Quantitative and Qualitative Disclosures about Credit, Market and Other Risk

Scope of Basel II application

Deutsche Bank Aktiengesellschaft (“Deutsche Bank AG”), headquartered in Frankfurt am Main, Germany, is the parent institution of the Deutsche Bank group of institutions, which is subject to the supervisory provisions of the Banking Act and the SolvV. The Deutsche Bank AG, Bangkok Branch is a segment of Deutsche Bank Aktiengesellschaft and is not a separately incorporated legal entity. Risk management process of Deutsche Bank AG, Bangkok Branch follows risk management process of parent bank.

Included in the following section on quantitative and qualitative disclosure about credit, market and other risks is information regarding to Basel II of Deutsche Bank AG, Bangkok Branch according to Bank of Thailand’s related notifications. Certain portions excerpted from disclosure of Parent bank. More information of parent bank can be found under website
https://www.db.com/ir/en/download/DB_Annual_Report_2017.pdf

Capital Structure

As at 31 December and 30 June 2017, assets maintained in Thailand for capital funds purpose were Bank of Thailand’s Bonds and Thai Government Bonds which are funded from borrowings from other Deutsche Bank branches outside Thailand. The assets maintained and the source of funds were qualified as the bank capital funds as they were fully met with the conditions as specified according to Section 32 of the Financial Institutions Businesses Act B.E. 2551.

The table below presents Deutsche Bank AG, Bangkok Branch’s capital structure as at 31 December and 30 June 2017.

Capital Structure of Foreign Bank Branch

Unit : TTHB

Item	Dec-17	Jun-17
1. Assets required to be maintained under Section 32	**18,110,850.40**	**18,105,648.18**
2. Sum of net capital for maintenance of assets under Section 32 and net balance of inter-office accounts (2.1+2.2)	**24,743,853.54**	**21,667,428.84**
2.1 Capital for maintenance of assets under Section 32	17,800,000.00	17,800,000.00
2.2 Net balance of inter-office accounts which the branch is the debtor (the creditor) to the head office and other branches located in other countries, the parent company and subsidiaries of the head office	6,943,853.54	3,867,428.84
3. Total regulatory capital (3.1-3.2)	**17,799,872.31**	**17,799,842.85**
3.1 Total regulatory capital before deductions (The lowest amount among item 1 item 2 and item 2.1)	17,800,000.00	17,800,000.00
3.2 Deductions	127.69	157.15

Capital Adequacy

The following key principles are our approach to monitor capital adequacy of Deutsche Bank AG, Bangkok Branch.

— Organizes a monthly local Asset and Liability Committee (ALCO) meeting to monitor relevant risk dimensions and setting internal targets to maintain capital adequacy and a sufficient capital buffer as required by Bank of Thailand as well as calibrate the needs of the business divisions to the availability of capital.

- Accommodates the implementation of an Internal Capital Adequacy Assessment Process (ICAAP) required by Bank of Thailand which comes to effective in 2011. Deutsche Bank AG, Bangkok Branch has incorporated a large borrower concentration risk, sector concentration risk and interest rate in banking book for BIS ratio calculation.
- Develops a business plan to manage the businesses' projection growth and the adequacy of capital.

Besides of the above, Deutsche Bank AG, Bangkok Branch also conducts daily monitoring of deduction items from the capital funds according to Bank of Thailand's notifications i.e. assess fair values at end of day of prior working day of derivatives transactions and securities, monitor failed trades and net inter-office balance as well as assess estimated capital adequacy of the bank before undertaking material derivatives transactions.

The following tables represent minimum capital requirement for credit risk, market risk and operational risk as well as capital ratio of Deutsche Bank AG, Bangkok Branch as at 31 December and 30 June 2017.

