

Standard Chartered Bank
(Hong Kong) Limited

Unaudited Supplementary
Financial Information

For the year ended
31 December 2016

Standard Chartered Bank (Hong Kong) Limited

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Unaudited supplementary financial information

These notes are supplementary to and should be read in conjunction with the 2016 consolidated financial statements. The consolidated financial statements and this unaudited supplementary financial information (“supplementary notes”) taken together comply with the Banking (Disclosure) Rules (“Rules”) under section 60A of the Banking Ordinance.

Additional disclosures as required by the Banking (Disclosure) Rules will be available on our website: www.sc.com/hk on or before 30 April 2017.

1 Basis of preparation

- (i) The financial information contained in these supplementary notes has been prepared on a consolidated basis. The basis of consolidation for regulatory purposes is different from that for accounting purposes. For regulatory purposes, the Rules require that certain information is prepared on a basis which excludes some of the subsidiaries of the Bank. Further information regarding subsidiaries that are not included in the consolidation for regulatory purposes is set out in note 2(a) of the supplementary notes.
- (ii) The accounting policies applied in preparing these supplementary notes are the same as those applied in preparing the consolidated financial statements for the year ended 31 December 2016 as set out on pages 16 to 31 of the 2016 consolidated financial statements.

2 Capital management

(a) Basis of consolidation and preparation

The consolidated capital ratios were calculated in accordance with the Banking (Capital) Rules of the Hong Kong Banking Ordinance.

The basis of consolidation for accounting purposes is in accordance with Hong Kong Financial Reporting Standards. The principal subsidiaries of the Bank for accounting purposes are Standard Chartered APR Limited, Standard Chartered Securities (Hong Kong) Limited, Standard Chartered Leasing Group Limited, and Standard Chartered Trade Support (HK) Limited.

The basis and scope of consolidation for the calculation of capital ratios for regulatory purposes is different from the basis and scope of consolidation 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. Subsidiaries not included in consolidation for regulatory purposes are non-financial companies and the securities companies that are authorized and supervised by a regulator and are subject to supervisory arrangements regarding the maintenance of adequate capital to support business activities comparable to those prescribed for authorized institutions under the Banking (Capital) Rules and the Banking Ordinance.

The Bank’s shareholdings in these subsidiaries are deducted from its capital base subject to the thresholds and transitional arrangements as determined in accordance with Part 3 and Schedule 4H of the Banking (Capital) Rules.

The Bank 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.

2 Capital management (continued)

(a) Basis of consolidation and preparation (continued)

Directly held subsidiaries not included in the consolidation for regulatory purposes are set out below:

<i>Figures in HK\$m</i>		At 31 December 2016	
Name of company	Principal Activity	Total assets	Total equity
Standard Chartered Securities (Hong Kong) Limited	Equity capital markets, corporate finance and institutional brokerage	515	349
SC Learning Limited	Provision of learning solutions in the banking and finance industry	38	(19)
SCOPE International (China) Company Limited	Development and sales of software, data processing and information technology services	351	219
Standard Chartered Investment Services Limited	Investment management	–	–
Standard Chartered Trust (HK) Limited	Trustee services	11	9
Standard Chartered Nominees (Western Samoa) Limited	Nominees Services	–	–
Horsford Nominees Limited	Nominees Services	–	–
Standard Chartered Global Trading Investment Limited	Nominees Services	–	–
		<u>915</u>	<u>558</u>

<i>Figures in HK\$m</i>		At 31 December 2015	
Name of company	Principal Activity	Total assets (Restated)	Total equity (Restated)
Standard Chartered Securities (Hong Kong) Limited	Equity capital markets, corporate finance and institutional brokerage	841	516
SC Learning Limited	Provision of learning solutions in the banking and finance industry	38	(19)
SCOPE International (China) Company Limited	Development and sales of software, data processing and information technology services	469	297
Standard Chartered Investment Services Limited	Investment management	49	36
Standard Chartered Trust (HK) Limited	Trustee services	12	12
Standard Chartered Nominees (Western Samoa) Limited	Nominees Services	–	–
Horsford Nominees Limited	Nominees Services	–	–
Standard Chartered Global Trading Investment Limited	Nominees Services	–	–
		<u>1,409</u>	<u>842</u>

2 Capital management (continued)

(a) Basis of consolidation and preparation (continued)

The Bank uses the advanced internal ratings-based (“IRB”) approach for both the measurement of credit risk capital and the management of credit risk for the majority of its portfolios. The Bank also uses the standardised (credit risk) approach for certain insignificant portfolios exempted from IRB. The Bank adopts the IRB (securitisation) approach to calculate its credit risk for securitisation exposures.

For market risk, the Bank uses an internal models approach for two guaranteed funds and the standardised (market risk) approach for other exposures. In addition, the Bank adopts the standardised (operational risk) approach for operational risk.

The Bank applies the Internal Capital Adequacy Assessment Process (“ICAAP”) to assess its capital demand on a current, planned and stressed basis. The assessment covers the major risks faced by the Bank, in addition to credit, market and operational risks that are covered under the minimum capital requirements. The ICAAP has been approved by the Asset and Liability Committee and the Board of Directors.

Further information regarding capital management is set out in note 37(j) on pages 101 to 102 of the 2016 consolidated financial statements.

(b) Capital adequacy ratio and capital base

All authorized institutions in Hong Kong have to meet three levels of minimum capital ratios, namely common equity tier 1 (“CET1”), tier 1 and total capital ratios.

	<i>Consolidated</i>	
	<i>2016</i>	<i>2015</i>
	<i>HK\$'M</i>	<i>HK\$'M</i>
Capital base		
CET1 capital	48,012	47,536
Additional Tier 1 (“AT1”) capital	3,878	3,876
Total Tier 1 capital	51,890	51,412
Tier 2 capital	13,682	9,618
Total capital base	<u>65,572</u>	<u>61,030</u>
Risk-weighted amounts (“RWA”) by risk type		
Credit risk	303,305	273,078
Market risk	13,810	13,420
Operational risk	43,500	47,295
	<u>360,615</u>	<u>333,793</u>
Less: Deductions	<u>(644)</u>	<u>(789)</u>
Total risk-weighted amount	<u>359,971</u>	<u>333,004</u>
CET1 capital ratio	13.3%	14.3%
Tier 1 capital ratio	14.4%	15.4%
Total capital ratio	18.2%	18.3%

2 Capital management (continued)**(b) Capital adequacy ratio and capital base (continued)**

	<i>Consolidated</i>	
	<i>2016</i>	<i>2015</i>
	<i>HK\$'M</i>	<i>HK\$'M</i>
CET1 capital		
CET1 capital instruments and related share premium	16,378	16,378
Retained earnings	39,783	39,464
Disclosed reserves	(313)	233
CET1 capital before regulatory deductions	55,848	56,075
Regulatory deductions to CET1 capital:		
Cash flow hedge reserve	192	(18)
Gains and losses due to changes in own credit risk on fair valued liabilities	(436)	(1,114)
Cumulative fair value gains arising from the revaluation of land and buildings	(439)	(419)
Regulatory reserve for general banking risks	(5,208)	(5,428)
Goodwill (net of associated deferred tax liability)	(729)	(729)
Other intangible assets (net of associated deferred tax liability)	(509)	(289)
Deferred tax assets net of deferred tax liabilities	(396)	(363)
Valuation adjustments	(311)	(177)
Significant capital investments in CET1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	—	(2)
CET1 capital after regulatory deductions	<u>48,012</u>	<u>47,536</u>

2 Capital management (continued)**(b) Capital adequacy ratio and capital base (continued)**

	<i>Consolidated</i>	
	<i>2016</i>	<i>2015</i>
	<i>HK\$'M</i>	<i>HK\$'M</i>
AT1 capital		
AT1 capital before regulatory deductions	3,878	3,878
Regulatory deductions to AT1 capital:		
Significant capital investments in capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	–	(2)
AT1 capital after regulatory deductions	<u>3,878</u>	<u>3,876</u>
Tier 1 capital after regulatory deductions	<u>51,890</u>	<u>51,412</u>
Tier 2 capital		
Qualifying Tier 2 capital instruments and related share premium	6,204	–
Capital instruments subject to phase out arrangements from Tier 2 capital	5,252	7,887
Cumulative fair value gains arising from the revaluation of land and buildings	198	188
Collective impairment allowances and regulatory reserve for general banking risks	<u>2,028</u>	<u>1,857</u>
Tier 2 capital before regulatory deductions	13,682	9,932
Regulatory deductions to Tier 2 capital:		
Significant capital investments in capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	–	(314)
Tier 2 capital after regulatory deductions	<u>13,682</u>	<u>9,618</u>
Total capital base	<u>65,572</u>	<u>61,030</u>

