733	20,364	48.4	18,593	0.59	261,966	97.5	–	4,617	25	107	
0.75 to < 2.50	19,344	36,649	40.9	34,319	1.39	500,419	96.1	–	15,961	47	458	
2.50 to < 10.00	10,564	8,163	49.6	14,615	4.91	176,488	95.7	–	16,479	113	687	
10.00 to < 100.00	3,229	1,673	49.7	4,060	25.99	55,332	95.2	–	8,710	215	990	
100.00 (Default)	65	5	9.6	65	100.00	1,099	92.3	–	–	–	60	
Sub-total at 31 Dec 2017	73,802	447,465	43.0	266,092	1.01	5,553,631	100.2	–	60,030	23	2,565	1,498
Portfolio (vi) – Retail – Residential mortgage exposures												
0.00 to < 0.15	335,148	27,876	63.3	352,782	0.07	176,081	10.4	–	47,061	13	25	
0.15 to < 0.25	109,223	3,473	56.2	111,175	0.20	45,169	10.5	–	12,911	12	23	
0.25 to < 0.50	110,555	1,752	62.4	111,648	0.36	57,320	10.2	–	15,227	14	40	
0.50 to < 0.75	60,654	408	100.6	61,065	0.64	29,368	17.0	–	12,847	21	70	
0.75 to < 2.50	108,562	2,240	86.1	110,492	1.32	57,644	10.4	–	19,517	18	152	
2.50 to < 10.00	32,231	98	96.8	32,326	4.46	13,237	11.2	–	11,284	35	165	
10.00 to < 100.00	3,705	862	99.9	4,566	16.43	8,474	11.7	–	2,851	62	90	
100.00 (Default)	2,410	20	–	2,410	100.00	2,886	12.4	–	–	–	298	
Sub-total at 31 Dec 2017	762,488	36,729	65.3	786,464	0.93	390,179	11.0	–	121,698	15	863	2,040
Portfolio (vii) – Retail – small business retail exposures												
0.00 to < 0.15	3,318	–	–	3,318	0.07	1,121	5.7	–	37	1	–	
0.15 to < 0.25	323	–	–	323	0.17	99	15.2	–	18	6	–	
0.25 to < 0.50	169	–	–	169	0.36	30	24.1	–	24	14	–	
0.50 to < 0.75	361	–	–	361	0.54	137	0.8	–	2	1	–	
0.75 to < 2.50	489	–	–	489	1.18	202	6.1	–	32	7	–	
2.50 to < 10.00	448	–	–	448	5.22	165	7.0	–	47	10	2	
10.00 to < 100.00	–	–	–	–	–	–	–	–	–	–	–	
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
Sub-total at 31 Dec 2017	5,108	–	–	5,108	0.68	1,754	6.7	–	160	3	2	1
Portfolio (viii) – Other retail exposures to individuals												
0.00 to < 0.15	6,031	40,860	30.0	18,276	0.08	181,097	5.7	–	232	1	1	
0.15 to < 0.25	2,593	26,364	33.5	11,428	0.21	121,172	18.5	–	953	8	5	
0.25 to < 0.50	4,071	12,016	36.4	8,439	0.37	66,384	21.9	–	1,137	13	7	
0.50 to < 0.75	6,066	6,052	44.6	8,766	0.63	43,677	31.3	–	2,059	23	15	
0.75 to < 2.50	4,594	1,857	32.6	5,200	1.62	39,837	62.8	–	3,954	76	57	
2.50 to < 10.00	6,703	3,805	42.2	8,306	3.46	49,114	32.4	–	3,918	47	121	
10.00 to < 100.00	661	24	43.5	672	15.93	9,223	72.9	–	957	142	79	
100.00 (Default)	84	25	21.5	89	100.00	1,610	104.1	–	–	–	93	
Sub-total at 31 Dec 2017	30,803	91,003	33.4	61,176	1.14	512,114	23.3	–	13,210	22	378	207

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Table 33.3: CR6 – Credit risk exposures by portfolio and PD range – for IRB approach (Total)

	a	b	c	d	e	f	g	h	i	j	k	l
	Original on-balance sheet gross exposure	Off-balance sheet exposures pre-CCF	Average CCF	EAD post-CRM and post-CCF	Average PD	Number of obligors	Average LGD	Average ¹ maturity	RWA	RWA density	EL	Provisions
	HK\$m	HK\$m	%	HK\$m	%		%	years	HK\$m	%	HK\$m	HK\$m
Total (sum of all portfolios) at 31 Dec 2017	4,633,636	2,288,746	33.3	5,393,362	0.76	6,531,598	38.2	1.59	1,491,286	28	17,496	36,939

¹ The average maturity is relevant to wholesale portfolios only.

The average PD decreased from 0.86% to 0.76% in the second half of 2017, mainly due to improved credit ratings in the corporate portfolio.

Table 34: CR10 – Specialised Lending under supervisory slotting criteria approach – Other than HVCRE

Supervisory Rating Grade	Remaining Maturity	a	b	c	EAD amount				e	f
		On-balance sheet exposure amount	Off-balance sheet exposure amount	SRW	PF	OF	IPRE	Total	RWA	Expected loss amount
		HK\$m	HK\$m	%	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
Strong [^]	Less than 2.5 years	18,787	2,061	50	2,752	–	16,742	19,494	9,747	–
Strong	Less than 2.5 years	5,002	3,509	70	2,419	–	3,924	6,343	4,440	25
Strong [^]	Equal to or more than 2.5 years	4,559	973	50	4,024	–	884	4,908	2,454	–
Strong	Equal to or more than 2.5 years	32,113	1,254	70	8,404	–	24,172	32,576	22,803	130
Good [^]	Less than 2.5 years	4,740	624	70	241	63	4,710	5,014	3,510	20
Good	Less than 2.5 years	4,514	685	90	–	–	4,720	4,720	4,247	38
Good [^]	Equal to or more than 2.5 years	3,660	232	70	3,762	–	–	3,762	2,633	15
Good	Equal to or more than 2.5 years	4,114	76	90	–	194	3,947	4,141	3,727	33
Satisfactory		3,578	275	115	3,017	–	658	3,675	4,226	103
Weak		324	70	250	349	–	–	349	872	28
Default		172	–	–	172	–	–	172	–	86
Total at 31 Dec 2017		81,563	9,759		25,140	257	59,757	85,154	58,659	478

[^] Use of preferential risk-weights.

Table 35: CR10 – Equity exposures under the simple risk-weight method

	a	c	d	e
	On-balance sheet exposure amount	SRW	EAD amount	RWA
	HK\$m	%	HK\$m	HK\$m
Categories				
Publicly traded equity exposures	77	300	77	230
All other equity exposures	6,623	400	6,623	26,493
Total at 31 Dec 2017	6,700		6,700	26,723

Credit risk under standardised approach

Use of external credit ratings under the standardised approach for credit risk

The standardised (credit risk) 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 (credit risk) approach requires banks to use risk assessments prepared by External Credit Assessment Institutions ('ECAI') 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:

- public sector entity exposures;

- bank or corporate exposures (those without an internal CRR); and
- collective investment scheme ('CIS') exposures.

The group uses external credit ratings from the following ECAIs:

- Fitch Ratings;
- Moody's Investors Service; and
- Standard & Poor's Ratings Services.

The group determines ECAI issuer ratings or ECAI issue-specific ratings in the banking book in a process consistent with Part 4 of the BCR.

All other exposure classes are assigned risk weightings as prescribed in the HKMA's BCR.

Table 36: CR5 – Credit risk exposures by asset classes and by risk weights – for STC approach

	a	c	d	e	f	g	h	j
Risk Weight	0%	20%	35%	50%	75%	100%	150%	Total credit risk exposures amount (post CCF and post CRM)
Exposure class	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
1 Sovereign exposures	16,387	27	–	46	–	–	–	16,460
2 PSE exposures	85,639	20,658	–	10,551	–	3,771	–	120,619
2a Of which: domestic PSEs	–	10,163	–	–	–	–	–	10,163
2b Of which: foreign PSEs	85,639	10,495	–	10,551	–	3,771	–	110,456
4 Bank exposures	–	908	–	855	–	99	–	1,862
5 Securities firm exposures	–	–	–	–	–	–	–	–
6 Corporate exposures	–	17,095	–	4,285	–	125,138	259	146,777
10 Regulatory retail exposures	–	–	–	–	71,747	–	–	71,747
11 Residential mortgage loans	17	–	100,157	6,377	6,891	5,941	–	119,383
12 Other exposures which are not past due exposures	–	–	–	–	–	16,391	–	16,391
13 Past due exposures	159	9	–	1	–	272	2,315	2,756
15 Total at 31 Dec 2017	102,202	38,697	100,157	22,115	78,638	151,612	2,574	495,995

Credit 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 a key aspect of effective risk management and takes many forms.

