SUPPLEMENTARY NOTES TO THE FINANCIAL STATEMENTS (UNAUDITED)

These notes set out on pages 252 to 272 are supplementary to and should be read in conjunction with the consolidated financial statements set out on pages 97 to 250. The consolidated financial statements and these supplementary notes taken together comply with the Banking (Disclosure) Rules (the "Disclosure Rules") made under section 60A of the Banking Ordinance.

1. BASIS OF PREPARATION

(a) Except where indicated otherwise, the financial information contained in these supplementary notes has been prepared on a consolidated basis in accordance with Hong Kong Financial Reporting Standards. Some parts of these supplementary notes, however, are required by the Disclosure Rules to be prepared on a different basis. In such cases, the Disclosure Rules require that certain information is prepared on a basis which excluded some of the subsidiaries of the Bank.

Further information regarding subsidiaries that are not included in the consolidation for regulatory purpose is set out in note 2 to the supplementary notes to the financial statements.

(b) 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 2011 as set out in note 4 to the financial statements.

2. CAPITAL ADEQUACY

(a) Capital adequacy ratios

The capital adequacy ratios as at 31 December 2011 are computed on the consolidated basis of the Bank and certain of its subsidiaries as specified by the Hong Kong Monetary Authority for its regulatory purposes, and are in accordance with the Banking (Capital) Rules ("the Capital Rules") of the Hong Kong Banking Ordinance.

From 1 January 2009, the Group has migrated to the advanced internal ratings-based approach to calculate its credit risk for the majority of its non-securitisation exposures. The Group continued to use the standardised (operational risk) approach to calculate its operational risk. For market risk, an internal model approach is adopted for calculating general market risk, while standardised (market risk) approach is adopted for calculating specific interest rate risk and equity risk. There are no changes in the approaches used in 2011. In addition, there is no relevant capital shortfall in any of the Group's subsidiaries which are not included in its consolidation group for regulatory purposes.

2. CAPITAL ADEQUACY (continued)

(a) Capital adequacy ratios (continued)

The capital base after deductions used in the calculation of capital adequacy ratios as at 31 December and reported to Hong Kong Monetary Authority is analysed as follows:

	2011	2010
Core capital:		
Paid-up ordinary share capital	9,559	9,559
– Reserves per balance sheet	65,563	56,820
– Unconsolidated subsidiaries	(7,234)	(6,268)
– Cash flow hedging reserve	(6)	(72)
– Regulatory reserve	(4,226)	(1,654)
– Reserves arising from revaluation of property and unrealised gains on available-for-sale equities and debt securities	(15,860)	(13,585)
Total reserves included in core capital	38,237	35,241
– Goodwill and intangible assets	(977)	(1,019)
– 50% of unconsolidated investments	(11,304)	(9,725)
– 50% of securitisation positions and other deductions	(158)	(158)
Deductions	(12,439)	(10,902)
Total core capital	35,357	33,898
Supplementary capital:		
– Term subordinated debt	11,846	11,848
– Property revaluation reserves [1]	5,894	5,894
– Available-for-sale investments revaluation reserves [2]	117	396
– Regulatory reserve [3]	296	182
– Collective impairment allowances [3]	54	77
– Excess impairment allowances over expected losses [4]	1,522	306
Supplementary capital before deductions	19,729	18,703
– 50% of unconsolidated investments	(11,304)	(9,725)
– 50% of securitisation positions and other deductions	(158)	(158)
Deductions	(11,462)	(9,883)
Total supplementary capital	8,267	8,820
Capital base	43,624	42,718
Risk-weighted assets		
– credit risk	266,567	274,969
– market risk	2,054	1,615
– operational risk	35,649	36,853
	304,270	313,437
– Capital adequacy ratio	14.3%	13.6%
– Core capital ratio	11.6%	10.8%
Reserves and deductible items		
Published reserves	31,640	31,741
Profit and loss account	6,597	3,500
Total reserves included in core capital	38,237	35,241
Total of items deductible 50% from core capital and 50% from supplementary capital	22,924	19,766

1 Includes the revaluation surplus on investment properties which is reported as part of retained profits and adjustments made in accordance with Banking (Capital) rules.
2 Includes adjustments made in accordance with Banking (Capital) rules.
3 Total regulatory reserve and collective impairment allowances are apportioned between the standardised approach and internal ratings-based approach in accordance with Banking (Capital) rules. Those apportioned to the standardised approach are included in supplementary capital. Those apportioned to the internal ratings-based approach are excluded from supplementary capital.
4 Excess impairment allowances over expected losses are applicable to non-securitisation exposures calculated by using the internal ratings-based approach.

2. CAPITAL ADEQUACY (continued)

(b) Basis of consolidation

The basis of consolidation for calculation of capital ratios under the Capital Rules follows the basis of consolidation for financial reporting with the exclusion of subsidiaries which are "regulated financial entities" (e.g. insurance and securities companies) as defined by the Capital Rules. Accordingly, the investment costs of these unconsolidated regulated financial entities are deducted from the capital base. The unconsolidated regulated financial entities are:

Hang Seng Bank (Trustee) Limited
Hang Seng Bank Trustee International Limited
Hang Seng Futures Limited
Hang Seng General Insurance (Hong Kong) Company Limited
Hang Seng Insurance Company Limited
Hang Seng Insurance (Bahamas) Limited
Hang Seng Investment Management Limited
Hang Seng Investment Services Limited
Hang Seng Life Limited
Hang Seng (Nominee) Limited
Hang Seng Securities Limited
Imenson Limited

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

3. CREDIT RISK CAPITAL REQUIREMENTS

The table below shows the capital requirements for credit risk for each class and subclass of exposures as specified in the Capital Rules.