2 Capital management (continued)

(c) Capital requirements for credit risk

The Bank and its subsidiaries' minimum capital requirement for credit risk is summarised as follows:

	<i>Consolidated capital requirement</i>	
	<i>2016</i>	<i>2015</i>
	<i>HK\$'M</i>	<i>HK\$'M</i>
Subject to IRB approach:		
<u>Supervisory slotting criteria approach</u>		
Corporate exposures	50	16
<u>Advanced IRB approach</u>		
Corporate exposures (other than specialised lending)	8,310	8,664
Sovereign exposures	617	615
Bank exposures	2,602	1,571
<u>Retail IRB approach</u>		
Residential mortgages to individuals and property-holding shell companies	3,356	2,806
Qualifying revolving retail exposures	859	995
Small business retail exposures	135	123
Other retail exposures to individuals	1,837	1,498
<u>Specific risk-weight approach</u>		
Other exposures	3,531	2,376
<u>IRB (securitisation) approach</u>		
Securitisation positions	116	129
Total minimum capital requirement for credit risk under IRB approach	21,413	18,793
Subject to standardised (credit risk) approach:		
Sovereign exposures	–	–
Public sector entity exposures	–	–
Multilateral development bank exposures	–	–
Bank exposures	30	43
Securities firm exposures	–	–
Corporate exposures	1,080	1,128
Collective investment scheme exposures	–	–
Cash items	–	–
Regulatory retail exposures	162	140
Residential mortgage loans	65	81
Other exposures which are not past due exposures	1,320	1,422
Past due exposures	43	50
Significant exposures to commercial entities	–	–
Total minimum capital requirement for credit risk under standardised (credit risk) approach	2,700	2,864
Total minimum capital requirement for Credit Valuation Adjustment ("CVA")	152	189
Total minimum capital requirement for credit risk	24,265	21,846

3 Corporate governance

The Bank is committed to high standards of corporate governance, and has complied throughout the year with the guideline on “Corporate Governance of Locally Incorporated Authorised Institutions” under the Supervisory Policy Manual issued by the Hong Kong Monetary Authority (“HKMA”). The Bank has also fully complied with the disclosure requirement in the “Guideline on a Sound Remuneration System” under the Supervisory Policy Manual issued by the HKMA and has set out the relevant disclosures on remuneration on pages 133 to 135 of the 2016 consolidated financial statements.

(a) *The Board of Directors (“the Board”)*

The Board is responsible for overseeing the management of the business and affairs of the Bank including the determination and approval of the Bank’s financial objectives and strategic plan. It oversees the Bank’s compliance with statutory and regulatory obligations, its capital and corporate structure and ensures a sound system of internal control and risk management. The Board also reviews performance in light of the Bank’s strategy, objectives, corporate and business plans and budgets and determines appropriate levels for the Bank’s capital and liquidity positions. The Board delegates day-to-day management of the Bank’s risks to a number of committees. Risk profiles and capital related matters are reviewed by the Board on a regular basis.

(b) *Executive Committee (“EXCO”)*

The EXCO operates under the direct authority of the Board and meets regularly in relation to the day to day management, operation and control of the business. It also sub-delegates to various committees certain aspects of the conduct of the business as detailed below. The EXCO includes the Chief Executive Officer (“CEO”), the Chief Financial Officer (“CFO”) and the heads of various business functions.

(c) *Board Audit and Risk Committee (“A&R”)*

The A&R meets regularly with internal audit and the external auditors to review and discuss the Bank’s internal financial controls, other internal controls, compliance and risk management systems as well as to consider the Bank’s overall appetite for risk and to review the appropriateness and effectiveness of the Bank’s risk management systems and controls. The A&R also discusses matters raised by the internal and external auditors and ensures that audit recommendations are implemented appropriately. The A&R comprises of 5 non-executive directors, the majority of whom are independent.

(d) *Nomination Committee (“NomCo”)*

NomCo is responsible for identifying and nominating candidates for the approval of the Board to fill any board vacancies. It makes recommendations to the Board on appointment, re-appointment or removal of directors and succession planning for directors, in particular the chairman and the chief executive. It reviews the structure, size and composition of the Board and make recommendations to the Board with regard to any adjustments that are deemed necessary. It also reviews the efficiency and effectiveness of the functioning of the Board by implementing a process for the evaluation of the performance and effectiveness of the Board. NomCo comprises of 5 non-executive directors, the majority of whom are independent.

(e) *Asset and Liability Committee (“ALCO”)*

The ALCO, appointed by the EXCO, is responsible for the management of capital and the establishment of, and compliance with, policies relating to balance sheet management, including management of the Bank’s liquidity, capital adequacy and structural foreign exchange and interest rate risks. During the year, members of the ALCO include the CEO, the CFO and key business and risk management heads.

(f) *Executive Risk Committee (“ERC”)*

The ERC, through its authority delegated by the EXCO, is responsible for the management of all risks other than those delegated to ALCO and the Country Pensions Committee (“CPC”). The ERC is responsible for the establishment of, and compliance with, policies relating to credit risk, country cross-border risk, market risk, operational risk and reputational risk. The ERC also defines the overall Risk Management Framework.

(g) *Group Internal Audit*

Group Internal Audit is an independent function that reports to both the Country Audit and Risk Committee and Group Audit Committee. It provides assurance to management and Audit Committees that the key risks associated with the Group’s and the Bank’s businesses and operations have been identified and appropriate controls have been designed to mitigate these key risks and an effective system of controls over these risks is in place and is working as intended.

4 Credit risk exposure management

The Bank has in place a Risk Management Framework, as outlined on page 68 to 69 of the 2016 consolidated financial statements.

(a) Internal ratings based approach to credit risk

The Bank uses the IRB approach to manage credit risk for the majority of its portfolios. The following exposures are subject to the advanced IRB approach:

- Corporate exposures including exposures to small-and-medium sized corporates and other corporates;
- Sovereign exposures including exposures to governments and foreign public sector entities;
- Bank exposures including exposures to banks and regulated securities firms;

The following exposures are subject to supervisory slotting criteria approach:

- Corporate exposures including specialised lending under supervisory slotting criteria approach (object finance);

The following exposures are subject to the retail IRB approach:

- Retail exposures including residential mortgages, qualifying revolving retail exposures, small business retail exposures and other retail exposures to individuals;

The following exposures are subject to the specific risk-weight approach:

- Other exposures including notes and coins, premises, plant and equipment and other fixed assets.

Under the IRB approach, the Bank is permitted to use its own internal estimates of probability of default ("PD"), exposure at default ("EAD") and loss given default ("LGD") to determine an asset's risk weighting:

- PD is the likelihood that an obligor will default on obligation within 12 months.
- EAD is the expected amount of exposure to a particular facility at the point of default.
- LGD is the percentage of EAD that the Bank expects to lose in the event of obligor defaults.

All assets under the IRB approach have sophisticated PD, LGD and EAD models developed to support the credit decision making process.

RWA under the IRB approach is determined by regulatory specified formulae dependent on the Bank's estimates of PD, EAD and LGD. The development, use and governance of models under the IRB approach is covered in more detail in note 6 to the supplementary notes.

(b) Standardised approach to credit risk

The standardised approach to credit risk measures credit risk pursuant to fixed risk weights and is less sophisticated than the IRB approach. The risk weightings applied under the standardised approach are provided by the HKMA and are based on the asset class to which the exposure is assigned.

5 Risk grade profile

(a) Structure of rating systems

A standard alphanumeric credit risk grade system for Corporate & Institutional Clients and Commercial Clients is used. The numeric grades run from 1 to 14 and some of the grades are further sub-classified. Lower credit grades are indicative of a lower likelihood of default. Credit grades 1 to 12 are assigned to performing customers or accounts, while credit grades 13 and 14 are assigned to non-performing or defaulted customers.

For Retail Clients IRB portfolios use application and behaviour credit scores that are calibrated to generate a probability of default and then mapped to the standard alphanumeric credit risk grade system. We refer to external ratings from credit bureau, however, we do not rely solely on these to determine Retail Clients' CGs.

