Standard Chartered Bank (Thai) PCL

Pillar 3 Disclosures

31 December 2017

Registered Office: 90 North Sathorn Road, Silom Bangkok, 10500, Thailand

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Overview

During 2013, the Bank of Thailand ("BOT") published the notifications re. Disclosure of Capital Maintenance of Commercial Banks and Disclosure of Capital Maintenance of Commercial Banks under Consolidation which are based on "Basel IIII: A global regulatory framework for more resilient banks and banking systems" (Revised Version: June 2011) from the Basel Committee on Banking Supervision ("BCBS"). The objectives of these notifications (commonly referred to as "Basel IIII") are to strengthen capital rules with the goal of promoting a more resilient banking sector. The objective of the reforms is to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy.

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1. Scope of Basel III Framework

Pillar 1: Minimum Capital Requirement

The BOT has approved Standard Chartered Bank (Thai) PCL ("the Bank") to adopt the AIRB approach which is more advanced Risk Management Framework for the measurement of credit risk capital and under the notification, the Bank have been using AIRB approach for the credit risk capital calculation as regulatory capital since December 2009.

The Bank is also required to calculate a capital charge to cover market risk and operational risk for which the Bank applies the Standardised Approach.

Pillar 2: Supervisory Review Process

Pillar 2 requires banks to undertake a comprehensive assessment of their risks and to determine the appropriate amounts of capital to be held against these risks where other suitable mitigants are not available. This risk and capital assessment is commonly referred to as an Internal Capital Adequacy Assessment Process ("ICAAP") which covers much broader risk types than Pillar 1, which cover only credit risk, market risk, and operational risk.

The Bank has developed an ICAAP policy and framework which closely integrates the risk and capital assessment processes, and ensures that adequate levels of capital are maintained to support the Bank's current and projected demand for capital under expected and stressed conditions.

Under Pillar 2, the BOT would undertake a review of the Banks' ICAAP. This is referred to as the Supervisory Review and Evaluation Process ("SREP").

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Pillar 3: Market Discipline

Pillar 3 aims to provide a consistent and comprehensive disclosure framework that enhances comparability between banks and further promotes improvements in risk practices. According to the BOT notification, the Bank is required to disclose the data and information relative to risk profile, risk management and capital funds.

The Bank has implemented a Pillar 3 policy and procedure framework to address the requirements laid down for Pillar 3 disclosure. The information provided has been reviewed and validated by senior management and the Risk Committee. In accordance with the Bank policy, the Pillar 3 disclosure will be published on the Standard Chartered Bank (Thai) PCL - website www.sc.com/th

The BOT has also set the frequency of disclosure on semi-annual basis and annual basis. Quantitative data of Capital Structure & Adequacy and Market risk will be disclosed on a semi-annual basis. Whereas, the full Pillar 3 disclosures will be made annually on both qualitative and quantitative data.

2. Scope of Application

In compliance with the requirement under Basel III Pillar 3 and sets of the BOT's disclosure requirements, the Bank has developed a set of disclosures for its position (Solo basis) as at 31 December 2017 covering the following areas:

- Qualitative and quantitative data for Capital and the minimum capital requirement for Credit risk, Market risk and Operational risk
- Qualitative for Risk Exposure and Assessment
  - Credit Risk
  - Market Risk
  - Operational Risk
  - Equities Exposure in the Non-trading Book (Banking Book)
  - Interest Rate Risk in the Non-trading Book (Banking Book)
- Quantitative data for Credit Risk, Market risk, Equities Exposure in Non-Trading Book (Banking Book) and Interest Rate Risk in Non-trading Book (Banking Book)

3. Capital Management

The Bank's capital management approach is driven by its desire to maintain a strong capital base to support the development of the Bank business activities, to meet regulatory minimum capital requirements at all times and to maintain appropriate credit ratings.

The Bank's capital planning is dynamic and regularly refreshed to reflect the business forecasts as they evolve during the course of each year. The strategy-setting and planning is presented to the Board on an annual basis with regular update on the financial outlook and performance as to the capital adequacy is aligned with the business plan. The capital plan takes the following into account:

- Current regulatory capital requirements and the Bank's assessment of on-going regulatory expectation.
- Demand for capital due to business growth forecasts, loan impairment outlook and market shocks or stresses.
- Forecast demand for capital to support credit ratings and as a signaling tool to the market
- Available supply of capital and capital raising options

The Asset and Liabilities Management Committee ("ALCO") as appointed by Executive Committee ("EXCO") is responsible for the management of capital and liquidity and the establishment of and compliance with policies relating to balance sheet management, including management of the Bank's liquidity and capital adequacy.

3.1 Capital Structure

The Bank maintains capital to meet the minimum regulatory capital requirements set by the BOT. In addition the Bank assess its capital adequacy to support current and future business activities.

The following table is a breakdown of total regulatory capital of the Bank as at 31 December 2017, comparing with the position of the Bank as at 30 June 2017.

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Table 1: Capital Structure

Unit: Million Baht

	The Bank	
	31-Dec-17	30-Jun-17
Tier 1 Capital		
Paid up share capital	14,837	14,837
Share premium account	9,056	9,056
Legal reserve	1,096	1,096
Net profit after appropriation	13,202	13,202
Accummulated other comprehensive income	(9)	(48)
Item of reserve arising from business combination under common control, shareholders' equity which shall be regarded as CET 1	-	-
Other adjustment items which not effected capital fund	-	11
Deductions from Common Equity Tier 1	(297)	(960)
Total Common Equity Tier 1 (CET1)	**37,885**	**37,194**
Additional Tier 1 (AT1)	-	-
Total Tier 1 Capital	**37,885**	**37,194**
Tier 2 Capital		
General Provision for normal/performing loans	52	76
Surplus of provision	397	563
Total Tier 2 Capital	**449**	**639**
Total Regulatory Capital	**38,334**	**37,833**

3.2 Capital Sources

The Bank's Tier 1 Capital consist of Common Equity Tier 1 which are issued and paid up share capital & premium, statutory reserve, net profit after appropriation and other comprehensive income & regulatory adjustment. There is no additional tier 1.

The Bank's Tier 2 Capital comprise of the general provision for normal performing loans and surplus of provision.

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Table 2: Reconciliation of Regulatory Capital to Financial Statement

Unit: Million Baht

Capital related items as of 31 December 2017	Statement of Financial Position as in published financial statements	Statement of Financial Position as per Balance Sheet	References
Assets			
Cash	121	121	
Interbank and money market items, net	51,936	51,936	
Derivative assets	15,275	15,275	
Investments, net	36,687	36,687	
Investments in subsidiaries	48	48	
Loans to customers and accrued interest receivable, net			
Loans to customers	49,272	49,272	
Accrued interest receivable	167	167	
Total loans to customers and accrued interest Receivable	49,439	49,439	
Less allowance for doubtful accounts	(3,768)	(3,768)	
Total loans to customers and accrued interest receivable, net	45,671	45,671	
Customer's liability under acceptances	780	780	
Properties for sale, net	-	25	
Premises and equipment, net	336	336	
Deferred tax assets	297	297	G
Accounts receivable from sales of investments and debt securities in issue	295	295	
Collateral from Credit Support Annex agreements and margin receivables from private repo transactions	3,433	3,433	
Assets of disposal group classified as held for sales	25	-	
Other assets, net	417	417	
Total assets	**155,321**	**155,321**	

Unit: Million Baht

Capital related items as of 31 December 2017	Statement of Financial Position as in published financial statements	Statement of Financial Position as per Balance Sheet	References
Liabilities			
Deposits	56,259	56,259	
Interbank and money market items	32,197	32,197	
Liabilities payable on demand	1,544	1,544	
Liabilities to deliver security	1,426	1,426	
Derivative liabilities	13,517	13,517	
Debt issued and borrowings	-	-	
Bank's liability under acceptances	780	780	
Provisions	278	278	
Accounts payable from purchase of investments	2,372	2,372	
Collateral from Credit Support Annex agreements and margin payables from private repo transactions	3,075	3,075	
Accrued expenses	2,129	2,129	
Liabilities of disposal group classified as held for sales	-	-	
Other liabilities	1,154	1,154	
Total liabilities	**114,731**	**114,731**	

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Unit: Million Baht

Capital related items as of 31 December 2017	Statement of Financial Position as in published financial statements	Statement of Financial Position as per Balance Sheet	References
Equity			
Share capital			
Authorised share capital	14,843	14,843	
Issued and paid-up share capital	14,837	14,837	A
Premium on share capital	9,056	9,056	B
Other reserves			
Fair value change in available -for-sale investments	(11)	(11)	E[/1]
Cash flow hedges	-	-	F
Total other reserves	(11)	(11)	
Retained earnings			
Appropriated			
Legal reserve	1,212	1,212	C[/2]
Unappropriated			
Unappropriated retained earnings	2,228	2,228	
Net profit after appropriation	13,268	13,268	D
Actuarial gain (loss) on defined benefit plans	-	-	H
Total Unappropriated	15,496	15,496	
Total shareholders' equity	**40,590**	**40,590**	
Non-controlling interest	-	-	
Total equity	**40,590**	**40,590**	
Total liabilities and equity	**155,321**	**155,321**	

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Unit: Million Baht

Items	Component of regulatory capital reported by Financial Group	References base on Statement of Financial Position as per Balance Sheet
Common Equity Tier 1 Capital (CET1)		
Issued and paid-up share capital	14,837	A
Premium on share capital	9,056	B
Legal reserve	1,096	C[/2]
Net profit after appropriation	13,202	D
Other reserves		
Fair value change in available -for-sale investments	(9)	E[/1]
Cash flow hedges	-	F
Other owner changes items	-	
Total CET1 capital before regulatory adjustments and deduction	38,182	
Regulatory adjustments on CET1		
Cash flow hedges	-	F
Regulatory deduction on CET1		
Deferred tax assets	(297)	G
Actuarial gain (loss) on defeined benefit plans	-	H
Total Common Equity Tier 1 (CET1)	37,885	
Additional Tier 1 (AT1)	-	
Total Tier 1 capital	**37,885**	
Tier 2 Capital		
General Provision under SA	52	
Surplus of provision (Excess Provision)	397	
Total Tier 2 capital	**449**	
Total Regulatory capital	**38,334**	

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Table 3: Basel III Capital during transitional period

Unit: Million Baht

Capital Amount as at 31 December 2017	The Bank: Capital value	The Bank: Net value of items with transitional phase subject to Basel III
Common Equity Tier 1 Capital	38,182	(2)[1/]
Total regulatory adjustments to CET1	-	
Total regulatory deduction to CET1	(297)	
Total Common Equity Tier 1 Capital (CET1)	**37,885**	
Additional Tier 1 Capital (AT1)	-	
Total Tier 1 Capital	**37,885**	
Tier 2 Capital	**449**	
Total Regulatory Capital	**38,334**	

[1/] From 1 January 2014, gain/(loss) from fair value change in available -for-sale investments shall be gradually included in/(deducted from) CET1 for 5 years by 20%, 40%, 60%, 80% and 100%. And after 2018, it shall be included in/(deducted from) CET 1 for the whole amount.