	2011	2010
Subject to internal ratings-based approach		
Sovereign exposures	587	294
Bank exposures	1,766	2,592
Corporate exposures	14,020	13,538
Residential mortgages to individuals and property-holding shell companies	532	527
Qualifying revolving retail exposures	1,081	970
Small business retail exposures	24	9
Other retail exposures to individuals	309	295
Other exposures	1,405	1,184
Securitisation exposures	–	–
Equity exposures	–	–
Total capital requirements for credit risk under internal ratings-based approach	19,724	19,409
Subject to standardised (credit risk) approach		
On-balance sheet		
Sovereign exposures	–	–
Public sector entity exposures	194	174
Multilateral development bank exposures	–	–
Bank exposures	–	4
Securities firm exposures	–	–
Corporate exposures	372	938
Collective investment scheme exposures	3	4
Cash items	–	–
Regulatory retail exposures	88	128
Residential mortgage loans	524	671
Other exposures which are not past due exposures	154	354
Past due exposures	22	22
Total capital requirements for on-balance sheet exposures	1,357	2,295
Off-balance sheet		
Direct credit substitutes	172	187
Transaction-related contingencies	1	3
Trade-related contingencies	–	–
Forward asset purchases	3	4
Partly paid-up shares and securities	–	–
Forward forward deposits placed	–	–
Unconditionally cancellable commitments	–	–
Other commitments	54	83
Exchange rate contracts	6	10
Interest rate contracts	2	1
Equity contracts	5	5
OTC derivative transactions and credit derivative contracts subject to valid bilateral netting agreements	1	–
Other off-balance exposures which are not elsewhere specified	–	–
Total capital requirements for off-balance sheet exposures	244	293
Total capital requirements for credit risk under standardised (credit risk) approach	1,601	2,588
Total capital requirements for credit risk	21,325	21,997

The capital requirement is made by multiplying the Group's risk-weighted amount derived from the relevant calculation approach by 8 per cent. It does not reflect the Group's actual regulatory capital.

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH

(a) The internal rating system

(i) Nature of exposures within each internal ratings-based ("IRB") class

The Group adopted advanced IRB approach for the majority of its business with effect from 1 January 2009. The following exposures are subject to IRB approach:

- Corporate exposures include exposures to global large corporates, local large corporates, middle market corporates and small and medium-sized enterprises, non-bank financial institutions and specialised lending.
- Sovereign exposures include exposures to sovereign governments, government agencies, central monetary institutions and relevant international organisations.
- Bank exposures include exposures to banks and regulated securities firms.
- Retail exposures include residential mortgages, qualifying revolving retail exposures, small business retail exposures and other retail exposures to individuals.
- Other exposures mainly include notes and coins, premises, plant and equipment and other assets.

(ii) Structure of risk rating systems and control mechanisms

The Group's exposure to credit risk arises from a wide range of asset classes, customers and product types. To measure and manage the risk in these exposures, both to individually assessed customers and to those aggregated into portfolios, the Group employs diverse risk rating systems and methodologies: judgmental, analytical, and hybrids of the two. The main characteristics of the Group's credit risk rating systems are set out below.

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

The Group adopts a set of standards that govern the process through which risk rating systems are developed, judged fit for purpose, approved and implemented, the conditions under which analytical risk model outcomes can be overridden by approvers; and the process of model performance monitoring and reporting. The framework emphasises on an effective dialogue between business line and risk management, suitable independence of decision takers and a good understanding and robust challenge of senior management.

Analytical risk rating systems are not static and are subject to review and modification in light of the changing environment and the availability or quality of data. Processes are established to capture the relevant data for continuous model improvement.

(iii) Application of IRB parameters

The Group-wide credit risk rating framework incorporates probability of default ("PD", representing the likelihood of a default event in a one-year horizon) of an obligor and loss severity expressed in terms of exposures at default ("EAD", an estimate of exposures at time of default) and loss given default ("LGD", the estimates of loss that the Group may incur in the event of default expressed as a percentage of EAD). These measures are used to calculate expected loss and capital requirements. They are also used in conjunction with other inputs to form rating assessments for the purpose of credit approval and for risk management decisions.

For corporate and bank exposures, PD models are developed based on historical loss data, combining financial statistics and expert inputs on various aspects such as industry environment, financial trend and quality assessment on the companies. PD model for sovereign exposures incorporates both quantitative and qualitative data from a wide range of reference sources on economic, political, financial and social conditions. For wholesale business (includes corporate, bank and sovereign exposures), obligor PD is estimated using a Customer Risk Rating of 23 grades, of which 21 are non-default ratings representing varying degrees of strength of financial condition, and two are default ratings. Credit score generated by a model and/or a scorecard for individual obligor, mapped to the corresponding Customer Risk Rating, is recommended to and reviewed by credit approver taking into account all relevant information (including external rating and market data where available) for risk rating determination.

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

(a) The internal rating system (continued)

(iii) Application of IRB parameters (continued)

LGD and EAD estimation for wholesale business is subject to Group framework of basic principles. EAD is estimated to a 12-month horizon and broadly represents the current exposure plus an estimate for future draw down on undrawn facilities and the crystallization of contingent exposures after default. LGD focuses on the facility and collateral structure which takes into account the priority/seniority of the facility, the type and value of the collateral and past experience on the type of counterparty, which is expressed as a percentage of EAD.

The Group uses supervisory slotting criteria approach in rating its regulatory specialised lending exposure. Under this approach, rating will be assigned based on the borrower and transaction characteristics.

For retail business including residential mortgage exposures, qualifying revolving retail exposures, small business retail exposures and other retail exposures to individuals, a wide range of application and behavioural models used in the management of retail portfolios has been supplemented to develop the credit models for measuring PD, EAD and LGD under the IRB approach. The PD models typically incorporates the characteristics of the products and the borrower's account behaviour.