Advanced IRB models cover a substantial majority of the Bank and its subsidiaries' exposures and are used in assessing risks at customer and portfolio level, setting strategy and optimising the Bank's risk-return decisions.

The Bank makes use of internal risk estimates of PD, LGD and EAD in the areas of:

- Credit Approval and Decision – The level of authority required for the sanctioning of credit requests and the decision made is based on a combination of PD, LGD and EAD of the obligor with reference to the nominal exposure;
- Pricing – In Corporate & Institutional and Commercial Clients, a pre-deal pricing calculator, which takes into consideration PD, LGD and EAD in the calculation of expected loss and risk-weighted assets, is used for the proposed transactions to ensure appropriate return. In Retail Clients, a standard approach to risk-return assessment is used to assess the risk using PD, LGD and EAD against the expected income for pricing and risk decision;
- Limit Setting – In Corporate & Institutional and Commercial Clients, single name concentration limits are determined by PD, LGD and EAD. The limits operate on a sliding scale to ensure that the Bank does not have over-concentration of low credit quality assets. In Retail Clients, the estimates of PD, LGD and EAD are used in the credit underwriting and portfolio management actions such as credit line increase/decrease and top-up for instalment loans.
- Provisioning – Portfolio Impairment Provisions ('PIP') are raised as described in note 6(i) to the supplementary notes and are set with reference to expected loss which is based on PD, LGD and EAD amongst other quantitative and qualitative factors; and
- Risk Appetite – PD, LGD and EAD models provide some of the key inputs into the risk-based methodologies used in the assessment of business and market variables which in turn are key components in the approach taken in setting Risk Appetite.

5 Risk grade profile (continued)

(b) Risk assessment for exposures under IRB approach

The following tables set out analyses of EAD, LGD, average risk weight and PD by internal credit grading and IRB class or IRB subclass.

	2016						
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Total EAD (HK\$ million)							
Advanced IRB approach:							
Corporates (other than specialised lending)	106,990	59,023	24,258	2,149	5,996	–	198,416
Sovereigns	148,237	–	–	–	–	–	148,237
Banks	271,767	10,746	412	–	–	–	282,925
Retail IRB approach:							
Residential mortgages to individuals and property-holding shell companies	200,204	23,288	2,551	124	136	–	226,303
Qualifying revolving retail exposures	50,437	6,098	4,041	346	120	–	61,042
Small business retail exposures	562	1,476	115	12	9	–	2,174
Other retail exposures to individuals	7,377	6,613	8,727	367	49	–	23,133
Specific risk-weight approach:							
Other exposures	–	–	–	–	–	87,400	87,400
IRB (securitisation) approach:							
Securitisation exposures	16,299	–	–	–	–	–	16,299
	801,873	107,244	40,104	2,998	6,310	87,400	1,045,929
	Strong	Good	Satisfactory	Weak	Defaulted		Total
Supervisory slotting criteria approach:							
Corporates (specialised lending)	144	580	–	–	–		724

5 Risk grade profile (continued)

(b) Risk assessment for exposures under IRB approach (continued)

	2016						
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Exposure-weighted average risk weight (%)							
Corporates (other than specialised lending)	30.09	66.34	89.22	98.73	146.07		52.35
Sovereigns	5.20	–	–	–	–		5.20
Banks	10.05	45.74	71.78	–	–		11.49
Residential mortgages to individuals and property-holding shell companies	16.06	30.36	92.43	156.07	133.69		18.54
Qualifying revolving retail exposures	5.32	32.49	126.04	259.09	66.35		17.58
Small business retail exposures	43.33	84.53	134.56	194.46	193.28	–	77.55
Other retail exposures to individuals	48.36	97.28	138.40	228.76	104.25		99.29
Other exposures	–	–	–	–	–	50.50	50.50
Securitisation exposures	8.90	–	–	–	–	–	8.90
	Strong	Good	Satisfactory	Weak	Defaulted		Total
Corporates (specialised lending)	53.00	95.40	–	–	–		86.98
-	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Exposure-weighted average LGD (%)							
Corporates (other than specialised lending)	44.63	37.06	27.50	17.70	56.34		40.35
Sovereigns	36.27	–	–	–	–		36.27
Banks	25.45	28.00	26.08	–	–		25.55
Residential mortgages to individuals and property-holding shell companies	13.67	23.07	26.50	26.20	12.29		14.79
Qualifying revolving retail exposures	90.00	90.00	90.00	90.00	50.93		89.92
Small business retail exposures	86.38	86.47	86.67	86.67	89.70	–	86.47
Other retail exposures to individuals	91.16	93.42	91.35	93.39	68.03		91.86
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Exposure-weighted average PD (%)							
Corporates (other than specialised lending)	0.15	1.08	6.27	26.99	100.00		4.49
Sovereigns	0.02	–	–	–	–		0.02
Banks	0.06	0.80	2.93	–	–		0.09
Residential mortgages to individuals and property-holding shell companies	0.11	0.99	5.25	21.60	100.00		0.33
Qualifying revolving retail exposures	0.09	0.83	6.10	32.46	100.00		0.94
Small business retail exposures	0.27	0.89	4.74	51.09	100.00	–	1.60
Other retail exposures to individuals	0.29	0.95	3.96	26.78	100.00		2.49

5 Risk grade profile (continued)

(b) Risk assessment for exposures under IRB approach (continued)

	2015						
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Total EAD (HK\$ million)							
Advanced IRB approach:							
Corporates (other than specialised lending)	88,315	68,439	30,738	188	8,071	–	195,751
Sovereigns	142,389	–	–	–	–	–	142,389
Banks	229,073	7,394	397	–	–	–	236,864
Retail IRB approach:							
Residential mortgages to individuals and property-holding shell companies	189,858	20,746	2,785	169	181	–	213,739
Qualifying revolving retail exposures	55,371	7,276	3,377	559	162	–	66,745
Small business retail exposures	509	1,274	136	13	5	–	1,937
Other retail exposures to individuals	8,301	9,596	3,089	408	59	–	21,453
Specific risk-weight approach:							
Other exposures	–	–	–	–	–	107,589	107,589
IRB (securitisation) approach:							
Securitisation exposures	20,174	–	–	–	–	–	20,174
	<u>733,990</u>	<u>114,725</u>	<u>40,522</u>	<u>1,337</u>	<u>8,478</u>	<u>107,589</u>	<u>1,006,641</u>
	<i>Strong</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Weak</i>	<i>Defaulted</i>		<i>Total</i>
Supervisory slotting criteria approach:							
Corporates (specialised lending)	<u>196</u>	<u>4</u>	<u>43</u>	<u>–</u>	<u>–</u>		<u>243</u>

5 Risk grade profile (continued)

(b) Risk assessment for exposures under IRB approach (continued)

	2015						
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Exposure-weighted average risk weight (%)							
Corporates (other than specialised lending)	35.76	65.14	77.65	247.22	96.81	–	55.33
Sovereigns	5.40	–	–	–	–	–	5.40
Banks	7.38	32.14	87.89	–	–	–	8.29
Residential mortgages to individuals and property-holding shell companies	13.43	31.20	90.01	225.94	121.24	–	16.41
Qualifying revolving retail exposures	6.87	35.03	131.65	263.28	104.05	–	18.64
Small business retail exposures	44.02	85.95	137.15	192.53	193.29	–	79.47
Other retail exposures to individuals	47.66	94.08	152.90	236.91	75.90	–	87.25
Other exposures	–	–	–	–	–	27.60	27.60
Securitisation exposures	7.98	–	–	–	–	–	7.98
	Strong	Good	Satisfactory	Weak	Defaulted		Total
Corporates (specialised lending)	74.20	74.20	121.90	–	–		82.56
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Exposure-weighted average LGD (%)							
Corporates (other than specialised lending)	49.38	36.28	25.65	46.08	56.56	–	41.37
Sovereigns	35.88	–	–	–	–	–	35.88
Banks	24.05	18.31	28.58	–	–	–	23.88
Residential mortgages to individuals and property-holding shell companies	13.99	24.09	25.96	37.42	11.41	–	15.14
Qualifying revolving retail exposures	92.06	92.06	92.06	92.06	78.80	–	92.03
Small business retail exposures	86.61	86.54	86.67	86.67	89.70	–	86.57
Other retail exposures to individuals	93.19	94.55	95.75	95.71	83.81	–	94.19
	Grades 1-5	Grades 6-8	Grades 9-11	Grade 12	Defaulted	Unrated	Total
Exposure-weighted average PD (%)							
Corporates (other than specialised lending)	0.16	1.13	5.99	26.78	100.00	–	5.56
Sovereigns	0.02	–	–	–	–	–	0.02
Banks	0.06	0.88	3.84	–	–	–	0.09
Residential mortgages to individuals and property-holding shell companies	0.11	0.96	5.19	22.78	100.00	–	0.36
Qualifying revolving retail exposures	0.13	0.95	6.32	27.41	100.00	–	1.00
Small business retail exposures	0.28	0.92	5.45	46.92	100.00	–	1.60
Other retail exposures to individuals	0.27	0.94	5.70	28.60	100.00	–	2.16

