上海商業銀行
SHANGHAI COMMERCIAL BANK

REGULATORY DISCLOSURES

As at 31 December 2017
(Unaudited)

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The following disclosures are prepared under regulatory scope of consolidation to comply with the Banking (Disclosure) Rules and do not form part of the audited financial statements.

1 Capital structure and adequacy

The calculation of the capital adequacy ratios as at 31st December 2017 is based on the Banking (Capital) Rules ('BCR'). The capital adequacy ratios represent the consolidated ratios of the Bank's Hong Kong offices, overseas branches, Shacom Property (CA), Inc., Shacom Property (NY), Inc., Shacom Property Holdings (BVI) Limited, Shacom Investment Limited, Shacom Assets Investments Limited, Right Honour Investments Limited, Glory Step Investments Limited, Silver Wisdom Investments Limited, Shacom Insurance Brokers Limited, KCC 23F Limited, KCC 25F Limited and KCC 26F Limited computed in accordance with Section 3C(1) of the BCR.

For accounting purposes, the basis of consolidation is described in Note 2.2 to the consolidated financial statements.

The table below presents the balance sheets based on the accounting scope of consolidation and the regulatory scope of consolidation respectively as at 31st December 2017.

	Balance sheet as in published financial statements	Under regulatory scope of consolidation
Assets		
Cash and balances with banks	28,755,012	28,751,257
Placements with and loans and advances to banks	17,633,246	17,633,246
Loans and advances to customers	78,296,688	78,296,688
Financial assets held for trading	1,975,108	1,936,942
Derivative financial instruments	141,006	141,006
Available-for-sale investments	50,167,009	50,111,396
Held-to-maturity investments	2,386,864	2,386,864
Properties for sale	373,529	373,529
Investments in joint ventures	338,914	113,000
Investments in and amounts due from subsidiaries	–	200,082
Properties and equipment	2,389,569	2,350,096
Investment properties	1,020,504	1,051,362
Deferred income tax assets	40,523	40,509
Other assets	1,012,616	953,248
Total assets	184,530,588	184,339,225
Liabilities		
Deposits and balances from banks	6,780,932	6,780,932
Deposits from customers	146,953,042	146,953,042
Derivatives financial instruments	146,196	146,196
Amounts due to subsidiaries	–	361,130
Subordinated debt	1,947,028	1,947,028
Other liabilities	2,196,853	2,056,113
Provisions	156,571	154,554
Current income tax liabilities	422,206	421,114
Deferred income tax liabilities	382,438	382,397
Total liabilities	158,985,266	159,202,506
Equity		
Share capital	2,000,000	2,000,000
Retained earnings	13,446,235	13,134,361
Reserves	10,022,093	10,002,358
Non-controlling interests	76,994	–
Total equity	25,545,322	25,136,719
Total equity and liabilities	184,530,588	184,339,225

1 Capital structure and adequacy (Continued)

The table below shows the reconciliation of the capital components from balance sheet based on regulatory scope of consolidation to the Capital Disclosures Template as at 31st December 2017.

	Balance sheet as in published financial statements	Under regulatory scope of consolidation	Cross reference to definition of capital components
Assets			
Cash and balances with banks	28,755,012	28,751,257	
Placements with and loans and advances to banks	17,633,246	17,633,246	
Loans and advances to customers	78,296,688	78,296,688	
of which: collective impairment allowances reflected in regulatory capital		*313,073*	(1)
Financial assets held for trading	1,975,108	1,936,942	
Derivative financial instruments	141,006	141,006	
Available-for-sale investments	50,167,009	50,111,396	
of which: insignificant capital investments in financial sector entities exceeding 10% threshold		*1,580,109*	(2)
Held-to-maturity investments	2,386,864	2,386,864	
Properties for sale	373,529	373,529	
Investments in joint ventures	338,914	113,000	
Investments in and amounts due from subsidiaries	–	200,082	
Properties and equipment	2,389,569	2,350,096	
Investment properties	1,020,504	1,051,362	
Deferred income tax assets	40,523	40,509	(3)
Other assets	1,012,616	953,248	
Total assets	184,530,588	184,339,225	
Liabilities			
Deposits and balances from banks	6,780,932	6,780,932	
Deposits from customers	146,953,042	146,953,042	
Derivatives financial instruments	146,196	146,196	
Amounts due to subsidiaries	–	361,130	
Subordinated debt	1,947,028	1,947,028	
of which: eligible for inclusion in regulatory capital		*1,940,308*	(4)
Other liabilities	2,196,853	2,056,113	
Provisions	156,571	154,554	
Current income tax liabilities	422,206	421,114	
Deferred income tax liabilities	382,438	382,397	
Total liabilities	158,985,266	159,202,506	
Equity			
Share capital	2,000,000	2,000,000	(5)
Retained earnings	13,446,235	13,134,361	(6)
Reserves	10,022,093	10,002,358	
of which: accumulated other comprehensive income (loss), other than regulatory reserve		*9,261,635*	(7)
regulatory reserve		*740,723*	(8)
Non-controlling interests	76,994	–	
Total equity	25,545,322	25,136,719	
Total equity and liabilities	184,530,588	184,339,225	

1 Capital structure and adequacy (Continued)

The Group has already applied full capital deductions under the BCR. The Capital Disclosures Template as at 31st December 2017 is shown below.

		Component of regulatory capital reported by bank	Cross-referenced to balance sheet under regulatory scope of consolidation
	CET1 capital: instruments and reserves		
1	Directly issued qualifying CET1 capital instruments plus any related share premium	2,000,000	(5)
2	Retained earnings	13,134,361	(6)
3	Disclosed reserves	10,002,358	(7)+(8)
4	Directly issued capital subject to phase out from CET1 capital (only applicable to non-joint stock companies)	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)	–	
6	**CET1 capital before regulatory deductions**	**25,136,719**	
	CET1 capital: regulatory deductions		
7	Valuation adjustments	–	
8	Goodwill (net of associated deferred tax liability)	–	
9	Other intangible assets (net of associated deferred tax liability)	–	
10	Deferred tax assets net of deferred tax liabilities	40,509	(3)
11	Cash flow hedge reserve	–	
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	–	
15	Defined benefit pension fund net assets (net of associated deferred tax liabilities)	–	
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)	1,580,109	(2)
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)	–	
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	of which: significant investments in the common stock of financial sector entities	Not applicable	
24	of which: mortgage servicing rights	Not applicable	
25	of which: deferred tax assets arising from temporary differences	Not applicable	

1 Capital structure and adequacy (Continued)

		Component of regulatory capital reported by bank	Cross-referenced to balance sheet under regulatory scope of consolidation
26	National specific regulatory adjustments applied to CET1 capital	740,723	
26a	Cumulative fair value gains arising from the revaluation of land and buildings (own-use and investment properties)	–	
26b	Regulatory reserve for general banking risks	740,723	(8)
26c	Securitisation exposures specified in a notice given by the Monetary Authority	–	
26d	Cumulative losses below depreciated cost arising from the institution's holdings of land and buildings	–	
26e	Capital shortfall of regulated non-bank subsidiaries	–	
26f	Capital investment in a connected company which is a commercial entity (amount above 15% of the reporting institution's capital base)	–	
27	Regulatory deductions applied to CET1 capital due to insufficient AT1 capital and Tier 2 capital to cover deductions	–	
28	**Total regulatory deductions to CET1 capital**	**2,361,341**	
29	**CET1 capital**	**22,775,378**	
	AT1 capital: instruments		
30	Qualifying AT1 capital instruments plus any related share premium	–	
31	of which: classified as equity under applicable accounting standards	–	
32	of which: classified as liabilities under applicable accounting standards	–	
33	Capital instruments subject to phase out arrangements from AT1 capital	–	
34	AT1 capital instruments issued by consolidated bank subsidiaries and held by third parties (amount allowed in AT1 capital of the consolidation group)	–	
35	of which: AT1 capital instruments issued by subsidiaries subject to phase out arrangements	–	
36	**AT1 capital before regulatory deductions**	**–**	
	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	–	
42	Regulatory deductions applied to AT1 capital due to insufficient Tier 2 capital to cover deductions	–	
43	**Total regulatory deductions to AT1 capital**	**–**	
44	**AT1 capital**	**–**	
45	**Tier 1 capital (Tier 1 = CET1 + AT1)**	**22,775,378**	