Our general policy is to promote the use of credit risk mitigation, justified by commercial prudence and capital efficiency. Specifically, detailed policies cover the acceptability, structuring and terms 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 commercial real estate ('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.

For credit risk mitigants comprising immovable property, the key determinant of concentration is geographic. Use of immovable property mitigants for risk management purposes is predominantly in Asia.

Financial collateral

Charges over financial instruments, such as cash, debt securities and equities are taken in some instances. It must be ensured that these financial instruments are liquid, tangible and documentation and processes provide adequate protection and the ability to realise the value of security with certainty and within a reasonable timeframe.

In the non-trading 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 sheet 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 and the relevant customer agreements are subject to review to ensure the legal right of offset remains appropriate.

Other forms of credit risk mitigation

Our Global Banking and Markets ('GB&M') 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. In our corporate lending, we also take guarantees from corporates and Export Credit Agencies ('ECA'). Corporates would normally provide guarantees as part of a parent/subsidiary or common parent relationship and would span a number of credit grades. The ECAs will normally be investment grade.

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. For residential mortgages, policy prescribes revaluation at intervals of up to three years, or more frequently as the need arises; for example, where the loan is in distress or 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. Revaluations are sought where, for example, material concerns arise in relation to the performance of the collateral. CRE revaluation 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.

Recognition of risk mitigation under the IRB approach

Within an IRB approach, risk mitigants are considered in two broad categories:

- those which reduce the intrinsic PD of an obligor and therefore operate as determinants of PD; and
- those which affect the estimated recoverability of obligations and require adjustment of LGD or, in certain limited circumstances, EAD.

The first category typically includes full parental guarantees – where one obligor within a group guarantees another. It is assumed that the guarantor's performance materially informs the PD of the guaranteed entity. PD estimates are also subject to a 'sovereign ceiling', constraining the risk ratings assigned to obligors in countries of higher risk, and where only partial parental support exists. In certain jurisdictions, certain types of third-party guarantee are recognised by substituting the obligor's PD with that of the guarantor.

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 considered 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 creditworthiness of providers of unfunded credit risk mitigation is taken into consideration as part of the guarantor's risk profile. 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. 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 or LGD;
- eligible financial collateral under the IRB advanced approach is recognised in LGD models; and
- for all other types of collateral, including real estate, the LGD for exposures calculated under the IRB advanced approach are calculated by models.

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 mismatches (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 financial collateral comprehensive method 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 37: CR3 – Overview of recognised credit risk mitigation

	a	b1	b	d	f	
	Exposures unsecured: carrying amount	Exposures to be secured	Exposures secured by recognised collateral	Exposures secured by recognised guarantees	Exposures secured by recognised credit derivative contracts	
	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	
1	Loans	1,895,194	2,065,538	1,519,430	416,719	400
2	Debt securities	1,331,955	22,401	–	22,201	–
3	Total at 31 Dec 2017	3,227,149	2,087,939	1,519,430	438,920	400
4	<i>Of which: defaulted</i>	<i>4,487</i>	<i>5,904</i>	<i>5,291</i>	<i>138</i>	<i>–</i>

Secured exposures increased from HK\$1,941,823m to HK\$2,087,939m in the second half of 2017, driven by overall loan growth.

Table 38: CR7 – Effects on RWA of recognised credit derivative contracts used as recognised credit risk mitigation – for IRB approach

	a	b	
	Pre-credit derivatives RWA	Actual RWA	
	HK\$m	HK\$m	
1	Corporate – Specialised lending under supervisory slotting criteria approach (project finance)	18,107	18,107
2	Corporate – Specialised lending under supervisory slotting criteria approach (object finance)	219	219
4	Corporate – Specialised lending under supervisory slotting criteria approach (income-producing real estate)	40,333	40,333
6	Corporate – Small-and-medium sized corporates	121,841	121,841
7	Corporate – Other corporates	975,338	975,294
8	Sovereigns	99,631	99,631
10	Multilateral development banks	3,611	3,611
11	Bank exposures – Banks	91,028	91,028
12	Bank exposures – Securities firms	4,783	4,783
14	Retail – Small business retail exposures	160	160
15	Retail – Residential mortgages to individuals	117,846	117,846
16	Retail – Residential mortgages to property-holding shell companies	3,852	3,852
17	Retail – Qualifying revolving retail exposures (QRRE)	60,030	60,030
18	Retail – Other retail exposures to individuals	13,210	13,210
19	Equity – Equity exposures under market-based approach (simple risk-weight method)	26,723	26,723
26	Other – Cash items	1,675	1,675
27	Other – Other items	142,414	142,414
28	Total (under the IRB calculation approaches) at 31 Dec 2017	1,720,801	1,720,757

Credit risk mitigation effects from credit derivative contracts are recognised through LGD adjustments. Covered exposures are subject to lower risk-weights as a result of reduced LGDs.

Table 39: CR4 – Credit risk exposures and effects of recognised credit risk mitigation – for STC approach

	a	b	c	d	e	f
	Exposures pre-CCF and pre-CRM		Exposures post-CCF and post-CRM		RWA and RWA density	
	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density
	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	%
Exposure classes						
1	Sovereign exposures	959	1	16,359	101	28
2	PSE exposures	150,378	11,307	117,227	3,392	13,179
2a	<i>Of which: domestic PSEs</i>	<i>8,974</i>	<i>2,830</i>	<i>8,976</i>	<i>1,187</i>	<i>2,033</i>
2b	<i>Of which: foreign PSEs</i>	<i>141,404</i>	<i>8,477</i>	<i>108,251</i>	<i>2,205</i>	<i>11,146</i>
4	Bank exposures	1,224	204	1,754	108	708
5	Securities firm exposures	–	15	–	–	50
6	Corporate exposures	200,006	218,282	139,345	7,432	131,088
10	Regulatory retail exposures	74,464	245,420	70,483	1,264	53,810
11	Residential mortgage loans	116,756	11,143	116,684	2,699	49,353
12	Other exposures which are not past due exposures	47,444	35,974	14,805	1,586	16,391
13	Past due exposures	2,743	92	2,743	13	3,746
15	Total at 31 Dec 2017	593,974	522,438	479,400	16,595	268,303

Model performance

The disclosure covers wholesale and retail models which have been approved by regulators. It compares the PD estimated by our IRB models against actual default experience and shows our IRB models are generally conservative.

Table 40: CR9 – Back-testing of PD per portfolio

b	c(i)	c(ii)	c(iii)	d	e	f		g	h	i
						Number of obligors ^{1, 2}				
PD range	External rating equivalent (S&P)	External rating equivalent (Moody's)	External rating equivalent (Fitch)	Weighted average PD %	Arithmetic average PD by obligors %	End of previous year	End of the year	Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
Sovereigns										
0.00 to <0.15	AAA to BBB	Aaa to Baa2	AAA to BBB	0.02	0.03	40	42	–	–	–
0.15 to <0.25	BBB-	Baa3	BBB-	0.22	0.22	4	–	–	–	–
0.25 to <0.50	BBB-	Baa3	BBB-	0.37	0.37	1	2	–	–	–
0.50 to <0.75	BB+ to BB	Ba1 to Ba2	BB+ to BB	0.63	0.63	2	1	–	–	–
0.75 to <2.50	BB- to B+	Ba3 to B2	BB- to B-	1.64	1.58	4	3	–	–	–
2.5 to <10.00	B to B-	B2 to Caa1	CCC+ to CCC	5.75	5.75	1	1	–	–	–
10.00 to <100.00	B- to C	Caa1 to C	CCC to C	0.00	–	–	–	–	–	–
Banks										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.05	0.08	168	164	–	–	–
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	46	36	–	–	–
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	40	30	–	–	–
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	29	28	–	–	–
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.27	1.31	50	45	–	–	0.19
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	4.35	4.88	34	27	–	–	0.19
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	11.48	11.00	6	4	–	–	–
Corporate – small- and medium sized corporates										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.11	0.11	400	714	–	–	0.02
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	403	845	2	–	0.19
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	509	1,266	2	–	0.29
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	487	1,270	2	–	0.40
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.49	1.52	2,003	4,287	8	1	0.51
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	4.13	4.28	447	813	11	–	1.45
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	17.79	20.34	41	51	5	–	10.00
Corporate – other³										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.09	0.10	4,101	3,806	–	–	0.01
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	2,556	2,157	2	–	0.05
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	3,108	2,189	1	–	0.15
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	2,759	2,016	7	1	0.29
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.39	1.49	8,087	5,434	27	–	0.58
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	4.32	4.34	1,928	1,348	25	–	1.21
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	16.54	15.93	122	68	19	1	8.75

1 The number of obligors represents the obligor rated by key wholesale IRB models directly.

2 The number of obligors for corporates is being reported at counterparty level, while the number of obligors for banks and multilateral development banks is being reported at entity level. Sovereigns are reported at country level based on local currency and foreign currency ratings.