5 Risk grade profile (continued)

(b) Risk assessment for exposures under IRB approach (continued)

The following table sets out an analysis of the amount of undrawn commitments and EAD for corporate, sovereign and bank exposures:

	2016		2015	
	Undrawn commitments HK\$'M	EAD HK\$'M	Undrawn commitments HK\$'M	EAD HK\$'M
Corporates	161,484	18,986	176,198	21,439
Sovereigns	18	7	10	5
Banks	31,881	4,666	31,892	6,051
	<u>193,383</u>	<u>23,659</u>	<u>208,100</u>	<u>27,495</u>

The following table discloses the amount of exposure in the IRB portfolio that is covered by guarantees.

IRB Exposure Class	EAD covered by guarantees	
	2016	2015
	HK\$'M	HK\$'M
Corporate exposures	18,169	17,713
Sovereign exposures	–	–
Bank exposures	3,009	1,893
Residential mortgages to individuals and property-holding shell companies	–	–
Qualifying revolving retail exposures	–	–
Small business retail exposures	–	–
Other retail exposures to individuals	–	–
	<u>21,178</u>	<u>19,606</u>

6 Internal ratings-based models

(a) Accuracy of Model Estimates

Internal Ratings Based models were developed from a dataset that spans at least a full business cycle. The data has been used to calibrate estimates of PD to the Bank's long run experience. Observed default rates ('point in time') will typically differ from this 'through the cycle' experience as economies move above or below cyclical norms.

Probability of Default

Estimates of PD are computed as of 31 December 2015 and are compared with default observations through 31 December 2016. For 'Sovereigns' and 'Banks', there were no defaults during 2016.

The observed default rates for 'Corporates', 'Residential mortgages' and 'Qualifying revolving retail exposure' and 'Other retail exposures to individuals' asset classes in 2016 remained below model predictions, reflecting the impact of the Bank's prudent and proactive credit management. The observed default rate for 'Small business retail exposures' asset classes slightly increase compared to the prior year as a result the observed default rate was still above model predictions.

6 Internal ratings-based models (continued)

(a) Accuracy of Model Estimates (continued)

Loss Given Default

The calculation of realised versus predicted LGD is affected by the fact that it may take a number of years for the workout process to be completed. As such, an actual recovery value cannot be assigned to the majority of the 2016 defaults, making it meaningless to compare realised versus predicted outcomes in a manner similar to that for PD and EAD.

To address this, for Corporate & Institutional and Commercial Clients, we have adopted an approach based on a four-year rolling period of predicted and realised LGD, which for the current reporting year includes 2013 to 2016 defaults that have completed their workout process as at the end of 2016. This approach compares the four-year rolling predicted LGD, providing the predicted outcome of these resolved defaults one year prior to default, against the realised LGD for the same set of defaults. These two figures are fully comparable, providing thereby a meaningful assessment of LGD model performance.

Under this approach, realised LGD values for 'Corporates' are lower than predicted. This is explained by the regulatory guidance to calibrate LGD models to downturn conditions. For 'Sovereigns' and 'Banks', no values are provided reflecting the fact that there have been no defaults in the past four years.

For retail asset classes, the observed LGD was calculated based on actual recoveries during the 2014 to 2016 period for existing defaults as of December 2013 and new defaults in 2014. This is compared to the predicted outcome of the same set of defaults.

Under this approach, realised LGD values for all retail asset classes are lower than predicted, primarily due to the regulatory guidance to calibrate LGD models to downturn conditions. This is most evident in the mortgage portfolios, where predicted LGD values include a significant assumed reduction in property values.

Exposure at Default

EAD takes into consideration the potential draw down of a commitment as an obligor defaults by estimating the Credit Conversion Factor (CCF) of undrawn commitments.

For assets which defaulted in 2016, predicted EAD as of 31 December 2015 are compared with outstanding amount at time of default. For 'Sovereigns' and 'Banks', there were no defaults during 2016. For other asset classes, the predicted EAD is higher than the realised. This is explained by the regulatory guidance to assign conservatism to the CCF of certain exposure types and to calibrate the models to downturn conditions, as well as by the impact of management action leading to a reduction in actual exposure prior to default.

6 Internal ratings-based models (continued)

Corporate & Institutional and Commercial Clients Model Results

	2016				EAD Predicted / Realised
	PD		LGD		
	Observed	Predicted	Realised	Predicted	
	%	%	%	%	
Advanced IRB Exposure Class					
Corporates ¹	1.76	2.21	14.44	30.9	1.11
Sovereigns	0.00	0.02	N/A	N/A	N/A
Banks	0.00	0.81	N/A	N/A	N/A
2015 (Restated)					
	PD		LGD		EAD Predicted / Realised
	Observed	Predicted	Realised	Predicted	
	%	%	%	%	
Advanced IRB Exposure Class					
Corporates ¹	1.29	2.94	10.87	44.17	2.18
Sovereigns	0.00	0.02	N/A	N/A	N/A
Banks	0.00	1.00	N/A	N/A	N/A

¹ Includes small and medium-sized enterprises managed by Retail Clients

	2016					
	PD		LGD		EAD	
	Observed	Predicted	Realised	Predicted	Realised	Predicted
	PD%	PD%	Exposure-weighted LGD%	Exposure-weighted LGD%	EAD HK\$'M	EAD HK\$'M
Retail IRB Exposure Class						
Residential mortgages	0.05	0.28	1.43	11.85	73	74
Qualifying revolving retail exposures	0.36	0.55	62.67	85.02	218	296
Small business retail exposures	3.10	1.74	82.17	86.80	44	49
Other retail exposures to individuals	1.68	2.18	73.67	93.12	323	354
2015						
	PD		LGD		EAD	
	Observed	Predicted	Realised	Predicted	Realised	Predicted
	PD%	PD%	Exposure-weighted LGD%	Exposure-weighted LGD%	EAD HK\$'M	EAD HK\$'M
Retail IRB Exposure Class						
Residential mortgages	0.04	0.31	0.05	10.10	116	117
Qualifying revolving retail exposures	0.31	0.54	60.85	86.65	212	282
Small business retail exposures	2.82	2.18	85.90	86.40	31	38
Other retail exposures to individuals	1.96	2.31	69.49	93.55	454	546

6 Internal ratings-based models (continued)

(b) Analysis of actual losses and estimates

The following table sets out the actual losses in 2016 and 2015 and the regulatory expected loss as at 31 December 2015 and 31 December 2014.

Regulatory expected loss is based on a through-the-cycle methodology using risk parameters and observations over a period of time. It is a conservative and appropriately prudent calculation underpinning regulatory capital requirements, but:

- does not take account of any benefit from management actions to reduce exposures to riskier customers, clients or segments as conditions deteriorate;
- does not take account of any diversification benefit; and
- is calculated in accordance with rules which enforce a certain level of conservatism.

Regulatory expected loss therefore bears little resemblance to impairment as defined for accounting purposes. This is illustrated by the table below which shows expected loss consistently higher than impairment.

The actual loss is the net individual impairment charge recognised in the income statement during the reporting period which has been made in accordance with the Bank's accounting policy as set out in Note 2(k) on pages 24 to 26 of the 2016 consolidated financial statements.

