Pillar 3 Disclosures 31 December 2018



Registered Office: 100 North Sathorn Road, Silom Bangkok, 10500, Thailand

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 III: 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 III") 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 Enterprise 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 Executive 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.

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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 2018 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:

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- 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 2018, comparing with the position of the Bank as at 30 June 2018.

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Table 1: Capital Structure

	The I	Bank
	31-Dec-18	30-Jun-18
Tier 1 Capital		
Paid up share capital	14,837	14,837
Share premium account	9,056	9,056
Legal reserve	1,212	1,212
Net profit after appropriation	13,213	13,213
Accummulated other comprehensive income	(73)	(103)
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	(122)	(67)
capital fund	(122)	(07)
Deductions from Common Equity Tier 1	(313)	(271)
Total Common Equity Tier 1 (CET1)	37,810	37,877
Additional Tier 1 (AT1)	-	-
Total Tier 1 Capital	37,810	37,877
Tier 2 Capital		
General Provision for normal/performing loans	37	42
Surplus of provision	311	354
Total Tier 2 Capital	348	396
Total Regulatory Capital	38,158	38,273

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.

Table 2: Reconciliation of Regulatory Capital to Financial Statement

		Unit	.: Million Bant
Capital related items as of 31 December 2018	Statement of Financial Position as in published financial statements	Statement of Financial Position as per Balance Sheet	References
Assets			
Cash	80	80	
Interbank and money market items, net	47,378	47,378	
Derivative assets	12,466	12,466	
Investments, net	52,213	52,213	
Investments in subsidiaries	-	-	
Loans to customers and accrued interest receivable, net			
Loans to customers	35,251	35,251	
Accrued interest receivable	114	114	
Total loans to customers and accrued interest		-	
Receivable	35,365	35,365	
Less allowance for doubtful accounts	(2,802)	(2,802)	
Total loans to customers and accrued interest receivable,		-	
net	32,563	32,563	
Customer's liability under acceptances	518	518	
Properties for sale, net	-	7	
Premises and equipment, net	251	251	
Deferred tax assets	313	313	G
Accounts receivable from sales of investments and			
debt securities in issue	990	990	
Collateral from Credit Support Annex agreements and			
margin receivables from private repo transactions	4,514	4,514	
Assets of disposal group classified as held for sales	7	-	
Other assets, net	555	555	
Total assets	151,848	151,848	

Capital related items as of 31 December 2018	Statement of Financial Position as in published financial statements	Statement of Financial Position as per Balance Sheet	References
Liabilities			
Deposits	61,351	61,351	
Interbank and money market items	28,655	28,655	
Liabilities payable on demand	1,540	1,540	
Liabilities to deliver security	445	445	
Derivative liabilities	11,350	11,350	
Debt issued and borrowings	-	-	
Bank's liability under acceptances	518	518	
Provisions	214	214	
Accounts payable from purchase of investments	306	306	
Collateral from Credit Support Annex agreements and			
margin payables from private repo transactions	3,351	3,351	
Accrued expenses	1,588	1,588	
Liabilities of disposal group classified as held for sales	-	-	
Other liabilities	1,232	1,232	
Total liabilities	110,550	110,550	

Capital related items as of 31 December 2018	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	Α
Premium on share capital	9,056	9,056	В
Other reserves			
Fair value change in available -for-sale investments	(73)	(73)	$E^{/1}$
Cash flow hedges	-	-	F
Total other reserves	(73)	(73)	
Retained earnings			
Appropriated			
Legal reserve	1,358	1,358	$C^{/2}$
Unappropriated			
Unappropriated retained earnings	2,790	2,790	
Net profit after appropriation	13,330	13,330	D
Actuarial gain (loss) on defined benefit plans	-	-	Н
Total Unappropriated	16,120	16,120	
Total shareholders' equity	41,298	41,298	
Non-controlling interest	<u> </u>	-	
Total equity	41,298	41,298	
Total liabilities and equity	151,848	151,848	

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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	Α
Premium on share capital	9,056	В
Legal reserve	1,212	$C^{/2}$
Net profit after appropriation	13,213	D
Other reserves		
Fair value change in available -for-sale investments	(73)	E ^{/1}
Cash flow hedges	-	F
Other owner changes items	-	
Total CET1 capital before regulatory adjustments and deduction	38,245	
Regulatory adjustments on CET1		
Cash flow hedges	-	F
Debit Valuation Adjustment : DVA	(122)	
Regulatory deduction on CET1		
Deferred tax assets	(313)	G
Total Common Equity Tier 1 (CET1)	37,810	
Additional Tier 1 (AT1)	-	
Total Tier 1 capital	37,810	
Tier 2 Capital		
General Provision under SA	37	
Surplus of provision (Excess Provision)	311	
Total Tier 2 capital	348	
Total Regulatory capital	38,158	