1 Capital structure and adequacy (Continued)

		Component of regulatory capital reported by bank	Cross-referenced to balance sheet under regulatory scope of consolidation
	Tier 2 capital: instruments and provisions		
46	Qualifying Tier 2 capital instruments plus any related share premium	1,940,308	(4)
47	Capital instruments subject to phase out arrangements from Tier 2 capital	–	
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)	–	
49	of which: capital instruments issued by subsidiaries subject to phase out arrangements	–	
50	Collective impairment allowances and regulatory reserve for general banking risks eligible for inclusion in Tier 2 capital	1,053,796	(1) + (8)
51	**Tier 2 capital before regulatory deductions**	**2,994,104**	
	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	–	
56	National specific regulatory adjustments applied to Tier 2 capital	–	
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	–	
57	**Total regulatory deductions to Tier 2 capital**	**–**	
58	**Tier 2 capital**	**2,994,104**	
59	**Total capital (Total capital = Tier 1 + Tier 2)**	**25,769,482**	
60	**Total risk weighted assets**	**136,106,777**	
	Capital ratios (as a percentage of risk weighted assets)		
61	CET1 capital ratio	16.7%	
62	Tier 1 capital ratio	16.7%	
63	Total capital ratio	18.9%	
64	Institution specific buffer requirement (minimum CET1 capital requirement as specified in s.3B of the BCR plus capital conservation buffer plus countercyclical buffer requirements plus G-SIB or D-SIB requirements)	6.5%	
65	of which: capital conservation buffer requirement	1.250%	
66	of which: bank specific countercyclical buffer requirement	0.78%	
67	of which: G-SIB and D-SIB buffer requirement	0.0%	
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.3B of the BCR	12.2%	

1 Capital structure and adequacy (Continued)

		Component of regulatory capital reported by bank	Cross-referenced to balance sheet under regulatory scope of consolidation
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	2,435,550	
73	Significant capital investments in CET1 capital instruments issued by financial sector entities that are outside the scope of regulatory consolidation	461,048	
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)	1,053,796	
77	Cap on inclusion of provisions in Tier 2 under the basic approach and the standardised (credit risk) approach	1,550,562	
78	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to the IRB approach (prior to application of cap)	–	
79	Cap for inclusion of provisions in Tier 2 under the IRB approach	–	
Capital instruments subject to phase-out arrangements (only applicable between 1st Jan 2018 and 1st Jan 2022)			
80	Current cap on CET1 capital instruments subject to phase out arrangements	Not applicable	
81	Amount excluded from CET1 capital due to cap (excess over cap after redemptions and maturities)	Not applicable	
82	Current cap on AT1 capital instruments subject to phase out arrangements	–	
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	–	
85	Amount excluded from Tier 2 capital due to cap (excess over cap after redemptions and maturities)	–	

1 Capital structure and adequacy (Continued)

Note to the template:

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

Row No.	Description	Hong Kong basis	Basel III basis
10	**Deferred tax assets net of deferred tax liabilities ('DTA')**	**40,509**	**–**
	Explanation As set out in paragraphs 69 and 87 of the Basel III text issued by the Basel Committee (December 2010), 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 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, 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.		
Remarks: The amount of the 10%/15% thresholds mentioned above is calculated based on the amount of CET1 capital determined under the BCR.			

Abbreviations:
CET1: Common Equity Tier 1
AT1: Additional Tier 1

The Main Features Template as at 31st December 2017 is shown below:

		Ordinary shares	Subordinated notes
1	Issuer	Shanghai Commercial Bank Limited	Shanghai Commercial Bank Limited
2	Unique identifier (eg CUSIP, ISIN or Bloomberg identifier for private placement)	NA	XS1720518478
3	Governing law(s) of the instrument	Laws of Hong Kong	English law, except that the subordination provisions shall be governed by the laws of Hong Kong.
	Regulatory treatment		
4	Transitional Basel III rules[#]	NA	NA
5	Post-transitional Basel III rules[+]	Common Equity Tier 1	Tier 2
6	Eligible at solo*/group/group & solo	Solo and Group	Solo and Group
7	Instrument type (types to be specified by each jurisdiction)	Ordinary shares	Other Tier 2 instruments

1 Capital structure and adequacy (Continued)

		Ordinary shares	Subordinated notes
8	Amount recognised in regulatory capital (Currency in million, as of most recent reporting date)	HK$2,000 million	HK$1,940 million
9	Par value of instrument	NA	US$250 million
10	Accounting classification	Shareholders' equity	Liability-amortised cost
11	Original date of issuance	1951, 1968, 1969, 1970, 1972, 1973, 1975, 1979, 1981, 1985, 1988, 1990, 1991, 1996, 2000	29th November 2017
12	Perpetual or dated	Perpetual	Dated
13	Original maturity date	No maturity	29th November 2027
14	Issuer call subject to prior supervisory approval	No	Yes
15	Optional call date, contingent call dates and redemption amount	NA	One-off call date: 29th November 2022. Additional optional redemption in whole at 100% of principal amount with accrued interest for taxation reasons, tax deductions reasons and regulatory reasons. Redemption amount subject to adjustment following occurrence of a Non-Viability Event. Redemption subject to prior written consent of the Hong Kong Monetary Authority.
16	Subsequent call dates, if applicable	NA	NA
	Coupons/dividends		
17	Fixed or floating dividend/coupon	Floating	Fixed
18	Coupon rate and any related index	NA	3.75% p.a. Fixed until 29th November 2022 and thereafter reset to a new fixed rate equal to the sum of the then prevailing U.S. Treasury Rate and the Spread at Pricing.
19	Existence of a dividend stopper	No	No
20	Fully discretionary, partially discretionary or mandatory	Fully discretionary	Mandatory
21	Existence of step up or other incentive to redeem	No	No
22	Noncumulative or cumulative	Noncumulative	Cumulative

1 Capital structure and adequacy (Continued)

		Ordinary shares	Subordinated notes
23	Convertible or non-convertible	Non-convertible	Non-convertible
24	If convertible, conversion trigger(s)	NA	NA
25	If convertible, fully or partially	NA	NA
26	If convertible, conversion rate	NA	NA
27	If convertible, mandatory or optional conversion	NA	NA
28	If convertible, specify instrument type convertible into	NA	NA
29	If convertible, specify issuer of instrument it converts into	NA	NA
30	Write-down feature	No	Yes
31	If write-down, write-down trigger(s)	NA	The earlier of the Hong Kong Monetary Authority notifying the issuer in writing: (i) that the HKMA is of the opinion that a write-off or conversion is necessary, without which the Issuer would become non-viable or (ii) that a decision has been made by the government body, a government officer or other relevant regulatory body with the authority to make such a decision, that a public sector injection of capital or equivalent support is necessary, without which the Issuer would become non-viable.
32	If write-down, full or partial	NA	May be in part or in full
33	If write-down, permanent or temporary	NA	Permanent
34	If temporary write-down, description of write-up mechanism	NA	NA