[2/] The Bank will allocate 5% of the annual net profit of the year net with accumulated loss brought forward to the legal reserve until this fund attains an amount not less than 10% of the registered capital, as a result, the amount of Baht 116 million will be allocated from 2017 net profit and such balance will be appropriated to CET 1 Capital after the shareholder meeting approval.

3.3 Capital Adequacy

Under the BOT guidelines, the Bank is required to maintain a minimum ratio of total capital to risk weighted assets of 8.50%, with the minimum ratio of Common Equity Tier 1 and tier 1 capital to risk weighted assets at 4.50% and 6.00%, respectively.

Total Capital Adequacy Ratios of the Bank as at 31 December 2017 was 36.71%. CET1 Ratios was 36.28% and Tier 1 Capital Ratios was 36.28% which exceeded minimum requirements of the BOT.

Table 4: Capital Adequacy

Unit: Percent

	BOT Minimum Requirement	The Bank	
		31-Dec-17	**30-Jun-17**
Total capital funds to risk weighted assets	8.50	36.71	27.92
Common Equity Tier 1 capital funds to risk weighted assets	4.50	36.28	27.45
Tier 1 capital funds to risk weighted assets	6.00	36.28	27.45
Capital conservation buffer (CCB) [1/]	1.25		
Total capital funds to risk weighted assets, including CCB[1/]	9.75	36.71	27.92

[1/] From 1 January 2016, Capital conservation buffer under BOT guidelines shall be gradually added to minimum capital requirement by 0.625% per annum for 4 years. And after 1 January 2019, the minimum requirement plus conservation buffer for total capital ratio, CET 1 ratio, and Tier 1 capital ratio shall be 11%, 7%, and 8.5%, respectively.

3.4 Minimum Capital Requirement

The Bank maintains minimum capital in line with the BOT's requirement. On 22 December 2016, the Bank has reached a binding agreement to sell retail banking business including credit cards, personal loans, business loans, wealth management, mortgage loans, bancassurance, and retail deposits. The transaction was completed on 1 October 2017.

Table 5 shows the breakdown of minimum capital requirement for Credit Risk, Market Risk and Operational risk of the Bank as at 31 December 2017.

Table 5: Minimum Capital Requirement

Unit: Million Baht

Minimum Capital	The Bank	
	31-Dec-17	**30-Jun-17**
Credit Risk	5,972	8,496
Market Risk	1,670	1,649
Operational Risk	1,234	1,372
Total Minimum Capital Requirements	**8,876**	**11,517**

AIRB Adoption

The Bank uses AIRB approach to calculate credit risk for material portfolios whilst SA approach is applied to portfolios that are classified as permanently exempt from the AIRB approach as well as those portfolios that are currently under transition to the AIRB approach.

The following tables show Minimum Capital Requirement for Credit Risk Classified by Asset Classes under AIRB (table 6), Minimum Capital Requirement for Credit Risk Classified by Asset Classes under SA (table 7) and Minimum Capital Requirement for Equity Exposure under AIRB (table 8).

Table 6: Minimum Capital Requirement for Credit Risk Classified by Asset Classes under AIRB

Unit: Million Baht

Asset Class	The Bank	
	31-Dec-17	**30-Jun-17**
Non-Default exposures		
Claims on sovereigns, financial institutions and Corporates	5,517	5,944
Claims on retail portfolios		
-Claims on residential mortgage	-	603
-Qualifying revolving retail exposures	-	768
-Other retail exposures	-	379
Equity exposures	5	5
Other assets	61	68
Default exposures	38	216
First-to-default credit derivatives and Securitisation	**-**	**-**
Total minimum capital requirement for credit risk – AIRB	**5,621**	**7,983**

Minimum capital requirement for credit risk under AIRB for the Bank decreased by THB 2,362 million, mainly due to decrease in retail banking business from discontinued operation.

Table 7: Minimum Capital Requirement for Credit Risk Classified by Asset Classes under SA

Unit: Million Baht

Asset Class	The Bank	
	31-Dec-17	30-Jun-17
Non-Default exposures		
Claims on sovereigns and central banks, MDBs and PSEs treated as claims on sovereigns	-	-
Claims on financial institutions, PSEs treated as claims on financial institutions, and securities firms	-	-
Claims on corporates, PSEs treated as claims on corporate	346	177
Claims on retail portfolios	-	330
Claims on residential mortgage	-	1
Other assets	-	-
Default exposures	5	5
First-to-default credit derivatives and Securitisation	-	-
Total minimum capital requirement for credit risk – SA	**351**	**513**

Note: PSE is non-central government public sector entities

Total minimum capital requirement for credit risk under SA approach for the Bank also decreased by THB 162 million, mainly due to decrease in retail banking business from discontinued operation.

Table 8: Minimum Capital Requirement for Equity Exposure under AIRB

Unit: Million Baht

Item	The Bank	
	31-Dec-17	30-Jun-17
Equity exposure exempted from credit risk calculation by IRB	5	5
Equity exposure subject to the IRB approach		
1. Equity holdings subject to the Market-based approach		
1.1 Simple Risk Weight Approach	-	-
1.2 Internal Model Approach (for equity exposure in non-trading book (banking book))	-	-
2. Equity holdings subject to a PD/LGD approach	-	-
Total minimum capital requirement for equity exposure – AIRB	**5**	**5**

Total minimum capital requirement for equity exposure under AIRB approach for the Bank remained constant.

4. Risk Management

The management of risk lies at the heart of the Bank's business. All risk types, both financial and non-financial are managed and reported in accordance with the Risk Management Framework. One of the main risks incur arises from extending credit to customers through trading and lending operations. Beyond credit risk, the Bank is also exposed to a range of other risk types such as country cross border, market, liquidity, capital, operational, pension, reputational and other risks that are inherent to the Bank's strategy and its product range.

4.1 Risk Management Framework ("RMF")

Effective risk management is essential to consistent and sustainable performance for all of stakeholders and is therefore a central part of the financial and operational management of the Bank. The bank adds value to clients and therefore the communities in which they operate, generating returns for shareholders by taking and managing risk.

Through our Risk Management Framework, the Bank manages enterprise-wide risks, with the objective of maximising risk-adjusted returns while remaining in compliance with the SCB Group's Risk Appetite Statement as a starting base for SCBT Risk Threshold Statement.

As part of this framework, the Bank has obtained its Board approval to apply SCB Group Risk Management Framework as follows:

Balancing risk and return

- We manage our risks to build a sustainable franchise, in the interests of all our stakeholders
- We only take risk within our risk appetite, and where consistent with our approved strategy
- We manage our risk profile so as to maintain a low probability of an unexpected loss event that would materially undermine the confidence of our investors

Conduct of business

- We demonstrate we are Here for good through our conduct, and are mindful of the reputational consequences of inappropriate conduct
- We seek to achieve good outcomes for clients, investors and the markets in which we operate, while abiding by the spirit and letter of laws and regulations
- We treat our colleagues fairly and with respect

Responsibility and accountability

- We take individual responsibility to ensure risk-taking is disciplined and focused, particularly within our area of authority
- We make sure risk-taking is transparent, controlled and reported in line with the Risk Management Framework, within risk tolerance boundaries and only where there is appropriate infrastructure and resource

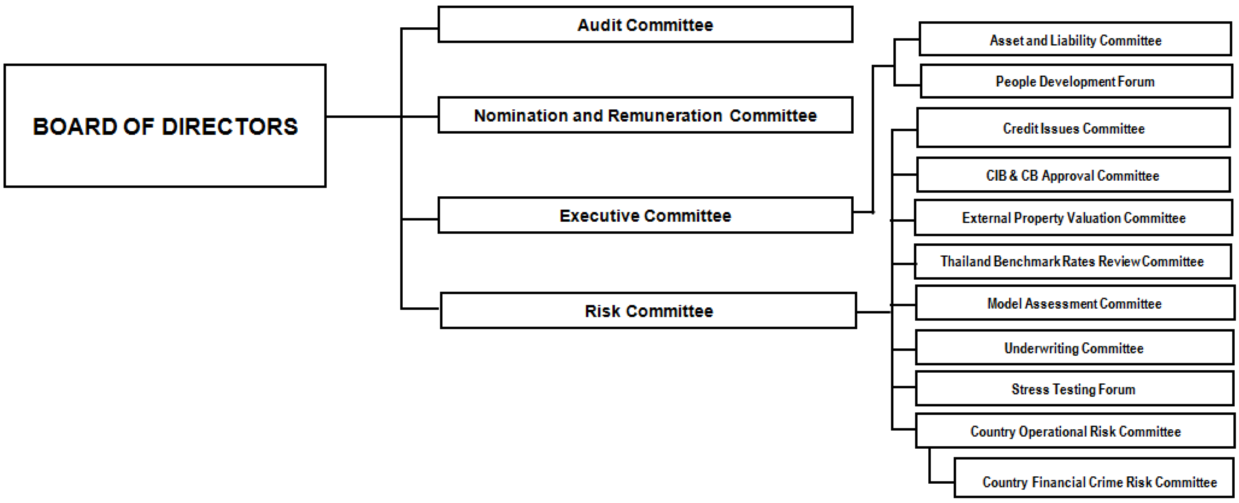
Anticipation

- We seek to anticipate material future risks, learn lessons from events that have produced adverse outcomes and ensure awareness of known risks

Competitive advantage

- We seek to achieve competitive advantage through efficient and effective risk management and control

The following diagram illustrates the high level risk committee structure:



4.2 Risk Governance

Ultimate responsibility for setting the Bank's risk appetite statement and for the effective management of risk rests with the Board. The Board delegates the authority for the management of risks to several committees.

The Executive Committee ("EXCO") is responsible for the day to day management, operation and control of the Bank in conformity with policies and strategies approved by the Board of Directors. The EXCO is chaired by the CEO and comprises senior executives from Global Banking, Commercial Banking, Financial Markets, Transaction Banking, Risk Management, Information Technology and Operations, Finance, Human Resources, Chief Operating Officer and Compliance.

The Asset & Liability Committee ("ALCO") ensures that the balance sheet of the Bank are managed in accordance with the policies of Standard Chartered Bank Group adopted by the Bank and any other applicable regulatory requirements relating to management of liquidity, capital adequacy and structural market risks.

The Risk Committee ("RC")'s main responsibilities are to provide leadership on forward looking and anticipated risk issues covering strategic risk, operational risk, credit risk, market risk, reputational risk, legal and regulatory risk, etc. The RC also supervises and directs the management of all risks within the Bank to be in accordance with standards of the Standard Chartered Group and policies as approved by SCBT's Board of Directors.

Roles and responsibilities for risk management are defined under a Three Lines of Defence model. Each line of defence describes a specific set of responsibilities for risk management and control.

The first line of defence is that all employees are required to ensure the effective management of risks within the scope of their direct organisational responsibilities. Business unit and function heads are accountable for risk management in their respective businesses and functions.

The second line of defence comprises the Risk Control Owners supported by their respective control functions. Risk Control Owners are responsible for ensuring that the residual risks within the scope of their responsibilities remain within risk appetite. The scope of each Risk Control Owner's responsibilities is defined by a given type of risk and is not constrained by function and business. The second line control functions must be independent of the businesses they control, to ensure that the risk types are defined as mentioned above.