Table 3: Basel III Capital during transitional period

	The	Bank
Capital Amount as at 31 December 2018	Capital value	Net value of items with transitional phase subject to Basel III
Common Equity Tier 1 Capital	38,245	(0) ^{1/}
Total regulatory adjustments to CET1	(122)	(0)
Total regulatory deduction to CET1	(313)	
Total Common Equity Tier 1 Capital (CET1)	37,810	
Additional Tier 1 Capital (AT1)	-	
Total Tier 1 Capital	37,810	
Tier 2 Capital	348	
Total Regulatory Capital	38,158	

^{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 146 million will be allocated from 2018 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 2018 was 43.69%. CET1 Ratios was 43.29% and Tier 1 Capital Ratios was 43.29% which exceeded minimum requirements of the BOT.

Table 4: Capital Adequacy

Unit: Percent

	BOT Minimum	The E	ank
	Requirement	31-Dec-18	30-Jun-18
Total capital funds to risk weighted assets	8.50	43.69	38.00
Common Equity Tier 1 capital funds to risk			
weighted assets	4.50	43.29	37.61
Tier 1 capital funds to risk weighted assets	6.00	43.29	37.61
Capital conservation buffer (CCB) 1/	1.875		
Total capital funds to risk weighted assets,			
including CCB ^{1/}	10.375	43.69	38.00

^{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. Table 5 shows the breakdown of minimum capital requirement for Credit Risk, Market Risk and Operational risk of the Bank as at 31 December 2018.

Table 5: Minimum Capital Requirement

Unit: Million Baht

Minimum Capital	The Bank		
Millindin Sapital	31-Dec-18	30-Jun-18	
Credit Risk	4,654	5,329	
Market Risk	1,732	2,145	
Operational Risk	1,038	1,087	
Total Minimum Capital Requirements	7,424	8,561	

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).

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

Unit: Million Baht

Asset Class	The Bank		
Asset Class	31-Dec-18	30-Jun-18	
Non-Default exposures			
Claims on sovereigns, financial institutions			
and Corporates	4,311	4,904	
Claims on retail portfolios			
-Claims on residential mortgage	-	-	
-Qualifying revolving retail exposures	-	-	
-Other retail exposures	-	-	
Equity exposures	2	6	
Other assets	58	83	
Default exposures	31	34	
First-to-default credit derivatives and			
Securitisation	-	-	
Total minimum capital requirement for			
credit risk – AIRB	4,402	5,027	

Minimum capital requirement for credit risk under AIRB for the Bank decreased by THB 625 million, mainly due to decrease in non default exposures of Claim on Sovereigns, Financial institutions and Corporates.

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

Unit: Million Baht

Asset Class	The Bank			
Addit diada	31-Dec-18	30-Jun-18		
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	249	298		
Claims on retail portfolios	-	-		
Claims on residential mortgage	-	-		
Other assets	-	-		
Default exposures	3	4		
First-to-default credit derivatives and				
Securitisation	-	-		
Total minimum capital requirement				
for credit risk – SA	252	302		

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 50 million, mainly due to decrease in Claims on corporate.

Table 8: Minimum Capital Requirement for Equity Exposure under AIRB

Unit: Million Baht

Item	The Bank		
nem	31-Dec-18	30-Jun-18	
Equity exposure exempted from credit risk			
calculation by IRB	2	6	
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	2	6	

Total minimum capital requirement for equity exposure under AIRB approach for the Bank decrease from Investment in subsidiary (Thai Exclusive Leasing).

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 Enterprise Risk Management Framework(ERMF), which sets out the principles and standards for risk management. Under ERMF, there are 10 principal risk types, including Credit risk, Capital & Liquidity risk, Traded risk, Operational risk, Country risk, Reputational risk, Compliance risk, Conduct risk, Financial Crime risk and Information & Cyber Security risk.

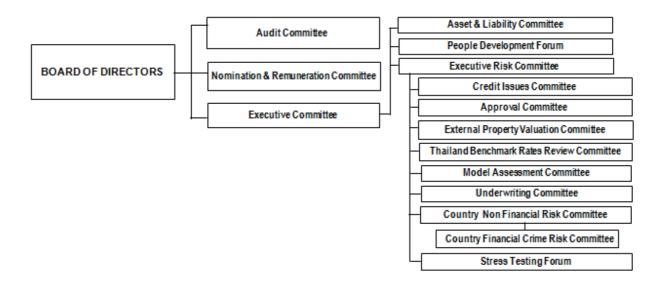
4.1 Enterprise Risk Management Framework ("ERMF")

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 Enterprise Risk Management Framework, the Bank manages enterprise-wide risks, with the objective of maximising risk-adjusted returns while remaining in compliance with SCBT Risk Appetite Statement.