3 Specialised lending exposures are excluded.

Table 40: CR9 – Back-testing of PD per portfolio (continued)

b	d	e	f		g	h	i
			Number of obligors ¹				
PD range	Weighted average PD %	Arithmetic average PD % by obligors	End of previous year	End of the year	Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
Retail – QRRE							
0.00 to < 0.15	0.07	0.07	3,389,146	3,531,206	1,369	57	0.05
0.15 to < 0.25	0.20	0.20	614,924	656,319	457	17	0.09
0.25 to < 0.50	0.37	0.37	627,374	647,425	836	44	0.17
0.50 to < 0.75	0.59	0.60	261,727	265,028	785	45	0.35
0.75 to < 2.50	1.39	1.32	658,867	634,338	3,249	134	0.74
2.50 to < 10.00	4.86	4.71	208,686	197,549	5,166	112	2.85
10.00 to < 100.00	24.97	25.68	67,007	59,422	8,076	24	12.99
Retail – Residential mortgage exposures							
0.00 to < 0.15	0.07	0.06	184,668	188,195	115	1	0.07
0.15 to < 0.25	0.20	0.20	48,879	49,282	69	4	0.11
0.25 to < 0.50	0.34	0.35	56,935	61,315	188	3	0.31
0.50 to < 0.75	0.61	0.60	35,871	31,865	238	–	0.68
0.75 to < 2.50	1.33	1.34	60,086	61,656	334	2	0.60
2.50 to < 10.00	4.68	4.62	13,472	14,185	156	2	1.06
10.00 to < 100.00	15.41	15.93	8,652	8,624	1,450	1	14.14
Retail – small business retail exposures							
0.00 to < 0.15	0.07	0.07	1,426	1,350	–	–	0.05
0.15 to < 0.25	0.17	0.17	193	137	–	–	–
0.25 to < 0.50	0.34	0.34	10	17	–	–	–
0.50 to < 0.75	0.61	0.61	169	160	–	–	–
0.75 to < 2.50	1.14	1.14	258	248	–	–	0.18
2.50 to < 10.00	5.57	5.55	196	206	–	–	0.35
10.00 to < 100.00	–	–	–	–	–	–	–
Other retail exposures to individuals							
0.00 to < 0.15	0.09	0.09	94,209	92,879	41	4	0.09
0.15 to < 0.25	0.20	0.21	49,680	61,228	29	1	0.17
0.25 to < 0.50	0.34	0.35	47,326	38,684	58	1	0.33
0.50 to < 0.75	0.66	0.62	23,337	32,286	75	2	1.24
0.75 to < 2.50	1.48	1.56	21,090	32,071	181	10	1.54
2.50 to < 10.00	3.43	4.29	39,029	40,969	832	44	2.83
10.00 to < 100.00	16.61	16.68	9,740	8,676	965	5	11.20

¹ The number of obligors is based on account level information for all IRB portfolios except for the Hong Kong overdraft portfolio, which is presented at an aggregated level by consolidating savings and current account information.

Counterparty credit risk exposures

Counterparty credit risk management

Counterparty credit risk ('CCR') arises for derivatives and securities financing transactions ('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. CCR is generated primarily in our wholesale global businesses.

The group uses current exposure method ('CEM') to calculate exposure value for CCR RWAs. Under the CEM approach, the EAD is calculated as current exposure plus regulatory add-ons.

The potential future exposure ('PFE') measures used for CCR management are calibrated to the 95th percentile. The measures consider volatility, trade maturity and the counterparty legal documentation covering netting and collateral.

Limits for CCR exposures are assigned within the overall credit process. 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.

Credit valuation adjustment

Credit valuation adjustment ('CVA') risk is the risk of adverse moves in the credit valuation adjustments taken for expected credit losses on derivative transactions. The group uses the standardised approach to calculate the CVA capital charge.

Collateral arrangements

Our policy is 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 and 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 99% of collateral held as credit risk mitigation under 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 Credit Support Annex ('CSA') is designed to trigger an action if the credit rating

of the affected party falls below a specified level. These actions 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.

At 31 December 2017, the potential value of the additional collateral pertaining to International Swaps and Derivatives Association ('ISDA') CSA downgrade thresholds that we would need to post with counterparties in the event of a one-notch downgrade of our rating was HK\$148m and for a two-notch downgrade was HK\$242m.

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, for example, where a 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 in self-referencing transactions. These are transactions in which exposure is driven by capital or financing instruments issued by the counterparty and occurs where exposure from HSBC's perspective materially increases as the value of the counterparty's capital or financing instruments referenced in the contract decreases. It is HSBC policy that specific wrong-way risk 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 monitoring process within an overarching Group framework and limit framework.

Central counterparties

While exchange traded derivatives have been cleared through Central counterparties ('CCP') 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 risk 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.

Table 41: CCR1 – Analysis of counterparty default risk exposures (other than those to CCPs) by approaches

		a	b	e	f
		Replacement cost (RC)	PFE	Default risk exposure after CRM	
		HK\$m	HK\$m	HK\$m	RWA
				HK\$m	HK\$m
1	SA-CCR (for derivative contracts)	92,903	189,660	281,994	71,708
4	Comprehensive Approach (for SFTs)			81,959	7,035
6	Total at 31 Dec 2017				78,743

¹ Prior to the implementation of SA-CCR, exposures reported here are under the current exposure method.

Table 42: CCR2 – CVA capital charge

		a	b
		EAD post CRM	RWA
		HK\$m	HK\$m
3	Netting sets for which CVA capital charge is calculated by the standardised CVA method	241,132	49,231
4	Total at 31 Dec 2017	241,132	49,231

Table 43: CCR6 – Credit-related derivatives contracts

		a	b
		Protection bought	Protection sold
		HK\$m	HK\$m
At 31 Dec 2017			
Notional amounts			
	Single-name credit default swaps	244,741	225,362
	Index credit default swaps	94,995	90,009
	Total return swaps	6,058	1,022
	Total notional amounts	345,794	316,393
Fair values			
	Positive fair value (asset)	102	5,589
	Negative fair value (liability)	(5,925)	(47)

Table 44: CCR5 – Composition of collateral for counterparty default risk exposures (including those for contracts or transactions cleared through CCPs)

	a	b		c		d	e	f
	Derivative contracts				SFTs			
	Fair value of recognised collateral received		Fair value of posted collateral		Fair value of recognised collateral received		Fair value of posted collateral	
	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated
	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
Cash – domestic currency	–	3,472	–	130	30,959	67,564		
Cash – other currencies	–	34,869	–	7,874	315,648	482,115		
Domestic sovereign debt	–	–	–	–	–	3,017		
Other sovereign debt	–	3,725	5,710	438	69,281	92,944		
Corporate bonds	–	–	–	60	195,195	33,140		
Equity securities	–	–	–	–	24,553	38,815		
Total at 31 Dec 2017	–	42,066	5,710	8,502	635,636	717,595		