1 Capital structure and adequacy (Continued)

		Ordinary shares	Subordinated notes
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	NA	The rights of the holders will, in the event of the winding up of the Bank, rank (i) subordinate and junior in right of payment to, and of all claims of, (a) all unsubordinated creditors of the Issuer (including its depositors), and (b) all other Subordinated Creditors of the Issuer whose claims are stated to rank senior to the Notes or rank senior to the Notes by operation of law or contract; (ii) pari passu in right of payment to and of all claims of the holders of Parity Obligations; and (iii) senior in right of payment to, and of all claims of, (a) the holders of Junior Obligations, and (b) holders of Tier 1 Capital Instruments of the Issuer.
36	Non-compliant transitioned features	No	No
37	If yes, specify non-compliant features	NA	NA

Footnote:

\# Regulatory treatment of capital instruments subject to transitional arrangements provided for in Schedule 4H of the BCR

\+ Regulatory treatment of capital instruments not subject to transitional arrangement provided for in Schedule 4H of the BCR

* Include solo-consolidated

NA Not applicable

2 Overview of risk management and risk weighted amounts ('RWA')

(a) Overview of risk management

The Group's risk management framework is designed to cover all business processes and ensure various risks are properly managed and controlled in the course of conducting business. The key financial risks related to the Group's business include credit risk, counterparty credit risk, market risk, liquidity risk and operational risk. Further information on the management of these risks is set out within this Regulatory disclosures and Notes to the Consolidated Financial Statements as follows:

– Credit risk	– Note 6 of Regulatory disclosures and Note 3.1 of Notes to the Consolidated Financial Statements
– Counterparty credit risk	– Note 7 of Regulatory disclosures
– Market risk	– Note 8 of Regulatory disclosures and Note 3.2 of Notes to the Consolidated Financial Statements
– Liquidity risk	– Note 3.3 of Notes to the Consolidated Financial Statements
– Operational risk	– Note 3.6 of Notes to the Consolidated Financial Statements

Risk culture

The Group has long recognized the importance of a strong risk culture which is the core value of the Group and is endorsed by the Board of Directors ('the Board') and being followed by the senior management. The risk culture of the Group is created through fixing and complying with the risk management strategies and core risk management principles as well as establishing a sound risk management systems and effective risk management process to address material risks under normal and stressed conditions in a forward-looking approach. Risk awareness is promoted to all staff to enhance the Group's overall risk management through appropriate training. The Group's risk culture is further reinforced by the Group's remuneration system that is established to ensure that incentives would not create excessive or undue risk exposure and unethical behaviour which could threaten the reputation as well as safety and soundness of the Group.

Risk governance

The Board has ultimate responsibility for the effective management of risk and approves and oversees the Group's overall risk management framework. The Board delegates its power to supervise the Group's major functional areas, including treasury, retail banking, corporate banking, wealth management, credit control and financial control, and the risks associated with them to the Risk Committee, the Audit Committee, and the Executive Committee. The Risk Committee in particular has the authority and responsibility to oversee and guide the overall management of the collective set of different risks undertaken by the Group.

The Chief Executive, Chief Risk Officer and the senior management have the responsibility to ensure various risk limits are appropriately established according to the risk management strategies set by the Board, and to oversee the effectiveness of managing and controlling risk in the day-to-day management of the Group.

Various business and functional units of the Group have their respective risk management responsibilities. Business units act as the first line of defense in risk management while other functional units, in particular Risk Management Division, which are independent from the business units and act as the second line of defense, assist in managing different kinds of risks.

Independent Audit Department as the third line of defense is responsible for providing independent assurance through conducting internal audits, and reporting to the Audit Committee on the quality of risk controls and management, the adequacy and the compliance of internal policies and procedures.

2 Overview of risk management and risk weighted amounts ('RWA') (Continued)

(a) Overview of risk management (Continued)

Risk appetite

The Group's Risk Appetite Statement is reviewed and approved by the Board from time to time but at least annually with reference to evolving industry and market development, which describes the level of risk that the Group is prepared to accept in pursuit of the Group's strategic objectives. The Group adopts a moderate risk appetite in managing and controlling risks in a prudent manner with a view to achieving steady growth and reasonable returns.

Various ratios and risk limits are set according to the legal and regulatory requirements to limit and control the risk exposure of the Group under a risk tolerance level acceptable to the Group and commensurate with the risk adverse culture as well as prudent management practice.

Stress testing

Stress testing is a risk management tool and involves the use of various techniques to assess the Group's potential vulnerability to adverse changes in market conditions. It is conducted with hypothetical as well as historical assumptions. With the establishment of various alerting levels under different scenarios, it helps alert the management to adverse unexpected outcomes related to a variety of risks and provides an indication to the amount of financial resources (including capital and liquidity) that might be necessary for absorbing losses caused by, or to withstand, severe stressed conditions.

Risk information reporting, risk measurement and reporting systems

The Group has developed various systems for risk measurement and reporting for different risk exposures. Further information on the measurement and reporting of credit risk and market risk exposures are provided in Note 6(a) and Note 8(a) of Regulatory disclosures respectively. For liquidity risk, the monitoring and reporting takes the form of cash flow measurement and projections for the next day, week and month respectively, as these are key periods for liquidity management. Stress testing is conducted with hypothetical as well as historical assumptions regularly to analyse liquidity risk. Both funding and market liquidity risks are addressed.

A quarterly report on risk exposures and risk management activities of the Group is presented to the Risk Committee regularly; which covers the assessment on major risk exposures including credit risk, market risk, interest rate risk, liquidity risk, legal & compliance & regulatory risk, operational risk, reputation risk, strategic risk and technology risk. Besides, the results of stress tests, maintenance of regulatory risk limit, risk monitoring on overseas branches are also presented.

The Group continues to invest significant resources in IT systems and processes in order to maintain and improve the risk management capabilities. A number of key initiatives and projects to enhance consistent data aggregation, reporting and management, and work towards meeting new regulatory standards are in progress.

Risk mitigation

The Group applies different strategies and process to hedge and mitigate different risks. Exposure to credit risk is mitigated by obtaining collateral and corporate and personal guarantees. The Group further mitigates credit risk by entering into netting arrangements with counterparties such as banks with which it undertakes credit activities. Collateral or other security is not usually obtained for credit risk exposures on derivatives instruments, except where the Group requires margin deposits from counterparties. For liquidity risk management, the Group uses results of stress-testing and reverse stress-testing to strengthen resilience to liquidity stress and serve as early-warning triggers for the formulation of management actions and contingency funding plan to mitigate potential stress and vulnerability which the Group might face.

2 Overview of risk management and risk weighted amounts ('RWA') (Continued)

(b) Overview of RWA

The table below shows the breakdowns of RWA for various risks as at 31st December 2017 and 30th September 2017 and the accordingly minimum capital requirments as at 31st December 2017 which are made by multiplying the Group's RWA by 8%.