Unit : TTHB

Minimum capital requirement for credit risk classified by type of assets under the SA	Dec-17	Jun-17
Performing claims		
1. Claims on sovereigns and central banks, multilateral development banks (MDBs), and non-central governement public sector entities (PSEs) treated as claims on sovereigns	-	-
2. Claims on financial institutions , non-central governement public sector entities (PSEs) treated as claims on financial institutions, and securities firms	1,681,645.43	1,811,804.03
3. Claims on corporates , non-central governement public sector entities (PSEs) treated as claims on corporate	3,045,189.83	3,239,324.15
4. Claims on retail portfolios	6.24	11.10
5. Claims on housing loans	-	-
6. Other assets	12,070.25	13,792.52
Non-performing claims	-	-
First-to-default credit derivatives and Securitisation	-	-
Total minimum capital requirement for credit risk under the SA	**4,738,911.75**	**5,064,931.80**

Unit : TTHB

Minimum capital requirement for market risk	Dec-17	Jun-17
Calculate by Standardised approach	2,332,989.40	2,642,369.04
Total minimum capital requirement for market risk	**2,332,989.40**	**2,642,369.04**

Unit : TTHB

Minimum capital requirement for operational risk	Dec-17	Jun-17
Calculate by Basic Indicator Approach	217,905.03	225,247.72
Total minimum capital requirement for operational risk	**217,905.03**	**225,247.72**

Unit : %

Total risk-weighted capital ratio	Dec-17	Jun-17
Total capital to risk-weighted assets	23.81	21.88

Risk Exposure and Assessment

Risk Management Framework

The risk management at the Bank is integral to DB Group's risk management framework and processes.

The Bank's business model requires to identify, assess, measure, aggregate and manage risks, and to allocate capital among our businesses. Risk and capital are managed via a framework of principles, organizational structures and measurement and monitoring processes that are closely aligned with the activities and organizational structure of the Bank.

— Core risk management responsibilities are embedded in the Bank's EXCO and delegated to senior risk management committees responsible for execution and oversight. The EXCO regularly monitors the risk and capital profile.
— We operate a Three Lines of Defence ("3LoD") risk management model. The First Line of Defense ("1st LoD") are all the business divisions and service providing infrastructure areas (i.a., Group Technology Operations and Corporate Services) who are the "owners" of the risks. The Second Line of Defence ("2nd LoD") are all the independent risk and control infrastructure functions. The Third Line of Defence ("3rd LoD") is Group Audit, which assures the effectiveness of our controls. All 3LoD are independent of one another and accountable for maintaining structures that ensure adherence to the designed principles at all levels.
— Risk strategy is approved by the Executive Committee (TMC) of the Branch on an annual basis and is defined based on the Risk Appetite and Strategic and Capital Plan in order to align risk, capital and performance targets.
— Cross-risk analysis reviews are conducted to validate that sound risk management practices and a holistic awareness of risk exist.
— All material risk types are centrally managed via risk management processes. Modeling and measurement approaches to assess risk in terms of capital demand. Reputational risk, model risk are implicitly covered in DB Group's economic capital framework, primarily within operational and strategic risk.
— Monitoring, stress testing tools and escalation processes are in place for key capital and liquidity thresholds and metrics.
— Systems, processes and policies are critical components of our risk management capability. The Bank has a sound & efficient risk infrastructure in place.
— Recovery plan is managed via a centralized process. DB Group Recovery planning provides the escalation path for crisis management governance and supplies senior management with a list of actions designed to improve the capital and liquidity positions in a stress event.
— At the Group level, resolution planning is closely supervised by the Single Resolution Board ("SRB"). It provides a strategy to manage Deutsche Bank in case of default. It is designed to strengthen financial stability by the continuation of critical services delivered to the wider economy.