The third line of defence is the independent assurance provided by the Internal Audit function. Its role is defined and overseen by the Audit Committee of the Board.

The Internal Audit provides independent assurance of the effectiveness of management's control of its own business activities (the first line) and of the processes maintained by the Risk Control Function (the second line). As a result, the Internal Audit provides assurance that the overall system of control effectiveness is working as required within the Risk Management Framework.

The Risk Function

The Country Chief Risk Officer ("CRO") directly manages a Risk function that is separated and independent from the origination, trading and sales functions of the businesses. The CRO also alternate chairs the RC and is a member of EXCO.

The roles of the Risk function are:

- To maintain the Bank's Risk Management Framework, ensuring it remains appropriate to the Bank's activities, is effectively communicated and implemented across the Bank, and to administer related governance and reporting processes
- To uphold the overall integrity of the Bank's risk/ return decisions, and in particular ensure that risks are properly assessed, that risk/return decisions are made transparently on the basis of this proper assessment, and controlled in accordance with the Bank's standard and risk appetite
- To exercise direct risk control ownership for credit, market, country cross-border, and operational risk types

The independence of the Risk function is to ensure that the necessary balance in risk/ return is not compromised by short-term pressures to generate revenues. This is particularly important given that revenues are recognized from the point of sales, while losses arising from risk positions typically manifest themselves over time.

In addition, the Risk function is a centre of excellence that provides specialist capabilities of relevance to risk management processes in the wider organization

5. Credit Risk

5.1 Credit Risk

Credit risk is the potential for loss due to the failure of a counterparty to meet its obligations to pay the Bank in accordance with agreed terms. Credit exposures arise from both the non-trading (banking) and trading books.

Credit risk is managed through a framework that sets out policies and procedures covering the measurement and management of credit risk. There is a clear segregation of duties between transaction originators in the businesses and approvers in the Risk function. All credit exposure limits are approved within a defined credit approval authority framework. The Bank manages its credit exposures following the principle of diversification across products, industries, collateral types and client segments.

Credit Policies

The Bank’s credit policies and standards are considered and approved by the Board. The RC oversees the delegation of credit approval and loan impairment provisioning authorities.
Policies and procedures specific to each client or product segment are established by authorised risk committees within Corporate and Institutional Banking (“CIB”) and Commercial Banking (“CB”). These are consistent with the SCB Group’s credit policies, but are more detailed and adapted to

reflect the different risk characteristics across client and product segments. Policies are regularly reviewed and monitored to ensure these remain effective and consistent with the risk environment and risk appetite.

Credit Rating and Measurement

Risk measurement plays a central role, along with judgment and experience, in informing risk taking and portfolio management decisions.

A standard alphanumeric credit risk grade ("CG") system is used in CIB and CB.

The numeric grades run from 1 to 14 and some of the grades are further sub-classified A, B or C. Lower credit grades are indicative of a lower likelihood of default. Credit grades 1 to 12 are assigned to performing customers or accounts, while credit grades 13 and 14 are assigned to non-performing or defaulted customers.

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

Material IRB risk measurement models are approved by RC, on the recommendation of the Model Assessment Committee ("MAC"). The MAC drew authority from RC in ensuring risk identification and measurement capabilities are objective and consistent, so that risk control and risk origination decisions are properly informed. Prior to review by the MAC, all IRB models are validated in detail by a model validation team of Standard Chartered Bank Group which is separated from the teams that develop and maintain the models. Models undergo annual periodic review. Reviews are also triggered if the performance of a model deteriorates materially against predetermined thresholds during the ongoing model performance monitoring process.

Credit Approval and Credit Risk Assessment

Major credit exposures to individual counterparties and groups of connected counterparties are reviewed and approved by Corporate and Institutional Banking and Commercial Banking Approval Committee (“CIB & CB AC”), which obtains approval delegation from RC.

The RC delegates credit approval authorities to individuals based both on their judgment and experience. These individuals further delegate credit authorities to individual credit officers by applying RC approved delegated Credit Authorities matrices by customer type or portfolio. These matrices establish the maximum limits that the delegated credit officers are authorized to approve, based on risk-adjusted scale that takes account of the estimated maximum expected loss from a given customer or portfolio. The individuals delegating the credit authorities perform oversight by reviewing on a monthly basis a sample of the limit applications approved by the delegated credit officers.

All credit proposals are subject to a robust credit risk assessment. It includes a comprehensive evaluation of the client’s credit quality, including willingness, ability and capacity to repay. The primary lending consideration is based on the client’s credit quality and the repayment capacity from operating cashflows for counterparties. The risk assessment gives due consideration to the client’s liquidity and leverage position. Where applicable, the assessment includes a detailed analysis of the credit risk mitigation arrangements to determine the level of reliance on such arrangements as the secondary source of repayment in the event of a significant deterioration in a client’s credit quality leading to default. Lending activities that are considered as higher risk or non-standard are subject to stricter minimum requirements and require escalation to a senior credit officer or authorised body.

Concentration Risk

Credit concentration risk may arise from a single large exposure to a counterparty or groups of connected counterparties, or from multiple exposures across the portfolio that are closely correlated.

Large exposure concentration risk is managed through concentration limits set by counterparty or group of connected counterparties based on control and economic dependence criteria.

At the portfolio level, credit concentration thresholds are set and monitored to control concentrations, where appropriate, by country, industry, tenor, collateralization level and credit risk profile.

Credit concentrations are monitored by the responsible risk committees in each of the businesses and concentration limits that are material to the Bank are reviewed and reported at least annually to RC and SCBT Board.

Credit Monitoring

The Bank regularly monitor credit exposures, portfolio performance, and external trends that may impact risk management outcomes.

Internal risk management reports are presented to RC, containing information on key environmental, political and economic trends; portfolio delinquency and loan impairment performance.

CIB & CB AC is a subcommittee of RC. CIB & CB AC meets regularly to assess the impact of external events and trends on the CIB & CB AC credit risk portfolio and to define and implement the response in terms of appropriate changes to portfolio shape, portfolio and underwriting standards, risk policy and procedures.

Clients or portfolios are placed on early alert when they display signs of actual or potential weakness, for example, where there is a decline in the client's position within the industry, financial deterioration, a breach of covenants, non-performance of an obligation within the stipulated period, or there are concerns relating to ownership or management.

Such accounts and portfolios are subjected to a dedicated process overseen by Credit Issue Committees in the Bank. Client account plans and credit grades are re-evaluated. In addition, remedial actions are agreed and monitored. Remedial actions include, but are not limited to, exposure reduction, security enhancement, exiting the account or immediate movement of the account into the control of Group Special Assets Management ("GSAM"), the Bank's specialist recovery unit.

The Small and Medium Enterprise ("SME") business is managed within Medium Enterprises ("ME")/ High Value Small Business ("HVSB") sub-segment under Commercial Banking ("CB") segment. ME/ HVSB are managed through the Discretionary Lending approach, in line with CB procedures.

Traded products

The credit risk exposure from traded products is derived from the positive mark-to-market value of the underlying instruments, and an additional component to cater for potential future market movements. This counterparty credit risk is managed within the Bank's overall credit risk appetite for corporate and financial institutions and relies on various single and multi-risk factor stress test scenarios to identify and manage counterparty credit risk across derivatives and securities financing transactions.

The Bank uses bilateral and multilateral netting to reduce pre-settlement and settlement counterparty credit risk. Pre-settlement risk exposurs are normally netted using bilateral netting documentation in legally approved jurisdictions. Settlement exposures are generally netted using Delivery versus Payments or Payment versus Payments systems. For derivative contracts, the Bank limits exposure to credit losses in the event of default by entering into master netting agreements with certain counterparties.

In addition, the Bank enters into Credit Support Annexes ("CSA") with counterparties where collateral is deemed a necessary or desirable mitigant to the exposure.

Securities

Within CIB & CB, the Underwriting Committee approves the portfolio limits and parameters for the underwriting and purchase of all pre-defined securities assets to be held for sale. The Underwriting Committee is established under the authority of the RC. CIB & CB clients operate within set limits, which include country, single issuer, holding period and credit grade limits.

The Underwriting Committee approves individual proposals to underwrite new security issues for our clients. Where an underwritten security is held for a period longer than the target sell-down period, the final decision on whether to sell the position rests with the Risk function.

As part of the trading business in SCBT, government securities are traded on a day-to-day basis. This activity is governed by the local limits that are approved and is being monitored daily. Currently, buying and selling of non-government securities is done on a back-to-back basis and trading of non-government securities will commence once local limit monitoring framework is in place. Issuer credit risk, including settlement and pre-settlement risk, is controlled by CIB & CB Risk, while price risk is controlled by Market Risk.

Tables 9 to 16 belows show outstanding balance of On-balance and Off-balance sheet assets before taking the effect of Credit Risk Mitigation into account. The outstanding is presented in different aspects, for instance, as classified by country or geographic area of debtor. The loan and investment in debt securities, as well as their respective provision and charge-off amounts are also illustrated.

Table 9: Outstanding Balance of On-Balance Sheet and Off-Balance Sheet Assets before Credit Risk Mitigation

Unit: Million Baht

Item	The Bank	
	31-Dec-17	31-Dec-16
1. On Balance sheet assets		
1.1 Net loans[1/] (including interbank and money market item)	89,375	109,788
1.2 Net investment in debt securities [2/]	18,351	27,730
1.3 Deposits (including accrued interests)	9,459	21,698
2. Off Balance sheet assts [3/]		
2.1 Aval of bills, loan guarantees, and letters of credit	870	1,274
2.2 OTC derivatives [4/]	1,185,238	1,348,593
2.3 Undrawn committed line	9,411	10,344
2.4 Repo-style transaction	1,212	314

[1/] Including accrued interests and net of deferred revenues, allowances for doubtful accounts (specific provisions) and revaluation allowances for debt restructuring.

[2/] Excluding accrued interests and net of revaluation allowances for equity and impairment allowances for equities.