EAD models are developed for retail revolving exposures to predict additional drawdown at the time of default, plus current outstanding balance. For non-revolving retail exposures such as residential mortgage, EAD is mainly estimated based on current outstanding balance.

LGD models for retail exposures are developed based on the Group's internal loss and default experience including recovery values for different types of collaterals for secured retail exposures such as residential mortgage; for unsecured retail exposures such as qualifying revolving retail exposures, LGD models are developed based on past recovery experiences, account behaviours and repayment ability.

For management information and reporting purposes, retail portfolios are segmented into 10 Expected Loss (EL) bands facilitating comparability across retail customer segment and product types. EL band is derived through a combination of PD and LGD.

(iv) Model Governance

Model governance is under the Credit Risk Analytics Oversight Committee (CRAOC), whose responsibilities are to oversee the governance, including development, validation and monitoring of risk rating models. The CRAOC is chaired by the Chief Risk Officer and its memberships include heads of business groups and finance function.

Compliance with the Group standards for development, validation and implementation of credit risk models are subject to review by Internal Audit. Internal Audit also conducts regular reviews of the risk rating model application by business groups.

(v) Use of internal ratings

While internal estimates derived from applying the IRB approach are employed in the calculation of risk-weighted exposure amounts for the purpose of determining regulatory capital requirements, they are also used in a multitude of contexts within risk management and business processes. Such uses continue to develop and become embedded as experience grows and the repository of quality data improves. They include:

- credit approval: authorities, including those for specific counterparty types and transactions, are delegated to officers and executives in the Group's credit risk function and business division involving lending activities using a risk-based approach, tiered relative to obligor customer risk rating;
- credit risk analytical tools: IRB measures are valuable tools deployed in the assessment of customer and portfolio risk; migration of customer risk rating becomes an important indicator in credit monitoring process;
- pricing: customer relationship managers apply a risk adjusted return on capital methodology in risk-weighted assets and profitability calculators;
- portfolio management: regular reports to Risk Management Committee, Audit Committee containing analyses of risk exposures employing IRB risk metrics, e.g. by customer segment and credit quality grade;
- economic capital: IRB risk measures are essential components of the credit risk economic capital model, which are evaluated in the capital adequacy assessment process of the Group;
- stress testing: IRB risk measures are stressed to understand the sensitivities of the Group's capital and business plans under adverse economic environment; and
- risk appetite: IRB risk capital and risk estimates are elements of the risk appetite and internal risk control measures of the Group.

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

(a) The internal rating system (continued)

(vi) Credit risk mitigation

The Group's approach when granting credit facilities is on the basis of capacity to repay, rather than primarily rely on credit risk mitigation. Depending on a customer's standing and the type of product, facilities may be provided on unsecured basis. Nevertheless, mitigation of credit risk is an important aspect of effective management and takes in many forms.

The Group's general policy is to promote the use of credit risk mitigation, justified by commercial prudence and good practice as well as capital efficiency. Policies covering the acceptability, structuring, control and valuation with regard to different types of collateral security are established to ensure that they are supported by evidence and continue to fulfil their intended purpose.

The main types of recognised collateral taken by the Group are those as stated in section 80 of the Capital Rules, including (but not limited to) cash on deposit, gold bullion, equities listed in a main index and/or a recognised exchange, collective investment schemes, various recognised debt securities, residential, industrial and commercial property, etc.

The Group's policy provides that netting is only to be applied where it has the legal right to do so. Consistent with the Capital Rules, only bilateral netting arrangements are included for capital adequacy credit risk mitigation calculation.

In terms of the application within IRB approach, credit risk mitigants are considered in two broad categories: first, those which reduce the intrinsic probability of default of an obligor and therefore operate as adjustments to PD estimation, and second, those which affect estimated recoverability of obligations and require adjustment of LGD. The first includes, for example, full parental or group company guarantees; the second, collateral security of various kinds such as cash, equity, properties, fixed assets such as motor vehicles, plant and machinery, stock and debtors, bank and sovereign guarantees, etc.

(b) Exposures subject to supervisory estimates

The following table indicates the exposure classes and the respective exposure amounts that are subject to supervisory estimates as at 31 December:

	2011	2010
IRB Exposure Class		
Sovereign exposures	**–**	–
Bank exposures	**–**	–
Corporate exposures	**31,995**	28,609
Total EAD	**31,995**	28,609

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

(c) Exposures by IRB calculation approach

The table below shows the Group's exposures:

	Advanced IRB approach	Supervisory slotting criteria approach	Retail IRB approach	Specific risk-weight approach	Total exposures
2011					
Sovereign exposures	**108,082**	**–**	**–**	**–**	**108,082**
Bank exposures	**160,679**	**–**	**–**	**–**	**160,679**
Corporate exposures	**289,627**	**31,995**	**–**	**–**	**321,622**
Retail exposures:					
– Residential mortgages to individuals and property-holding shell companies	**–**	**–**	**132,005**	**–**	**132,005**
– Qualifying revolving retail exposures	**–**	**–**	**69,412**	**–**	**69,412**
– Small business retail exposures	**–**	**–**	**5,881**	**–**	**5,881**
– Other retail exposures to individuals	**–**	**–**	**8,795**	**–**	**8,795**
Other exposures	**–**	**–**	**–**	**29,220**	**29,220**
	558,388	**31,995**	**216,093**	**29,220**	**835,696**
2010					
Sovereign exposures	52,338	–	–	–	52,338
Bank exposures	229,460	–	–	–	229,460
Corporate exposures	263,358	28,609	–	–	291,967
Retail exposures:					
– Residential mortgages to individuals and property-holding shell companies	–	–	137,445	–	137,445
– Qualifying revolving retail exposures	–	–	60,551	–	60,551
– Small business retail exposures	–	–	4,100	–	4,100
– Other retail exposures to individuals	–	–	8,313	–	8,313
Other exposures	–	–	–	22,418	22,418
	545,156	28,609	210,409	22,418	806,592

(d) Exposures by credit risk mitigation used

The table below shows the Group's exposures (after the effect of any on-balance sheet or off-balance sheet recognised netting) which are covered by recognised guarantees after the application of haircuts required under the Capital Rules. These exposures exclude OTC derivative transactions.