IRB exposure class	Actual loss for the year of		Regulatory expected loss at	
	2016 HK\$'M	2015 HK\$'M	31 December 2015** HK\$'M	31 December 2014** HK\$'M
Corporates	1,057	1,026	3,801	3,317
Sovereigns	–	–	8	6
Banks	–	–	43	67
Residential mortgages	(5)	(6)	145	173
Qualifying revolving retail exposures	281	352	583	585
Small business retail exposures	56	43	26	26
Other retail exposures to individuals	159	396	433	561
	<u>1,548</u>	<u>1,811</u>	<u>5,039</u>	<u>4,735</u>

** The regulatory expected loss is the estimated future loss for the relevant IRB asset classes over the next 12 months

6 Internal ratings-based models (continued)

(c) Problem Credit Management and Provisioning

Retail Clients

For Retail Clients, an account is considered 'impaired' when it meets certain defined threshold conditions in terms of overdue payments or meets other objective conditions such as bankruptcy, debt restricting, fraud or death. A loan is considered delinquent (or past due) when the customer has failed to make a principal or interest payment in accordance with the loan contract. These threshold conditions are defined in policy and are set at the point where empirical evidence suggests that the customer is unlikely to meet their contractual obligations or a loss of principal is expected.

Portfolio impairment provisions (PIP) cover the inherent losses in the portfolio that exist at the balance sheet date but have not been individually identified. Considerations applied in determining the appropriate level of portfolio provisions include historic loss experience, loss emergence periods, risk indicators such as delinquency rates, and the potential impact of existing external conditions. Some of these factors require judgmental overlays. PIPs take into account the fact that, while delinquent is an indication of impairment, not all delinquent loans (particularly those in the early stages of delinquency) will in fact be impaired. This will only become apparent with the passage of time and as the bank investigate the causes of delinquency on a case-by-case basis.

It is on this basis that retail client accounts are considered impaired when a credit obligation is at 150 days past due. There are, however, exceptions to this rule for portfolios where empirical evidence suggests that they should be set more conservatively.

The core components of the IIP calculation are the value of gross charge off and recoveries. Gross charge off and/or provisions are recognized when it is established that the account is unlikely to pay, either through past due or any other specific condition. Recovery of unsecured debt post-impairment is recognised based on actual cash collected, either directly from customers or through the sale of defaulted loans to third-party institutions. Provision release of secured loans post-impairment is recognised if the loan outstanding is paid in full (release of full provision), or provision is higher than the loan outstanding (release of the excess provision), or the loan is paid to current and remains in current for more than 180 days (release of full provision).

Corporate & Institutional and Commercial Clients

Loans are classified as impaired where analysis and review indicates that full payment of either interest or principal is questionable, or as soon as payment of interest or principal is 90 days overdue. Impaired accounts are managed by Group Special Assets Management, ("GSAM") the Bank's specialist recovery unit, which is separate from the main businesses. Where any amount is considered irrecoverable, an individual impairment provision is raised, being the difference between the loan carrying amount and the present value of estimated future cash flows.

The individual circumstances of each customer are taken into account by GSAM when estimating future cash flows. All available sources such as cash flow arising from operations, selling assets or subsidiaries, realising collateral or payments under guarantees are considered. In any decision relating to the raising of provisions, the Bank attempts to balance economic conditions, local knowledge and experience, and the results of independent asset reviews.

Where it is considered that there is no realistic prospect of recovering a portion of an exposure against which an impairment provision has been raised, then that amount will be written off.

6 Internal ratings-based models (continued)

(c) Problem Credit Management and Provisioning (continued)

Corporate & Institutional and Commercial Clients (continued)

As with Retail Clients, a PIP is held to cover the inherent risk of losses which, although not identified, are known through experience to be present in any loan portfolio. In Corporate & Institutional and Commercial Clients, the PIP is set with reference to historic loss rates, and subjective factors such as the economic environment and the trends in key portfolio indicators. The PIP methodology provides for accounts for which an IIP has not been raised.

7 Standardised (credit risk) approach

The table below shows the total amount of exposures before and after the effect of recognised credit risk mitigation under the standardised (credit risk) approach.

	2016						
	Total exposures before the effect of CRM*	Total exposures after the effect of CRM**		Risk-weighted amounts		Total exposures covered by recognised collateral	Total exposures covered by recognised guarantees
	HK\$'M	Rated HK\$'M	Unrated HK\$'M	Rated HK\$'M	Unrated HK\$'M	HK\$'M	HK\$'M
Standardised Exposure Class							
On-balance sheet							
Sovereigns	—	—	—	—	—	—	—
Public sector entities	—	—	—	—	—	—	—
Multilateral development banks	1,997	—	1,997	—	—	—	—
Banks	1,497	—	1,508	—	302	—	—
Securities firms	—	—	—	—	—	—	—
Corporates	20,211	—	13,189	—	12,971	7,016	4 02
Collective investment schemes	—	—	—	—	—	—	—
Cash items	—	—	—	—	—	—	—
Regulatory retail	2,706	—	2,706	—	2,029	—	—
Residential mortgage loans	822	—	822	—	806	—	—
Other exposures which are not past due exposures	18,602	—	9,508	—	16,403	9,089	5
Past due exposures	366	—	366	—	541	11	2
Significant exposures to commercial entities							
Off-balance sheet							
Off-balance sheet exposures other than OTC derivative transactions or credit derivative contracts	1,308	—	383	—	383	925	—
OTC derivative transactions	381	—	380	—	309	1	—
Total	47,890	—	30,859	—	33,744	17,042	409
Exposures that are risk-weighted at 1,250%	—						

7 Standardised (credit risk) approach (continued)

	2015						
	Total exposures before the effect of CRM*	Total exposures after the effect of CRM**		Risk-weighted amounts		Total exposures covered by recognised collateral	Total exposures covered by recognised guarantees
	HK\$'M	Rated HK\$'M	Unrated HK\$'M	Rated HK\$'M	Unrated HK\$'M	HK\$'M	HK\$'M
Standardised Exposure Class							
On-balance sheet							
Sovereigns	-	-	-	-	-	-	-
Public sector entities	-	-	-	-	-	-	-
Multilateral development banks	2,093	-	2,093	-	-	-	-
Banks	2,289	-	2,306	-	464	-	-
Securities firms	-	-	-	-	-	-	-
Corporates	20,604	-	14,036	-	13,625	6,562	402
Collective investment schemes	-	-	-	-	-	-	-
Cash items	-	-	-	-	-	-	-
Regulatory retail	2,333	-	2,333	-	1,750	-	-
Residential mortgage loans	1,035	-	1,035	-	1,015	-	-
Other exposures which are not past due exposures	19,500	-	10,527	-	17,658	8,962	11
Past due exposures	436	-	436	-	622	60	4
Significant exposures to commercial entities	-	-	-	-	-	-	-
Off-balance sheet							
Off-balance sheet exposures other than OTC derivative transactions or credit derivative contracts	1,178	-	313	-	313	865	-
OTC derivative transactions	425	-	424	-	355	1	-
Total	49,893	-	33,503	-	35,802	16,450	417
Exposures that are risk-weighted at 1,250%	-						

* Principal amount or credit equivalent amount, as applicable, net of specific provisions.

** Exposures covered by recognised guarantees are reclassified after credit risk mitigation to reflect the exposures to the guarantors.

There are immaterial credit and market risks concentrations within the credit risk mitigants used by the Bank.

8 Credit risk mitigation ("CRM")

Potential credit losses from any given account, client or portfolio are mitigated using a range of tools such as collateral, netting agreements, credit insurance, credit derivatives and guarantees. The reliance that can be placed on risk mitigants is carefully assessed in light of issues such as legal certainty and enforceability, market valuation correlation and counterparty risk of the protection provider. The requirement for risk mitigation is, however, not a substitute for the ability to pay, which is the primary consideration for any lending decisions.

9 Counterparty credit risk-related exposures

Counterparty credit risk (CCR) is the risk that the Bank's counterparty in a foreign exchange, interest rate, commodity, equity or credit derivative contract defaults prior to the maturity date of the contract and that the Bank at the time has a claim on the counterparty. CCR arises predominantly in the trading book, but also arises in the non-trading book due to hedging of external funding.

CCR is managed within the overall credit risk appetite for corporate & institutional and commercial clients. CCR limits are set for individual counterparties and specific portfolio concentrations. Such limits take into account the credit quality and nature of the counterparty and are set in exposure value terms. The Bank reduces its credit exposures to counterparties by entering into contractual netting agreements which result in a single amount owed by or to the counterparty through netting the sum of the positive (amounts owed by the counterparty) and negative (amounts owed by the Bank) mark to market ("MTM") values of these transactions. The Bank is permitted to offset assets and liabilities and present these net on the balance sheet, only if there is a legally enforceable right to set off and the Bank intends to settle on a net basis or realise the asset and liability simultaneously.