Table 45: CCR8 – Exposures to CCPs

		a	b
		Exposure after CRM	RWA
		HK\$m	HK\$m
At 31 Dec 2017			
1	Exposures of the AI as clearing member or client to qualifying CCPs (total)		2,019
2	Default risk exposures to qualifying CCPs (excluding items disclosed in rows 7 to 10), of which:	38,659	773
3	(i) OTC derivative transactions	34,814	696
4	(ii) exchange-traded derivative contracts	3,845	77
7	Segregated initial margin	5,710	
8	Unsegregated initial margin	8,458	513
9	Funded default fund contributions	1,183	733
11	Exposures of the AI as clearing member or client to non-qualifying CCPs (total)		316
12	Default risk exposures to non-qualifying CCPs (excluding items disclosed in rows 17 to 20), of which:	5	5
13	(i) OTC derivative transactions	–	–
14	(ii) exchange-traded derivative contracts	5	5
18	Unsegregated initial margin	44	43
19	Funded default fund contributions	21	268

Counterparty default risk under internal ratings-based approach

Table 46: CCR4 – Counterparty default risk exposures (other than those to CCPs) by portfolio and PD range – for IRB approach¹

PD scale	a	b	c	d	e	f	g
	EAD post-CRM HK\$m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWA HK\$m	RWA density %
Portfolio (i) – Sovereign							
0.00 to < 0.15	30,648	0.01	37	43.3	0.35	661	2
0.15 to < 0.25	–	0.00	–	0.0	–	–	–
0.25 to < 0.50	9	0.37	1	45.0	2.18	6	75
0.50 to < 0.75	–	0.00	–	0.0	–	–	–
0.75 to < 2.50	82	2.18	3	47.9	4.81	128	156
2.50 to < 10.00	–	0.00	–	0.0	–	–	–
10.00 to < 100.00	–	0.00	–	0.0	–	–	–
100.00 (Default)	–	0.00	–	0.0	–	–	–
Sub-total at 31 Dec 2017	30,739	0.02	41	43.3	0.36	795	3
Portfolio (ii) – Bank							
0.00 to < 0.15	242,531	0.06	1,414	31.3	1.39	32,256	13
0.15 to < 0.25	14,102	0.22	209	34.8	1.52	5,168	37
0.25 to < 0.50	2,735	0.37	59	40.1	1.08	1,407	51
0.50 to < 0.75	1,646	0.63	37	42.0	0.93	1,129	69
0.75 to < 2.50	2,405	1.08	68	45.1	1.08	2,241	93
2.50 to < 10.00	167	5.52	6	44.4	1.00	226	136
10.00 to < 100.00	–	0.00	–	0.0	–	–	–
100.00 (Default)	150	100.00	11	55.8	1.67	–	–
Sub-total at 31 Dec 2017	263,736	0.14	1,804	31.8	1.39	42,427	16
Portfolio (iii) – Corporate							
0.00 to < 0.15	34,380	0.08	1,215	45.4	2.41	9,640	28
0.15 to < 0.25	8,107	0.22	484	50.7	1.42	3,810	47
0.25 to < 0.50	4,214	0.37	359	48.9	1.62	2,458	58
0.50 to < 0.75	2,672	0.63	318	49.5	1.62	2,073	78
0.75 to < 2.50	9,341	1.31	816	50.4	1.59	9,684	104
2.50 to < 10.00	1,150	4.47	210	55.3	1.81	1,846	161
10.00 to < 100.00	2	16.99	4	60.5	1.00	5	283
100.00 (Default)	46	100.00	4	61.7	3.90	–	–
Sub-total at 31 Dec 2017	59,912	0.46	3,410	47.5	2.03	29,516	49
Total (sum of all portfolios) at 31 Dec 2017	354,387	0.18	5,255	35.5	1.41	72,738	21

¹ Details on the scope of models and percentage of RWAs covered by models for each of the regulatory portfolios can be found in the 'Credit risk under internal ratings-based approach' section of this document.

Counterparty default risk under standardised approach

Table 47: CCR3 – Counterparty default risk exposures (other than those to CCPs) by asset classes and by risk weights – for STC approach

Risk Weight	Exposure class	a	c	e	f	g	k
		0% HK\$m	20% HK\$m	50% HK\$m	75% HK\$m	100% HK\$m	Total default risk exposure after CRM HK\$m
2	PSE exposures	1,440	2,039	593	–	2	4,074
2a	Of which: domestic PSEs	–	286	–	–	–	286
2b	Of which: foreign PSEs	1,440	1,753	593	–	2	3,788
4	Bank exposures	–	39	47	–	10	96
5	Securities firm exposures	–	–	14	–	–	14
6	Corporate exposures	–	–	–	–	3,580	3,580
8	Regulatory retail exposures	–	–	–	18	–	18
10	Other exposures which are not past due exposures	–	–	–	–	37	37
12	Total at 31 Dec 2017	1,440	2,078	654	18	3,629	7,819

Securitisation

Group securitisation strategy

The group acts as originator to our own originated securitisations. Our strategy is to use securitisation 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 do not provide support to any of our originated securitisations, and it is not our policy to do so.

Group securitisation activity

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.

The group as originator

We use special purpose entities ('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.

In addition, we use SPEs to mitigate the capital absorbed by some of the 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 an approach commonly known as synthetic securitisation by which the SPE writes CDS protection for the group.

The group as sponsor

There were no outstanding underlying exposures in securitisation transactions where the group acted as a sponsor.

The group 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.

Monitoring of securitisation positions

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.

Liquidity risk of securitised assets is consistently managed as part of the group's liquidity and funding risk management framework and further details are provided on page 24 of the *Annual Report and Accounts 2017*.

Valuation of securitisation positions

The process of valuing our investments in securitisation exposures primarily focuses on quotations from third parties, observed trade levels and calibrated valuations from market standard models.

Our hedging and credit risk mitigation strategy, with regards to retained securitisation and re-securitisation exposures, is to continually review our positions.

Securitisation accounting treatment

For accounting purposes, we consolidate structured entities (including SPEs) when the substance of the relationship indicates that we control them; that is, we are exposed, or have rights, to variable returns from our involvement with the structured entity and have the ability to affect those returns through our power over the entity.

Full details of these assessments and our accounting policy on structured entities may be found in Note 38 on the Financial Statements of the Annual Report and Accounts 2017.

We reassess the need to consolidate whenever there is a change in the substance of the relationship between the group and a structured entity.

The group enters into transactions in the normal course of business by which it transfers financial assets to structured entities. Depending on the circumstances, these transfers may either result in these financial assets being fully or partly derecognised, or continuing to be recognised in their entirety.

Full derecognition occurs when we transfer our contractual right to receive cash flows from the financial assets, or assume an obligation to pass on the cash flows from the assets, and transfer substantially all the risks and rewards of ownership. Only in the event that derecognition is achieved are sales and any resultant gains recognised in the financial statements.

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 and control is retained. These financial assets are recognised on the balance sheet to the extent of our continuing involvement and an associated liability is also recognised. The net carrying amount of the financial asset and associated liability will be based on the measurement basis of the financial asset, either the amortised cost or the fair value of the rights and obligations retained by the entity.

Securitisation regulatory treatment

For regulatory purposes, any reduction in RWAs that would be achieved by our own originated securitisations must satisfy section 229 (1) of the BCR. If achieved, the associated SPEs and underlying assets are not consolidated but exposures to them, including derivatives or liquidity facilities, are risk-weighted as securitisation positions.

For our securitisation banking book positions, we use the internal ratings-based (securitisation) approach to calculate the credit risk for its securitisation exposures. Securitisation positions in the trading book are under the standardised (market risk) approach, which calculates the market risk capital charge for specific risk interest rate exposures using the same methodology as the internal ratings-based (securitisation) approach.

The group uses Standard & Poor's Rating Services, Moody's Investors Service and Fitch Ratings as the ECAs for each and all classes of securitisation exposures.

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Analysis of securitisation exposures

The group's involvement in securitisation activities in the second half of 2017 reflects the following:

- as an investor, the group's securitisation activities mainly consisted of changes to the existing portfolio mix in the normal

course of business; and

- as an originator, the group securitised HK\$13,058m of additional residential mortgages in the banking book into an existing SPE.