	2011	2010
Portfolio		
Bank exposures	**11,222**	28,492
Corporate exposures	**72,685**	78,647
Retail exposures	**15,566**	16,314
	99,473	123,453

For the class of sovereign exposures, there were no exposures covered by recognised guarantees.

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

(e) Risk assessment for exposures under IRB approach

The tables below detail the total EAD of sovereign, bank and corporate exposures by exposure-weighted average risk-weight, exposure-weighted average PD and exposure-weighted average LGD for each obligor grade as at 31 December.

(i) Sovereign, bank and corporate (other than specialised lending) exposures – analysis by obligor grade

The exposure at default disclosed below in respect of sovereign, bank and corporate exposures have taken into account the effect of recognised collateral and recognised guarantees.

	2011			
	Exposure-weighted average PD %	Exposure-weighted average LGD %	Exposure-weighted average risk-weight %	Exposure at default
Sovereign exposure				
Minimal default risk	0.01	10.30	0.86	66,686
Low default risk	0.07	45.00	16.34	41,396
				108,082
Bank exposure				
Minimal default risk	0.03	23.97	4.94	39,228
Low default risk	0.08	35.99	13.87	98,901
Satisfactory default risk	0.28	32.82	27.22	21,969
Fair default risk	1.07	38.56	67.77	456
Moderate default risk	2.94	39.05	100.14	88
Significant default risk	5.89	40.72	134.90	30
High default risk	11.29	40.72	176.35	7
				160,679
Corporate exposure (other than specialised lending)				
Minimal default risk	0.04	37.36	13.90	35,156
Low default risk	0.10	43.87	27.62	89,079
Satisfactory default risk	0.39	42.07	51.93	81,908
Fair default risk	1.22	42.06	86.44	36,524
Moderate default risk	2.82	36.80	102.37	42,353
Significant default risk	6.62	47.11	168.85	2,317
High default risk	12.18	34.52	161.18	343
Special management	28.14	29.76	141.50	478
Default	100.00	54.49	–	1,469
				289,627

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

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

(i) Sovereign, bank and corporate (other than specialised lending) exposures – analysis by obligor grade (continued)

	2010			
	Exposure-weighted average PD %	Exposure-weighted average LGD %	Exposure-weighted average risk-weight %	Exposure at default
Sovereign exposure				
Minimal default risk	0.01	10.38	1.03	33,968
Low default risk	0.07	44.84	18.12	18,370
				52,338
Bank exposure				
Minimal default risk	0.03	22.45	4.80	45,397
Low default risk	0.10	31.20	13.27	158,272
Satisfactory default risk	0.30	32.62	29.18	21,799
Fair default risk	1.33	34.52	64.42	3,133
Moderate default risk	2.65	33.38	81.29	434
Significant default risk	5.79	30.55	98.13	365
High default risk	12.70	46.37	209.15	60
				229,460
Corporate exposure (other than specialised lending)				
Minimal default risk	0.04	40.86	14.89	19,419
Low default risk	0.11	42.82	27.66	89,764
Satisfactory default risk	0.38	45.15	55.26	79,364
Fair default risk	1.29	42.29	88.19	32,163
Moderate default risk	2.97	39.94	112.23	36,637
Significant default risk	6.98	43.59	160.10	1,779
High default risk	12.54	41.58	192.26	1,674
Special management	19.31	35.92	187.67	547
Default	100.00	53.01	–	2,011
				263,358

(ii) Corporate exposures (specialised lending) – analysis by supervisory rating grade

	2011		2010	
	Exposure-weighted average risk-weight %	**Exposure at default**	Exposure-weighted average risk-weight %	Exposure at default
Obligor Grade				
Strong	**66.24**	**24,707**	66.15	22,532
Good	**88.44**	**6,322**	91.29	4,332
Satisfactory	**121.90**	**960**	121.90	1,745
Weak	**265.00**	**6**	–	–
		31,995		28,609

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

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

(iii) Retail exposures – analysis by credit quality

The table below shows a breakdown of exposures (the EAD of on-balance sheet exposures and off-balance sheet exposures) on a pool basis by credit quality classification:

	Residential mortgages	Qualifying revolving retail exposures	Small business retail exposures	Other retail exposures	Total exposures
2011					
Strong	**131,446**	**59,660**	**5,775**	**6,749**	**203,630**
Medium	**405**	**9,427**	**88**	**1,969**	**11,889**
Sub-standard	**–**	**318**	**–**	**57**	**375**
Impaired	**154**	**7**	**18**	**20**	**199**
	132,005	**69,412**	**5,881**	**8,795**	**216,093**
2010					
Strong	136,621	51,821	4,085	6,319	198,846
Medium	557	8,434	–	1,912	10,903
Sub-standard	–	286	–	52	338
Impaired	267	10	15	30	322
	137,445	60,551	4,100	8,313	210,409

(iv) Undrawn commitments

The table below shows the amount of undrawn commitments and exposure-weighted average EAD for sovereign, bank and corporate exposures as at 31 December 2011:

	2011		2010	
	Undrawn commitments	**Exposure-weighted average EAD**	Undrawn commitments	Exposure-weighted average EAD
Sovereign exposures	**–**	**–**	–	–
Bank exposures	**770**	**292**	738	378
Corporate exposures	**129,997**	**41,817**	109,653	39,456
	130,767	**42,109**	110,391	39,834

(f) Analysis of actual loss and estimates

The table below shows the actual losses which represent the net charges (including write-offs and impairment loss allowances) made during the year.