Wrong way risk occurs when an exposure increase is coupled with a decrease in the credit quality of the obligor. Specifically, as the MTM on a derivative contract increases in favour of the Bank, the driver of this MTM change also reduces the ability of the counterparty to meet its payment, margin call or collateral posting requirements. The Bank employs various policies and procedures to ensure that wrong way risk exposures are recognised upfront and monitored.

The Bank adopts the current exposure method to determine the exposure amount for counterparty credit risk which arises from derivative transactions in the banking and trading books. The credit equivalent amount is calculated as the sum of the current replacement cost and the potential future credit exposure.

For OTC derivative transactions and credit derivative contracts, default risk exposure is the credit equivalent amount. For securities financing transactions, default risk exposure is the principal amount of securities sold or lent, or the money paid or lent, or the securities or money provided as collateral.

The Bank's regulatory capital requirements for counterparty credit risk arising from derivative transactions and securities financing transactions booked in the banking or trading book (referred to as "relevant transactions" in this section), are calculated in accordance with the Banking (Capital) rules. The Bank adopts the advanced IRB approach to calculate the majority of its counterparty credit risk exposures and adopts the standardised (credit risk) approach for certain insignificant portfolios which are exempt from IRB. The credit risk-weighted amounts as at 31 December 2016 have included additional capital requirements for asset value correlation ("AVC") and CVA.

9 Counterparty credit risk-related exposures (continued)

(a) Counterparty credit risk exposures under the IRB approach

The following table summarises the Bank's credit exposure arising from OTC derivative transactions, securities financing transactions and credit derivative contracts.

	<i>Consolidated</i>		
	<i>OTC derivative transactions HK\$'M</i>	<i>Securities financing transactions⁽³⁾ HK\$'M</i>	<i>Credit derivative contracts⁽¹⁾ HK\$'M</i>
2016			
Gross total positive fair value	23,672	–	100
Default risk exposures	9,463	27,289	106
Recognised collateral held ⁽⁴⁾			
– Cash	–	151	–
– Equities	–	3,518	–
– Debt securities	–	18,947	–
Default risk exposures net of recognised collateral held	9,463	4,673	106
Risk-weighted amounts ⁽²⁾	3,446	769	59

⁽¹⁾ The outstanding credit derivative contracts, amounting to HK\$2,460 million (2015: HK\$2,792 million), were total return swaps, of which HK\$124 million (2015: HK\$126 million) were related to protection bought used for the Bank's credit portfolio and HK\$2,336 million were related to protection sold.

⁽²⁾ Risk-weighted amounts include AVC and CVA.

⁽³⁾ Securities financing transactions include repo-style transactions and margin lending transactions.

⁽⁴⁾ Recognised collateral is stated after haircut.

	<i>Consolidated (Restated)</i>		
	<i>OTC derivative transactions HK\$'M</i>	<i>Securities financing transactions⁽³⁾ HK\$'M</i>	<i>Credit derivative contracts⁽¹⁾ HK\$'M</i>
2015			
Gross total positive fair value	16,254	–	133
Default risk exposures	9,742	39,407	119
Recognised collateral held ⁽⁴⁾			
– Cash	–	247	–
– Equities	–	3,527	–
– Debt securities	–	30,174	–
Default risk exposures net of recognised collateral held	9,742	5,459	119
Risk-weighted amounts ⁽²⁾	4,541	1,255	69

9 Counterparty credit risk-related exposures (continued)

(a) Counterparty credit risk exposures under the IRB approach (continued)

An analysis of the notional amounts, default risk exposures and the risk-weighted amounts for OTC derivative transactions, securities financing transactions and credit derivative contracts by counterparty type under the IRB approach is summarised as follows:

	<i>Consolidated</i>		
	<i>OTC derivative transactions HK\$'M</i>	<i>Securities financing transactions HK\$'M</i>	<i>Credit derivative contracts HK\$'M</i>
2016			
Notional amounts:			
– Corporates	41,348	–	–
– Sovereigns	302	–	–
– Banks	1,892,934	27,289	2,460
– Others	–	–	–
	<u>1,934,584</u>	<u>27,289</u>	<u>2,460</u>
Default risk exposures:			
– Corporates	1,420	–	–
– Sovereigns	3	–	–
– Banks	8,040	27,289	106
– Others	–	–	–
	<u>9,463</u>	<u>27,289</u>	<u>106</u>
Risk-weighted amounts:			
– Corporates	1,407	–	–
– Sovereigns	–	–	–
– Banks	2,039	769	59
– Others	–	–	–
	<u>3,446</u>	<u>769</u>	<u>59</u>

9 Counterparty credit risk-related exposures (continued)**(a) Counterparty credit risk exposures under the IRB approach (continued)**

	<i>Consolidated</i>		
	<i>OTC derivative transactions HK\$'M</i>	<i>Securities financing transactions HK\$'M</i>	<i>Credit derivative contracts HK\$'M</i>
2015			
Notional amounts:			
– Corporates	62,913	–	–
– Sovereigns	–	–	–
– Banks	1,627,421	39,407	2,792
– Others	–	–	–
	<u>1,690,334</u>	<u>39,407</u>	<u>2,792</u>
Default risk exposures:			
– Corporates	1,920	–	–
– Sovereigns	–	–	–
– Banks	7,822	39,407	119
– Others	–	–	–
	<u>9,742</u>	<u>39,407</u>	<u>119</u>
Risk-weighted amounts:			
– Corporates	2,518	–	–
– Sovereigns	–	–	–
– Banks	2,023	1,255	69
– Others	–	–	–
	<u>4,541</u>	<u>1,255</u>	<u>69</u>

9 Counterparty credit risk-related exposures (continued)**(b) Counterparty credit risk under the standardised (credit risk) approach**

The following table summaries the Bank's credit exposure arising from OTC derivative transactions.

	<i>Consolidated OTC derivative transactions</i>	
	<i>2016 HK\$'M</i>	<i>2015 HK\$'M</i>
Gross total positive fair value	116	172
Default risk exposures	381	425
Recognised collateral held		
– Cash	1	–
Default risk exposures net of recognised collateral held	380	425
Risk-weighted amounts	<u>309</u>	<u>355</u>

An analysis of the notional amounts, default risk exposures and the risk-weighted amounts for OTC derivatives by counterparty type under the standardised (credit risk) approach is summarised as follows:–

	<i>Consolidated OTC derivative transactions</i>	
	<i>2016 HK\$'M</i>	<i>2015 HK\$'M</i>
Notional amounts:		
– Corporates	2,236	2,660
– Banks	4,997	3,331
– Individuals	1,600	1,472
	<u>8,833</u>	<u>7,463</u>
Default risk exposures		
– Corporates	142	165
– Banks	140	137
– Individuals	99	123
	<u>381</u>	<u>425</u>
Risk-weighted amounts:		
– Corporates	140	164
– Banks	70	68
– Individuals	99	123
	<u>309</u>	<u>355</u>

9 Counterparty credit risk-related exposures (continued)**(c) Risk exposures to derivative transactions**

	<i>Consolidated</i>		
	<i>Fair value assets HK\$'M</i>	<i>Fair value liabilities HK\$'M</i>	<i>Risk- weighted amounts HK\$'M</i>
2016			
Exchange rate contracts			
– Forwards	6,206	5,727	1,625
– Cross currency swaps	15,721	15,978	1,037
– Options purchased	9	109	9
– Options written	5	53	20
Interest rate contracts			
– Swaps	2,653	755	804
– Options purchased	–	–	–
– Options written	–	1,617	13
Other derivatives	151	101	306
	<u>24,745</u>	<u>24,340</u>	<u>3,814</u>
	<i>Consolidated</i>		
	<i>Fair value assets HK\$'M</i>	<i>Fair value liabilities HK\$'M</i>	<i>Risk- weighted amounts⁽¹⁾ HK\$'M</i>
2015			
Exchange rate contracts			
– Forwards	13,444	13,030	2,146
– Cross currency swaps	1,437	1,570	1,543
– Options purchased	7	109	19
– Options written	43	41	93
Interest rate contracts			
– Swaps	2,153	1,079	606
– Options purchased	–	–	–
– Options written	17	1,520	95
Other derivatives	308	209	463
	<u>17,409</u>	<u>17,558</u>	<u>4,965</u>

The fair values and risk weighted amounts shown above do not include embedded derivatives which are not separated out from their host contracts, and therefore may not necessarily represent the amounts at risk.