The Bank has obtained its Board approval to apply SCB Group Enterprise Risk Management Framework for local implementation.

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 driving business agenda bringing across alignment between function to achieve financial performance target and to ensure day-to-day management, operations 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 of senior executives from Global Banking, Commercial Banking, Financial Markets, Transaction Banking, Risk Management, Information Technology and Operations, Finance, Human Resources, Legal 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 Executive Risk Committee ("ERC")'s main responsibilities are to provide leadership on forward looking and anticipated risk issues with the effective implementation of the Enterprise Risk Management which includes Credit Risk, Capital & Liquidity risk, Traded Risk, Operational Risk, Country risk, Reputational risk, Compliance risk, Conduct risk, Financial Crime risk and Information & Cyber Security risk. The Committee 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 defined as the businesses and functions engaged in or supporting

revenue-generating activities that own and manage risks.

The second line of defence is defined as the control functions independent of the first line that provide oversight and challenge of risk management to provide confidence to the Country Chief Risk Officer, the Management Team and the Board.

The third line of defence is the independent assurance provided by the Group Internal Audit function on the effectiveness of controls that support the first line's risk management of business activities and the processes maintained by the second lines. Its role is defined and overseen by the Audit Committee of the Board.

The Risk Function

The Risk function is responsible for the sustainability of the Bank's business through good management of risk and ensuring that business is conducted in line with regulatory expectations.

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 chairs the ERC and is a member of EXCO.

The roles of the Risk function are:

- To maintain the Bank's Enterprise 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 and return decisions to ensure that risks
 are properly assessed, that these decisions are made transparently on the basis of this
 proper assessment and that risks are controlled in accordance with the Bank's standard
 and risk appetite.
- Overseeing and challenging the management of Principal Risk Types under the Enterprise Risk Management Framework.

The independence of the Risk function is to ensure that the necessary balance in making risk and

return decisions is not compromised by short-term pressures to generate revenues.

In addition, the Risk function is a centre of excellence that provides specialist capabilities of relevance to risk management processes in the broader 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. The Bank manages its credit exposures following the principle of diversification across products, industries, collateral types and client segments.

The Credit Risk function is the second line control function responsible for independent challenge, monitoring and oversight of the Credit risk management practices of the business and functions engaged in or supporting revenue-generating activities, which constitute the first line of defence. In addition, to ensure that credit risks are properly assessed and are transparent, credit decisions are controlled in accordance with the Risk Appetite and credit policies and standard, which are approved by SCBT Board.

Credit Policies

Credit policies address large exposures, credit initiation, approval, monitoring, credit grading and documentation, as well as impairment provisioning policy. Appropriate allocation and sound diversification of lending portfolios among suitable industries are also key objectives of the Bank.

Credit authority is delegated by the Executive Risk Committee to Senior Credit Officer who is empowered to further delegate credit authority to other approvers to enable them to perform the daily approval tasks in accordance with the Risk Processes and Procedures adopted.

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Governance committee oversight

There are 2 credit committees that are relevant to credit risk management, including the Approval

Committee ("AC") and the Credit Issue Committee ("CIC"). These committees comprise senior

management from the Risk and Business functions.

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 ERC, on the recommendation of the

Model Assessment Committee ("MAC"). The MAC drew authority from ERC 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.

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Credit Approval and Credit Risk Assessment

The Credit Risk Type Frameworks are the formal mechanism which delegate Credit Risk Authorities to individual. The Credit Risk Type Frameworks are approved by the Board.

Major credit exposures to individual counterparties and groups of connected counterparties are reviewed and approved by Approval Committee ("AC"), which obtains approval delegation from ERC.

The ERC 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 ERC 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.

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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 ERC 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 ERC, containing information on key

environmental, political and economic trends; portfolio delinquency and loan impairment

performance.

AC is a subcommittee of ERC. AC meets regularly to assess the impact of external events and

trends on the 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

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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.

Underwriting

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 ERC. 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.

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

Item	The Bank			
	31-Dec-18	31-Dec-17		
1. On Balance sheet assets				
1.1 Net loans 1/ (including interbank and				
money market item)	60,043	89,375		
1.2 Net investment in debt securities 2/	26,046	18,351		
1.3 Deposits (including accrued interests)	20,688	9,459		
2. Off Balance sheet assts ^{3/}				
2.1 Aval of bills, loan guarantees, and letters				
of credit	1,187	870		
2.2 OTC derivatives ^{4/}	1,193,828	1,185,238		
2.3 Undrawn committed line	11,257	9,411		
2.4 Repo-style transaction	3,051	1,212		

^{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

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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-18