		RWA		Minimum capital requirements
		31st December 2017	30th September 2017	**31st December 2017**
1	Credit risk for non-securitization exposures	**122,503,658**	119,231,336	**9,800,293**
2	Of which STC approach	**122,503,658**	119,231,336	**9,800,293**
2a	Of which BSC approach	**–**	–	**–**
3	Of which IRB approach	**–**	–	**–**
4	Counterparty credit risk	**528,124**	128,169	**42,250**
5	Of which SA-CCR	**–**	–	**–**
5a	Of which CEM	**388,686**	95,044	**31,095**
6	Of which IMM(CCR) approach	**–**	–	**–**
7	Equity positions in banking book under market-based approach	**–**	–	**–**
8	CIS exposures – LTA	**–**	–	**–**
9	CIS exposures – MBA	**–**	–	**–**
10	CIS exposures – FBA	**–**	–	**–**
11	Settlement risk	**–**	–	**–**
12	Securitization exposures in banking book	**–**	–	**–**
13	Of which IRB(S) approach – ratings-based method	**–**	–	**–**
14	Of which IRB(S) approach – supervisory formula method	**–**	–	**–**
15	Of which STC(S) approach	**–**	–	**–**
16	Market risk	**4,552,225**	3,312,975	**364,178**
17	Of which STM approach	**4,552,225**	3,312,975	**364,178**
18	Of which IMM approach	**–**	–	**–**
19	Operational risk	**7,370,150**	7,202,175	**589,612**
20	Of which BIA approach	**7,370,150**	7,202,175	**589,612**
21	Of which STO approach	**–**	–	**–**
21a	Of which ASA approach	**–**	–	**–**
22	Of which AMA approach	**N/A**	N/A	**N/A**
23	Amounts below the thresholds for deduction (subject to 250% RW)	**1,152,620**	1,002,380	**92,210**
24	Capital floor adjustment	**–**	–	**–**
24a	Deduction to RWA	**–**	–	**–**
24b	Of which portion of regulatory reserve for general banking risks and collective provisions which is not included in Tier 2 Capital	**–**	–	**–**
24c	Of which portion of cumulative fair value gains arising from the revaluation of land and buildings which is not included in Tier 2 Capital	**–**	–	**–**
25	**Total**	**136,106,777**	**130,877,035**	**10,888,543**

N/A: Not applicable in the case of Hong Kong

3 Linkages between financial statements and regulatory exposures

(a) Linkages between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories

			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 the securitisation framework	subject to market risk framework	not subject to capital requirements or subject to deduction from capital
Assets							
Cash and balances with banks	28,755,012	28,751,257	28,751,257	–	–	–	–
Placements with and loans and advances to banks	17,633,246	17,633,246	17,633,246	–	–	–	–
Loans and advances to customers	78,296,688	78,296,688	78,296,688	–	–	–	–
Financial assets held for trading	1,975,108	1,936,942	5,224	–	–	1,931,718	–
Derivative financial instruments	141,006	141,006	–	137,461	–	137,461	3,545
Available-for-sale investments	50,167,009	50,111,396	48,531,287	–	–	–	1,580,109
Held-to-maturity investments	2,386,864	2,386,864	2,386,864	–	–	–	–
Properties for sale	373,529	373,529	373,529	–	–	–	–
Investments in joint ventures	338,914	113,000	113,000	–	–	–	–
Investments in and amounts due from subsidiaries	–	200,082	200,082	–	–	–	–
Properties and equipment	2,389,569	2,350,096	2,350,096	–	–	–	–
Investment properties	1,020,504	1,051,362	1,051,362	–	–	–	–
Deferred income tax assets	40,523	40,509	–	–	–	–	40,509
Other assets	1,012,616	953,248	953,248	–	–	–	–
Total assets	**184,530,588**	**184,339,225**	**180,645,883**	**137,461**	**–**	**2,069,179**	**1,624,163**
Liabilities							
Deposits and balances from banks	6,780,932	6,780,932	–	–	–	–	6,780,932
Deposits from customers	146,953,042	146,953,042	–	–	–	–	146,953,042
Derivatives financial instruments	146,196	146,196	–	–	–	–	146,196
Amounts due to subsidiaries	–	361,130	–	–	–	–	361,130
Subordinated debt	1,947,028	1,947,028	–	–	–	–	1,947,028
Other liabilities	2,196,853	2,056,113	–	–	–	–	2,056,113
Provisions	156,571	154,554	–	–	–	–	154,554
Current income tax liabilities	422,206	421,114	–	–	–	–	421,114
Deferred income tax liabilities	382,438	382,397	–	–	–	–	382,397
Total liabilities	**158,985,266**	**159,202,506**	**–**	**–**	**–**	**–**	**159,202,506**

3 Linkages between financial statements and regulatory exposures (Continued)

(b) Main sources of differences between regulatory exposure amounts and carrying values in financial statements

		Items subject to:			
	Total	credit risk framework	securitisation framework	counterparty credit risk framework	market risk framework
Asset carrying value amount under scope of regulatory consolidation (as per Regulatory Disclosures Note 3(a))	182,715,062	180,645,883	–	137,461	2,069,179
Liabilities carrying value amount under regulatory scope of consolidation (as per Regulatory Disclosures Note 3(a))	–	–	–	–	–
Total net amount under regulatory scope of consolidation	182,715,062	180,645,883	–	137,461	2,069,179
Off-balance sheet amounts	46,764,211	6,953,712	–	–	–
Differences due to consideration of provisions	315,126	315,126	–	–	–
Differences due to potential exposures for counterparty risk	531,468	–	–	531,468	–
Differences due to reversal of credit balance of other assets	12,153	12,153	–	–	–
Exposure amounts considered for regulatory purposes	230,338,020	187,926,874	–	668,929	2,069,179

(c) Explanations of differences between accounting and regulatory exposure amount

Basis of consolidation

The basis of consolidation for regulatory purposes is different from that for accounting purposes. Subsidiaries included in the consolidation for regulatory purposes are specified by the Hong Kong Monetary Authority ('HKMA'). Subsidiaries not included in consolidation for regulatory purposes are mainly securities and insurance companies that are authorised and supervised by the Securities and Futures Commission and Insurance Authority respectively.

Most of the principal subsidiaries of the Group are included under scope of regulatory consolidation that there are no material differences between the carrying values of assets as reported in published financial statements and under scope of regulatory consolidation.

Exposure amounts considered for regulatory purposes requires adjustments to be made to the carrying value of assets as reported in published financial statements. The main adjustments taken by the Group include the consideration of provisions, off-balance sheet exposures and potential exposure of default risk.

The Group uses the standarised approach to calculate the risk-weighted assets for its credit risk and market risk exposures. Collective impairment allowances that are deducted from the carrying amount of exposures in financial statements need to be reintegrated in the regulatory exposure value under the standarised approach. Off-balance sheet contracts, such as guarantees and commitments, also carry credit risks. These exposures are converted to credit equivalent amounts and added to the regulatory exposure amounts. The default risk exposures of OTC derivative contracts as reported in published financial statements include their fair value only. Potential exposures for counterparty credit risk of OTC derivative contracts are therefore needed to be added to the regulatory exposure amount.

3 Linkages between financial statements and regulatory exposures (Continued)

(c) Explanations of differences between accounting and regulatory exposure amount (Continued)

Valuation control framework

The Group has in place fair valuation policy to ensure adequate governance and control processes for the designation and valuation of financial instruments to be measured at fair value for financial reporting, risk management and regulatory capital purposes.

The Risk Committee is delegated by the Board to approve the fair valuation policy and to review the governance structure and control framework to ensure that fair values are either determined or validated by control units independent of risk taking units. Control units have overall responsibility for independent verification of valuation results from risk taking units and ensuring the valuation process for financial instruments is conducted effectively and appropriately. Revaluation reports of trading and non-trading positions are compiled regularly and submitted to senior management for review. Any significant valuation issues are reported to senior management, Asset and Liability Committee and Risk Committee.

Valuation methodologies and process

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction in the principal (or most advantageous) market at the measurement date under current market conditions (i.e. an exit price) regardless whether the price is directly observable or estimated using another valuation technique.

For financial instrument with bid-offer close-out price, its fair value can be the price within the bid-offer price that is the most representative of fair value. For example, using bid prices for net long positions and ask prices for net short positions. All bid-offer market prices of the financial products, including foreign exchange, equities, debt securities, interest rate swap and bullion will be obtained from designated financial data service providers.