Table 48: SEC1 – Securitisation exposures in banking book

	a	c	g	i
	Acting as originator (excluding sponsor)		Acting as investor	
	Traditional HK\$m	Sub-total HK\$m	Traditional HK\$m	Sub-total HK\$m
At 31 Dec 2017				
1 Retail (total) – of which:	33,429	33,429	23,395	23,395
2 <i>residential mortgage</i>	33,429	33,429	4,608	4,608
3 <i>credit card</i>	–	–	5,680	5,680
4 <i>other retail exposures</i>	–	–	13,107	13,107
6 Wholesale (total) – of which:	–	–	9,697	9,697
9 <i>lease and receivables</i>	–	–	47	47
10 <i>other wholesale</i>	–	–	9,650	9,650

Table 49: SEC2 – Securitisation exposures in trading book

	g	i
	Acting as investor	
	Traditional HK\$m	Sub-total HK\$m
At 31 Dec 2017		
1 Retail (total) – of which:	5	5
2 <i>residential mortgage</i>	5	5

Table 50: SEC4 – Securitisation exposures in banking book and associated capital requirements – where AI acts as investor

	a	b	c	f	j	n
	Exposure values (by RW bands)			Exposure values (by regulatory approach)	RWAs (by regulatory approach)	Capital charges after cap
	≤20% RW	>20% to 50% RW	>50% to 100% RW	IRB(S) RBM	IRB(S) RBM	IRB(S) RBM
	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m	HK\$m
At 31 Dec 2017						
1 Total exposures	24,244	402	8,446	33,092	10,050	852
2 Traditional securitisation	24,244	402	8,446	33,092	10,050	852
3 <i>Of which: securitisation</i>	24,244	402	8,446	33,092	10,050	852
4 <i>Of which: retail</i>	23,103	–	292	23,395	1,926	163
5 <i>Of which: wholesale</i>	1,141	402	8,154	9,697	8,124	689

Market risk

Overview and governance

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

Exposures 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 ('AFS') and held to maturity, and exposures arising from our insurance operations.

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.

Risk Types	Trading Risk	Non-Trading Risk			
	<ul style="list-style-type: none"> – Foreign exchange & Commodities – Interest rates – Credit spreads – Equities 	<ul style="list-style-type: none"> – Structural foreign exchange – Interest rates – Credit spreads 			
Global Business	GB&M, incl BSM	GB&M, incl BSM	GPB	CMB	RBWM
Risk Measure	VaR / Sensitivity / Stress testing		VaR / Sensitivity / Stress testing		

Balance Sheet Management ('BSM') department, for external reporting purposes, forms part of Corporate Centre while daily operations and risk are managed within GB&M.

Where appropriate, the group applies similar risk management policies and measurement techniques to both trading and non-trading portfolios. The group's objective is to manage and control market risk exposures in order to optimise return on risk while maintaining a market profile consistent with the 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.

Market risk governance

Market risk is managed and controlled through limits approved by the Risk Management Meeting of the Group Management Board ('GMB') for HSBC Holdings plc and the 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 through risk limits. Value at Risk ('VaR') limits are set for portfolios, products and risk types, with market liquidity and business need being the primary factors in determining the level of limits set.

Each major operating entity has an independent market risk management and control function that 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.

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 Asset and Liability Management Committee ('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 level. These Committees 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 traded risk management and ensure that they remain within our risk appetite and business plans. The Regional MOC reports into the Group MOC, which oversees all risk types at Group level. Group MOC informs the RMM of the GMB 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 traded risk models to the Global Market Risk 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 sites with appropriate levels of product expertise and robust control systems.

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, VaR and stress testing.

Sensitivity analysis

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 the Group capitalises those exposures. Where there is no approved internal model, the Group uses the appropriate local rules to capitalise exposures locally.

In addition, we calculate VaR for non-trading portfolios 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 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.

We use the past two years as the data set in our VaR models, which is updated on a fortnightly basis and these scenarios are then applied to the market baselines and trading positions on a daily basis. The models also incorporate the effect of option features on the underlying exposures.

The valuation approach used in our models values uses a mixture of sensitivity based approach and full revaluation approach.

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; and
- VaR is calculated on the basis of exposures outstanding at the close of business and therefore does not necessarily reflect intra-day exposures.

Risk not in VaR framework

The Risks not in VaR ('RNIV') framework captures risks from exposures in the HSBC trading book that are not captured well by the VaR model. Our VaR model is designed to capture significant basis risk, such as CDS versus bond, asset swap spreads and cross-currency basis. Other basis risks which are not completely covered in VaR, such as the London interbank offered rate ('Libor') tenor basis, are complemented by our RNIV calculations and are integrated into our capital framework.

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 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.

Stress-type RNIVs are also included where appropriate.

Back-testing

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

We back-test our VaR, which reflect the full scope of group entities.

Stress testing

Stress testing is an important procedure 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 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 region is set and monitored against referral limits.

Market risk reverse stress tests are undertaken based on the premise that there is a fixed loss. The stress testing process identifies which scenarios lead to this loss. The rationale behind the reverse stress test is to understand scenarios that 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 under standardised approach

Table 51: MR1 – Market risk under STM approach

		a
		RWA HK\$m
Outright product exposures		
1	Interest rate exposures (general and specific risk)	893
2	Equity exposures (general and specific risk)	1,533
4	Commodity exposures	14
8	Securitisation exposures	60
9	Total at 31 Dec 2017	2,500

Market risk capital models

There are a number of measures that HSBC has permission to use in calculating regulatory capital, which are listed below.

For regulatory purposes, the trading book comprises all positions in financial instruments and commodities that are held with trading intent.

HSBC maintains a Trading Book Policy that defines the minimum requirements for trading book positions and the process for

classifying positions as trading or banking book. Positions in the trading book are subject to market risk-based rules, i.e. market risk capital, computed using regulatory approved models. Otherwise, the market risk capital is calculated using the Standardised approach.

If any of the policy criteria are not met, then the position is categorised as a banking book exposure.

VaR

VaR used for regulatory purposes differs from VaR used for management purpose with key differences listed below.

VaR	Regulatory	Management
Scope	Regulatory approval	Broader population of trading and banking book positions
Confidence interval	99%	99%
Liquidity horizon	10-day	1-day
Data set	Past 2 years	Past 2 years

The trading books that received approval from the regulator to be covered via an internal model are used to calculate VaR for regulatory purposes. Regulatory VaR levels contribute to the calculation of market risk RWAs.

Stressed VaR

Stressed VaR ('SVaR') 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 under stressed market conditions. 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;
- it is calculated to a 99% confidence using a 10-day holding period;
- it is based on an actual 10-day holding period, whereas Regulatory VaR is based on a one-day holding period scaled to 10 days.

Incremental Risk Charge

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

IRC risk factors 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 stand-alone charge generating no diversification benefit with other charges. We do not use weighted averages for calculating the liquidity horizon for the IRC measure. IRC relies on a range of liquidity horizons from three months, corresponding to the regulatory floor, to one year. A wide range of criteria can indicate the liquidity of a position. The liquidity horizon for the IRC measure depends on a set of factors, such as issuer features, including rating, sector, geography, and size of positions, including product, maturity and concentration.

The IRC transition matrices are calibrated using transition and default data published by three rating agencies (Standard & Poor's, Moody's and Fitch Ratings) as the starting point, in combination with internal rules for flooring. The average of the three matrices is computed for each sector, ignoring zero transition probabilities. The PDs are then floored: sovereign PDs are consistent with IRB, while a 3bp floor is applied to corporates' and banks' PDs.

The IRC correlation matrix is derived from historical CDS spreads data, covering the latest two-year VaR period. The returns estimation window is set equal to either three, or 12 months, depending on the liquidity horizon of each obligor. First, each obligor is mapped to six sector/rating categories; then the correlation matrix is obtained by computing the arithmetic mean of correlations for each category.

Analysis of VaR, stressed VaR and incremental risk charge measures

The following table is prepared in accordance with the basis of preparation used to calculate the group's market risk capital charge under the IMM approach.