		Asia				
ltem	Thailand	Pacific (exclude Thailand)	North America & Latin	Africa & Middle East	Europe	Total
On-balance sheet items						
Net loans ^{1/} Net Investment in debt	45,726	2,430	906	5,855	5,126	60,043
securities ^{2/}	26,046	-	-	-	-	26,046
Deposits (including						
accrued interests)	985	121	2	325	19,255	20,688
Total	72,757	2,551	908	6,180	24,381	106,777
Off-balance sheet items 3/						
Aval of bills, guarantees,						
and letters of credit	516	607	2	14	48	1,187
OTC derivatives	657,240	183,379	156,899	-	196,310	1,193,828
Undrawn committed line	10,040	-	1,217	-	-	11,257
Repo-style transaction	455	-	2,394	-	202	3,051
Total	668,251	183,986	160,512	14	196,560	1,209,323

The Bank

Unit: Million Baht 31-Dec-17

Item	Thailand	Asia Pacific (exclude	North America &	Africa & Middle	Europe	Total
		Thailand)	Latin	East		
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

^{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)

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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

	3	31-Dec-18		31-Dec-17			
ltem -	Maturity ≤ 1 year	Maturity > 1 year	Total	Maturity ≤ 1 year	Maturity > 1 year	Total	
1. On Balance sheet assets	78,197	28,580	106,777	79,569	37,616	117,185	
1.1 Net loans ^{1/} (including interbank and money market							
item)	50,862	9,181	60,043	70,285	19,090	89,375	
 1.2 Net investment in debt securities^{2/} 1.3 Deposits (including accrued) 	6,972	19,074	26,046	152	18,199	18,351	
interests)	20,363	325	20.688	9,132	327	9,459	
2. Off Balance sheet assts ^{3/}	628,228	581,095	1,209,323	555,260	641,471	1,196,731	
2.1 Aval of bills, loan							
guarantees, and letters of credit	1,187	-	1,187	868	2	870	
2.2 OTC derivatives ^{4/}	618,773	575,055	1,193,828	548,662	636,576	1,185,238	
2.3 Undrawn committed line	5,217	6,040	11,257	4,518	4,893	9,411	
2.4 Repo-style transaction	3,051	-	3,051	1,212	-	1,212	

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

Outstanding Balance of On-Balance Sheet and Off-Balance Sheet Assets before Credit Risk Mitigation are classified by residual maturity. Approximately 54 percent of the Bank's total outstanding balance is the short term, having residual maturity of one year or less.

^{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

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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-18

Country or	Loans and accrued interests 1/						Investment in
geographic		Special	Sub		Doubtful		debt securities
area of debtor	Normal	mentioned	standard	Doubtful	loss	Total	Doubtful loss
1. Thailand	45,587	6	-	-	2,246	47,839	332
2. Asia Pacific							
(exclude							
Thailand)	2,430	-	-	-	-	2,430	-
3. North America							
& Latin	906	-	-	-	-	906	-
4. Africa &							
Middle East	5,855	-	-	-	-	5,855	-
5. Europe	5,126	-	-	-	-	5,126	-
Total	59,904	6	-	-	2,246	62,156	332

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 (77 percent of total exposure).

The Bank

Unit: Million Baht

31-Dec-17

Country or	ntry or Loans and accrued interests 1/						
geographic		Special	Sub		Doubtful		debt securities
area of debtor	Normal	mentioned	standard	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

 $^{^{\}mbox{\scriptsize 1/}}$ Including loans and accrued interest receivables of interbank and money market item

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

The Bank

Unit: Million Baht 31-Dec-18

	Loans	 Investment in 		
Country or geographic area of debtor	General provision	Specific provision	Charge-off between period	debt securities Doubtful loss
1. Thailand		2,113	-	332
2. Asia Pacific (exclude Thailand)		-	-	-
3. North America & Latin		-	-	-
4. Africa & Middle East		-	-	-
5. Europe		-	-	-
Total	788	2,113	-	332

The Bank

Unit: Million Baht 31-Dec-17

	Loans	and accrued in	nterests ^{1/}	la contra anti-
Country or geographic area of debtor	General provision	Specific provision	Charge-off between period	 Investment in debt securities Doubtful loss
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

^{1/} Including loans and accrued interest receivables of interbank and money market item

The Bank's provision of THB 2,901 million as of December 2018 comprising of general provision with amount THB 788 million and specific provision with amount THB 2,113 million. The Bank also has the allowance for investment in debt instruments at amount of THB THB 332 million.