	2011	2010
Exposure Class		
Sovereign	**–**	–
Bank	**–**	(10)
Corporate	**465**	346
Residential mortgage	**(33)**	(45)
Qualifying revolving retail	**271**	332
Other retail	**60**	51
	763	674

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

(f) Analysis of actual loss and estimates (continued)

The actual losses in 2011 increased modestly primarily due to higher impairment losses in corporate portfolio.

The table below shows the expected loss which is the estimated future loss over a one-year time horizon for different exposure classes under IRB approach.

	31 December 2010	31 December 2009
Exposure Class		
Sovereign	6	3
Bank	101	77
Corporate	2,165	2,203
Residential mortgage	99	156
Qualifying revolving retail	390	347
Other retail	125	158
	2,886	2,944

Overall estimated expected losses in 2011 remained stable compared to 2010.

It should be noted that actual loss and expected loss are measured and calculated using different methodologies which may not be directly comparable. The limitation arises mainly from the fundamental differences in the definition of "loss" under expected loss calculation which is derived based on regulatory rules and actual loss includes write-offs and impairment loss allowances.

The tables below set out the comparison of the predicted risk estimates of the Group's credit risk models against actual outcomes of the wholesale and retail exposures.

(i) Wholesale exposures

Risk estimates as at 31 December 2010 against actual outcome for the year 2011

	PD		**LGD**		**EAD**	
	Actual %	**Estimated %**	**Actual %**	**Estimated %**	**Actual %**	**Estimated %**
Sovereign exposure	**–**	**0.06**	**–**	**22.47**	**–**	**100.00**
Bank exposure	**–**	**0.54**	**–**	**27.83**	**–**	**99.22**
Corporate exposure	**0.28**	**1.38**	**60.69**	**45.22**	**39.76**	**81.29**

Risk estimates as at 31 December 2009 against actual outcome for the year 2010

	PD		LGD		EAD	
	Actual %	Estimated %	Actual %	Estimated %	Actual %	Estimated %
Sovereign exposure	–	0.04	–	13.34	–	100.00
Bank exposure	–	0.71	–	28.55	–	98.22
Corporate exposure	0.23	1.54	34.95	44.75	80.22	79.08

The actual PD rate is measured by using the number of obligor defaulted during the reporting period whereas the estimated PD rate is the long run average default rate estimated at the beginning of the reporting period. The PD estimated by internal model is calibrated to the Group's long run default experience. Hence, actual default rate in a particular year ("point-in-time") will typically differ from the estimated PD which is the "through the cycle" estimates as economies move above or below cyclical norms.

4. CREDIT RISK UNDER THE INTERNAL RATINGS-BASED APPROACH (continued)

(f) Analysis of actual loss and estimates (continued)

(i) Wholesale exposures (continued)

The estimated LGD is the exposure weighted average LGD for the portfolio, adjusted by a downturn factor, as of the beginning of the reporting period whereas the actual LGD is computed using the resolved default cases accumulated in 2011 which covers cases defaulted before 2011. No default and loss has been observed for Bank and Sovereign exposures during the reporting period.

The estimated EAD% represents the ratio of total model estimated exposure values to total limits for the portfolio at the beginning of the reporting period. The actual EAD% compares the realised EAD of the defaulted and resolved cases accumulated in 2011 which covers cases defaulted before 2011 to the limits 1 year prior to default.

Due to the difference in the portfolio mix between the defaulted and resolved population and the overall corporate portfolio estimated at the beginning of the reporting period, the actual and estimated results can differ.

(ii) Retail exposures

Risk estimates as at 31 December 2010 against actual outcome for the year 2011

	PD		LGD		EAD	
	Actual %	Estimated %	Actual %	Estimated %	Actual %	Estimated %
Residential mortgages to individuals and property-holding shell companies	**0.17**	**0.52**	**0.66**	**11.09**	**92.05**	**100.00**
Qualifying revolving retail exposures	**0.31**	**0.57**	**83.22**	**94.43**	**81.40**	**86.48**
Small business retail exposures	**0.26**	**0.47**	**0.27**	**11.93**	**96.88**	**100.00**
Other retail exposures to individuals	**1.97**	**2.25**	**90.46**	**87.50**	**76.66**	**93.22**

Remarks: The portfolio which was newly approved to use internal ratings-based approach in 2011 is excluded in the above analysis.

Risk estimates as at 31 December 2009 against actual outcome for the year 2010

	PD		LGD		EAD	
	Actual %	Estimated %	Actual %	Estimated %	Actual %	Estimated %
Residential mortgages to individuals and property-holding shell companies	0.20	0.66	0.61	10.39	89.46	100.00
Qualifying revolving retail exposures	0.36	0.61	89.82	85.40	87.90	95.26
Small business retail exposures	0.40	0.60	0.29	11.58	93.31	100.00
Other retail exposures to individuals	1.79	2.60	63.99	63.43	68.69	93.97

The actual and estimated PD rate are measured in the same ways as wholesale exposure.

The actual LGD for the retail exposures takes into account the 24-months recovery period and represents the realised LGD for cases defaulted during 2009 which were recovered within 24 months after default. The estimated LGD is the exposure weighted average LGD for the defaulted cases estimated prior to default. The actual exposure weighted average LGD for other retail exposures to individuals in 2011 are slightly higher than the estimation but the actual loss is lower than the predicted loss in terms of amount.

The estimated EAD% represents the ratio of total model estimated EAD to total limits for cases defaulted during 2011 whereas the actual EAD% compares the exposure values of the cases defaulted in 2011 at the time of default against the maximum limit 1 year prior to default.