[3/] Before applying credit conversion factor (CCF)

[4/] Including equity derivatives

Table 10: Outstanding balance of On-balance sheet and Off-balance sheet assets before Credit Risk Mitigation Classified by Country or Geographic Area of Debtor

The Bank

Unit: Million Baht

31-Dec-17

Item	Thailand	Asia Pacific (exclude Thailand)	North America & Latin	Africa & Middle East	Europe	Total
On-balance sheet items						
Net loans[1/]	71,321	10,243	833	59	6,919	89,375
Net Investment in debt securities[2/]	18,351	-	-	-	-	18,351
Deposits (including accrued interests)	1,244	5,053	2	2,960	200	9,459
Total	**90,916**	**15,296**	**835**	**3,019**	**7,119**	**117,185**
Off-balance sheet items [3/]						
Aval of bills, guarantees, and letters of credit	677	186	-	7	-	870
OTC derivatives	609,947	173,840	98,816	-	302,635	1,185,238
Undrawn committed line	6,706	-	2,533	-	172	9,411
Repo-style transaction	-	-	1,212	-	-	1,212
Total	**617,330**	**174,026**	**102,561**	**7**	**302,807**	**1,196,731**

The Bank

Unit: Million Baht

31-Dec-16

Item	Thailand	Asia Pacific (exclude Thailand)	North America & Latin	Africa & Middle East	Europe	Total
On-balance sheet items						
Net loans[1/]	99,564	4,233	1,254	3,629	1,108	109,788
Net Investment in debt securities[2/]	26,203	-	-	-	1,527	27,730
Deposits (including accrued interests)	1,176	7,301	2	5,404	7,815	21,698
Total	**126,943**	**11,534**	**1,256**	**9,033**	**10,450**	**159,216**
Off-balance sheet items [3/]						
Aval of bills, guarantees, and letters of credit	954	253	16	31	20	1,274
OTC derivatives	668,724	139,811	125,016	-	415,042	1,349,593
Undrawn committed line	9,591	-	753	-	-	10,344
Repo-style transaction	-	-	314	-	-	314
Total	**679,269**	**140,064**	**126,099**	**31**	**415,062**	**1,360,525**

[1/] Including accrued interests and net of deferred revenues, allowances for doubtful accounts (specific provisions) and revaluation allowances for debt restructuring, interbank and money market items.

[2/] Excluding accrued interests and net of revaluation allowances for equity and impairment allowances for equities.

[3/] Before applying credit conversion factor (CCF)

Table 11: Outstanding Balance of On-Balance Sheet and Off-Balance Sheet Assets before Credit Risk Mitigation Classified by Residual Maturity

The Bank

Unit: Million Baht

Item	31-Dec-17			31-Dec-16		
	Maturity ≤ 1 year	Maturity > 1 year	Total	Maturity ≤ 1 year	Maturity > 1 year	Total
1. On Balance sheet assets	**79,569**	**37,616**	**117,185**	**88,133**	**71,083**	**159,216**
1.1 Net loans[1/] (including interbank and money market item)	70,285	19,090	89,375	64,964	44,824	109,788
1.2 Net investment in debt securities[2/]	152	18,199	18,351	1,829	25,900	27,729
1.3 Deposits (including accrued interests)	9,132	327	9,459	21,340	359	21,699
2. Off Balance sheet assts[3/]	**555,260**	**641,471**	**1,196,731**	**589,998**	**770,527**	**1,360,525**
2.1 Aval of bills, loan guarantees, and letters of credit	868	2	870	1,274	-	1,274
2.2 OTC derivatives[4/]	548,662	636,576	1,185,238	585,231	763,363	1,348,594
2.3 Undrawn committed line	4,518	4,893	9,411	3,179	7,164	10,343
2.4 Repo-style transaction	1,212	-	1,212	314	-	314

1/ Including accrued interests and net of deferred revenues, allowances for doubtful accounts (specific provisions) and revaluation allowances for debt restructuring.

2/ Excluding accrued interests and net of revaluation allowances for equity and impairment allowances for equities.

3/ Before applying credit conversion factor (CCF)

4/ Including equity derivatives

Outstanding Balance of On-Balance Sheet and Off-Balance Sheet Assets before Credit Risk Mitigation are classified by residual maturity. Approximately 52 percent of the Bank's total outstanding balance is the long term, having residual maturity of more than one year.

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Table 12: Loans and Accrued Interests and Investments in Debt Securities before Credit Risk Mitigation Classified by Country or Geographic Area of Debtor and by Asset Classification Specified by the Bank of Thailand

The Bank

Unit: Million Baht

31-Dec-17

Country or geographic area of debtor	Loans and accrued interests 1/						Investment in debt securities
	Normal	Special mentioned	Sub standard	Doubtful	Doubtful loss	Total	Doubtful loss
1. Thailand	71,111	118	-	-	2,564	**73,793**	92
2. Asia Pacific (exclude Thailand)	10,243	-	-	-	-	**10,243**	-
3. North America & Latin	833	-	-	-	-	**833**	-
4. Africa & Middle East	60	-	-	-	-	**60**	-
5. Europe	6,919	-	-	-	-	**6,919**	-
Total	**89,166**	**118**	**-**	**-**	**2,564**	**91,848**	**92**

The Bank

Unit: Million Baht

31-Dec-16

Country or geographic area of debtor	Loans and accrued interests 1/						Investment in debt securities
	Normal	Special mentioned	Sub standard	Doubtful	Doubtful loss	Total	Doubtful loss
1. Thailand	97,224	1,219	423	102	5,941	**104,909**	360
2. Asia Pacific (exclude Thailand)	4,233	-	-	-	-	**4,233**	-
3. North America & Latin	1,254	-	-	-	-	**1,254**	-
4. Africa & Middle East	3,629	-	-	-	-	**3,629**	-
5. Europe	1,108	-	-	-	-	**1,108**	-
Total	**107,448**	**1,219**	**423**	**102**	**5,941**	**115,133**	**360**

[1/] Including loans and accrued interest receivables of interbank and money market item

The outstanding of Loans and accrued interest and investment in Debt securities is broken down by the booking location of the exposure. Majority of the Bank's exposure are domestic loans (80 percent of total exposure).

Standard Chartered Bank (Thai) PCL

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Table 13: Provisions (Divided into General Provisions and Specific Provision) and Charge-offs for Loans and Accrued Interests and Investments in Debt Securities Classified by Country or Geographic Area

The Bank

Unit: Million Baht
31-Dec-17

Country or geographic area of debtor	Loans and accrued interests [1/]			Investment in debt securities Doubtful loss
	General provision	Specific provision	Charge-off between period	
1. Thailand		2,473	769	92
2. Asia Pacific (exclude Thailand)		-	-	-
3. North America & Latin		-	-	-
4. Africa & Middle East		-	-	-
5. Europe		-	-	-
Total	**1,338**	**2,473**	**769**	**92**

The Bank

Unit: Million Baht
31-Dec-16

Country or geographic area of debtor	Loans and accrued interests [1/]			Investment in debt securities Doubtful loss
	General provision	Specific provision	Charge-off between period	
1. Thailand		5,345	1,861	360
2. Asia Pacific (exclude Thailand)		-	-	-
3. North America & Latin		-	-	-
4. Africa & Middle East		-	-	-
5. Europe		-	-	-
Total	**2,945**	**5,345**	**1,861**	**360**

[1/] Including loans and accrued interest receivables of interbank and money market item

The Bank's provision of THB 3,811 million as of December 2017 comprising of general provision with amount THB 1,338 million and specific provision with amount THB 2,473 million. The Bank also have charge-off item and allowance for investment in debt instruments at amount of THB 769 million and THB 92 million, respectively.

The following tables present the amount of loans and accrued interest and provision classified by business together with movement of the Bank's provision.

Table 14: Loans and Accrued Interests before Credit Risk Mitigation Classified by Type of Business and by Asset Classification Specified by the Bank of Thailand

The Bank

Unit: Million Baht
31-Dec-17

Type of business	Normal	Special mentioned	Sub standard	Doubtful	Doubtful loss	Total
Agriculture and Quarry	1,016	-	-	-	-	**1,016**
Manufacturing and Commerce	24,332	118	-	-	2,564	**27,014**
Commercial real estate and Construction	7,180	-	-	-	-	**7,180**
Public utility and Service	8,030	-	-	-	-	**8,030**
Residential real estate	-	-	-	-	-	**-**
Others	48,608	-	-	-	-	**48,608**
Total	**89,166**	**118**	**-**	**-**	**2,564**	**91,848**

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The Bank

Unit: Million Baht
31-Dec-16

Type of business	Normal	Special mentioned	Sub standard	Doubtful	Doubtful loss	Total
Agriculture and Quarry	1,045	-	-	-	-	**1,045**
Manufacturing and Commerce	27,297	314	89	4	4,640	**32,344**
Commercial real estate and Construction	1,292	29	4	-	9	**1,334**
Public utility and Service	7,987	17	8	-	51	**8,063**
Residential real estate	20,966	404	159	70	554	**22,153**
Others	48,861	455	163	28	687	**50,194**
Total	**107,448**	**1,219**	**423**	**102**	**5,941**	**115,133**

Table 15: Provisions (Divided into General Provisions and Specific Provision) and Charge-offs for Loans and Accrued Interests Classified by Type of Business

The Bank

Unit: Million Baht

Type of business	31-Dec-17			31-Dec-16		
	General provision	Specific provision	Charge-off between period	General provision	Specific provision	Charge-off between period
Agriculture and Quarry		-	-		-	1
Manufacturing and Commerce		2,473	116		4,447	312
Commercial real estate and Construction		-	13		22	65
Public utility and Service		-	22		43	57
Residential real estate		-	-		216	91
Others		-	618		617	1,335
Total	**1,338**	**2,473**	**769**	**2,945**	**5,345**	**1,861**

Table 16: Movement in Provisions for Loans including Accrued Interests*

The Bank

Unit: Million Baht

Item	31-Dec-17			31-Dec-16		
	General provision	Specific provision	Total	General provision	Specific provision	Total
Provisions at the beginning of the period	2,945	5,345	8,290	2,797	6,545	9,342
Charge-offs during the period	-	(769)	(769)	-	(1,861)	(1,861)
Increases of provisions during the period	(1,607)	(2,103)	(3,710)	148	661	809
Other provisions (provisions for losses from foreign exchange, provisions for merger and sale of business)	-	-	-	-	-	-
Provisions at the end of period	**1,338**	**2,473**	**3,811**	**2,945**	**5,345**	**8,290**

* Including loans and accrued interests of interbank and money market item

5.2 Internal Ratings Based Approach to Credit Risk

The Bank uses the AIRB approach to manage credit risk for the majority of its portfolios. This allows the Bank to use its own internal estimates of Probability of Default (“PD”), Loss Given Default (“LGD”) Exposure at Default (“EAD”) and Credit Conversion Factor (“CCF”) to determine an asset risk weighting. The IRB models cover 94.12 percent of the Bank‘s credit risk RWA (2016: 81.38 percent). The Bank also applied the Standardised Approach to portfolios that are currently being transitioned to the IRB approach in accordance with the Standard Chartered Bank Group roll out plan.

PD is the likelihood that an obligor will default on an obligation within 12 months. The Bank must produce an internal estimate of PD for all borrowers in each borrower grade. EAD is the expected amount of exposure to a particular obligor at the point of default. CCF is an internally modeled parameter based on historical experience to determine the amount that is expected to be further drawn down from the undrawn portion in a committed facility. LGD is the percentage of EAD that a lender expects to lose in the event of obligor default, EAD/CCF and LGD are measured based on expectation in economic downturn periods.

All assets under the AIRB approach have sophisticated PD, LGD and EAD/CCF models developed to support the credit decision making process. RWA under the AIRB approach is determined by regulatory specified formulae dependent on the Bank’s estimates of residual maturity PD, LGD, and EAD. The development, use and governance of models under the AIRB approach is covered in more detail in section 5.5 Internal Ratings Based models.