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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-18
Type of business	Normal	Special mentioned	Sub standard	Doubtful	Doubtful loss	Total
Agriculture and Quarry	175	-	-	-	-	175
Manufacturing and Commerce	22,837	6	-	-	2,246	25,089
Commercial real estate and Construction	1,532	-	-	-	-	1,532
Public utility and Service	6,507	-	-	-	-	6,507
Residential real estate	-	-	-	-	-	-
Others	28,853	-	-	-	-	28,853
Total	59,904	6	-	-	2,246	62,156

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

The Bank

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

Unit: Million Baht

		31-Dec-18		31-Dec-17			
Type of business	Charge-off				Charge-off		
	General provision	Specific provision	between period	General provision	Specific provision	between period	
Agriculture and Quarry		-	-		-	-	
Manufacturing and Commerce		2,113	-		2,473	116	
Commercial real estate and							
Construction		-	-		-	13	
Public utility and Service		-	-		-	22	
Residential real estate		-	-		-	-	
Others		-	-			618	
Total	788	2,113	-	1,338	2,473	769	

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

Unit: Million Baht

	;	31-Dec-18		31-Dec-17			
Item	General provision	Specific provision	Total	General provision	Specific provision	Total	
Provisions at the beginning of the period	1,338	2,473	3,811	2,945	5,345	8,290	
Charge-offs during the period	-	-	-	-	(769)	(769)	
Increases of provisions during the period	(550)	(360)	(910)	(1,607)	(2,103)	(3,710)	
Other provisions (provisions for losses from foreign exchange,							
provisions for merger and sale of business)	-	-	-	-	-	-	
Provisions at the end of period	788	2,113	2,901	1,338	2,473	3,811	

^{*} 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 94.58 percent of the Bank's credit risk RWA (2017: 94.12 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.

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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

	;	31-Dec-18		3	1-Dec-17		
Type of asset	Off-balance			Off-balance			
	On-balance sheet asset	sheet asset**	Total	On-balance sheet asset	sheet asset**	Total	
1. Non-defaulted assets							
1.1 Claims on sovereigns, banks, and corporate	103,464	51,322	154,786	112,186	55,953	168,139	
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	18	-	18	66	-	66	
1.4 Other assets	15,046	-	15,046	17,468	-	17,468	
2. Defaulted assets	112	145	257	112	145	257	
First-to-default credit derivatives and Securitisation	-	-	-	-	-	-	
Total	118,640	51,467	170,107	129,832	56,098	185,930	

^{*} 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-D	ec-18	31-Dec-17		
	Undrawn lines multiplied by CCF	Exposure- weighted average EAD	Undrawn lines multiplied by CCF	Exposure- weighted average EAD	
Sovereigns, bank and corporate exposures *	829	19.57%	491	25.00%	
Equity exposures under the PD/LGD method	-	-	-	-	
Total	829	19.57%	491	25.00%	

^{*} 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.

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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

	31	-Dec-18			31-Dec-17		
Type of asset	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/} 1.2 Claims on banks and 	-	472	472	-	499	499	
securities companies 2/	-	-	-	-	-	-	
1.3 Claims on corporate 3/	7,822	87	7,909	8,362	377	8,739	
1.4 Claims on retail portfolios	-	-	-	-	-	-	
1.5 Residential mortgage							
exposures	-	-	-	-	-	-	
1.6 Other assets	-	-	-	-	-	-	
2. Defaulted assets 4/	22	4	26	39	5	44	
3. First-to-default credit							
derivatives and Securitisation	-	-	-	-	-	-	
Total	7,844	563	8,407	8,401	881	9,282	

^{*} 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

 $^{^{\}mbox{\scriptsize 4}\prime}$ Risk-weight (%) for unsecured portion is based on its provision reserved.

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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, account receivables, residential, commercial and industrial property; fixed assets such as motor vehicles, aircraft, plant and machinery; marketable securities; commodities; risk participations; 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 ERC to review and recommend any model development to ensure full compliance with local regulatory requirements. The ERC 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;

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- 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

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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

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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 2018 and are compared with default observations through 31 December 2018.

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 (in table 28). For central government or central bank, institutions and corporate, there were no defaults during 2018.

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 2018 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 2015 to 2018 defaults that have completed their workout process as at the end of 2018. This approach compares the four-

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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.

However under this approach, there was no defaults that are defaulted and resolved during 2015 - 2018, as such all LGD numbers during this period are not available for comparison. For central government or central Bank and institution, no values are provided reflecting the fact that there have been no defaults 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. There was no assets which defaulted in 2018, consequently predicted and actual EAD are not available for comparison.

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.

Standard & Poors Mapping

Credit Grade	Corp / Non BFIs	Banks
1A	AAA	AAA, AA+
1B	AA+	AA, AA-
2A	AA	A+
2B	AA-	А
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	_ 55	ВВ
7A	BB	BB, BB-
7B	_ 55 _	BB-
8A	BB-	BB-,B+
8B	_ 55 _	B+
9A	B+	В
9B	_ 5	В, В-
10A	_ В	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 Appetite PD, LGD and EAD models provide some of the key inputs into the risk-based methodologies used in the assessment of business and market variables which in turn are key components in the approach taken in setting Risk Appetite.

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 guaranter or derivative counterparty.