5. CREDIT RISK UNDER THE STANDARDISED (CREDIT RISK) APPROACH

(a) Ratings from External Credit Assessment Institutions ("ECAIs")

The Group uses the following ECAIs to calculate its capital adequacy requirements under the standardised (credit risk) approach prescribed in the Capital Rules:

- Fitch Ratings
- Moody's Investors Service
- Standard & Poor's Ratings Services, and
- Rating and Investment Information, Inc.

Where exposures have been rated by the above-mentioned ECAIs, they are categorised under the following class of exposures:

- Sovereign exposures
- Public sector entity exposures
- Multilateral development bank exposures
- Bank exposures
- Securities firm exposures
- Corporate exposures
- Collective investment scheme exposures

The process used to map ECAIs issuer ratings or ECAIs issue specific ratings in the Group's banking book is consistent with those prescribed in the Capital Rules.

(b) Credit risk mitigation

As stated in sections 98 and 99 of the Capital Rules, certain guarantees and credit derivative contracts are recognised for credit risk mitigation purposes. The main types of guarantees are from sovereigns, corporate and banks. With corporate guarantees, in order for it to be recognised as a credit risk mitigants, it must have a credit rating of A- or better by Standard & Poor's Ratings Services, Fitch Ratings and Rating and Investment Information, Inc, or a credit rating of A3 or better by Moody's Investors Service.

5. CREDIT RISK UNDER THE STANDARDISED (CREDIT RISK) APPROACH (continued)

(c) Credit risk exposures under the standardised (credit risk) approach

	Total exposures*	Exposures after recognised credit risk mitigation		Risk-weighted amounts		Total risk-weighted amounts	Total exposures covered by recognised collateral	Total exposures covered by recognised guarantees or recognised credit derivative contracts
		Rated	Unrated	Rated	Unrated			
2011								
Class of exposures								
On-balance sheet								
Sovereign	–	–	756	–	–	–	–	–
Public sector entity	18,574	18,451	125	2,398	25	2,423	–	–
Multilateral development bank	21,613	21,613	–	–	–	–	–	–
Bank	9	–	9	–	4	4	–	–
Securities firm	–	–	–	–	–	–	–	–
Corporate	6,430	–	4,643	–	4,643	4,643	1,065	722
Collective investment scheme	42	–	42	–	42	42	–	–
Cash items	–	–	–	–	–	–	–	–
Regulatory retail	2,256	–	1,469	–	1,102	1,102	753	34
Residential mortgage loan	12,363	–	12,330	–	6,554	6,554	31	2
Other exposures which are not past due exposures	4,734	–	1,923	–	1,923	1,923	2,811	–
Past due exposures	199	–	199	–	280	280	18	–
	66,220	40,064	21,496	2,398	14,573	16,971	4,678	758
Off-balance sheet								
Off-balance sheet exposures other than OTC derivative transactions or credit derivative contracts	3,051	–	2,876	–	2,865	2,865	175	9
OTC derivative contracts	183	2	181	–	175	175	–	–
Credit derivative contracts	–	–	–	–	–	–	–	–
Other off-balance sheet exposures not elsewhere specified	–	–	–	–	–	–	–	–
	3,234	2	3,057	–	3,040	3,040	175	9
Total	69,454	40,066	24,553	2,398	17,613	20,011	4,853	767
Exposures deducted from capital base	–							

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

5. CREDIT RISK UNDER THE STANDARDISED (CREDIT RISK) APPROACH (continued)

(c) Credit risk exposures under the standardised (credit risk) approach (continued)

		Exposures after recognised credit risk mitigation		Risk-weighted amounts				
	Total exposures*	Rated	Unrated	Rated	Unrated	Total risk-weighted amounts	Total exposures covered by recognised collateral	Total exposures covered by recognised guarantees or recognised credit derivative contracts
2010 Class of exposures								
On-balance sheet								
Sovereign	–	–	1,147	–	–	–	–	–
Public sector entity	16,103	16,003	104	2,153	21	2,174	–	–
Multilateral development bank	21,761	21,761	–	–	–	–	–	–
Bank	185	–	185	–	46	46	–	–
Securities firm	–	–	–	–	–	–	–	–
Corporate	13,959	16	11,726	3	11,726	11,729	1,098	1,119
Collective investment scheme	53	–	53	–	53	53	–	–
Cash items	–	–	–	–	–	–	–	–
Regulatory retail	2,997	–	2,131	–	1,599	1,599	838	28
Residential mortgage loan	14,682	–	14,644	–	8,392	8,392	34	4
Other exposures which are not past due exposures	7,747	–	4,426	–	4,426	4,426	3,321	–
Past due exposures	188	–	188	–	272	272	11	–
	77,675	37,780	34,604	2,156	26,535	28,691	5,302	1,151
Off-balance sheet								
Off-balance sheet exposures other than OTC derivative transactions or credit derivative contracts	3,637	19	3,457	–	3,471	3,471	161	3
OTC derivative contracts	224	2	222	–	211	211	–	–
Credit derivative contracts	–	–	–	–	–	–	–	–
Other off-balance sheet exposures not elsewhere specified	–	–	–	–	–	–	–	–
	3,861	21	3,679	–	3,682	3,682	161	3
Total	81,536	37,801	38,283	2,156	30,217	32,373	5,463	1,154
Exposures deducted from capital base	–							

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

6. COUNTERPARTY CREDIT RISK-RELATED EXPOSURES

(a) In respect of counterparty credit risk exposures which arises from over-the-counter ("OTC") derivative transactions and repo-style transactions (referred as "relevant transaction") hereunder, credit limit to counterparty credit risk arising from the relevant transaction is assigned, monitored and reported in accordance with the Group risk methodology. The credit limit established takes into account the gross contract amount and the future potential exposure measured on the basis of 95 percentile potential worst case loss estimates for the product involved. This method of calculating credit limit applies to all counterparties.