Table 52: MR3 – IMM approach values for market risk exposures

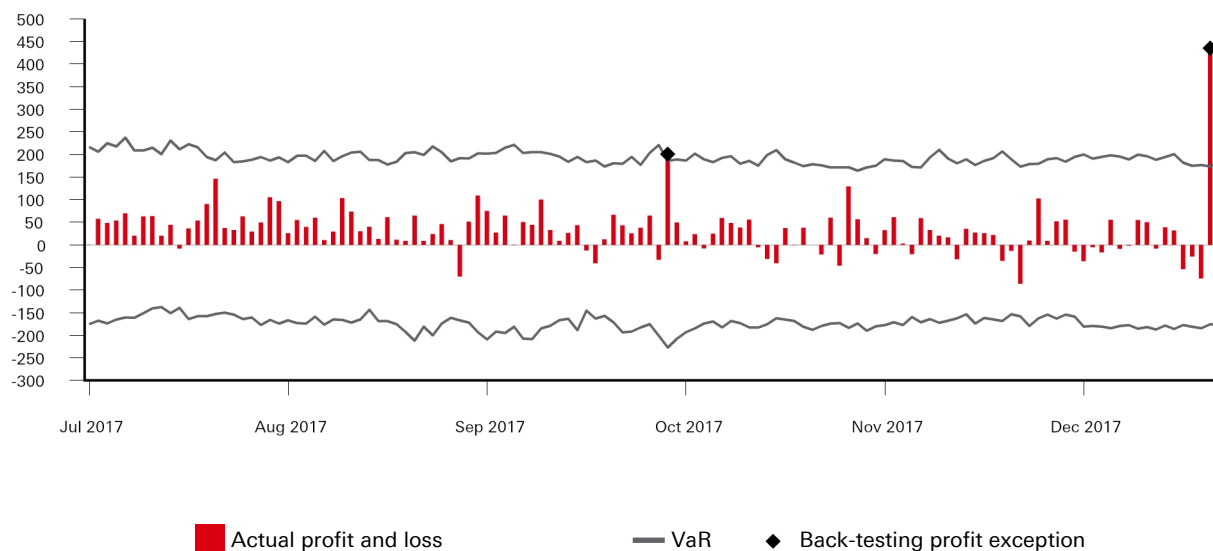
		a
		HK\$m
At 31 Dec 2017		
VaR (10 day – one-tailed 99% confidence interval)		
1	Maximum Value	584
2	Average Value	397
3	Minimum Value	279
4	Period End	489
Stressed VaR (10 day – one-tailed 99% confidence interval)		
5	Maximum Value	1,050
6	Average Value	555
7	Minimum Value	217
8	Period End	751
Incremental risk charge (IRC) (99.9% confidence interval)		
9	Maximum Value	4,249
10	Average Value	3,340
11	Minimum Value	2,406
12	Period End	3,207

The 2017 period end trading VaR was higher compared to 2016 due to increases in credit trading VaR and interest rate trading VaR, which were driven by increased inventory positions. The SVaR increase was mainly driven by a decrease of the

diversification benefit across asset classes due to changes in portfolio composition and changes in the historic SVaR period. The 2017 period end IRC was higher compared to 2016 due to increased bond inventory.

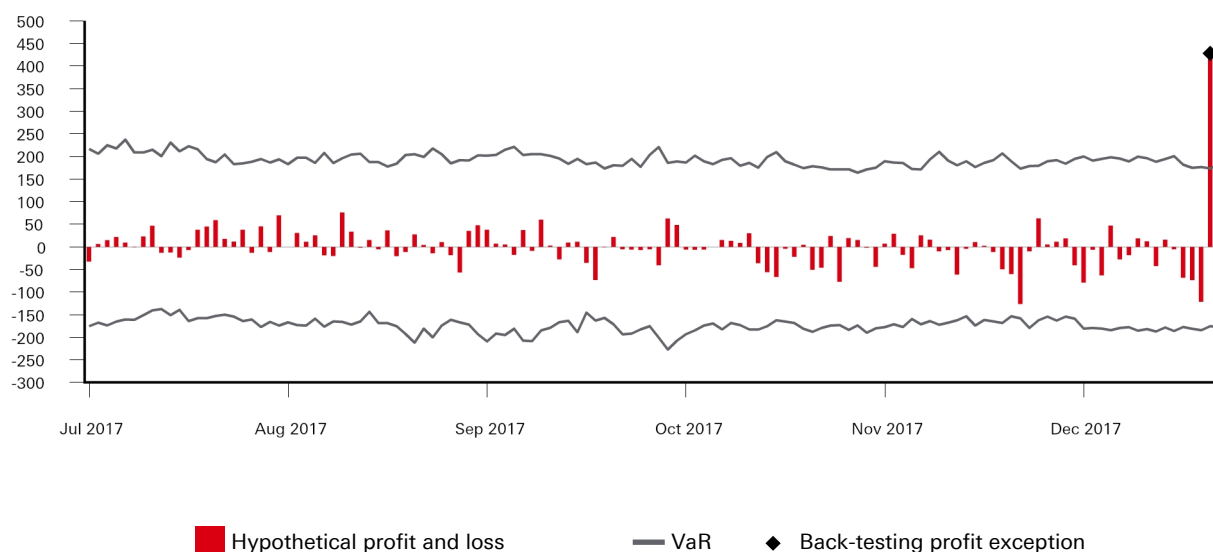
Table 53: MR4 – Comparison of VaR estimates with gains or losses

VaR back-testing exceptions against actual profit and loss (HK\$m)



The gain in September was driven by Fair Value Adjustments and the gain in December was driven by market movements in short term Asian cross currency positions.

VaR back-testing exceptions against hypothetical profit and loss (HK\$m)



The gain in December was driven by market movements in short term Asian cross currency positions.

Other disclosures

Interest rate exposures in the banking book

A principal part of our management of market risk in non-trading portfolios is to monitor the sensitivity of projected net interest income at least quarterly under varying interest rate scenarios (simulation modelling), where all other economic variables are held constant.

The sensitivity analysis is based on local business assumptions and standard scenarios which are required throughout HSBC Group. The analysis is consolidated to illustrate the combined pro forma effect on the group's consolidated net interest income.

The table below sets out the effect on future net interest income of an incremental 25 basis points parallel rise or fall in all yield curves at the beginning of each quarter during the 12 months from 1 January. Assuming no management actions and all other non-interest rate risk variables remain constant, the sensitivity of projected net interest income is as follows:

Table 54: Change in projected net interest income arising from a shift in yield curves

	2018 Projections				2017 Projections
	HK\$m				HK\$m
	HK dollar	US dollar	Others	Total	Total
+25 basis points at the beginning of each quarter	3,990	3,471	3,069	10,530	9,347
-25 basis points at the beginning of each quarter	(6,169)	(5,527)	(2,575)	(14,271)	(14,234)

The main drivers of the year-on-year changes in the group's projected net interest income were due to higher implied Hong Kong dollar and US dollar yield curves under a reducing interest rate scenario, wider margins in a rising interest rate scenario and a decrease in the funding requirements of the trading book.

Projected net interest income sensitivity figures represent the effect of the pro forma movements in projected yield curves based on a static balance sheet size and structure assumption, other than instances where the size of the balances or re-pricing is deemed interest rate sensitive (non-interest bearing current account migration and fixed rate loan early prepayment). 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 proactively seeks to change the interest rate risk profile to 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 unless the central bank rate is already negative and then not assumed to go further negative, 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.

Sites include business line interest rate pass-on assumptions, re-investment of maturing assets and liabilities at market rates per shock scenario and prepayment risk. BSM is modelled based on no management actions i.e. the risk profile at the month end is assumed to remain constant throughout the forecast horizon. The projections make other assumptions, including that contractually fixed term positions run to maturity, managed rate products and non-interest bearing balances, such as interest-free current accounts, are subject to interest rate risk behaviouralisation, and any material effect from the extent to which movements in interest rates will alter the demand for the group's products and how customers' behaviour may change with movements in interest rates, such as loan repayments are incorporated.

Mainland activities

The analysis of Mainland activities is based on the categories of non-bank counterparties and the type of direct exposures defined by the HKMA under the BDR with reference to the HKMA's 'Return of Mainland Activities – (MA(BS)20)', which includes the Mainland exposures extended by the Bank's Hong Kong offices and wholly-owned banking subsidiaries in Mainland China.