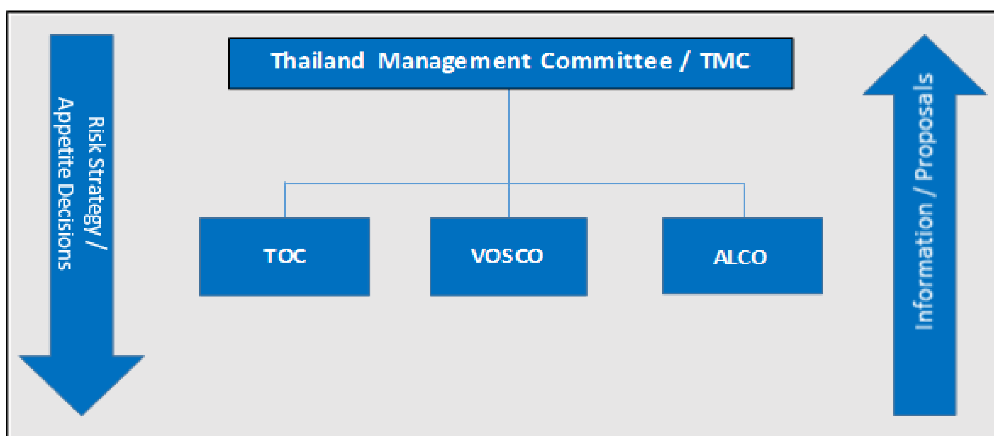
Risk Governance

— The Bank's operations are regulated and supervised by Bank of Thailand. Such regulation focuses on licensing, capital adequacy, liquidity, risk concentration, conduct of business as well as organizational and reporting requirements. The European Central Bank in connection with the competent authorities of EU members which joined the Single Supervisory Mechanism via the Joint Supervisory Team act in cooperation as DB Group primary supervisors to monitor the Group's compliance with the German

Banking Act and other applicable laws and regulations as well as the CRR/CRD 4 framework and respective implementations into German law.

- Several layers of management provide cohesive risk governance:
- The TMC is aware and kept regularly informed on special developments in our risk situation, risk management and risk controlling, as well as on our reputation and material litigation cases.
- The TMC is responsible for managing the Bank in accordance with the law, the Articles of Association and its Terms of Reference with the objective of creating sustainable value in the interest of the company, thus taking into consideration the interests of the shareholders, employees and other stakeholders.
- The TMC is responsible for establishing a proper business organization, encompassing an appropriate and effective risk management.

The following functional committees are central to the management of risk at the bank:



TOC = Thailand Operating Council
VOSCO = Vendor and Outsourcing Council
ALCO = Asset and Liabilities Committee

The Risk Manager for the Branch oversees the management of all credit and market risks as well as the comprehensive control of risk. He also is the member of the local Credit Risk Management, which is the key local credit approval body.

Risk Culture

The risk culture at the Bank is fully integrated in DB Group's risk culture framework and processes. This is underpinned in the below principles and practices.

DB Group seeks to promote a strong risk culture throughout the organization. It aims to help reinforce the Bank's resilience by encouraging a holistic approach to the management of risk and return throughout the organization as well as the effective management of DB Group's risk, capital and reputational profile. DB Group actively takes risks in connection with its business and as such the following principles define the risk culture within DB Group:

- Risk is taken within a defined risk appetite;
- Every risk taken needs to be approved within the risk management framework;
- Risk taken needs to be adequately compensated; and
- Risk should be continuously monitored and managed.

Employees at all levels are responsible for the management and escalation of risks. All employees are expected to exhibit behaviors that support a strong risk culture. To promote this DB Group policies require that behavior assessment is incorporated into our performance assessment and compensation processes. DB Group communicated the following risk culture behaviors through various communication vehicles:

- Being fully responsible for our risks;
- Being rigorous, forward looking and comprehensive in the assessment of risk;
- Inviting, providing and respecting challenges;
- Trouble shooting collectively; and
- Placing Deutsche Bank and its reputation at the heart of all decisions.

These behaviours are reinforced through a comprehensive risk culture training programme, as well as targeted communications and awareness campaigns.

Risk and Capital Management

Risk and Capital Management Organization

The DB Group's Chief Risk Officer (CRO), who is a member of the DB Group Management Board, is responsible for the identification, assessment, management and reporting of risks arising within operations across all businesses and risk types. The below functional committees are central to the Risk function:

- The DB Group's Risk Committee identifies, controls and manages all risks including risk concentrations at the DB Group. To fulfil this mandate, the DB Group's Risk Committee is supported by sub-committees that are responsible for dedicated areas of risk management, including the Non-Financial Risk Committee, the Enterprise Risk Committee, and the Group Reputational Risk Committee.
- The Non-Financial Risk Committee ensures oversight and decision-making on Non-Financial Risks.
- The Group Reputational Risk Committee ensures oversight, governance and decision-making on Reputational Risks. It also provides for an appropriate look-back and lessons learnt process.
- The Enterprise Risk Committee ensures oversight and decision-making on Financial Risks and cross-risks. It is responsible for aggregating and analysing enterprise-wide risk information and recommending risk and return allocation across risks. Enterprise Risk Management will manage enterprise risk appetite and allocation across businesses and legal entities, integrate and aggregate risks to provide greater enterprise risk transparency to support decision making, govern and improve the effectiveness of risk management framework , and commission forward looking stress tests, and manage group recovery and resolution plans.