Credit equivalent amount and risk-weighted amount of relevant transaction is determined following the regulatory capital requirements. Risk-weighted amount is calculated in accordance with the counterparty risk weighting as per internal ratings-based approach/standardised (credit risk) approach under the Capital Rules.

The policy for secured collateral on derivatives is guided by the Group's internal Best Practice Guidelines ensuring the due-diligence necessary to fully understand the effectiveness of netting and collateralisation by jurisdiction, counterparty, product and agreement type is fully assessed and that the due-diligence standards are high and consistently applied. The Group's policies for establishing provisions are discussed in note 4(f) – Loan impairment.

6. COUNTERPARTY CREDIT RISK-RELATED EXPOSURES (continued)

(b) Counterparty credit risk exposures

The following tables show the counterparty credit risk exposures under the internal-ratings based approach and standardised (credit risk) approach. There was no outstanding repo-style transactions and credit derivative contracts at 31 December 2011 (2010: Nil).

(i) Counterparty credit risk exposures under the internal-ratings based approach

	2011	2010
OTC derivative transactions:		
Gross total positive fair value which are not repo-style transactions	**3,985**	4,589
Credit equivalent amount	**7,728**	6,799
Value of recognised collateral by type:		
Debt securities	**–**	–
Others	**–**	–
	–	–
Credit equivalent amount or net credit exposures net of recognised collateral held	**7,728**	6,799
Risk-weighted amount	**3,824**	2,657
Notional amount of recognised credit derivative contracts which provide credit protection	**–**	–

(ii) Counterparty credit risk exposures under the standardised (credit risk) approach

	2011	2010
OTC derivative transactions:		
Gross total positive fair value which are not repo-style transactions	**90**	98
Credit equivalent amount	**183**	224
Value of recognised collateral by type:		
Debt securities	**–**	–
Others	**–**	–
	–	–
Credit equivalent amount or net credit exposures net of recognised collateral held	**183**	224
Risk-weighted amount	**175**	211
Notional amount of recognised credit derivative contracts which provide credit protection	**–**	–

(c) Major classes of exposures by counterparty type

(i) Major classes of exposures under the internal ratings-based approach by counterparty type

	2011			2010		
	Contract amount	**Credit equivalent amount**	**Risk-weighted amount**	Contract amount	Credit equivalent amount	Risk-weighted amount
Sovereign	**–**	**–**	**–**	–	–	–
Public sector entities	**–**	**–**	**–**	–	–	–
Banks	**775,921**	**4,173**	**537**	703,961	4,212	521
Corporates	**152,166**	**3,555**	**3,287**	125,370	2,587	2,136
	928,087	**7,728**	**3,824**	829,331	6,799	2,657

6. COUNTERPARTY CREDIT RISK-RELATED EXPOSURES (continued)

(c) Major classes of exposures by counterparty type (continued)

(ii) Major classes of exposures under the standardised (credit risk) approach by counterparty type

	2011			2010		
	Contract amount	**Credit equivalent amount**	**Risk-weighted amount**	Contract amount	Credit equivalent amount	Risk-weighted amount
Sovereign	**–**	**–**	**–**	–	–	–
Public sector entities	**39**	**2**	**–**	39	2	–
Banks	**–**	**–**	**–**	–	–	–
Corporates	**5,699**	**181**	**175**	9,414	222	211
	5,738	**183**	**175**	9,453	224	211

7. ASSET SECURITISATION

There was no asset securitisation for which the Group is an originating institution or an investing institution at 31 December 2011 (2010: Nil).

8. MARKET RISK

(a) The Hong Kong Monetary Authority has granted approval under section 18(2)(a) and 18(5) of the Capital Rules for the Group to use the internal models approach to calculate its market risk for foreign exchange risk and general interest rate risk. Standardised approach is used for the calculation of specific interest rate risk, equity risk and commodity risk.

	2011	2010
Market risk calculated by:		
– Internal models approach:		
– foreign exchange exposures and general interest rate exposures	**115**	118
– Standardised approach:		
– specific interest rate exposures	**48**	10
– equity exposures	**1**	1
Total capital charge for market risk	**164**	129

Capital charge means an amount of regulatory capital which the group is required to hold for an exposure to a relevant risk which, if multiplied by 12.5, becomes the risk-weighted amount of that exposure for that risk.

(b) Methodology for valuation of market risk position under internal model approach

VAR is a technique that estimates the potential losses that could occur on risk positions as a result of movements in market rates and prices over a specified time horizon and to a given level of confidence. A Historic Simulation approach is used to model foreign currency and interest rate risk, generated by revaluing the portfolio for each of 500 historical scenarios from one-day market movements, and is derived from a clean two-year time series of historic market risk factor data.

(c) Characteristics and coverage of VAR model

The VAR models cover all material sources of price risk relating to foreign exchange risk and general interest rate risk. Foreign exchange risk factors include, but are not limited to, foreign currency prices and foreign currency option volatility. General interest rate risk factors include, but are not limited to, interest rate curves and interest rate option volatilities.

Historical simulation approach is used for all outright interest rate and foreign exchange using a 99% confidence interval and a one day time horizon that is scaled up to a ten day holding period.

Historical, hypothetical and technical scenario stress testing is performed on positions on a bi-weekly basis. Back-testing of the interest rate and foreign exchange uses clean and hypothetical profits and losses from trading operations and compares these to overall and individual business level value at risk on a daily basis.

9. OPERATIONAL RISK

The Hong Kong Monetary Authority has granted approval under section 25(2) of the Capital Rules for the Group to use the standardised approach to calculate its operational risk.

	2011	2010
Capital charge for operational risk	**2,852**	2,948

10. EQUITY EXPOSURES IN 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 in the balance sheet as "Financial investments". Available-for-sale securities are measured at fair value as described in notes 4(g)(iii) and 4(n) on the financial statements. Included within this category are investments made by the Group for strategic purposes, which are subject to additional internal procedures and approvals to ensure that the investment is in accordance with the Group'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 Group's accounting policies.