For financial instrument without bid-offer close-out price, the Group uses valuation techniques to establish the fair value of instruments including the use of recent arm's length market transactions between knowledgeable and willing parties, reference to the current fair value of another financial instrument that is substantially the same, discounted cash flow analysis, option pricing models and other valuation techniques commonly used by market participants.

3 Linkages between financial statements and regulatory exposures (Continued)

(c) Explanations of differences between accounting and regulatory exposure amount (Continued)

Valuation adjustments

Valuation adjustments are an integral part of the valuation process. Appropriate valuation adjustments are made when the Group considers that there are additional factors that are not incorporated within the valuation methodologies or models such as illiquidity adjustment, concentration adjustment and valuation uncertainty adjustment.

Illiquidity adjustment will be taken if the securities are deemed illiquid that cannot be sold quickly due to a shortage of interested buyers or a lack of an established trading market. Where the Group holds a security that has a significant concentration ratio (ratio of amount of security held by the Group to the total issuance size), concentration adjustment may be required. To adopt illiquidity or concentration adjustment, securities with the same issuer and have nearby maturities as the security in subject would be selected and the yields of these securities would be extracted and interpolated as the yield of security in subject and the price of the illiquid security would then be calculated and compared with the price calculated by the usual valuation methodologies and processes.

The prices of certain debt securities may be less readily determinable from market data. If there is no quotation from designated financial data service providers, other sources will be sought such as the prices of most recent executed transactions. Standard deviation of the prices of the debt securities quoted by different rate sources will be calculated as the uncertainly of the prices quoted of the securities. If the standard deviation exceeds 2%, valuation uncertainty adjustment may be required. The fair value of the debt securities will be adjusted by the standard deviation of the prices of the corresponding securities.

As at 31st December 2017, no valuation adjustment was required as most of the Group's investments were listed equities or debt securities of straight bonds that did not contain any complex features.

4 Countercyclical capital buffer ('CCyB') ratio

CCyB ratio is calculated as the weighted average of the applicable jurisdictional CCyB ('JCCyB') ratio effective at the date for which the determination is made, in respect of the jurisdictions (including Hong Kong) where the Bank has private sector credit exposures. The weight to be attributed to a given jurisdiction's applicable CCyB ratio is the ratio of the Bank's aggregate risk-weighted amounts ('RWA') for its private sector credit exposures (in both the banking book and the trading book) in that jurisdiction where the location of the exposures is determined as far as possible on an ultimate risk basis to the sum of the Bank's aggregate RWA across all jurisdictions in which the Bank has private sector credit exposures.

Key drivers for the changes in exposure amounts include asset quality, credit growth and credit portfolio. The applicable JCCyB ratio for Hong Kong is determined by the Hong Kong Monetary Authority ('HKMA') based on the Initial Reference Calculator that is transparently calculated and made public, while the applicable JCCyB ratio in respect of a given jurisdiction outside Hong Kong may differ from the JCCyB ratio as determined by the relevant authority in that jurisdiction if the HKMA has determined and announced the application of a higher or lower rate.

4 Countercyclical capital buffer ('CCyB') ratio (Continued)

The following table shows the CCyB ratio, the geographical breakdown of the RWA in relation to private sector credit exposures that are relevant to the calculation of CCyB ratio and the applicable JCCyB ratio corresponding to each jurisdiction for calculating CCyB ratio as at 31st December 2017.

	Jurisdiction	Applicable JCCyB ratio in effect	Total RWA used in computation of CCyB ratio	CCyB ratio	CCyB amount
		%	HK$'000	%	HK$'000
1	Hong Kong	1.250%	55,623,297		
2	Mainland China	0.000%	6,835,948		
3	Australia	0.000%	80,325		
4	Belgium	0.000%	504		
5	Bermuda	0.000%	1,313,769		
6	Brazil	0.000%	37		
7	Cambodia	0.000%	256		
8	Canada	0.000%	60,022		
9	Cayman Islands	0.000%	904,659		
10	Chile	0.000%	214		
11	Dominican Republic	0.000%	7		
12	Finland	0.000%	442		
13	France	0.000%	23,318		
14	Germany	0.000%	3,561		
15	India	0.000%	1,062		
16	Indonesia	0.000%	1,195		
17	Italy	0.000%	948		
18	Japan	0.000%	398,257		
19	Macao	0.000%	89,189		
20	Madagascar	0.000%	1,354		
21	Malaysia	0.000%	2		
22	Mexico	0.000%	109		
23	Netherlands	0.000%	3		
24	New Zealand	0.000%	36,576		
25	Portugal	0.000%	137		
26	Singapore	0.000%	425,125		
27	South Africa	0.000%	2,809		
28	South Korea	0.000%	31		
29	Sweden	2.000%	118		
30	Switzerland	0.000%	1,678		
31	Chinese Taipei	0.000%	1,044,252		
32	Thailand	0.000%	9,580		
33	United Kingdom	0.000%	296,794		
34	United States	0.000%	21,214,116		
35	West Indies UK	0.000%	954,300		
	Total		**89,323,994**	**0.78%**	**695,293**

5 Leverage ratio

The leverage ratios represent the consolidated ratios computed on the same regulatory consolidation basis as the capital adequacy ratio. The table below presents the Summary Comparison Table as at 31st December 2017.

Item		Leverage ratio framework
1	Total consolidated assets as per published financial statements	184,530,588
2	Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation	(191,363)
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	531,468
5	Adjustment for securities financing transactions (i.e. repos and similar secured lending)	–
6	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	10,296,232
7	Other adjustments	(2,048,268)
8	Leverage ratio exposure	193,118,657

The Leverage Ratio Common Disclosure Template as at 31st December 2017 is shown below:

Item		Leverage ratio framework
	On-balance sheet exposures	
1	On-balance sheet items (excluding derivatives and SFTs, but including collateral)	184,511,292
2	Less: Asset amounts deducted in determining Basel III Tier 1 capital (reported as negative amounts)	(2,361,341)
3	Total on-balance sheet exposures (excluding derivatives and SFTs) (sum of lines 1 and 2)	182,149,951
	Derivative exposures	
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	141,006
5	Add-on amounts for PFE associated with all derivatives transactions	531,468
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)	–
9	Adjusted effective notional amount of written credit derivatives	–
10	Less: Adjusted effective notional offsets and add-on deductions for written credit derivatives (reported as negative amounts)	–
11	Total derivative exposures (sum of lines 4 to 10)	672,474

5 Leverage ratio (Continued)

Item		Leverage ratio framework
	Securities financing transaction exposures	
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	–
13	Less: Netted amounts of cash payables and cash receivables of gross SFT assets (reported as negative amounts)	–
14	CCR exposure for SFT assets	–
15	Agent transaction exposures	–
16	Total securities financing transaction exposures (sum of lines 12 to 15)	–
	Other off-balance sheet exposures	
17	Off-balance sheet exposure at gross notional amount	**46,764,211**
18	Less: Adjustments for conversion to credit equivalent amounts (reported as negative amounts)	**(36,467,979)**
19	Off-balance sheet items (sum of lines 17 and 18)	**10,296,232**
	Capital and total exposures	
20	Tier 1 capital	**22,775,378**
21	Total exposures (sum of lines 3, 11, 16 and 19)	**193,118,657**
	Leverage ratio	
22	**Basel III leverage ratio**	**11.79%**

Abbreviations:
CCP: Central counterparty
CCR: Counterparty credit risk
PFE: Potential future exposure
SFT: Securities financing transactions

6 Credit risk

(a) General information about credit risk

The Group takes on exposure to credit risk, which is the risk that a counterparty will cause a financial loss for the Group by failing to discharge an obligation. The Group's exposure to credit risk arises from a range of customer and product types, including exposures to corporate, retail and high net worth customers. The major corporate banking products offered by the Group include commercial loans and trade finance. The retail loans cover mortgage loans, consumer loans and credit cards.