Table 55: Mainland activities

		On-balance sheet exposure	Off-balance sheet exposure	Total exposures
		HK\$m	HK\$m	HK\$m
At 31 Dec 2017				
Types of counterparties				
1	Central government, central government-owned entities and their subsidiaries and joint ventures ('JVs')	235,753	11,891	247,644
2	Local governments, local government-owned entities and their subsidiaries and JVs	36,608	4,979	41,587
3	People's Republic of China ('PRC') nationals residing in Mainland China or other entities incorporated in Mainland China and their subsidiaries and JVs	300,862	35,571	336,433
4	Other entities of central government not reported in item 1 above	9,808	2,571	12,379
5	Other entities of local governments not reported in item 2 above	4,490	961	5,451
6	PRC nationals residing outside Mainland China or entities incorporated outside Mainland China where the credit is granted for use in Mainland China	43,948	3,723	47,671
7	Other counterparties where the exposures are considered by the reporting institution to be non-bank Mainland China exposures	79,685	19,560	99,245
Total		711,154	79,256	790,410
Total assets after provision		4,785,747		
On-balance sheet exposures as percentage of total assets		14.86%		

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International claims

The group's country risk exposures in the table below are prepared in accordance with the HKMA Return of International Banking Statistics – (MA(BS)21) guidelines. International claims are on-balance sheet exposures to counterparties based on the

location of the counterparties, after taking into account the transfer of risk, and represent the sum of cross-border claims in all currencies and local claims in foreign currencies.

The table shows claims on individual countries and territories or areas, after recognised risk transfer, amounting to not less than 10% of the group's total international claims.

Table 56: International claims

	Banks HK\$m	Official sector HK\$m	Non-bank financial institutions HK\$m	Non-financial private sector HK\$m	Others HK\$m	Total HK\$m
At 31 Dec 2017						
Developed countries	588,150	385,837	255,277	360,707	54	1,590,025
– of which: Japan	164,165	138,634	16,574	21,436	–	340,809
– of which: United Kingdom	216,460	35,874	42,239	55,281	54	349,908
Offshore centres	75,951	11,926	89,855	424,750	1,228	603,710
– of which: Hong Kong	47,916	1,502	46,092	259,187	1,224	355,921
Developing Asia and Pacific	435,424	108,112	61,874	390,461	113	995,984
– of which: Mainland China	345,274	67,243	26,669	218,602	113	657,901

Foreign currency positions

The group had the following non-structural foreign currency positions that were not less than 10% of the net non-structural positions in all foreign currencies at 31 December 2017:

Table 57: Non-structural foreign currency positions

	United States dollars HK\$m	Renminbi HK\$m
At 31 Dec 2017		
Spot assets	2,053,034	647,081
Spot liabilities	(2,241,893)	(630,161)
Forward purchases	10,278,954	1,962,311
Forward sales	(10,059,573)	(1,994,967)
Net options positions	(12,815)	13,107
Net long (net short) position	17,707	(2,629)

The net options positions reported above are calculated using the delta-weighted positions of the options contracts.

Assets pledged and secured liabilities

Table 58: Assets pledged and secured liabilities

	2017 HK\$m
Financial assets pledged as collateral	
Treasury bills, debt securities, equities and deposits	225,590
Amount of liabilities secured	169,722

The above shows assets where a charge has been granted to secure liabilities on a legal and contractual basis. These transactions are conducted under terms that are usual and customary to collateralised transactions including, where relevant, standard securities lending, repurchase agreements and derivative margining.

Amount of liabilities secured included deposit of assets, including assets pledged in respect of sale and repurchase agreements, to cover short positions, and to facilitate settlement processes with clearing houses. These assets comprise of treasury bills, debt securities, equities and deposits. Hong Kong currency notes in circulation are secured by the deposit of funds in respect of which the Hong Kong Government certificates of indebtedness are held.

Liquidity information

The following table sets out the required disclosure items under the Liquidity Coverage Ratio ('LCR') standard disclosure template as specified by the HKMA. The number of data points used in

calculating the average value of the LCR and related components, as set out in the following table for the quarters ending on 31 December 2017, 30 September 2017, 30 June 2017 and 31 March 2017 was 73, 77, 71 and 73 respectively.

Table 59: Liquidity coverage ratio standard disclosure template

		Quarter ended			
		31 Dec 2017		30 Sep 2017	
		Unweighted amount (Average Value) HK\$m	Weighted amount (Average Value) HK\$m	Unweighted amount (Average Value) HK\$m	Weighted amount (Average Value) HK\$m
A	High quality liquid assets				
1	Total high quality liquid assets ('HQLA')		1,491,318		1,474,709
B	Cash outflows				
2	Retail deposits and small business funding, of which:	3,166,309	292,221	3,162,962	289,549
3	<i>Stable retail deposits and stable small business funding</i>	356,417	11,232	404,852	13,738
4	<i>Less stable retail deposits and less stable small business funding</i>	2,809,892	280,989	2,758,110	275,811
5	<i>Retail term deposits and small business term funding</i>				
6	Unsecured wholesale funding (other than small business funding) and debt securities and prescribed instruments issued by the institution, of which:	2,189,854	1,098,856	2,120,119	1,097,295
7	<i>Operational deposits</i>	645,308	155,628	557,815	134,884
8	<i>Unsecured wholesale funding (other than small business funding) not covered in Row 7</i>	1,537,549	936,231	1,558,625	958,732
9	<i>Debt securities and prescribed instruments issued by the institution and redeemable within the LCR period</i>	6,997	6,997	3,679	3,679
10	Secured funding transactions (including securities swap transactions)		2,391		4,650
11	Additional requirements, of which:	492,880	160,874	477,207	155,553
12	<i>Cash outflows arising from derivative contracts and other transactions, and additional liquidity needs arising from related collateral requirements</i>	113,478	113,402	111,100	111,093
13	<i>Cash outflows arising from obligations under structured financing transactions and repayment of funding obtained from such transactions</i>	781	781	858	858
14	<i>Potential drawdown of undrawn committed facilities (including committed credit facilities and committed liquidity facilities)</i>	378,621	46,691	365,249	43,602
15	Contractual lending obligations (not otherwise covered in Section B) and other contractual cash outflows	135,385	135,385	121,639	121,639
16	Other contingent funding obligations (whether contractual or non-contractual)	2,438,801	16,456	2,428,062	15,620
17	Total cash outflows		1,706,183		1,684,306
C	Cash inflows				
18	Secured lending transactions (including securities swap transactions)	365,140	84,521	364,940	92,843
19	Secured and unsecured loans (other than secured lending transactions covered in Row 18) and operational deposits placed at other financial institutions	661,816	493,081	694,011	520,749
20	Other cash inflows	188,626	157,112	161,977	137,271
21	Total cash inflows	1,215,582	734,714	1,220,928	750,863
D	Liquidity coverage ratio (adjusted value)				
22	Total HQLA		1,491,318		1,474,709
23	Total net cash outflows		971,469		933,443
24	LCR (%)		153.6%		158.0%

Banking Disclosure Statement at 31 December 2017

Table 59: Liquidity coverage ratio standard disclosure template (continued)

	Quarter ended			
	30 Jun 2017		31 Mar 2017	
	Unweighted amount (Average Value) HK\$m	Weighted amount (Average Value) HK\$m	Unweighted amount (Average Value) HK\$m	Weighted amount (Average Value) HK\$m
A High quality liquid assets				
1 Total high quality liquid assets ('HQLA')		1,450,509		1,568,984
B Cash outflows				
2 Retail deposits and small business funding, of which:	3,111,318	279,536	3,087,516	277,432
3 <i>Stable retail deposits and stable small business funding</i>	506,133	19,018	500,820	18,762
4 <i>Less stable retail deposits and less stable small business funding</i>	2,605,185	260,518	2,586,696	258,670
5 <i>Retail term deposits and small business term funding</i>				
6 Unsecured wholesale funding (other than small business funding) and debt securities and prescribed instruments issued by the institution, of which:	2,051,089	1,054,163	2,029,476	1,056,837
7 <i>Operational deposits</i>	561,336	135,005	542,498	131,289
8 <i>Unsecured wholesale funding (other than small business funding) not covered in Row 7</i>	1,487,087	916,492	1,485,736	924,306
9 Debt securities and prescribed instruments issued by the institution and redeemable within the LCR period	2,666	2,666	1,242	1,242
10 Secured funding transactions (including securities swap transactions)		8,640		7,997
11 Additional requirements, of which:	475,999	152,920	411,245	146,903
12 <i>Cash outflows arising from derivative contracts and other transactions, and additional liquidity needs arising from related collateral requirements</i>	106,123	106,083	107,527	107,479
13 <i>Cash outflows arising from obligations under structured financing transactions and repayment of funding obtained from such transactions</i>	1,484	1,484	983	983
14 <i>Potential drawdown of undrawn committed facilities (including committed credit facilities and committed liquidity facilities)</i>	368,392	45,353	302,735	38,441
15 Contractual lending obligations (not otherwise covered in Section B) and other contractual cash outflows	141,139	141,139	162,755	162,755
16 Other contingent funding obligations (whether contractual or non-contractual)	2,408,357	14,940	2,318,962	14,022
17 Total cash outflows		1,651,338		1,665,946
C Cash inflows				
18 Secured lending transactions (including securities swap transactions)	367,410	80,264	377,725	91,713
19 Secured and unsecured loans (other than secured lending transactions covered in Row 18) and operational deposits placed at other financial institutions	745,511	546,132	715,336	540,249
20 Other cash inflows	162,781	129,589	135,327	111,223
21 Total cash inflows	1,275,702	755,985	1,228,388	743,185
D Liquidity coverage ratio (adjusted value)				
22 Total HQLA		1,450,509		1,568,984
23 Total net cash outflows		895,353		922,761
24 LCR (%)		162.1%		170.9%