	2011	2010
Cumulative realised gains on disposal	**42**	10
Unrealised gains:		
– recognised in reserve but not through the income statement	**174**	188
– deducted from the supplementary capital	**–**	–

11. DISCLOSURE FOR SELECTED EXPOSURE

(a) Holding of debt securities issued by Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation

The table below shows the Group's exposures to the senior debt securities (AAA rated) issued by the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation.

	Gross principal	**Fair value**
At 31 December 2011	**–**	**–**
At 31 December 2010	37	38

The Group did not hold any asset-backed securities, mortgage-backed securities and collateralised debt obligations.

(b) Involvement with Special Purpose Entities (SPEs)

From time to time, the Group enters into certain transactions with customers in the ordinary course of business which involve the establishment of SPEs. The use of SPEs is not a significant part of the Group's activities and the Group is not reliant on SPEs for any material part of its business operations or profitability.

12. ANALYSIS OF GROSS ADVANCES TO CUSTOMERS BY CATEGORIES BASED ON INTERNAL CLASSIFICATION USED BY THE GROUP

Gross advances, impaired advances, individually assessed and collectively assessed loan impairment allowances, the amount of new impairment allowances charged to income statement, and the amount of impaired loans and advances written off during the year in respect of industry sectors which constitute not less than 10 per cent of gross advances to customers are analysed as follows:

	Group					
	Gross advances	Impaired advances	Individually assessed loan impairment allowances	Collectively assessed loan impairment allowances	New impairment allowances	Advances written off during the year
2011						
Residential mortgages	**129,751**	**108**	**(2)**	**(34)**	**1**	**–**
Commercial, industrial and international trade	**114,661**	**1,272**	**(884)**	**(594)**	**511**	**339**
Commercial real estate	**52,745**	**4**	**–**	**(4)**	**21**	**–**
Other property-related lending	**95,236**	**42**	**(4)**	**(22)**	**6**	**18**
2010						
Residential mortgages	135,515	149	–	(55)	1	1
Commercial, industrial and international trade	119,841	1,536	(1,086)	(506)	447	100
Commercial real estate	43,804	–	–	(1)	4	–
Other property-related lending	94,060	84	(23)	(36)	22	66

13. NON-BANK MAINLAND EXPOSURES

The analysis of non-bank Mainland exposures is based on the categories of non-bank counterparties and the type of direct exposures defined by the Hong Kong Monetary Authority under the Banking (Disclosure) Rules with reference to the Hong Kong Monetary Authority return for non-bank Mainland exposures, which includes the Mainland exposures extended by the Bank and its overseas branches and overseas subsidiaries only.

	On-balance sheet exposure	Off-balance sheet exposure	Total exposures	Individually assessed allowances
2011				
Mainland entities	**30,082**	**6,789**	**36,871**	**–**
Companies and individuals outside Mainland where the credit is granted for use in Mainland	**11,850**	**1,813**	**13,663**	**282**
Other counterparties where the exposure is considered by the Bank to be non-bank Mainland exposure	**341**	**–**	**341**	**–**
	42,273	**8,602**	**50,875**	**282**
Exposures incurred by the Bank's mainland subsidiary	**46,342**	**10,208**	**56,550**	**105**
	88,615	**18,810**	**107,425**	**387**
2010				
Mainland entities	20,940	6,036	26,976	–
Companies and individuals outside Mainland where the credit is granted for use in Mainland	9,177	2,278	11,455	364
Other counterparties where the exposure is considered by the Bank to be non-bank Mainland exposure	738	28	766	–
	30,855	8,342	39,197	364
Exposures incurred by the Bank's mainland subsidiary	36,318	12,566	48,884	229
	67,173	20,908	88,081	593

14. CROSS-BORDER CLAIMS

Cross-border claims include receivables and loans and advances, and balances due from banks and holdings of certificates of deposit, bills, promissory notes, commercial paper and other negotiable debt instruments, as well as accrued interest and overdue interest on these assets. Claims are classified according to the location of the counterparties after taking into account the transfer of risk. For a claim guaranteed by a party situated in a country different from the counterparty, the risk will be transferred to the country of the guarantor. For a claim on the branch of a bank or other financial institutions, the risk will be transferred to the country where its head office is situated. Claims on individual countries or areas, after risk transfer, amounting to 10 per cent or more of the aggregate cross-border claims are shown as follows:

	Banks & other financial institutions	Public sector entities	Sovereign & other	Total
2011				
Asia-Pacific excluding Hong Kong:				
– China	**92,136**	**–**	**43,076**	**135,212**
– Japan	**10,358**	**–**	**29,052**	**39,410**
– Other	**34,558**	**2,223**	**10,328**	**47,109**
	137,052	**2,223**	**82,456**	**221,731**
The Americas:				
– United States	**19,388**	**–**	**4,116**	**23,504**
– Other	**3,827**	**1,958**	**12,177**	**17,962**
	23,215	**1,958**	**16,293**	**41,466**
Europe:				
– United Kingdom	**10,525**	**199**	**3,016**	**13,740**
– Other	**19,081**	**6,732**	**9,984**	**35,797**
	29,606	**6,931**	**13,000**	**49,537**
2010				
Asia-Pacific excluding Hong Kong:				
– China	75,515	–	23,467	98,982
– Japan	4,750	–	5,174	9,924
– Other	24,331	1,506	8,886	34,723
	104,596	1,506	37,527	143,629
The Americas:				
– United States	40,199	38	5,405	45,642
– Other	2,975	1,458	12,920	17,353
	43,174	1,496	18,325	62,995
Europe:				
– United Kingdom	24,954	–	1,523	26,477
– Other	41,492	6,671	9,949	58,112
	66,446	6,671	11,472	84,589