The approach used for defining credit risk management policy and setting credit risk limits is described in Note 3.1 of Notes to the Consolidated Financial Statements.

Various analytical reports on credit risk exposures and credit risk management are provided monthly to senior management; including reports on loans and advances to customers, the credit risk profile of the Group, the portfolio distribution and credit quality, credit portfolio risk monitoring and compliance, impairment allowance and large exposures and risk concentrations.

6 Credit risk (Continued)

(a) General information about credit risk (Continued)

Credit risk management framework

The Group's organisation structure establishes a clear set of authority and responsibility for monitoring compliance with policies, procedures and limits.

The Credit Committee is responsible for establishing credit policies, monitoring loan portfolio quality, ensuring compliance with statutory and internal lending limits, evaluating credit applications, making credit decisions and etc. Further information on the Credit Committee is set out in the Corporate Governance Report of this Annual Report.

The Chief Risk Officer takes charges of the Group's overall credit risk management. He is responsible for ensuring that the Group's risk management framework, all related policies and control procedures, and business processes are effective, adequate and properly implemented and consistent with the overall risk appetite of the Group and credit related regulatory requirements. He is also responsible for assessing, evaluating and monitoring the use of risk limits and ensuring that quantifiable risks are within the approved limits.

Various units of the Group have their respective credit risk management responsibilities. Business units including branches and business departments, being the first line of defence, are responsible for performing on-going 'know your customer' checks. The Credit Appraisal Department, Credit Control Department, Market Risk Management Department and the Compliance Department, which are independent from the business units, act as the second line of defence. The Credit Appraisal Department is responsible for independent evaluation of credit applications while Credit Control Department is responsible for performing credit monitoring and review. The Market Risk Management Department is responsible for monitoring the day-to-day management of the credit risk related to treasury operation. The Compliance Department is responsible for monitoring and ensuring that all the relevant regulatory and statutory requirements and limits are complied with by the Group. The Audit Department, being the third line of defence, is responsible for examining and evaluating the adequacy, effectiveness, efficiency and reasonableness of the internal controls, risk management and governance systems and processes of the Group; and assessing compliance with regulatory and statutory requirements.

(b) Credit quality of exposures as at 31st December 2017

		Gross carrying amounts of		Allowances/ impairments	Net values
		Defaulted exposures	Non-defaulted exposures		
1	Loans	492,586	78,154,470	350,368	78,296,688
2	Debt securities	–	48,381,945	–	48,381,945
3	Off-balance sheet exposures	–	13,339,008	–	13,339,008
4	**Total**	**492,586**	**139,875,423**	**350,368**	**140,017,641**

6 Credit risk (Continued)

(c) Changes in defaulted loans and debt securities

		Amount
1	Defaulted loans and debt securities as at end June 2017	194,076
2	Loans and debt securities that have defaulted since the last reporting period	429,063
3	Returned to non-defaulted status	–
4	Amounts written off	(2,179)
5	Other changes	(128,374)
6	**Defaulted loans and debt securities as at end December 2017**	**492,586**

(d) Additional disclosures related to credit quality of exposures

The accounting definition of impaired exposures and the regulatory definition of defaulted exposures are generally aligned. In general, loans and advances overdue for 90 days or more are considered impaired unless other information is available to indicate the contrary. Loans and advances with a specific repayment date are classified as overdue when the principal or interest is past due and remains unpaid. Loans and advances repayable by regular instalments are classified as overdue when an instalment payment is past due and remains unpaid. Loans and advances repayable on demand are classified as overdue when a demand for repayment has been served on the borrower but repayment has not been made in accordance with the instruction.

The approach for determining impairment of financial assets is provided in Note 2.14 of Notes to the Consolidated Financial Statements.

As at 31st December 2017, loans and advances which were past due for more than 90 days were all impaired.

Rescheduled loans and advances to customers are those loans and advances that have been rescheduled or renegotiated for reasons related to the borrower's financial difficulties. A rescheduled loan will normally require an adverse classification under the loan classification system (i.e. substandard or doubtful).

6 Credit risk (Continued)

(d) Additional disclosures related to credit quality of exposures (Continued)

(i) Breakdown of credit risk exposures as at 31st December 2017 by industry sector, maturity and geographical region:

	Total	Impaired exposure	Individual impairment allowances	Amounts written-off
Credit risk exposure-By industry sector				
– Property investment	20,839,986	22,891	131	–
– Property development	19,952,959	405,447	1,565	–
– Banks and financial institutions	38,670,725	379	33	–
– International, wholesale and retail trade	15,264,441	75,140	18,945	–
– Personal	15,981,208	40,544	927	3,512
– Others*	29,308,322	65,016	15,696	113
Total	**140,017,641**	**609,417**	**37,297**	**3,625**
Credit risk exposure – By geographical region				
– Hong Kong	63,861,658	557,434	23,358	3,625
– Mainland China	26,699,104	30,274	13,859	–
– United States	25,864,862	–	–	–
– Others	23,592,017	21,709	80	–
Total	**140,017,641**	**609,417**	**37,297**	**3,625**
Credit risk exposure – By residual maturity				
– Repayable on demand	4,969,440			
– Up to 1 month	8,750,702			
– 1-3 months	12,807,264			
– 3-12 months	32,056,326			
– 1-5 years	60,941,216			
– Over 5 years	19,848,514			
– Indefinite	644,179			
Total	**140,017,641**			

* Others include exposures to manufacturing, hotels, catering, telecommunication, transport and other commercial and industrial activities where exposure to each of these sectors is less than 10% of the Group's total RWA for credit risk.

(ii) Aging analysis of accounting past due exposures as at 31st December 2017:

	Gross carrying amount
Past due over 3 months but less than 6 months	413,731
Past due over 6 month but less than 1 year	48,147
Past due over 1 year	30,708
Total	**492,586**

(iii) Breakdown of restructured exposures between impaired and non-impaired exposures as at 31st December 2017:

	Gross carrying amount	
	impaired	Not impaired
Rescheduled loans and advances	23,219	–

6 Credit risk (Continued)

(e) Qualitative disclosures related to credit risk mitigation

Collateral

The Group employs a range of policies and practices to mitigate credit risk which is described in Note 3.1.1(a) of Notes to the Consolidated Financial Statements. Further information regarding the nature of collateral held by class of financial asset is provided in Note 3.1.3 of Notes to the Consolidated Financial Statements.

Revaluation and management of collateral

To ascertain the estimated fair value of the collateral offered to the Group, collateral other than the bank deposits is revalued according to the Policy on Management of Collateral and Guarantees for monitoring the collateral position against relevant credit exposure.

The revaluation frequency depends on the collateral type but at least annually such as real estate, debt securities, equities, inventory and accounts receivable. More frequent revaluation is needed for listed stocks which are revalued at least twice daily. The collateral value may be adjusted to reflect the likely net realizable value of such collateral.

Advice and service will be sought and employed from external legal professional whenever required to ensure all documentation creating the collateral and providing for the obligation of the parties with respect to each other in respect of the collateral is binding on all parties and legally enforceable in all relevant jurisdictions.

Recognition of risk mitigation under the standardised approach

The Group applies the simple approach for credit risk mitigation to all its on – and off-balance sheet banking book exposures that are subject to risk mitigation, where a claim on a counterparty is secured against eligible collateral, the secured portion of the claim must be weighted according to the risk-weight applicable to the collateral (unless that produces a higher risk-weight than would be applicable to the original counterparty, in which case the risk-weight applicable to that counterparty should apply). The unsecured portion of the claim must be weighted according to the risk-weight applicable to the original counterparty. The main types of recognised credit risk mitigant used by the Group include deposits and bank guarantee. In addition, real estate collateral is also recognised for past due exposures.