Senior management compensation and benefits

Remuneration of senior management and key personnel

The following tables show the remuneration paid to senior management and key personnel. These disclosures are in compliance with the guideline in Part 3 (Disclosure on remuneration) of the HKMA Supervisory Policy Manual CG-5 'Guideline on a Sound Remuneration System'. Senior management is defined as those persons responsible for oversight of the group's strategy, activities or material business lines. This includes the Executive Directors, Executive Committee members, Chief Executive, Alternative Chief Executive and Managers as registered with the HKMA. There were 32 members of senior management during 2017. This includes one member who is a Director of, and is remunerated by, HSBC Holdings Plc and is consequently not included in the disclosures below.

Key personnel is defined as individual employees whose duties or activities involve the assumption of material risk or the taking on of material exposures on behalf of the group. Under the provisions of the UK Prudential Regulation Authority's Remuneration Rules, HSBC is required to identify individuals who will be considered as 'Identified Staff and Material Risk Takers' (collectively referred to as 'Material Risk Takers' or 'MRTs') based on the qualitative and quantitative criteria specified in the Regulatory Technical Standard issued by the European Banking Authority. Based on the criteria applicable to the Group, the identified number of MRTs, and, in turn, key personnel, in 2017 were 296 members.

The group follows the remuneration system of HSBC Holdings plc. Please refer to the HSBC remuneration practices and governance at <http://www.hsbc.com/about-hsbc/corporate-governance> and the Capital and Risk Management Pillar 3 Disclosures of HSBC Holdings plc for details of the governance structure and the major design characteristics of the remuneration system.

Table 60: Analysis of remuneration between fixed, variable, deferred and non-deferred amounts

	Footnote	2017		
		Senior management	Key personnel	Total
Number of people		31	296	327
		HK\$m	HK\$m	HK\$m
Fixed				
Cash-based		261	1,238	1,499
Shares-based		–	–	–
Total fixed pay		261	1,238	1,499
Variable	1			
Cash		52	286	338
Non-deferred shares		52	271	323
Deferred cash		73	268	341
Deferred shares		82	286	368
Total variable pay		259	1,111	1,370

1 The forms of variable remuneration and the proportion deferred are based on the seniority, role and responsibilities of employees and their level of total variable compensation.

Table 61: Analysis of deferred remuneration

	Footnotes	2017		
		Senior management	Key personnel	Total
Number of people		31	296	327
		HK\$m	HK\$m	HK\$m
Deferred remuneration at 31 Dec				
Outstanding, unvested	1, 2	501	1,085	1,586
– outstanding, cash		148	393	541
– outstanding, shares	3	353	692	1,045
Awarded during the year		149	500	649
Paid out		247	769	1,016
– deferred shares paid out		172	603	775
– deferred cash paid out		75	166	241
Reduced through performance adjustment		–	–	–

1 Outstanding, unvested, deferred remuneration is exposed to ex-post explicit adjustments.

2 There is no reduction of deferred remuneration and retained remuneration due to ex-post explicit adjustments during 2017 via the application of malus and/or clawback.

3 Outstanding, unvested, deferred shares are exposed to ex-post implicit adjustments. The total value of these shares in 2017 and 2016 are calculated based on the closing market share price of HSBC Holdings plc as at 31 December of the respective financial years. HSBC's share price is 16.7% higher as at 31 December 2017 when compared to that of 31 December 2016.

Other information

Abbreviations

The following abbreviated terms are used throughout this document.

Currencies

HK\$m	Millions of Hong Kong dollars
HK\$b	Billions (thousands of millions) of Hong Kong dollars
MYRm	Millions of Malaysian ringgit
US\$m	Millions of United States dollars

A

AFS	Available-for-sale
AI	Authorised institution
ALCO	Asset and Liability Management Committee
AT1	Additional tier 1
AVA	Additional value adjustment

B

BCBS	Basel Committee on Banking Supervision
BCR	Banking (Capital) Rules
BDR	Banking (Disclosure) Rules
BLR	Banking (Liquidity) Rules
BSM	Balance Sheet Management

C

CCF	Credit conversion factor
CCP	Central counterparty
CCR ¹	Counterparty credit risk
CCyB ¹	Countercyclical capital buffer
CDS ¹	Credit default swap
CEM	Current exposure method
CET1 ¹	Common equity tier 1
CF	Commodity finance
CIS	Collective investment scheme
CMB	Commercial Banking, a global business
CRC	Comprehensive risk charge
CRE ¹	Commercial real estate
CRM	Credit risk mitigation/mitigant
CRR ¹	Customer risk rating
CSA	Credit Support Annex
CVA	Credit valuation adjustment

D

D-SIB	Domestic systemically important bank
DTAs	Deferred tax assets

E

EAD ¹	Exposure at default
ECA	Export Credit Agency
ECAI	External Credit Assessment Institution
EL ¹	Expected loss

F

FFVA	Funding Fair Value Adjustment
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G

GB&M	Global Banking and Markets, a global business
GMB	Group Management Board
GPB	Global Private Banking, a global business
Group	HSBC Holdings together with its subsidiary undertakings
group	The Hongkong and Shanghai Banking Corporation Limited together with its subsidiary undertakings
G-SIB ¹	Global systemically important bank

H

HKFRS	Hong Kong Financial Reporting Standards
HKMA	Hong Kong Monetary Authority
Hong Kong	The Hong Kong Special Administrative Region of the People's Republic of China
HQLA	High-quality liquid assets

HSBC	HSBC Holdings together with its subsidiary undertakings
HVCRE	High volatility commercial real estate

I

IMM ¹	Internal Model Method
IPRE	Income producing real estate
IRB ¹	Internal ratings-based approach
IRB(S)	Internal ratings-based (securitisation) approach
IRC	Incremental risk charge
ISDA	International Swaps and Derivatives Association

J

JCCyB	Jurisdictional countercyclical buffer
JVs	Joint ventures

L

LCR	Liquidity Coverage Ratio
LGD ¹	Loss given default
Libor	London interbank offered rate

M

MOC	Model Oversight Committee
MRTs	Identified Staff and Material Risk Takers
MSRs	Mortgage servicing rights

O

OF	Object finance
OTC ¹	Over-the-counter

P

PD ¹	Probability of default
PF	Project finance
PFE	Potential future exposure
PRC	People's Republic of China
PSE	Public sector entities

R

RAS	Risk appetite statement
RBM	Ratings Based Method
RBWM	Retail Banking and Wealth Management, a global business
RMM	Risk Management Meeting
RMOC	Retail Banking and Wealth Management Risk Model Oversight Committee
RNIV	Risks not in VaR
RW	Risk-weight
RWA ¹	Risk-weighted asset/risk-weighted amount

S

SA-CCR	Standardised approach for counterparty credit risk
S&P	Standard and Poor's rating agency
SFT	Securities Financing Transactions
SME	Small and medium-sized enterprise
SPE ¹	Special Purpose Entity
SRW	Supervisory risk-weight
STC	Standardised (credit risk) approach
STC(S)	Standardised (securitisation) approach
STM	Standardised (market risk) approach
STO	Standardised (operational risk) approach
SVaR	Stressed Value at risk

V

VaR ¹	Value at risk
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W

WMOC	Wholesale Model Oversight Committee
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¹ Full definition included in the Glossary published on HSBC website www.hsbc.com

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