Table 17: Outstanding of On-Balance Sheet Assets and Off-Balance Sheet Items* for Credit Risk under the AIRB Approach Classified by Type of Asset

The Bank

Unit: Million Baht

Type of asset	31-Dec-17			31-Dec-16		
	On-balance sheet asset	Off-balance sheet asset**	Total	On-balance sheet asset	Off-balance sheet asset**	Total
1. Non-defaulted assets						
1.1 Claims on sovereigns, banks, and corporate	112,186	55,953	168,139	113,776	68,008	181,784
1.2 Claims on retail portfolios						
1.2.1 Residential mortgage exposures	-	-	-	-	-	-
1.2.2 Qualifying revolving retail exposures	-	-	-	5,965	19,308	25,273
1.2.3 Other claims on retail portfolios	-	-	-	2,865	-	2,865
1.3 Equity exposures	66	-	66	62	-	62
1.4 Other assets	17,468	-	17,468	26,956	-	26,956
2. Defaulted assets	112	145	257	158	155	313
3. First-to-default credit derivatives and Securitisation	-	-	-	-	-	-
Total	**129,832**	**56,098**	**185,930**	**149,782**	**87,471**	**237,253**

* After credit conversion factor and specific provision

** Including Repo and Reverse Repo transactions

Table 18: Undrawn Lines after Multiplying by CCF and Exposure-weighted-average EAD for Credit Risk under the AIRB Approach Classified by Type of Asset

The Bank

Unit: Million Baht

Type of asset	31-Dec-17		31-Dec-16	
	Undrawn lines multiplied by CCF	Exposure-weighted average EAD	Undrawn lines multiplied by CCF	Exposure-weighted average EAD
Sovereigns, bank and corporate exposures *	491	25.00%	511	24.92%
Equity exposures under the PD/LGD method	-	-	-	-
Total	**491**	**25.00%**	**511**	**24.92%**

* Including purchased receivables

5.3 Standardised Approach to Credit Risk

For Sovereigns, Corporates and Institutions, external ratings are used to assign risk weights. These external ratings must come from BOT approved rating agencies, known as External Credit Assessment Institutions ("ECAI"); namely Moody's, Standard & Poor's and Fitch. The Bank uses ratings from these agencies as part of its day to day business. External ratings for the counterparty are determined as soon as a relationship is established and these ratings are tracked and kept updated.

The following major assets are applied for Standardised Approach:

1. Loans to ME/HVSB clients under CB
2. Receivable Services
3. Income-Producing Real Estate ("IPRE")

The Standardised Approach measures credit risk pursuant to fixed risk weights and is the least sophisticated of the capital requirement calculation methodologies under Basel III. The risk weight applied under the Standardised Approach is given by the BOT and is based on the asset class to which the exposure is assigned.

Table 19: Outstanding of On-Balance Sheet Assets and Off-Balance Sheet Items* for Credit Risk under the SA Approach Classified by Type of Asset

The Bank

Unit: Million Baht

Type of asset	31-Dec-17			31-Dec-16		
	On-balance sheet asset	Off-balance sheet asset**	Total	On-balance sheet asset	Off-balance sheet asset**	Total
1. ***Non-defaulted assets***						
1.1 Claims on sovereigns and central banks [1/]	-	499	499	-	455	455
1.2 Claims on banks and securities companies [2/]	-	-	-	-	-	-
1.3 Claims on corporate [3/]	8,362	377	8,739	6,668	266	6,934
1.4 Claims on retail portfolios	-	-	-	9,537	521	10,058
1.5 Residential mortgage exposures	-	-	-	21,895	13	21,908
1.6 Other assets	-	-	-	-	-	-
2. ***Defaulted assets*** [4/]	39	5	44	779	7	786
3. ***First-to-default credit derivatives and Securitisation***	-	-	-	-	-	-
Total	**8,401**	**881**	**9,282**	**38,879**	**1,262**	**40,141**

* After applying credit conversion factor and specific provision

** Including Repo and Reverse Repo transactions

1/ Including Claims on Multilateral development banks (MDBs), Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Sovereigns and Central Bank

2/ Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Financial Institutions

3/ Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Corporate

4/ Risk-weight (%) for unsecured portion is based on its provision reserved.

5.4 Credit Risk Mitigation

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

The Bank's credit policies set out the key considerations for eligibility, enforceability and effectiveness of credit risk mitigation arrangements.

The Bank has policies and procedures in place setting out the criteria for collateral to be recognised as a credit risk mitigant, including requirements concerning legal certainty, priority, concentration, correlation, liquidity and valuation parameters such as frequency of review and independence

Collateral

Collateral types that are eligible for risk mitigation include: cash; residential, commercial and industrial property; fixed assets such as motor vehicles, aircraft, plant and machinery; marketable securities; commodities; bank guarantees and letters of credit. The Bank also enters into collateralised reverse repurchase agreements.

Physical collateral, such as property, fixed assets and commodities, and financial collateral must be independently valued and an active secondary resale market must exist. The collateral must be valued prior to drawdown and regularly thereafter. The valuation frequency is at minimum annual and more frequent valuations are driven by the level of price volatility of each type of collateral and the nature of the underlying product or risk exposure.

For financial collateral to be eligible for recognition, the collateral must be sufficiently liquid, and its value over time sufficiently stable, to provide appropriate certainty as to the credit protection achieved. Risk mitigation benefits may be reduced or removed where the collateral value is not supported by a recent independent valuation.

Documentation must be held to enable the Bank to realise the collateral without the cooperation of the obligor in the event that this is necessary. For certain types of lending, typically mortgages or asset financing where a first charge over the risk mitigant must be attained, the right to take charge over physical assets is significant in terms of determining appropriate pricing and recoverability in the event of default. Physical collateral is required to be insured at all times against risk of physical loss or damage.

Collateral values are, where appropriate, adjusted to reflect, current market conditions, the probability of recovery and the period of time to realise the collateral in the event of liquidation. Stress tests are performed on changes in collateral values for key portfolios to assist senior management in managing the risks in those portfolios. The bank also seeks to diversify its collateral holdings across asset classes and markets.

Where guarantees, credit insurance or credit derivatives are used as Credit Risk Mitigation ("CRM"), the creditworthiness of the protection provider is assessed and monitored using the same credit approval process applied to the obligor. The main types of guarantors include bank guarantees, insurance companies, parent companies, governments and export credit agencies.

5.5 Internal Rating Based Models

Model Governance

The AIRB models used by the Bank calculate a conservative Probability of Default ("PD"), Loss Given Default ("LGD") and Exposure at Default ("EAD"), as borne out by the model performance data contained in this section. The product of this is a conservative view of Regulatory Expected Loss, which is considered necessary for the prudent calculation of regulatory capital.

Models are developed by Standard Chartered Bank Group Risk Measurement Teams within the CIB & CB Risk function. The model development process is conducted and documented in line with specific criteria setting out the minimum standards for model development. All AIRB models developed by Standard Chartered Bank Group are validated annually by a model validation team reporting to Standard Chartered Bank Group Chief Credit Officer, thereby maintaining independence from the model build processes. Model validation findings are presented to Standard Chartered Bank Group ("SCB Group"). Model Assessment Committee which in turn makes approval recommendations to the SCB Group Risk Committees. These decision making bodies are comprised of divisional senior management whose role is to challenge model assumptions and performance and agree on appropriate model use for business decision making and regulatory capital requirement calculations.

The Bank leverage models developed by Standard Chartered Bank Group by having the Model Assessment Committee ("MAC") as appointed by RC to review and recommend any model development to ensure full compliance with local regulatory requirements. The RC approves the overall risk model.

The model validation process involves a qualitative and quantitative assessment of the model, data, systems and governance. This would typically include an assessment of the:

- Model assumptions;
- Validity of the technical approach used;
- Statistical and empirical measures of performance;

- Appropriateness of intended model use;
- Model application and infrastructure;
- Data integrity and history;
- Model response to changes in internal and external environment - the extent to which the model provides point in time or through the cycle measures of risk;
- Model monitoring standards and triggers; and
- Levels of conservatism applied.

Statistical testing is used to determine a model's discriminatory power, predicted versus observed/realised performance and stability over time with pre-defined thresholds for passing such tests.

PD model development

Standard Chartered Bank Group and the Bank employ a variety of techniques to develop its PD models. In each case the appropriate approach is dictated by the availability and appropriateness of both internal and external data.

If there is a perceived weakness in the data, for example shorter histories or fewer instances of default, an appropriate amount of conservatism is applied to predicted default rates.

The general approaches fall into three categories:

Default History Based ('Good-Bad') – where a sufficient number of defaults are available, the Bank deploys a variety of statistical methods to determine the likelihood that counterparties would default on existing exposures. These methods afford very high discriminatory power by identifying counterparty exposure characteristics that have a significant predictive ability. The majority of the Bank's corporate exposure is rated under such an approach.

Shadow Rating Approach – if it is determined that the Bank internal data does not provide a sufficient default history (for example, so called 'low default portfolios'), then Standard Chartered Bank Group or the Bank develops models which are designed to be comparable to the ranking of issuer ratings assigned by established external credit assessment institutions where those agencies having access to large databases of defaults over a long time period on a variety of credit obligations.

Constrained Expert Judgement – for certain types of exposure there is little or no internal default history, and no reliable external ratings. In such rare cases, Standard Chartered Bank Group, with contribution from the Bank, has quantitative frameworks to incorporate the expert opinions of Standard Chartered Bank Group's credit risk management personnel into the model development process.

LGD model development

Standard Chartered Bank Group and the Bank develop LGD models by assessing unsecured recoveries and the forced sale value of collateral together with the economic costs in securing these recoveries, and the timing with which such cash flows occur. All such cash flows are then measured at net present value using a suitable discount rate to derive a recovery rate. LGD is therefore the EAD less these estimated recoveries.

Recoveries are estimated based upon empirical evidence which has shown that factors such as customer segment, product and geography have predictive content.

All LGD models are conservatively calibrated to a 'downturn' – with lower assumed collateral values and lower recoveries on exposures, compared to those estimated over the long run.

EAD model development

An EAD model is developed for uncertain exposure products such as lines of credit, credit cards, overdrafts and other commitments. Based on Standard Chartered Bank Group and the Bank 's experience (and supplemented by external data), EAD models assess changes to limits and the likely draw-down of undrawn committed and uncommitted limits as an exposure approaches default. The factor generated by the model and applied to the undrawn limit is referred to as the credit conversion factor ("CCF"). Standard Chartered Bank Group and the Bank have used conservative assumptions in assessing EAD, in keeping with the expected experience in an economic downturn.

Corporate and Institutional Banking Model Results

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

Probability of Default

Estimated of PD are computed as of 1 January 2017 and are compared with default observations through 31 December 2017.

The historical default experience for institutions, central government or central bank is minimal, so the predicted PD for these asset classes reflects a particularly low number of defaults. For central government or central bank and institutions, there were no defaults during 2017. There was 1 default within the corporate asset class during 2017.

Loss Given Default

The calculation of realised versus predicted LGD is affected by the fact that it may takes a number of years for the workout process to complete. As such, an observed recovery value cannot be assigned to the majority of the 2017 defaults, making it not meaningful to compare realised versus predicted outcomes in a manner similar to that for PD and EAD.