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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

			31-Dec-18			31-Dec-17	
тı	ype of asset	Sovereign, bank and corporate exposures	Equity exposures under PD/LGD approach	Total	Sovereign, bank and corporate exposures	Equity exposures under PD/LGD approach	Total
	EAD 1/ (Million Baht)	118,293	-	118,293	123,036	-	123,036
Grade	○ PD ^{2/} (%)	0.07%	-	-	0.08%	-	-
1 - 4	○ RW ^{3/} (%)	19.47%	-	-	22.26%	-	-
	○ LGD ^{4/} (%)	38.95%	-	-	37.51%	-	-
	EAD 1/ (Million Baht)	34,465	-	34,465	45,639	-	45,639
Grade	○ PD ^{2/} (%)	0.66%	-	-	0.68%	-	-
5 - 8	○ RW ^{3/} (%)	54.63%	-	-	64.04%	-	-
	○ LGD ^{4/} (%)	40.32%	-	-	47.44%	-	-
	EAD ^{1/} (Million Baht)	7,014	-	7,014	4,238	-	4,238
Grade	○ PD ^{2/} (%)	3.49%	-	-	8.49%	-	-
9 -12	○ RW ^{3/} (%)	126.37%	-	-	195.55%	-	-
	○ LGD ^{4/} (%)	44.27%	-	-	52.25%	-	-
Cuada	EAD ^{1/} (Million Baht)	2,372	-	2,372	2,425	-	2,425
Grade	○ PD ^{2/} (%)	100.00%	-	-	100.00%	-	-
13 - 14 (Datasii	○ RW ^{3/} (%)	15.36%	-	-	18.50%	-	-
(Default)		58.07%	-	-	63.62%	-	-

[·] A number of grades is an example. Fls shall disclose the number of grades as appropriate in order for users to recognise the difference of credit risk levels.

^{**} Including purchased receivables

Outstanding of on-balance sheet assets and off-balance sheet items after multiplying by CCF and after CRM

²¹ O PD is the EAD-weighted average PD for each rating grade (For purchased receivables, FIs shall report only PD of default risk)

 $^{^{3/}}$ \bigcirc 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

			31-Dec	-18			31-Dec-	-17	
	Type of asset	mortgage		Other retail exposures	Total	Residential mortgage exposures	Qualifying revolving retail exposures	Other retail exposures	Total
	EAD 1/ (Million Baht)	-	-	-	-	-	-	-	-
Grade	○ PD ^{2/} (%)	-	0.00%	-	-	-	0.00%	-	-
1 - 4	○ RW ^{3/} (%)	-	0.00%	-	-	-	0.00%	-	-
	⊗ LGD ^{4/} (%)	-	0.00%	-	-	-	0.00%	-	-
	EAD 1/ (Million Baht)	-	-	-	-	-	-	-	-
Grade	⊗ PD ^{2/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-
5 - 8	○ RW ^{3/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-
		-	0.00%	0.00%	-	-	0.00%	0.00%	-

The Bank

			31-Dec	-18			31-Dec-17					
ר	Type of asset		Qualifying revolving retail exposures	Other retail exposures	Total	Residential mortgage exposures	Qualifying revolving retail exposures	Other retail exposures	Total			
	EAD ^{1/} (Million Baht)	-	-	-	-	-	-	-	-			
Grade	○ PD ^{2/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-			
9 -12	○ RW ^{3/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-			
	○ LGD ^{4/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-			
Overde	EAD ^{1/} (Million Baht)	-	-	-	-	-	-	-	-			
Grade	○ PD ^{2/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-			
13 - 14	○ RW ^{3/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-			
(Default)	○ LGD ^{4/} (%)	-	0.00%	0.00%	-	-	0.00%	0.00%	-			

^{*} Including purchased receivables

[&]quot;Outstanding of on-balance sheet assets and off-balance sheet items after multiplying by CCF and after CRM

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

 $^{^{^{3/}}}$ \odot 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)

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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-18

Retail Asset Class	EAD 1/	EL ^{2/} (%)						
netali Asset Class	LAD	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-17

Retail Asset Class	EAD 1/	EL ^{2/} (%)						
Hetali Asset Olass	LAD	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	-	-	-	-	-			

^{*} Including purchased receivables

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

Outstanding of retail exposures and Undrawn Committed Line after CCF and Credit Risk Mitigation

 $^{^{2/}}$ EL = \sum (ELi*EADi) \div \sum EADi

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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

		31-Dec-18			31-Dec-17	
Type of asset	Eligible financial collateral ¹⁷	Other collateral ^{2/}	Guarantee and credit derivatives	Eligible financial collateral "	Other collateral ^{2/}	Guarantee and credit derivatives
1. Non-defaulted assets						
1.1 Claims on sovereigns, banks, and						
corporate	13,047	770	6,871	24,873	623	5,103
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	91	121	-	115	-	-
Total	13,138	891	6,871	24,988	623	5,103