Dedicated Risk units are established with the mandate to:

- Ensure that the business conducted within each division is consistent with the DB Group's risk appetite;
- Formulate and implement risk and capital management policies, procedures and methodologies that are appropriate to the businesses within each division;
- Approve credit, market and liquidity risk limits;
- Conduct periodic portfolio reviews to ensure that the portfolio of risks is within acceptable parameters; and
- Develop and implement risk and capital management infrastructures and systems that are appropriate for each division.

The heads of the DB Group's Risk units, who are the members of DB's Group Risk Committee, are responsible for the performance of the units and report directly to DB Group's Chief Risk Officer.

DB Group's Finance and Group Audit departments support the Risk function where they operate independently of both the group divisions and of the Risk function.

Structure and Responsibilities of Agencies of Risk Management

Risk management responsibilities conducted by our local management committees which are as below:

1) ***Thailand Management Committee (TMC)***

The TMC is chaired by Chief Country Officer.

The TMC provides a forum for managing the issues in Thailand on:
- The businesses potential and development including return of capital and capital allocation
- Development and review of financial budgets
- Co-ordination of coverage of major clients
- Regulatory and reputation issues

2) ***Asset and Liability Committee (ALCO)***

The ALCO is chaired by the Treasurer responsible for Deutsche Bank AG, Bangkok Branch or delegate.

The local Asset and Liability Committee (ALCO) provides a forum for managing the capital, liquidity and funding position of Deutsche Bank AG, Bangkok Branch for ensuring regular monitoring of risk positions, capital requirements and regulatory compliance. The ALCO reviews other risk dimensions such as Credit and Market risk as required to comply with the local Internal Capital Adequacy Assessment Process (ICAAP).

Typical Activities are as below:
- Promotion of decisions and policies made on a Deutsche Bank Group level as applicable to the Bank
- Review of regulatory changes, decision making on and monitoring of implementation of adequate processes
- Discuss market developments and stress test results from adverse market movements on the branch's liquidity position
- Ensure compliance with internal and local external requirements (limits/ ratios/ targets) and/or regulatory requirements
- Calibrate the needs of the business divisions to the availability of capital, liquidity and balance sheet and assist them in adjusting their portfolios to the limited availability of these financial resources
- Setting and reviewing (where relevant) specific targets for risk weighted assets (RWA) by business line (if required), balance sheet size, unsecured funding and daily liquidity stress test.
- Monitoring relevant risk dimensions and setting internal targets to maintain capital adequacy and a sufficient capital buffer as required under the local ICAAP
- Assist in setting and reviewing (where relevant) limits/ targets by instrument for volumes, tenor and term structure, as well as market concentration, limits/ guidelines and targets for investor diversification

3) ***Thailand Operating Council (TOC)***

The TOC is chaired by Country Chief Operating Officer.

The council provides a forum for managing operation issues, including

— Disseminate information which is relevant to Committee members in order for them to achieve both their and Bank's objectives
— Support the implementation of the Operational Risk Management framework across businesses and ensure that appropriate levels of resources from the members' respective business areas are allocated to participate in the implementation
— Monitor the operational risk profiles of each Division and prioritise actions to be taken to mitigate these risks as appropriate
— Review Internal Audit Reports and monitor audit points and ensure that appropriate actions are taken to resolve outstanding audit points in a timely manner
— Review Operational Risk Management status report, loss reports, etc.
— As appropriate, discuss and resolve cross business issues with a view to manage risk and improve service to the businesses
— Monitor cost development of various operations areas
— Monitor and keep updating regulatory changes and development
— Monitor reputational and regulatory and compliance issues
— Update new product and new operational process development & implementation
— Manage staffs and trainings issues