To address this, for corporate and institutions we have adopted a different approach based on a four-year rolling period of predicted and realised LGD. This includes 2014 to 2017 defaults that have completed their workout process as at the end of 2017. This approach compares the four-year rolling predicted LGD, providing the predicted outcome of these resolved defaults one year prior to default, against the realised LGD for the same set of defaults. These two figures are fully comparable, providing thereby a meaningful assessment of LGD model performance.

Under this approach, the actual LGD for corporate exceeded the predicted LGD percentage 1-year prior to default. However, this result is based on only 1 default, which was resolved by the end of 2017. For central government or central bank and institution, no value is provided reflecting the fact that there has been no default in the past four years.

Exposure at Default

EAD takes into consideration the potential drawdown of a commitment as an obligor defaults by estimating the Credit Conversion Factor (CCF) of undrawn commitments. For assets which defaulted in 2017, the comparison of realised versus predicted EAD is summarised in table 28. The predicted EAD is slightly less than the realised outstanding amount at default. This result is based on only 1 default of corporate asset class during 2017.

5.6 Risk Grade Profile

Exposures by Internal Credit Grading

For IRB portfolios a standard alphanumeric credit risk-grading system is used in CIBand CB. The grading is based on Standard Chartered Bank Group and the Bank's internal estimate of probability of default over a one-year horizon, with customers or portfolios assessed against a range of quantitative and qualitative factors.

As an indicative guide for reference the mapping below presents Standard Chartered Bank Group and the Bank's credit grades in relation to that of Standard and Poor's credit ratings.

Credit Grade	Standard & Poors Mapping	
	Corp / Non BFIs	Banks
1A	AAA	AAA, AA+
1B	AA+	AA, AA-
2A	AA	A+
2B	AA-	A
3A	AA-	A, A-
3B	A+	A-, BBB+
4A	A, A-	BBB+
4B	A-, BBB+	BBB
5A	BBB	BBB, BBB-
5B	BBB-	BBB-, BB+
6A	BB+	BB+
6B		BB
7A	BB	BB, BB-
7B		BB-
8A	BB-	BB-,B+
8B		B+
9A	B+	B
9B		B, B-
10A	B	B-
10B		B-, CCC
11A - C	B-	CCC
12A - C	N/A	N/A

AIRB models cover a substantial majority of the Bank's loans and are used extensively in assessing risks at customer and portfolio level, setting strategy and optimising the Bank's risk return decisions.

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

- Credit Approval and Decision – The level of authority required for the sanctioning of credit requests and the decision made is based on a combination of PD, LGD and EAD of the obligor with reference to the nominal exposure;
- Pricing – In CIB & CB a pre-deal pricing calculator is used which takes into consideration PD, LGD and EAD in the calculation of expected loss and risk-weighted assets and for the proposed transactions to ensure appropriate return;
- Limit Setting – In CIB & CB single name concentration limits are determined by PD, LGD and EAD. The limits operate on a sliding scale to ensure that the Bank does not have over concentration of low credit quality assets;
  Provisioning – Portfolio Impairment Provisions ("PIP") are raised at the portfolio level and are set with reference to expected loss which is based on PD, LGD and EAD amongst other quantitative and qualitative factors; and
- Risk tolerance – PD, LGD and EAD models provide some of the key inputs into the risk-based methodologies used in the assessment of business and market variables which in turn are key components in the approach taken in setting Risk tolerance.

The following table sets out analysis of EAD, PD and LGD within the AIRB portfolios by internal credit grading. EAD has been calculated after taking into account the impact of credit risk mitigation. Where exposure is guaranteed or covered by credit derivatives, exposure is shown against the asset class of the guarantor or derivative counterparty.

Table 20: Credit Risk Assessment under the AIRB Approach for Sovereign, Bank and Corporate Exposures and Equity Exposures under the PD/LGD Approach Classified by Rating Grade*
The Bank

Type of asset		31-Dec-17			31-Dec-16		
		Sovereign, bank and corporate exposures **	Equity exposures under PD/LGD approach	Total	Sovereign, bank and corporate exposures **	Equity exposures under PD/LGD approach	Total
Grade 1 - 4	EAD [1/] (Million Baht)	123,036	-	**123,036**	140,078	-	**140,078**
	⦸ PD [2/] (%)	0.08%	-	-	0.08%	-	-
	⦸ RW [3/] (%)	22.26%	-	-	18.87%	-	-
	⦸ LGD [4/] (%)	37.51%	-	-	31.33%	-	-
Grade 5 - 8	EAD [1/] (Million Baht)	45,639	-	**45,639**	39,772	-	**39,772**
	⦸ PD [2/] (%)	0.68%	-	-	0.64%	-	-
	⦸ RW [3/] (%)	64.04%	-	-	73.37%	-	-
	⦸ LGD [4/] (%)	47.44%	-	-	45.53%	-	-
Grade 9 -12	EAD [1/] (Million Baht)	4,238	-	**4,238**	6,098	-	**6,098**
	⦸ PD [2/] (%)	8.49%	-	-	10.54%	-	-
	⦸ RW [3/] (%)	195.55%	-	-	185.98%	-	-
	⦸ LGD [4/] (%)	52.25%	-	-	51.43%	-	-
Grade 13 - 14 (Default)	EAD [1/] (Million Baht)	2,425	-	**2,425**	4,474	-	**4,474**
	⦸ PD [2/] (%)	100.00%	-	-	100.00%	-	-
	⦸ RW [3/] (%)	18.50%	-	-	20.74%	-	-
	⦸ LGD [4/] (%)	63.62%	-	-	53.03%	-	-

* A number of grades is an example. FIs shall disclose the number of grades as appropriate in order for users to recognise the difference of credit risk levels.
** Including purchased receivables
1/ Outstanding of on-balance sheet assets and off-balance sheet items after multiplying by CCF and after CRM
2/ ⦸ PD is the EAD-weighted average PD for each rating grade (For purchased receivables, FIs shall report only PD of default risk)
3/ ⦸ RW is the EAD-weighted average risk weights for each rating grade
4/ ⦸ LGD is the EAD-weighted average LGD for each rating grade (only for FIs that use the AIRB approach)

Table 21: Credit Risk Assessment under the AIRB Approach for Retail Exposures* (Pooled Basis)

The Bank

Type of asset		31-Dec-17				31-Dec-16			
		Residential mortgage exposures	Qualifying revolving retail exposures	Other retail exposures	Total	Residential mortgage exposures	Qualifying revolving retail exposures	Other retail exposures	Total
	EAD [1/] (Million Baht)	-	-	-	**-**	-	5,090	-	**5,090**
Grade	⦸ PD [2/] (%)	-	0.00%	-	-	-	0.12%	-	-
1 - 4	⦸ RW [3/] (%)	-	0.00%	-	-	-	6.46%	-	-
	⦸ LGD [4/] (%)	-	0.00%	-	-	-	85.60%	-	-
	EAD [1/] (Million Baht)	-	-	-	**-**	-	15,834	727	**16,561**
Grade	⦸ PD [2/] (%)	-	0.00%	0.00%	-	-	0.71%	1.55%	-
5 - 8	⦸ RW [3/] (%)	-	0.00%	0.00%	-	-	25.86%	97.64%	-
	⦸ LGD [4/] (%)	-	0.00%	0.00%	-	-	84.80%	78.81%	-

The Bank

Type of asset		31-Dec-17				31-Dec-16			
		Residential mortgage exposures	Qualifying revolving retail exposures	Other retail exposures	Total	Residential mortgage exposures	Qualifying revolving retail exposures	Other retail exposures	Total
Grade 9 -12	EAD [1/] (Million Baht)	-	-	-	**-**	-	4,349	2,138	**6,487**
	⦸ PD [2/] (%)	-	0.00%	0.00%	-	-	9.88%	11.86%	-
	⦸ RW [3/] (%)	-	0.00%	0.00%	-	-	121.63%	135.77%	-
	⦸ LGD [4/] (%)	-	0.00%	0.00%	-	-	85.72%	79.90%	-
Grade 13 - 14 (Default)	EAD [1/] (Million Baht)	-	-	-	**-**	-	195	119	**314**
	⦸ PD [2/] (%)	-	0.00%	0.00%	-	-	100.00%	100.00%	-
	⦸ RW [3/] (%)	-	0.00%	0.00%	-	-	307.95%	273.70%	-
	⦸ LGD [4/] (%)	-	0.00%	0.00%	-	-	80.43%	56.54%	-

[*] Including purchased receivables

[1/] Outstanding of on-balance sheet assets and off-balance sheet items after multiplying by CCF and after CRM

[2/] ⦸ PD is the EAD-weighted average PD for each rating grade (For purchased receivables, FIs shall report only PD of default risk)

[3/] ⦸ RW is the EAD-weighted average risk weights for each rating grade

[4/] ⦸ LGD is the EAD-weighted average LGD for each rating grade (only for FIs that use the AIRB approach)

Table 22: Outstanding and Undrawn Lines of each Group of Exposures* after Multiplying by CCF and after Credit Risk Mitigation under the AIRB Approach Classified by Rating Grade of Expected Losses**

The Bank

31-Dec-17

Retail Asset Class	EAD [1/]	EL [2/] (%)			
		CG 1- 4	CG 5- 8	CG 9-12	CG 13-14
Qualifying revolving retail exposures	-	0.00%	0.00%	0.00%	0.00%
Other claims on retail portfolios	-	0.00%	0.00%	0.00%	0.00%
Total	**-**	**-**	**-**	**-**	**-**

31-Dec-16

Retail Asset Class	EAD [1/]	EL [2/] (%)			
		CG 1- 4	CG 5- 8	CG 9-12	CG 13-14
Qualifying revolving retail exposures	25,468	0.93%	16.47%	63.81%	18.79%
Other claims on retail portfolios	2,984	0.00%	3.48%	80.30%	16.21%
Total	**28,452**	**-**	**-**	**-**	**-**

* Including purchased receivables

** A number of grades is an example. FIs shall disclose the number of grades as appropriate in order for users to recognise the difference of credit risk levels.