^{**} 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

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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-18

Type of Asset		Rate	ed outsta	inding						Unra	ated outs	tanding			
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/}	472	-	-	-	-	-	-	-	-	-	-	-	-	-	-
 Claims on financial institutions and securities companies ^{2/} 	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Claims on corporate 3/	-	-	-	2,931	-	-	-	-	-	-	-	-	-	-	-
4. Claims on retail portfolios	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Claims on residential mortgage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Other assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Risk Weight (%)			50	100	150					75					
Default exposures 4/	-	-	-	4	22	-	-	-	-	0*	-	-	-	-	-
Deducted Items								١	Vil						

The Bank

Unit: Million Baht

31-Dec-17

Type of Asset		Rate	d outstar	nding						Unrate	d outstan	ding			
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								١	Jil						

^{*} 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

²¹ 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

 $^{^{\}mbox{\tiny 4/}}$ RW(%) of part of Outstanding that is not secured by CRM

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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

	31-1	Dec-18	31-0	Dec-17
Type of asset	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/	1	5,069	84	4,600
1.4 Claims on retail portfolios	-	-	-	-
1.5 Residential mortgage exposures	-	-	-	-
1.6 Other assets	-	-	-	-
2. Defaulted assets	-	-	-	-
Total	1	5,069	84	4,600

^{*} Values after netting of on-balance sheets and off-balance sheets

Regulatory Expected Loss versus Individual Impairment Charges

The table 26 and 27 below show actual loss and regulatory expected loss as at 31 December 2018 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:

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

⁴¹ Including Claims on Provincial administrations, government entities and state enterprises (PSEs) using the same risk weight as Claims on Corporate

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- 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 is less than the expected loss due to repayment of default customers in 2018. It should be noted that the Expected Loss shown in table 27 was computed as of 31 December 2017 as per regulatory requirement. The actual loss is the provision balances on the balance sheet that 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	Actua	Change	
Type of accet	31-Dec-18	31-Dec-17	onungo
Claim on sovereign, banks and corporate	2,124	2,341	(217)
Equity exposures	-	-	-
Retail exposures	-	178	(178)
Total	2,124	2,519	(395)

Table 27: Estimates of Losses Comparing to Actual Losses*

The Bank

Unit: Million Baht

	31-Dec-17	31-Dec-18	31-Dec-16	31-Dec-17
Type of asset	Expected	Actual	Expected	Actual
	loss	loss	loss	loss
Claim on sovereign, banks and corporate	2,530	2,124	3,836	2,341
Equity exposures	-	-	-	-
Retail exposures	-	-	832	178
Total	2,530	2,124	4,668	2,519

The Expected Loss and Actual Loss of Retail exposures were decreased due from selling of Retail Banking which was completed on 1 October 2017.

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

The Bank

31-Dec-18

Asset Class	Predicted PD%	Actual PD%	Predicted LGD%	Actual LGD	Predicted EAD	Actual EAD
	(EAD Weighted)	(EAD Weighted)	(EAD Weighted)	%	(Million Baht)	(Million Baht)
Claim on sovereign, banks and corporate	0.74%	0.00%	N/A	N/A	N/A	N/A
Equity exposures	-	-	-	-	-	-
Retail exposures	-	-	-	-	-	-
Total					N/A	N/A

There was no defaulted and resolved cases in the four-year period as such all LGD number are N/A and no default exposures during 2018, hence Predicted / Actual EAD are N/A.

31-Dec-17

	Predicted	Actual	Predicted	Actual	Predicted	Actual
Asset Class	PD%	PD%	LGD%	LGD	EAD	EAD
ASSEL Class	(EAD	(EAD	(EAD	%	(Million Baht)	(Million Baht)
	Weighted)	Weighted)	Weighted)			
Claim on						
sovereign,	0.93%	0.17%	30.68%	54.99%	184	200
banks and	0.5076	0.17 /0	00.0070	04.0070	104	200
corporate						
Equity exposures	-	-	-	-	-	-
Retail exposures	-	-	-	-	-	-
Total					184	200

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.

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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, Executive Risk Committees 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

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• 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	The Bank	
	31-Dec-18	30-Jun-18	
Interest Rate Risk	1,581	1,870	
Equity Position Risk	-	-	
Foreign Exchange Rate Risk	151	275	
Commodity Risk	-	-	
Total Minimum Capital Requirements	1,732	2,145	

The Bank is required to have THB 1,732 million total capitals against Market Risk. Comparing with June 2018, the decrease of THB 413 million is due to Interest Rate Risk.