Where a claim on a counterparty is secured by a guarantee from an eligible guarantor, the portion of the claim that is supported by the guarantee is to be weighted according to the risk-weight applicable to the guarantor (unless the risk-weight applicable to the original counterparty is lower). The unsecured portion of the claim must be weighted according to the risk-weight applicable to the original counterparty.

For capital calculation, the Group has not used any on-balance sheet or off-balance sheet recognised netting for credit risk mitigation.

Concentrations within credit risk mitigations

Concentrations within credit risk mitigations taken may occur if a number of guarantors and collaterals with similar economic characteristics are engaged in comparable activities with changes in economic or industry conditions affecting their ability to meet contractual obligations. A range of quantitative tools is used to monitor the Group's credit risk mitigating activities including dedicated stress tests.

A stress-tests and scenario analysis are conducted on the Group's portfolio of collateral to assess the impact under unusual market conditions and relevant reports are submitted to the senior management for review in accordance with the Stress-Testing Policy of the Group.

The credit concentrations within the credit risk mitigation (recognized collateral and guarantees for capital calculation) used by the Group are within acceptable levels.

6 Credit risk (Continued)

(f) Overview of recognized credit risk mitigation as at 31st December 2017

		Exposures unsecured: carrying amount	Exposures to be secured	Exposures secured by recognized collateral	Exposures secured by recognized guarantees	Exposures secured by recognized credit derivative contracts
1	Loans	75,085,370	3,211,318	1,561,399	1,649,919	–
2	Debt securities	48,381,945	–	–	–	–
3	**Total**	**123,467,315**	**3,211,318**	**1,561,399**	**1,649,919**	**–**
4	Of which defaulted	6,335	460,135	460,135	–	–

(g) Qualitative disclosures on use of ECAI ratings under STC approach

Under the standardised approach ('STC') for the calculation of credit risk within the Basel capital framework, banks are required to use credit assessments provided by external credit assessment institutions ('ECAIs'), recognised by the HKMA for the purposes of regulatory capital calculation, to determine the risk-weights of the banks' credit exposures.

Standard & Poor's Ratings Services, Moody's Investors Service, Fitch Ratings and Rating and Investment Information, Inc. are the ECAIs that the Group has used for the determination of risk weightings for the following classes of exposure:

- Sovereign exposures;
- Public sector entity exposures;
- Bank exposures;
- Securities firm exposures;
- Corporate exposures; and
- Collective investment scheme exposures

The mapping of ECAI ratings of the above six classes of exposure to the risk weights under standardised approach follows the process as prescribed in Part 4 of the Banking (Capital) Rule ('BCR'). Where an exposure of debt securities has an issue-specific external credit assessment, such assessment will be used. In case there is no specific issue rating published by the ECAI, the issuer rating is applied to the senior unsecured claims of that issuer subject to the conditions prescribed by the BCR.

6 Credit risk (Continued)

(h) Credit risk exposures and effects of recognized credit risk mitigation – for STC approach as at 31st December 2017

	Exposure classes	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
1	Sovereign exposures	11,275,814	–	11,275,814	–	63,305	1%
2	PSE exposures	–	–	–	–	–	0%
2a	Of which: domestic PSEs	–	–	–	–	–	0%
2b	Of which: foreign PSEs	–	–	–	–	–	0%
3	Multilateral development bank exposures	15,464	–	15,464	–	–	0%
4	Bank exposures	72,108,834	853,673	73,750,735	185,958	32,035,001	43%
5	Securities firm exposures	1,142,792	265,679	1,142,792	–	571,396	50%
6	Corporate exposures	66,215,755	34,259,345	64,131,110	6,005,248	66,597,971	95%
7	CIS exposures	–	–	–	–	–	0%
8	Cash items	376,419	–	1,477,683	–	126,272	9%
9	Exposures in respect of failed delivery on transactions entered into on a basis other than a delivery-versus-payment basis	–	–	–	–	–	0%
10	Regulatory retail exposures	4,791,353	3,074,010	4,567,568	167,730	3,551,472	75%
11	Residential mortgage loans	10,487,701	1,075,311	10,487,701	527,449	5,824,499	53%
12	Other exposures which are not past due exposures	13,631,512	7,236,193	13,196,777	67,327	13,264,104	100%
13	Past due exposures	466,470	–	466,470	–	469,638	101%
14	Significant exposures to commercial entities	–	–	–	–	–	0%
15	**Total**	**180,512,114**	**46,764,211**	**180,512,114**	**6,953,712**	**122,503,658**	**65%**

6 Credit risk (Continued)

(i) Credit risk exposures by asset classes and by risk weights – for STC approach as at 31st December 2017

	Exposure class \ Risk Weight	0%	10%	20%	35%	50%	75%	100%	150%	250%	Others	Total credit risk exposures amount (post CCF and post CRM)
1	Sovereign exposures	10,959,290	–	316,524	–	–	–	–	–	–	–	**11,275,814**
2	PSE exposures	–	–	–	–	–	–	–	–	–	–	**–**
2a	Of which: domestic PSEs	–	–	–	–	–	–	–	–	–	–	**–**
2b	Of which: foreign PSEs	–	–	–	–	–	–	–	–	–	–	**–**
3	Multilateral development bank exposures	15,464	–	–	–	–	–	–	–	–	–	**15,464**
4	Bank exposures	–	–	25,044,591	–	43,732,042	–	5,160,060	–	–	–	**73,936,693**
5	Securities firm exposures	–	–	–	–	1,142,792	–	–	–	–	–	**1,142,792**
6	Corporate exposures	–	–	39,431	–	7,013,685	–	63,083,242	–	–	–	**70,136,358**
7	CIS exposures	–	–	–	–	–	–	–	–	–	–	**–**
8	Cash items	921,149	–	537,828	–	–	–	18,706	–	–	–	**1,477,683**
9	Exposures in respect of failed delivery on transactions entered into on a basis other than a delivery-versus-payment basis	–	–	–	–	–	–	–	–	–	–	**–**
10	Regulatory retail exposures	–	–	–	–	–	4,735,298	–	–	–	–	**4,735,298**
11	Residential mortgage loans	–	–	–	7,879,545	–	275,790	2,859,815	–	–	–	**11,015,150**
12	Other exposures which are not past due exposures	–	–	–	–	–	–	13,264,104	–	–	–	**13,264,104**
13	Past due exposures	–	–	–	–	–	–	460,135	6,335	–	–	**466,470**
14	Significant exposures to commercial entities	–	–	–	–	–	–	–	–	–	–	**–**
15	**Total**	**11,895,903**	**–**	**25,938,374**	**7,879,545**	**51,888,519**	**5,011,088**	**84,846,062**	**6,335**	**–**	**–**	**187,465,826**

7 Counterparty credit risk

(a) Qualitative disclosures related to counterparty credit risk (including those arising from clearing through CCPs)

Counterparty credit risk arises from over-the-counter ('OTC') derivative contracts and securities financing transactions both in trading and banking book, and is subject to the same risk management framework. Credit equivalent amount and capital charge for the relevant counterparty credit exposures are determined following the regulatory capital requirements. The Group adopts the current exposure method to measure the credit equivalent amount, which comprises current exposures and potential future exposures. The relevant counterparty default risk capital charge is calculated under the standardised approach. The Group also adopts the standardised credit valuation adjustment ('CVA') method to calculate the relevant counterparty CVA capital charge.