4) <u>Group Audit</u>

— Group Audit adds value by providing independent and objective assurance to the Management Board of Deutsche Bank Aktiengesellschaft ("Deutsche Bank") and its group companies ("Group"), on the adequacy of the design, effectiveness and efficiency of the risk management system and the systems of internal control. Group Audit also acts as an independent, proactive and forward-looking challenger and adviser to Senior Management of the Group.
— The Group Audit Executive Committee is a Group Audit committee established by the Global Head of Group Audit. Its mandate is to agree on Group Audit's strategy and strategic objectives, structure, policies and procedures and all aspects of Group Audit's operating model.
— The Group Audit Executive Committee may delegate, as part of its normal course of business, specialized areas of responsibility to Sub-Committees.
— Group Audit supports the Management Board in identifying significant known and emerging weaknesses in the control framework, risk exposures, including fraud risks, and in improving the effectiveness and efficiency of risk management, internal controls, governance processes and systems in a holistic and forward looking manner.
— Group Audit evaluates compliance of the Group's organizational units with policies and procedures, the integrity of the processes ensuring the reliability of the institution's methods and techniques, assumptions and sources of information used in its internal models and the quality and use of qualitative risk identification and assessment tools. Group Audit also plays an integral role in the achievement of the Group's strategic objectives, including the application of the Values & Beliefs, as well as ethical and environmental standards, each as set by the Management Board.
— Group Audit, with strict accountability for confidentiality and safeguarding records, will be granted the complete and unrestricted right, at all times, to obtain all information required to fulfill its responsibilities. To this end Group Audit has unrestricted access to all premises, employees, information and documentation to fulfill its role and the authority to examine any activities, IT systems or entities. Such access is to be provided without undue delay, including, where appropriate, outsourced operations.
— Group Audit's activities are based on a comprehensive, risk-based audit plan. Group Audit maintains and updates an Audit Universe covering the Group's activities and processes, which are segmented through a top-down, three-tier structure consisting of Divisions, Sub-Divisions and Auditable Areas. The risk assessments, methodology and quality underpinning the audit plan are reviewed and refined regularly, at least annually. The audit plan and any material modifications, as defined in the Group Audit Policies, are approved by the Management Board.
— The audit plan covers the Group's activities and processes in a risk-oriented manner, irrespective of whether they are outsourced or not, generally over a three-year period. The audit plan also

includes work mandated by regulatory authorities. Sufficient time is included in the plan so that audits required at short notice can be performed as and when required.

— Group Audit prepares written reports or memoranda on each audit and investigation as well as on non audit services and submits them, as defined in the Group Audit Policies, to the responsible Senior Managers, and where required, members of the Management Board. Engagement reports include the audit subject, results evaluation, issues and, as appropriate, remedial actions. In the event of issues rated as critical, these will be highlighted and the report will be promptly submitted to the Management Board.
— If there is no agreement between the audited organizational unit and Group Audit regarding remedial actions, the audited organizational unit may include a statement on this matter in the report.
— The Management Board will be informed at least quarterly of the results of the work of the Group Audit function. Such reports will include issues identified by Group Audit, in particular issues rated as critical, remedial actions and status of remediation and overdue issues. Where applicable, reports will also include findings from other reviewers, including regulators, to identify risks and issues more holistically.

Categories of Risk

Group is exposed to a variety of risks, amongst them credit, market, operational, liquidity, reputational and business risks.

- **Credit risk**

Credit risk arises from all transactions where actual, contingent or potential claims against any counterparty, borrower or obligor (which we refer to collectively as "counterparties") exist, including those claims that the Bank plans to distribute.

The Bank understands the below dimensions as key drivers for credit risk:

– "Counterparty Risk", the most significant element of credit risk, is the risk that counterparties fail to meet contractual obligations in relation to the claims described above;
– "Country Risk" arising from a country's propensity to economic and political disruption. It therefore relates to the likelihood that changes in the business environment will occur that reduce the viability of doing business in the country or region. Country Risk shall mean the risk that the Bank may suffer a loss due to possible deterioration of economic conditions; political and social upheaval; nationalisation and expropriation of assets; government repudiation of external indebtedness; exchange controls or currency depreciation or devaluation in any given country;
– "Industry Risk" being the risk of adverse developments in the operating environment for a specific industry segment leading to a deterioration in the financial profile of counterparties operating in that segment and resulting in increased credit risk across this portfolio of counterparties.
– "Product Risk" being the risk driven by the underlying structure and economic dependencies of the product in question and can include factors such as tenor, recovery expectations and likelihood of having an exposure at the time of a default. This category also includes 'Settlement risk' arising from the non-simultaneous transfer of cash or securities due to the settlement or clearance of trades.