10 Asset securitisation

The Bank adopts the IRB (securitisation) approach to calculate the credit risk for asset securitisations in which it is an investing institution. There was no asset securitisations for which the Bank was an originating institution.

The Bank uses the following external credit assessment institutions to calculate the capital adequacy requirements: S & P, Moody's and Fitch Ratings.

The Bank's securitization exposures are measured in accordance with the accounting policy described in note 2(i) of the 2016 consolidated financial statements.

The securitised assets have appropriate credit and market risk limits in place with exposures being monitored against these limits. There is also a periodic performance analysis of the underlying collateral pools through review of trustee reports, market research and monitoring the changes of their external ratings. In addition, for Corporate & Institutional and Commercial Clients, there is an internal credit model in place to measure any change in the performance of the underlying collateral pools.

On-balance sheet securitisation exposures booked in banking book:

	2016 HK\$'M	2015 HK\$'M
Residential mortgage loans	4,956	8,073
Diversified payment types	1,548	738
Auto loans	3,383	3,164
Credit cards	5,839	7,562
Commercial mortgage loans	136	204
Trade receivables	429	426
Others	8	8
	<u>16,299</u>	<u>20,175</u>

	Consolidated 2016			Exposures deducted from capital	
	Outstanding amounts HK\$'M	Risk- weighted amounts HK\$'M	Minimum capital requirements HK\$'M	CET1 Capital HK\$'M	Tier 2 Capital HK\$'M
Risk weight					
7%	14,185	1,053	84		
8%	186	16	1		
10%	115	12	1		
12%	232	29	2		
18%	201	38	3		
20%	1,318	279	23		
35%	62	23	2		
	<u>16,299</u>	<u>1,450</u>	<u>116</u>	<u>–</u>	<u>–</u>

10 Asset securitisation (continued)

	Consolidated 2015			Exposures deducted from capital	
	Outstanding amounts HK\$'M	Risk- weighted amounts HK\$'M	Minimum capital requirements HK\$'M	CET1 Capital HK\$'M	Tier 2 Capital HK\$'M
Risk weight					
7%	18,698	1,387	111		
8%	484	41	3		
10%	196	21	2		
12%	658	84	7		
20%	25	5	–		
60%	114	72	6		
	<u>20,175</u>	<u>1,610</u>	<u>129</u>	<u>–</u>	<u>–</u>

11 Market risk

For the calculation of the capital requirement for market risk, the Bank uses an internal models approach for two guaranteed retirement funds and the standardised (market risk) approach for other exposures.

The Bank's minimum capital requirement for market risk is summarised as follows:

	Consolidated capital requirement	
	2016 HK\$'M	2015 HK\$'M
Standardised (market risk) approach:		
Interest rate exposures	960	729
Foreign exchange exposures	91	233
Equity exposures	1	63
Commodity exposures	–	–
	<u>1,052</u>	<u>1,025</u>
Internal models approach:		
Guaranteed retirement funds	<u>53</u>	<u>49</u>
Total minimum capital requirement for market risk	<u>1,105</u>	<u>1,074</u>

The capital requirement for the Bank's guaranteed retirement funds is calculated based on the potential shortfall between the estimated returns from the funds and the guaranteed returns. The projected returns are estimated using a simulation approach with a 99% confidence level. The model is back-tested against actual results.

12 Operational risk

The Bank adopts the standardised (operational risk) approach for assessing capital requirements for operational risk.

Operational risk is the risk of direct or indirect loss due to an event or action resulting from the failure of internal processes, people, and systems, or from external events. The Bank seeks to ensure that key operational risks are managed in a timely and effective manner through a framework of policies, procedures and tools to identify, assess, monitor, control, and report such risks.

The Bank's minimum capital requirement for operational risk is summarised as follows:

	<i>Consolidated capital requirement</i>	
	<i>2016</i>	<i>2015</i>
	<i>HK\$'M</i>	<i>HK\$'M</i>
Standardised (operational risk) approach	3,480	3,784

Country Operational Risk Committee ("CORC") is appointed by the ERC to review the Bank's operational risk profile with the objective of providing a forum for the management oversight of country and business level operational risk ("OR") trends and issues arising from control lapses/failures, regulatory breaches, policy non-compliance, as well as exceptions and weaknesses identified through the self-assessment processes, risk toolkits, compliance and business reviews, internal and external audits and external developments/changes. CORC will deliberate the root causes of risk issues, the appropriateness of risk ratings, as well as the adequacy and effectiveness of remedial actions.

Further information regarding operational risk governance and management is set out in note 37(g) on pages 98 to 100 of the 2016 consolidated financial statements.

13 Equity exposures in the banking book

Investments in equity shares which are intended to be held on a continuing basis, but which do not comprise investments in associates, jointly controlled entities or subsidiaries, are classified as available-for-sale securities and are reported on the balance sheet as "Investment securities". Available-for-sale securities are measured at fair value as described in note 2(i) of the 2016 consolidated financial statements. Included within this category are investments made by the Bank for strategic purposes, which are subject to additional internal procedures and approvals to ensure that the investments are in accordance with the Bank's strategy and to ensure compliance with all relevant regulatory and legal restrictions. In some cases, additional investments may be made later such that the investee becomes an associate, jointly controlled entity or subsidiary, at which point the investment is reclassified in accordance with the Bank's accounting policies.

	<i>2016</i>	<i>2015</i>
	<i>HK\$'M</i>	<i>HK\$'M</i>
Cumulative realised gains on disposal	52	18
Unrealised gains recognised in reserves but not through the income statement	38	86

14 Other annual financial disclosure**(a) Interest rate exposure in the banking book**

As at the balance sheet date, the variation in the Bank's earnings for a 200 basis points interest rate increase, broken down by currency, is shown as follows (in HK\$ million):

	<i>HKD</i>	<i>USD</i>	<i>CNY</i>	<i>EUR</i>	<i>SGD</i>	<i>JPY</i>
2016	245	806	(157)	305	(19)	137
	<i>HKD</i>	<i>USD</i>	<i>CNY</i>	<i>EUR</i>	<i>SGD</i>	<i>JPY</i>
2015	361	277	(14)	263	(90)	85

The above analysis is based on the methodology as set out by the HKMA in the completion instructions for the "Return of Interest Rate Risk Exposure" and is compiled on a quarterly basis.

In addition, the analysis is based on the following assumptions:

- (i) there is a parallel shift in the yield curve and in interest rates;
- (ii) positions are assumed to run to maturity and reprice according to the earliest interest repricing date; and
- (iii) no loan prepayment is assumed as the majority of loans are on a floating rate basis.

(b) Analysis of fee and commission income

The products constituting not less than 10% of the total amount of fee and commission income are as follows:

	<i>2016 HK\$'M</i>	<i>2015 HK\$'M</i>
Insurance services	1,309	1,216
Financial market products	1,796	2,992
Investment services	1,482	1,819

14 Other annual financial disclosure (continued)**(c) International claims**

International claims are on-balance sheet exposures of counterparties based on the location of those counterparties after taking into account the transfer of risk. Recognized risk transfer refers to the reduction of exposure to a particular country by an effective transfer of credit risk to a different country. For a claim on the branch of a bank or other financial institution, the risk will be transferred to the country where its head office is situated.

International claims on individual countries or segments, after risk transfer, amounting to 10% or more of the aggregated international claims are shown as below:

As at 31 December 2016	Banks HK\$'M	Official Sector HK\$'M	Non-bank Financial institution HK\$'M	Non-financial private sector HK\$'M	Total HK\$'M
Developed countries, of which	93,818	56,756	10,954	18,621	180,149
United Kingdom	22,296	277	5,290	3,933	31,796
Japan	22,603	33,454	70	611	56,738
Others	48,919	23,025	5,594	14,077	91,615
Offshore centres, of which	6,798	1,246	10,838	77,788	96,670
Hong Kong SAR	2,444	1,246	9,090	58,226	71,006
Others	4,354	–	1,748	19,562	25,664
Developing Asia and Pacific, of which	165,782	4,355	5,469	22,545	198,151
China	118,227	3,722	2,912	14,338	139,199
Others	47,555	633	2,557	8,207	58,952
As at 31 December 2015 (Restated)	Banks HK\$'M	Official Sector HK\$'M	Non-bank Financial institution HK\$'M	Non-financial private sector HK\$'M	Total HK\$'M
Developed countries, of which	78,971	49,575	13,879	23,786	166,211
United Kingdom	24,940	339	7,178	4,744	37,201
Japan	9,947	21,281	2	836	32,066
Others	44,084	27,955	6,699	18,206	96,944
Offshore centres, of which	7,600	1,242	9,166	56,738	74,746
Hong Kong SAR	1,771	1,242	9,040	40,178	52,231
Others	5,829	–	126	16,560	22,515
Developing Asia and Pacific, of which	118,041	13,263	6,080	34,876	172,260
China	101,122	10,156	2,452	23,078	136,808
Others	16,919	3,107	3,628	11,798	35,452

14 Other annual financial disclosure (continued)**(d) Advances to customers analysed by industry sector**

The analysis of gross advances to customers by industry sector is based on the categories used by the HKMA.