[1/] Outstanding of retail exposures and Undrawn Committed Line after CCF and Credit Risk Mitigation

[2/] EL = ∑(ELi*EADi) ÷ ∑EADi

Table 23: Part of Outstanding that is Secured by Collateral** under the AIRB Approach Classified by Type of Asset and Collateral

The Bank

Unit: Million Baht

Type of asset	31-Dec-17			31-Dec-16		
	Eligible financial collateral [1/]	**Other collateral [2/]**	**Guarantee and credit derivatives**	**Eligible financial collateral [1/]**	**Other collateral [2/]**	**Guarantee and credit derivatives**
1. ***Non-defaulted assets***						
1.1 Claims on sovereigns, banks, and corporate	24,873	623	5,103	20,996	588	5,046
1.2 Claims on retail portfolios						
1.2.1 Residential mortgage exposures	-	-	-	-	-	-
1.2.2 Qualifying revolving retail exposures	-	-	-	-	-	-
1.2.3 Other claims on retail portfolios	-	-	-	-	-	-
1.3 Equity exposures	-	-	-	-	-	-
1.4 Other assets	-	-	-	-	-	-
2. ***Defaulted assets***	115	-	-	130	857	-
Total	**24,988**	**623**	**5,103**	**21,126**	**1,445**	**5,046**

** Values after netting of on-balance sheets and off-balance sheets

1/ Eligible financial collateral that the Bank of Thailand allows to use for risk mitigation

2/ Other collaterals that the Bank of Thailand allows to use for risk mitigation

Table 24: Outstanding of On-Balance Sheet Assets and Off-Balance Sheet Items* after Credit Risk Mitigation for each Type of Assets Classified by Risk Weight under the SA Approach

The Bank

Unit: Million Baht

31-Dec-17

Type of Asset	**Rated outstanding**					**Unrated outstanding**									
Risk Weight (%)	0	20	50	100	150	0	20	35	50	75	100	150	625	937.5	100/8.5%
Non-Default exposures															
1. Claims on sovereigns and central bank [1/]	499	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Claims on financial institutions and securities companies [2/]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Claims on corporate [3/]	-	-	-	4,065	-	-	-	-	-	-	-	-	-	-	-
4. Claims on retail portfolios	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Claims on residential mortgage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Other assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Risk Weight (%)			50	100	150					75					
Default exposures [4/]	-	-	-	19	25	-	-	-	-	0*	-	-	-	-	-
Deducted Items	Nil														

The Bank

Unit: Million Baht

31-Dec-16

Type of Asset	Rated outstanding					Unrated outstanding									
Risk Weight (%)	0	20	50	100	150	0	20	35	50	75	100	150	625	937.5	100/8.5%
Non-Default exposures															
1. Claims on sovereigns and central bank [1/]	455	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Claims on financial institutions and securities companies [2/]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Claims on corporate [3/]	-	-	-	2,604	-	-	-	-	-	-	-	-	-	-	-
4. Claims on retail portfolios	-	-	-	-	-	-	-	-	-	9,154	119	-	-	-	-
5. Claims on residential mortgage	-	-	-	-	-	-	-	19,712	-	1,823	373	-	-	-	-
6. Other assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Risk Weight (%)			50	100	150					75					
Default exposures [4/]	-	-	213	379	180	-	-	-	-	0*	-	-	-	-	-
Deducted Items									Nil						

* After applying credit conversion factor

[1/] Including Claims on Multilateral development banks (MDBs), Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Sovereigns and Central Bank

[2/] Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Financial Institutions

[3/] Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Corporate

[4/] RW(%) of part of Outstanding that is not secured by CRM

Table 25: Part of Outstanding that is Secured by Collateral* under the SA Approach Classified by Type of Asset and Collateral

The Bank

Unit: Million Baht

Type of asset	31-Dec-17		31-Dec-16	
	Eligible financial collateral [1/]	Guarantee and credit derivatives	Eligible financial collateral [1/]	Guarantee and credit derivatives
1. ***Non-defaulted assets***				
1.1 Claims on sovereigns and central banks [2/]	-	-	-	-
1.2 Claims on banks and securities companies [3/]	-	-	-	-
1.3 Claims on corporate [4/]	84	4,600	259	4,088
1.4 Claims on retail portfolios	-	-	834	-
1.5 Residential mortgage exposures	-	-	-	-
1.6 Other assets	-	-	-	-
2. ***Defaulted assets***	-	-	14	-
Total	**84**	**4,600**	**1,107**	**4,088**

* Values after netting of on-balance sheets and off-balance sheets

[1/] Eligible financial collateral that the Bank of Thailand allows to use for risk mitigation

[2/] Including Claims on Multilateral development banks (MDBs), Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Sovereigns and Central Bank

[3/] Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Financial Institutions

[4/] Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Corporate

Regulatory Expected Loss versus Individual Impairment Charges

The table 26 and 27 below show actual loss and regulatory expected loss as at 31 December 2017 for the AIRB exposure classes. Regulatory expected loss is based on a through-the-cycle methodology using risk parameters and observations over a period of time. It is a conservative and appropriately prudent calculation underpinning regulatory capital requirements, but:

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

The net individual impairment charge is a point in time actual charge raised in accordance with accounting standards that require the Bank to either provide for or write-off debts. The actual loss exceeded the expected loss due to conservative local provisioning. It should be noted that the Expected Loss shown in table 27 was computed as of 31 December 2016 as per regulatory requirement. The actual loss is the current year charge off and provision balances on the balance sheet. Provisions are recognized where there is objective evidence of a loss or per regulatory requirement.

Table 26: Actual Losses under the AIRB Approach Classified by Type of Assets

The Bank

Unit: Million Baht

Type of asset	Actual losses		Change
	31-Dec-17	31-Dec-16	
Claim on sovereign, banks and corporate	2,341	4,143	(1,802)
Equity exposures	-	-	-
Retail exposures	178	1,000	(822)
Total	**2,519**	**5,143**	**(2,624)**

Table 27: Estimates of Losses Comparing to Actual Losses*

The Bank

Unit: Million Baht

Type of asset	31-Dec-16 Expected loss	31-Dec-17 Actual loss	31-Dec-15 Expected loss	31-Dec-16 Actual loss
Claim on sovereign, banks and corporate	3,836	2,341	4,017	4,143
Equity exposures	-	-	-	-
Retail exposures	832	178	1,015	1,000
Total	**4,668**	**2,519**	**5,032**	**5,143**

Table 28: Estimates of PD, LGD and EAD compare with actual

The Bank

31-Dec-17

Asset Class	Predicted PD% (EAD Weighted)	Actual PD% (EAD Weighted)	Predicted LGD% (EAD Weighted)	Actual LGD %	Predicted EAD (Million Baht)	Actual EAD (Million Baht)
Claim on sovereign, banks and corporate	0.93%	0.17%	30.68%	54.99%	184	200
Equity exposures	-	-	-	-	-	-
Retail exposures	-	-	-	-	-	-
Total					184	200

31-Dec-16

Asset Class	Predicted PD% (EAD Weighted)	Actual PD% (EAD Weighted)	Predicted LGD% (EAD Weighted)	Actual LGD %	Predicted EAD (Million Baht)	Actual EAD (Million Baht)
Claim on sovereign, banks and corporate	0.59%	0.00%	30.68%	54.99%	N/A	N/A
Equity exposures	-	-	-	-	-	-
Retail exposures	4.36%	4.1%	84.42%	69.9%	1,046	869
Total					1,046	869

5.7 Problem Credit Management and Provisioning

Corporate and Institutional Banking and Commercial Banking

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

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

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

The PIP methodology provides for accounts for which an individual impairment provision has not been raised, either individually or collectively. PIP is raised on a portfolio basis and is set using expected loss rates, based on past experiences supplemented by an assessment of specific factors affecting the relevant portfolio. These include an assessment of the impact of economic conditions, regulatory changes and portfolio characteristics such as delinquency trends and early alert trends. The methodology applies a larger provision against accounts that are delinquent but not yet considered impaired. This is in accordance with regulatory requirements.

5.8 Counterparty Credit Risk in the Trading Book

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

The credit risk arising from all financial derivatives is managed as part of the overall lending limits to banks and customers.

The Bank seeks to negotiate Credit Support Annexes (“CSA”) with counterparties on a case by case basis, where collateral is deemed a necessary or desirable mitigant to the exposure. The credit terms of the CSA are specific to each legal document and determined by the credit risk approval unit responsible for the counterparty. The nature of the collateral is specified in the legal document and is typically be cash or highly liquid securities.

The Bank further reduces its credit exposures to counterparties by entering into contractual netting agreements which result in a single amount owed by or to the counterparty through netting the sum of the positive (amounts owed by the counterparty) and negative (amounts owed by the Bank) mark-to-market (“MTM”) values of these transactions.

A daily operational process takes place to calculate the MTM on all trades captured under the CSA. Additional collateral will be called from the counterparty if total uncollateralised MTM exposure exceeds the threshold and minimum transfer amount specified in the CSA. Additional collateral may be required from the counterparty to provide an extra buffer to the daily variation margin process.

Credit reserves

Using risk factors such as PD and LGD a Regulatory Expected Loss is calculated for each counterparty across the CCR portfolio, and based on this calculation credit reserves are set aside for traded products. The reserve is a dynamic calculation based on the expected risk profile for each counterpart, alongside PD and LGD factors.

In line with market convention, the Bank negotiates CSA terms for certain counterparties where the thresholds related to each party are dependent on their External Credit Assessment Institutions ("ECAI") long term rating. Such clauses are typically mutual in nature. It is therefore recognised that a downgrade in the Bank's rating could result in counterparties seeking additional collateral calls to cover negative MTM portfolios where thresholds are lowered.

Wrong way risk

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

Exposure value calculation

Exposure values for regulatory capital requirement purposes on over the counter traded products are calculated according to the CCR current exposure method. This is calculated as the sum of the current replacement cost and the potential future credit exposure.

The current replacement cost is the USD equivalent amount owed by the counterparty to the Bank for various financial derivative transactions. The potential future credit exposure is an add-on based on a percentage of the notional principal of each transaction according to tenor and underlying assets class of each trade.

6. Market Risk

Market risk is the potential for loss of earnings or economic value due to adverse changes in financial market prices or rates. The Bank's exposure to market risk arises predominantly from providing clients access to financial markets, facilitation of which entails the Bank's taking moderate market risk positions. Market risk also arises in the non-trading book ("banking book") from the requirement to hold a large liquidity assets buffer of higher quality liquid debt securities and from the translation of non-Thai baht denominated assets, liabilities and earnings.The objective of the Bank's market risk policies and processes is to achieve the optimal balance of risk and return while meeting customers' requirements.

The Bank undertakes in the money market, foreign exchange markets and capital markets giving rise to market risk exposures. Other financial instruments undertaken include debt and other securities and certain financial derivative instruments. Derivative instruments are contracts whose characteristics and value are derived from underlying financial instruments, interest rates, exchange rates, or indices. They include futures, forwards, swaps, and options transactions in the foreign exchange and interest rate markets. Derivative contracts entered into by the Bank are primarily over-the-counter derivatives.

The Bank has established market risk management policies and framework, including limit setting, monitoring and reporting and control procedures, which are reviewed regularly by the relevant committees – ALCO, Risk Commitees and the Board. Market risk limits are proposed by the business within the terms of agreed policy. Risk officers and relevant committees review and approve the limits within delegated authorities, and monitor exposures against these limits. Risks are monitored against limits on a daily basis.

The primary categories of market risk for the Bank are:

- Interest rate risk: arising from changes in yield curves, credit spreads and implied volatilities on interest rate options;
- Currency exchange rate risk: arising from changes in exchange rates and implied volatilities on foreign exchange options; and

- Commodity price risk: arising from changes in commodity prices and commodity option implied volatilities; covering energy, precious metals, base metals and agricultural. For this category of market risk, the Bank is fully hedged through a back-to-back position.

The BOT specifies minimum capital requirements against market risk in the trading book. Interest rate risk in the non-trading book ("banking book") is covered separately under the Pillar 2 framework. The minimum regulatory market risk capital requirements for the trading book are presented below.