7. Operational Risk

The Bank defines operational Risk as the potential for loss from inadequate or failed internal processes, and systems, human error, 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 Executive Risk Committee ("ERC") provides oversight of operational risk management across the Bank. It is supported by the Country Non Financial Risk Committee ("CNFRC"). These risk committees receive regular reports on the Bank operational risk profile. The CNFRC is supported by other committee and forums including Country Financial Crime Risk Committee ("CFCRC"), Outsourcing Forum ("OF"), Business Operational Risk Forum ("BORF") and the Function Operational Risk Forum ("FORF"). The CFCRC oversees financial crime risk. The OF oversees third party risk management, the BORF and the FORF oversee operational risk arising from the businesses and functions respectively.

In November 2018, the Country Operational Risk Committee ("CORC") had been changed to the CNFRC in line with the change of some Operational Risk Sub-Types to Principal Risk Types. The Operational Risk Sub-Type that have been changed to the Principal Risk Types ("PRT") are Compliance Risk, Conduct Risk, Information and Cyber Security Risk and Financial Crime Risk. The CNFRC oversees the Non Financial Risk Types, which are Operational Risk, Reputational Risk and the mentioned PRTs.

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 Risk Framework Owners ("RFO"), Subject Matter Experts ("SME") and policy owenrs. The RFOs oversee the mentioned Non Financial PRTs which are Operational Risk, Reputational Risk, Compliance Risk, Conduct Risk, Information and Cyber Security Risk and Financial Crime Risk. The SMEs who are expert in each area oversee Risk Sub-Types under the PRTs. 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 statement

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.

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.

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OPERATIONAL RISK SUB-TYPES				
Transaction processing	Potential for loss due to failures in the design or execution of client facing transactions.			
Product management	Potential for loss due to the failure to design and /or meet product management standards and product related regulatory requirements.			
People management	Potential for loss due to the failure to meet standards for people management including relevant regulations (e.g. employment, remuneration and benefits).			
Client service resilience	Potential for loss or adverse impact due to failures to maintain or manage processes supporting client service.			
System availability	Potential for loss or adverse impact due to failures to maintain systems (including the design and setup of software and architecture).			
Data quality	Potential for loss due to the failure to define and/or meet data quality standards including resilience requirements.			
Vendor service	Potential for loss or adverse impact due to failures to maintain vendor service (including resilience requirements).			
Change management	Potential for loss or adverse impact due to failures to manage project related change.			
Internal fraud	Potential for loss due to action by staff which is intended to defraud, or to circumvent the law or company policy (including Rogue Trading).			
External fraud	Potential for loss due to criminal acts by external parties such as the misappropriation or theft of financial assets.			
Corporate governance and authorities	Potential for loss due to non-compliance with relevant laws, regulations, ordinances or market guidance (which a Group entity would customarily comply with) relating to an entity's board, directors, members and shareholders.			
Financial books and records	Potential for loss or adverse impact due to failure to comply with laws and regulations for financial books and records.			

Tax obligations	Potential for loss or adverse impact due to failure to comply with laws and regulations for tax.
Model	Potential for loss or adverse impact due to incorrect design or use of models

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 to operational risk management.

All potential failures ("PF") that can cause a process to breakdown are identified and relevant risks are assessed for Gross Risk ("GR") using the Group Risk Assessment Matrix ("GRAM").

A set of control monitoring indicators, comprising Key Control Indicators ("KCI") and Control Sample Tests ("CST") are designed and monitored to provide information on the effectiveness of the control environment. The results of the control monitoring must be evidenced and recorded within the infrastructure provided by OR.

The Residual Risk ("RR") is determined by assessing the effectiveness of the control environment in mitigating the GR using the GRAM. The assessment is based on the control monitoring results, and any back-testing information such as the presence of operational risk events, and any findings from internal reviews, audits, or external parties.

Assessing the RR provides a basis for the prioritisation of remediation of identified control weaknesses and gaps.

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 information and cyber security, sanctions, political unrest, regulatory non compliance, fraud and etc.

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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 2018, 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

The Bulk	Unit: Million Baht	
Equity exposure	31-Dec-18	31-Dec-17
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)	18	66
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 2018 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 Ba	Bank
	31 Dec 18	31 Dec 17
THB	-66	175
USD	182	107
EURO	-	-
OTHER	1	15
Total Impact on Net Interest Income	117	297

Impact of Interest Rate Change of 1% on Net Interest Income has decreased compared to 2017 mainly driven by lower BOT placement which are usually short tenor (less than 7 days), offsetting with an increase in investment in securities which have the average tenor of 6-12 months.

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10. Acronyms

AC Approval Committee

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
CNFRC Country Non Financial 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
ERC Executive Risk Committee

ERMF Enterprise Risk Management Framework

FORF Function Operational Risk Forum

FTP Fund Transfer Pricing

GSAM Group Special Asset Management

HVSB High Value Small Business

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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

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