The Bank manages credit risk on the basis of policies and guidelines set by Group Credit Risk Management (CRM), an independent risk management function organised in alignment with the divisions of the Bank.

The Bank's CRM is based on the following principles:

- Accept CR only with creditworthy clients based on proper client due diligence
- Manage concentration risk at counterparty, product, country and industry level. Actively mitigate concentration risk through collateralization, hedging and/or distribution
- Allocate CR appetite by considering sustainable risk/return

CRM is organised globally and carries out risk identification, assessment, management, monitoring and reporting of credit risks. The CRM department is independent from business. Accordingly, the Bank adopts the credit policies of DB Group and the Risk Manager is responsible for ensuring that local procedures are compliant with DB Group principles.

- **Market risk**

Market risk arises from the uncertainty concerning changes in market prices and rates (including interest rates, equity prices, foreign exchange rates and commodity prices), the correlations among them and their levels of volatility. Deutsche Bank assumes market risk in both trading and non-trading activities. The bank uses a combination of risk sensitivities, value-at-risk (VAR), stress testing and Economic Capital metrics to management market risks and establish limits.

- **Operational risk**

Operational Risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events, and includes legal risk. It excludes business and reputational risk.

- **Liquidity risk**

Liquidity risk is the risk arising from our potential inability to meet payment obligations when they come due or only being able to meet these obligation at excessive costs. Liquidity risk management safeguards our ability to meet payment obligations. Our liquidity risk management framework has been an important factor in maintaining adequate liquidity and in managing the funding profile during 2017.

The Management Board defines our liquidity risk strategy, and in particular its tolerance for liquidity risk based on recommendations made by Treasury and Group Risk Committee.

- **Business risk**

Business risk describes the risk assumes due to potential changes in general business condition, such as market environment, client behavior and technological progress.

- **Reputational risk**

Within our risk management processes, reputational risk is defined as the risk that publicity concerning a transaction, counterparty or business practice involving a client will negatively impact the public's trust in the organization.

Risk Management Tools

The DB Group uses a comprehensive range of quantitative methodologies for assessing and managing risks. As a matter of policy, the DB Group continually assesses the appropriateness and the reliability of its quantitative tools and metrics in light of DB Group's changing risk environment. Some of these tools are common to a number of risk categories, while others are tailored to the particular features of specific risk categories. These advanced internal tools and metrics the DB Group currently uses to measure, manage and report its risk are:

Economic Capital

Economic capital measures the amount of capital DB Group needs to absorb from very severe unexpected losses arising from the DB Group's exposures. "Very severe" in this context means that economic capital is set at a level to cover with a probability of 99.98% the aggregated unexpected losses within one year. DB Group calculates economic capital for the default risk, transfer risk and settlement risk elements of credit risk, for market risk, for operational risk and for general business risk. DB Group continuously reviews and enhances its economic capital model as appropriate. It uses economic capital to show an aggregated view of its risk position from individual business lines up to its consolidated Group level. In addition, the Group considers economic capital, in particular for credit risk, when the Group measures the risk-adjusted profitability of its client relationships.

Expected Loss

The DB Group uses expected loss as a measure of the credit and operational risk. Expected loss is a measurement of the loss the DB Group can expect within a one-year period from these risks as of the respective reporting date, based on historical loss experience. When calculating expected loss for credit risk, DB Group takes into account credit risk ratings, collateral, maturities and statistical averaging procedures to reflect the risk characteristics of different types of exposures and facilities. All parameter assumptions are based on statistical averages of up to seven years based on DB Group's internal default and loss history as well as external benchmarks. DB Group uses expected loss as a tool of the risk management process and as part of DB Group's management reporting systems. DB Group also considers the applicable results of the expected loss calculations as a component of its collectively assessed allowance for credit losses included in its financial statements. For operational risk DB Group determines the expected loss from statistical averages of internal loss history, recent risk trends as well as forward looking expert estimates.