Table 29: Minimum Capital Requirement for each Type of Market Risk under the SA Approach

Unit: Million Baht

Type of Risk	The Bank	
	31-Dec-17	**30-Jun-17**
Interest Rate Risk	1,632	1,487
Equity Position Risk	-	-
Foreign Exchange Rate Risk	38	162
Commodity Risk	-	-
Total Minimum Capital Requirements	**1,670**	**1,649**

The Bank is required to have THB 1,670 million total capitals against Market Risk. Comparing with June 2017, the increase of THB 21 million is due to Interest Rate Risk.

7. Operational Risk

The Bank defines operational Risk as the potential for loss resulting from inadequate or failed internal processes, people and systems or from the impact of external events, including legal risks.

The management of operational risk is a challenge due to its broad scope as operational risks arise from all activities carried out within the Bank. To address this challenge, we map risks across the Bank at a process level with controls installed to mitigate these risks.The Bank aims to achieve 'industrial strength' process and control design standards for all activities.

Operational risk governance

The Risk Committee ("RC") provides oversight of operational risk management across the Bank. It is supported by the Country Operational Risk Committee ("CORC"). These risk committees receive regular reports on the Bank operational risk profile. The CORC is supported by Country Financial Crime Risk Committee ("CFCRC"), which oversees financial crime risk, Data Governance Forum ("DGF"), which oversees the management of the data quality framework and strategy, Outsourcing Forum ("OF"), which oversees third party risk management, the Business Operational Risk Forum ("BORF") and the Function Operational Risk Forum ("FORF"), which oversee operational risk arising from the businesses and functions.

Internal organization – Three lines of defence

To implement the operational risk management approach in the Bank, the Bank applies the three lines of defence model, as set out in the Risk Management Framework. The first line of defence has responsibility for identifying and managing the inherent risks in processes they own. Operational Risk as second line of defence is responsible for setting and maintaining the standards for the operational risk management approach. In addition, the second line of defence comprises both second line risk owners of each operational risk sub-type and second line policy owners. The second line of defence defines controls, supports and challenges the first line of defence in their areas of expertise. The third line of defence is the independent assurance provided by the Internal Audit function.

Risk appetite approach

The Bank aims to control operational risks to ensure that operational losses (financial or reputational), including any related to conduct of business matters, do not cause material damage to the Bank.

In order to comply with this statement, the operational risk management approach includes the following requirements:

- The Bank adopts top risks and emerging risks identified systematically by the SCB Group and define the appropriate treatment which may include business restrictions
- All processes have been or will be mapped and owned with appropriate key control standards defined to mitigate risks
- The Bank will not miss any opportunity to learn lessons from internal or external events and will implement relevant mitigation actions
- The Bank will systematically test internal capital adequacy through scenario analysis and stress testing

Risk classification

Operational risk sub-types are the different ways that we may be operationally exposed to loss. Each risk sub-type is a grouping of potential losses that are material, and which may arise in different activities or areas of the Bank. The Bank uses operational risk sub-types principally as an aid to ensure comprehensive and consistent identification of operational risks, wherever they may arise. Operational risk sub- types are listed in the following table below.

OPERATIONAL RISK SUB-TYPES	
External rules and regulations	Potential for actual or opportunity loss due to failure to comply with laws or regulations, or as a result of changes in laws or regulations or in their interpretation or application
Liability	Potential for loss or sanction due to a legal claim against any part of the Bank
Legal enforceability	Potential for loss due to failure to protect legally the Bank's interests or from difficulty in enforcing the Bank's rights
Damage or loss of physical assets	Potential for loss or damage or denial of use of property or other physical assets
Safety and security	Potential for loss or damage relating to health and safety or physical security
Internal fraud or dishonesty	Potential for loss due to action by staff that is intended to defraud, or to circumvent the law or company policy
External fraud	Potential for loss due to criminal acts by external parties such as fraud or theft of financial assets
Information security	Potential for loss due to unauthorised access, use, disclosure, disruption, modification or destruction of information This risk sub-type excludes data privacy regulatory risk.
Processing failure	Potential for loss due to failure of an established process or a process design weakness
Model	Potential for loss or adverse impact due to incorrectly designed or misused models Potential for regulatory breach due to a significant discrepancy between the output of financial crime client risk scoring and financial crime transaction monitoring models and actual experience

Operational risk management approach

The Group defines and maintains a complete process universe for all client segments, products and functions. The Bank adopts the process universe defined by the Group. The process universe is the complete list of end-to-end processes that collectively describe the activities of the Bank and is the reference for the application of the operational risk management approach. This represents all the Bank activities, the owners of these activities, and the risk and control standards that are defined by risk and process owners. It also serves as the foundation for policy delivery, as well as risk identification, measurement, management and reporting. The operational risk management approach requires:

- Industrial strength process design standards are applied to critical processes
- Control threshold standards are set for each control for quantity, materiality and timeliness of detection and rectification of defects
- All processes are standardised except for regulatory or legitimate system exceptions
- Residual risk assessment by first line and approved by second line
- Monitoring of risks and controls
- Prompt execution of risk treatment actions

The operational risk management approach has been installed for prioritised risks as part of the Operational Risk Framework Implementation Programme.

Stress testing

As part of our operational risk management approach, we conduct stress testing by scenario analysis for the Bank. The exercises included judgemental overlays for the potential risk of low-frequency, high-severity events occurring during stress conditions. The macroeconomic scenarios are considered in the stress testing. These scenarios included anti-money laundering, sanctions, political unrest, regulatory non compliance, fraud and etc.

Conduct

Conduct of business, or conduct, is a term that is used in a broad number of ways across the financial services industry. At its broadest, good conduct is the appropriate execution of business, by the Bank or any individual acting on its behalf, in accordance with our strategic intent, risk management principles. More narrowly, it refers to specific regulations designed to achieve fair outcomes for customers and the effective operation of markets.

Good conduct is evidenced through disciplined adherence to our overall framework of systems and controls outlined in the Risk Management Framework and the standards of individual behaviour set out in the Code of Conduct (the Code). Specifically for operational risk:

- External rules and regulations classifications defined in the Operational Risk Framework include specific categories of regulation designed to achieve fair outcomes for clients (client conduct) and the effective operation of markets (market conduct). This ensures that each category of regulation is properly classified and aligned to the Bank systems and control structures. Risk owners and policy owners are responsible for defining the Bank minimum standards and controls in respect of each category.
- Conduct is considered in the Bank top risk. The Bank aims to prevent the risks of failure to deliver the conduct of business standards expected by the Bank's clients, investors and markets in which we operate. Many of the top risks can be driven by poor conduct so the Bank is focused on its control standards around these risks.

8. Equity Exposure in the Non-Trading Book (Banking Book)

The holdings of non-trading book (banking book) equities are considered immaterial. At 31 December 2017, the Banks equity exposure in the non-trading book (banking book) are shown in below table.

Table 30: Equity Exposure in Non-Trading Book (Banking Book)

The Bank

Unit: Million Baht

Equity exposure	31-Dec-17	31-Dec-16
1. Outstanding of shares		
1.1 Outstanding of listed shares (onshore and offshore stock exchange)		
- Cost (Net Book Value)	-	-
- Market price	-	-
1.2. Outstanding of other shares (onshore and offshore)	66	62
2. Gains (losses) of sale of equities in the reporting period	1	-
3. Net revaluation surplus (deficit) from valuation AFS equity	-	-
4. Minimum capital requirements for equity exposures classified by the calculation methods		
- SA	-	-
- IRB	-	-
5. Equity values for commercial bank using the IRB approach which the BOT allow to use the SA approach	-	-

9. Interest Rate Risk in the Non-trading Book (Banking Book)

Interest rate risk from the non-trading book (banking book) portfolios is transferred to Financial Markets where it is managed by Treasury Markets ("T-M") desk under the supervision of Asset and Liability Committees ("ALCO"). T-M will transact deals in the market within approved financial instruments in order to manage the net interest rate risk, subject to approved VaR and other risk limits. VaR and stress tests are therefore applied to non-trading book (banking book) exposures in the same way as for the trading book including listed 'available-for-sale' securities.

From Fund Transfer Pricing ("FTP") process, there is the assumption for loan repayments incorporated. Businesses will not bear any interest rate risk since all interest rate risks will be centralised at T-M and T-M has to turn interest rate risk to be revenue opportunity via active T-M strategies. T-M has to manage and monitor interest rate risk on daily basis.

Basis risk, or the risk arising from hedging exposure to one interest rate and the banking exposure to a rate which is re-priced under different conditions, is also analysed.

Interest rate risk can arise from the investment of rate-sensitive assets, as well as some tenor mismatches between debt issuance and placements. This risk is measured as the impact on net interest income ("NII") of an unexpected and instantaneous adverse parallel shift in rates and is monitored over a rolling one year time horizon.

The impact of Interest Rate Change on Net Interest Income as at 31 December 2017 is shown in below table.

Table 31: Impact of Interest Rate Change on Net Interest Income

Unit: Million Baht

Currency	Impact of a 1% interest rate change on Net Interest Income	
	The Bank	
	31 Dec 17	31 Dec 16
THB	175	84
USD	107	129
EURO	-	-
OTHER	15	16
Total Impact on Net Interest Income	**297**	**229**

10. Acronyms

AIRB	Advanced Internal Ratings Based
ALCO	Asset and Liability Management Committee
AFS	Available for Sale
BCBS	Basel Committee on Banking Supervision
BORF	Business Operational Risk Forum
BOT	The Bank of Thailand
CCB	Capital Conservation Buffer
CCF	Credit Conversion Factor
CCR	Counterparty Credit Risk
CEO	Chief Executive Officer
CFCRC	Country Financial Crime Risk Committee
CG	Credit Risk Grade
CIB & CB	Corporate and Institutional Banking and Commercial Banking
CIB & CB AC	Corporate and Institutional Banking and Commercial Banking Approval Committee
CORC	Country Operational Risk Committee
CRM	Credit Risk Mitigation
CRO	Country Chief Risk Officer
CSA	Credit Support Annex
DGF	Data Governance Forum
EAD	Exposure at Default
ECAI	External Credit Assessment Institutions
EL	Expected Loss
EXCO	Executive Committee
FORF	Function Operational Risk Forum
FTP	Fund Transfer Pricing
GSAM	Group Special Asset Management
HVSB	High Value Small Business
ICAAP	Internal Capital Adequacy Assessment Process
IIP	Individual Impairment Provision
IPRE	Income –Producing Real Estate
IRB	Internal Ratings Based

LGD	Loss Given Default
MAC	Model Assessment Committee
MDBs	Multilateral Development Banks
ME	Medium Enterprise
MTM	Mark to Market
NII	Net Interest Income
OF	Outsourcing Forum
PD	Probability of Default
PIP	Portfolio Impairment Provision
PSEs	Non-central government Public Sector Entities
RC	Risk Committee
RMF	Risk Management Framework
RW	Risk Weight
RWA	Risk Weighted Assets
SA	Standardised Approach
SCB Group	Standard Chartered Bank Group
SCBT	Standard Chartered Bank (Thai) PCL
SREP	Supervisory Review and Evaluation Process
SME	Small and Medium Enterprise
T-M	Treasury Markets
the Code	Code of Conduct