The Group exercises strict control over counterparty credit risk exposure. All credit limits are established in advance of transaction. Credit and settlement risk is captured, monitored and reported in accordance with the Group risk methodologies. The credit risk exposures associated with these contracts are predominantly their positive marked-to-market values. These credit risk exposures together with potential exposures from market movements are managed as part of the overall lending limits allowed to counterparties. Collateral or other security is not usually obtained for such credit risk exposures, except where the Group requires margin deposits from counterparties. In the case of a 2-notch downgrade of the Group's credit rating, the impact on the Group's derivative collateral requirements is minimal.

Wrong-way risk occurs when exposure to a counterparty is adversely correlated with the credit quality of that counterparty. It arises when default risk and credit exposure increase together. The OTC derivative contracts entered by the Group are mainly foreign exchange contracts, most of which are not exposed to wrong-way risk. In instances where the Group has identified any significant general wrong-way risk, immediate and appropriate actions will be taken and the respective exposure will be under close monitoring in order to effectively manage the credit exposure and minimize losses. Specific wrong-way risk transactions are generally not allowed.

Up to the date of report, the Group has not entered into any transactions with central counterparty ('CCP'). As at 31st December 2017, there were no exposures to CCP.

(b) Analysis of counterparty default risk exposures (other than those to CCPs) by approaches as at 31st December 2017

		Replacement cost (RC)	PFE	Effective EPE	Alpha (α) used for computing default risk exposure	Default risk exposure after CRM	RWA
1	SA-CCR (for derivative contracts)	–	–		1.4	–	–
1a	CEM	137,461	531,468		–	668,929	388,686
2	IMM (CCR) approach			–	–	–	–
3	Simple Approach (for SFTs)					–	–
4	Comprehensive Approach (for SFTs)					–	–
5	VaR (for SFTs)					–	–
6	**Total**						388,686

7 Counterparty credit risk (Continued)

(c) CVA capital charge as at 31st December 2017

		EAD post CRM	RWA
	Netting sets for which CVA capital charge is calculated by the advanced CVA method		
1	(i) VaR (after application of multiplication factor if applicable)		–
2	(ii) Stressed VaR (after application of multiplication factor if applicable)		–
3	Netting sets for which CVA capital charge is calculated by the standardized CVA method	668,929	139,438
4	**Total**	**668,929**	**139,438**

(d) Counterparty default risk exposures (other than those to CCPs) by asset classes and by risk weights – for STC approach as at 31st December 2017

	Exposure class \ Risk Weight	0%	10%	20%	35%	50%	75%	100%	150%	250%	Others	Total default risk exposure after CRM
1	Sovereign exposures	–	–	–	–	–	–	–	–	–	–	–
2	PSE exposures	–	–	–	–	–	–	–	–	–	–	–
2a	Of which: domestic PSEs	–	–	–	–	–	–	–	–	–	–	–
2b	Of which: foreign PSEs	–	–	–	–	–	–	–	–	–	–	–
3	Multilateral development bank exposures	–	–	–	–	–	–	–	–	–	–	–
4	Bank exposures	–	–	211,475	–	220,874	–	1,489	–	–	–	**433,838**
5	Securities firm exposures	–	–	–	–	–	–	–	–	–	–	–
6	Corporate exposures	–	–	–	–	1,253	–	232,043	–	–	–	**233,296**
7	CIS exposures	–	–	–	–	–	–	–	–	–	–	–
8	Regulatory retail exposures	–	–	–	–	–	–	–	–	–	–	–
9	Residential mortgage loans	–	–	–	–	–	–	–	–	–	–	–
10	Other exposures which are not past due exposures	–	–	–	–	–	–	1,795	–	–	–	**1,795**
11	Significant exposures to commercial entities	–	–	–	–	–	–	–	–	–	–	–
12	**Total**	**–**	**–**	**211,475**	**–**	**222,127**	**–**	**235,327**	**–**	**–**	**–**	**668,929**

7 Counterparty credit risk (Continued)

(e) Composition of collateral for counterparty default risk exposures (including those for contracts or transactions cleared through CCPs) as at 31st December 2017

		Derivative contracts				SFTs	
		Fair value of recognized collateral received		Fair value of posted collateral		Fair value of recognized collateral	Fair value of posted collateral
		Segregated	Unsegregated	Segregated	Unsegregated		
1	Cash – other currencies	–	–	–	24,470	–	–
2	**Total**	**–**	**–**	**–**	**24,470**	**–**	**–**

(f) Credit-related derivatives contracts

The Group did not have any credit-related derivatives contracts as at 31st December 2017.

(g) Exposures to CCPs

The Group did not have any exposures to CCPs as at 31st December 2017.

8 Market risk

(a) Qualitative disclosures related to market risk

Market risk is the risk that interest rates, foreign exchange rates, equity or commodity prices will move relative to positions taken, resulting in profits or losses. In the ordinary course of business, the Group enters into various types of financial instruments, mainly foreign exchange contracts, that comprise transactions initiated for the Group's own account and customer needs.

The Group's positions are managed by the Treasury Division under the limits and guidelines laid down in the foreign exchange risk management policy and policy on allocating transactions of financial instruments to the trading, non-trading or investment book approved by the Executive Committee and Risk Committee. The Risk Management Division is responsible for monitoring the transactions to ensure the activities are within the relevant limits and guidelines.

Further information on the management of foreign exchange risk and interest rate risk is provided in Note 3.2.3 and Note 3.2.4 of Notes to the Consolidated Financial Statements.

8 Market risk (Continued)

(a) Qualitative disclosures related to market risk (Continued)

Market risk measurement

The measuring procedures and limit system used for market risk management have been approved by the Executive Committee (and also Risk Committee for the measuring procedures). Limits on notional, stop loss and sensitivity are set for trading positions which are marked-to-market daily. Stress tests provide an indication of the potential size of losses that could arise in extreme conditions. The stress testing is tailored to the business and typically uses scenario analysis. The results of the stress tests are reviewed by management, the Asset and Liability Committee, the Executive Committee, the Risk Committee and the Board.

The Group measures the exposure of its assets and liabilities to fluctuations in interest rates primarily by way of gap analysis which provides the Group with a static view of the maturity and re-pricing characteristics of balance sheet positions. An interest rate gap report is prepared by classifying all assets and liabilities into various time period categories according to contracted maturities or anticipated re-pricing dates whichever is earlier. The difference in the amount of assets and liabilities maturing or being re-priced in any time period category would then give the Group an indication of the extent to which the Group is exposed to the risk of potential changes in the net interest income.

The Group uses different types of derivatives to manage foreign exchange and interest rate sensitivity primarily by hedging its underlying positions. The types of derivatives used by the Group include foreign exchange rate and interest rate contracts which are typically made OTC and are managed within limits approved by the Executive Committee and Risk Committee. The policy on the use of derivatives is reviewed by Risk Committee and recommended changes and amendments are approved by the Executive Committee or the Risk Committee. The Group has not designated any derivatives in any hedge relationship for the application of hedge accounting.

(b) Market risk under STM approach as at 31st December 2017

		RWA
	Outright product exposures	
1	Interest rate exposures (general and specific risk)	2,125,225
2	Equity exposures (general and specific risk)	–
3	Foreign exchange (including gold) exposures	2,427,000
4	Commodity exposures	–
	Option exposures	
5	Simplified approach	–
6	Delta-plus approach	–
7	Other approach	–
8	Securitization exposures	–
9	**Total**	**4,552,225**

9 Liquidity maintenance ratio

	2017	2016
Liquidity maintenance ratio ('LMR')	**45.6%**	49.3%

The LMR is calculated as the simple average of each calendar month's average consolidated LMR of the Bank's Hong Kong offices, overseas branches, Shacom Investment Limited and Shacom Assets Investments Limited for the 12 months of the financial year, computed in accordance with the Banking (Liquidity) Rules.