Consolidated

	At 31 December 2016 HK\$'M	% of advances covered by collateral or other securities	At 31 December 2015 HK\$'M	% of advances covered by collateral or other securities
Gross advances for use in Hong Kong				
<i>Industrial, commercial and financial</i>				
– Property development	8,619	27%	8,264	32%
– Property investment	28,768	85%	34,744	76%
– Financial concerns	24,111	34%	16,245	45%
– Stockbrokers	7,145	66%	6,791	53%
– Wholesale and retail trade	17,316	34%	14,154	29%
– Manufacturing	24,552	13%	19,724	18%
– Transport and transport equipment	5,840	36%	5,122	58%
– Recreational activities	425	24%	286	31%
– Information technology	2,841	–	1,053	3%
– Others	15,545	8%	14,113	10%
<i>Individuals</i>				
– Advances for the purchase of flats in the Home Ownership Scheme, Private Sector Participation Scheme and Tenants Purchase Scheme	411	100%	490	100%
– Advances for the purchase of other residential properties	205,264	100%	195,460	100%
– Credit card advances	17,902	–	15,235	–
– Others	21,296	38%	22,784	37%
Total gross advances for use in Hong Kong	380,035		354,465	
Trade finance	31,513	3%	26,600	10%
Trade bills	1,675	6%	1,785	9%
Gross advances for use outside Hong Kong	28,799	29%	34,213	30%
Gross advances to customers	442,022	62%	417,063	65%

14 Other annual financial disclosure (continued)**(d) Advances to customers analysed by industry sector (continued)**

The analysis of advances to customers by geographical area is classified according to the location of the counterparties after taking into account the transfer of risk. In general, risk transfer applies when an advance is guaranteed by a party located in an area which is different from that of the counterparty.

As at 31 December 2016, approximately 84 per cent (2015: 83 per cent) of the Bank's advances to customers were classified under Hong Kong.

Except for Hong Kong, none of the remaining geographical segments represents more than 10% of the Bank's gross loans and advances to customers after taking into account the transfer of risk.

The above balances do not include inter-company loans and advances.

The amount of impaired and overdue advances to customers and individually and collectively assessed impairment allowances for industry sectors which constitute not less than 10% of the Bank and its subsidiaries' total advances to customers are as follows:

Consolidated

	<i>Impaired advances to customers HK\$'M</i>	<i>Overdue advances to customers HK\$'M</i>	<i>Individually assessed impairment allowances HK\$'M</i>	<i>Collectively assessed impairment allowances HK\$'M</i>	<i>New provision charge HK\$'M</i>
<u>As at 31 December 2016</u>					
Advances for the purchase of other residential properties	61	31	–	2	–
<u>As at 31 December 2015</u>					
Advances for the purchase of other residential properties	98	51	1	2	–

14 Other annual financial disclosure (continued)**(e) Overdue and rescheduled assets****(i) Overdue advances to customers****Consolidated**

	2016		2015	
	HK\$'M	% of gross advances	HK\$'M	% of gross advances
Gross advances to customers which have been overdue with respect to either principal or interest for periods of:				
– 6 months or less but over 3 months	138	0.03%	1,342	0.32%
– 1 year or less but over 6 months	497	0.11%	475	0.12%
– over 1 year	2,042	0.46%	757	0.18%
	<u>2,677</u>	<u>0.60%</u>	<u>2,574</u>	<u>0.62%</u>
	2016 HK\$'M		2015 HK\$'M	
Fair value of collateral held against the covered portion of overdue advances to customers	<u>1,282</u>		<u>1,169</u>	
Covered portion of overdue advances to customers	729		922	
Uncovered portion of overdue advances to customers	<u>1,948</u>		<u>1,652</u>	

The covered portion of overdue advances to customers represents the amount of collateral held against outstanding balances. It does not include any collateral held over and above outstanding exposures.

The collateral held in respect of the overdue advances consists of cash, properties, securities and government guarantee.

Consolidated

	2016 HK\$'M	2015 HK\$'M
Individually assessed impairment allowances against overdue advances to customers	<u>1,233</u>	<u>1,064</u>

(ii) Overdue advances to banks

As at 31 December 2016 and 31 December 2015, there were no overdue advances to banks.

14 Other annual financial disclosure (continued)**(e) Overdue and rescheduled assets (continued)***(iii) Rescheduled advances to customers***Consolidated**

	2016		2015	
	HK\$'M	% of gross advances	HK\$'M	% of gross advances
Rescheduled advances	477	0.11%	156	0.04%

Rescheduled advances are those advances, which have been restructured or renegotiated because of a deterioration in the financial position of the borrowers, or the inability of the borrowers to meet the original repayment schedule and for which the revised repayment terms are non-commercial to the Bank. The amount of rescheduled advances to customers excludes those which have been overdue for more than 3 months and reported as overdue advances in note 14(f) (i) above.

There were no rescheduled advances to banks and other financial institutions as at 31 December 2016 and 31 December 2015.

(f) Mainland Activities

	On-balance sheet exposure HK\$'M	Off-balance sheet exposure HK\$'M	Total HK\$'M
<u>As at 31 December 2016</u>			
(i) Central government, central government-owned entities and their subsidiaries and joint ventures ("JVs")	24,413	381	24,794
(ii) Local governments, local government-owned entities and their subsidiaries and JVs	1,032	407	1,439
(iii) PRC nationals residing in Mainland China or other entities incorporated in Mainland China and their subsidiaries and JVs	26,140	3,252	29,392
(iv) Other entities of central government not reported in item (i) above	1,750	212	1,962
(v) Other entities of local governments not reported in item (ii) above	1,233	65	1,298
(vi) PRC nationals residing outside Mainland China or entities incorporated outside Mainland China where the credit is granted for use in Mainland China	22,291	1,899	24,190
(vii) Other counterparties where the exposures are considered by the reporting institution to be non-bank Mainland China exposures	14,953	2,134	17,087
Total	91,812	8,350	100,162
Total assets after provision	1,011,011		
On-balance sheet exposures as percentage of total assets	9.08%		

14 Other annual financial disclosure (continued)**(f) Mainland Activities (continued)**

	<i>On-balance sheet exposure HK\$'M</i>	<i>Off-balance sheet exposure HK\$'M</i>	<i>Total HK\$'M</i>
<u>As at 31 December 2015</u>			
(i) Central government, central government-owned entities and their subsidiaries and joint ventures ("JVs")	24,280	511	24,791
(ii) Local governments, local government-owned entities and their subsidiaries and JVs	1,990	100	2,090
(iii) PRC nationals residing in Mainland China or other entities incorporated in Mainland China and their subsidiaries and JVs	16,961	2,536	19,497
(iv) Other entities of central government not reported in item (i) above	1,538	71	1,609
(v) Other entities of local governments not reported in item (ii) above	1,055	9	1,064
(vi) PRC nationals residing outside Mainland China or entities incorporated outside Mainland China where the credit is granted for use in Mainland China	16,364	2,858	19,222
(vii) Other counterparties where the exposures are considered by the reporting institution to be non-bank Mainland China exposures	7,396	353	7,749
Total	<u>69,584</u>	<u>6,438</u>	<u>76,022</u>
Total assets after provision	<u>955,569</u>		
On-balance sheet exposures as percentage of total assets	<u>7.28%</u>		

The off-balance sheet exposure represents the amount at risk should the contract be fully drawn upon and the client defaults. As the facilities may expire without being drawn upon, the contractual amounts do not represent expected future cash flows.

15 Comparative figures

Certain comparative figures have been restated to conform with the current year's presentation.