Value at Risk

The DB Group uses the value-at-risk approach to derive quantitative measures for trading book market risks under normal market conditions. The Group's value-at-risk figures play a role in both internal and external (regulatory) reporting. For a given portfolio, value-at-risk measures the potential future loss (in terms of market value) that, under normal market conditions, will not be exceeded with a defined confidence level in a defined period. The value-at-risk for a total portfolio represents a measure of diversified market risk (aggregated using pre-determined correlations) in that portfolio.

Stress Testing

The Bank stress tests its pillar 1 capital as required and specified by Bank of Thailand. The Bank's Stress Tests are reported in the RCP report and regularly discussed by the TMC and ALCO. The TMC ensures that stress testing framework and scenarios used reflect all relevant material risks as well as local regulatory requirements. The TMC approves such stress testing framework, and is informed about the stress testing results regularly. It also assesses the viability of the Bank's capital planning based on the stress test results. The TMC is responsible to initiate and properly document remedial measures and mitigating actions (including explanations that justify the credibility and feasibility of those actions) based on the stress test results under consideration of the risk appetite, if deemed appropriate or necessary.

The Bank subjects all risk types covered under its EC concept (Pillar 2 risks), as well as liquidity risk, to regular stress tests. At Group level, the Stress Testing Committee is responsible for aligning scenario definitions between DB Group and legal entities according to the Global Stress Testing Policy.

Risk Appetite Framework

Risk appetite expresses the level of risk that we are willing to assume within our risk capacity in order to achieve our business objectives. Risk appetite is expressed in both qualitative statements and quantitative metrics. Risk capacity is defined as the maximum level of risk we can assume before breaching regulatory capital requirements and liquidity needs and our obligations to stakeholders.

Risk appetite is an integral element in our business planning processes via our Business and Risk Strategy, to promote the appropriate alignment of risk, capital and performance targets, while at the same time considering risk capacity and appetite constraints from both financial and non-financial risks. We leverage the stress testing process to test the compliance of the plan also under stressed market conditions. Top-down risk appetite serves as the limit for risk-taking for the bottom-up planning from the business functions.

The Risk Appetite Statement (RAS) at the Bank ensures that risk taking activities at the Bank is consistent with DB Group's strategy, business and risk overviews, as well as the local regulatory environment. Key objectives of the RAS are to:

- Articulate the Bank's risk appetite clearly via both quantitative metrics and qualitative statements;
- Detail an overall approach in communicating risk appetite across and within the Bank;
- Set ultimate boundaries for the Bank's risk/reward target setting;
- Ensure that the Bank has sufficient financial resources to support daily business at any given point in time and to absorb stressed market events;
- Be able to anticipate emerging risks and be adaptive towards changing economic and regulatory developments;
- Provide the basis for ongoing monitoring of our risk profile through the Bank's 'Risk and Capital Profile' report; and
- Define thresholds for each metrics at which escalation will be triggered.

In facilitating a consistent understanding of the nomenclatures around risk appetite, all key definitions established at DB Group level are adapted to the Bank as below:

Risk Appetite Framework: The overall approach, including policies, processes, controls, and systems through which risk appetite is established, communicated, and monitored;

Risk Capacity: The maximum level of risk that the Bank can assume before breaching regulatory capital and liquidity needs and its obligations to stakeholders;

Risk Appetite: The aggregate level of risk that the Bank is willing to assume within its risk capacity to achieve its business objectives;

Limit: Quantitative restriction on the size or amount of risk exposure based on forward looking assumptions;

Risk Profile: Point in time assessment of the Bank's gross and net risk exposures aggregated within, and across, each relevant risk type, business unit and legal entity based on current or forward-looking assumptions.

The Bank's Risk Appetite articulates the overall tone from the top in pursuing risk across the Bank and supports DB Group's risk culture, in reinforcing the bank's holistic risk management practices. In conjunction to the qualitative statements, the Bank desires to:

- Risk is taken within a defined risk appetite, which is actively managed and monitored in a timely manner, in order to maintain a robust risk profile and capital adequacy.
- Maintain stable funding and strategic liquidity to ensure that business is conducted within the liquidity risk appetite.
- Avoid any undue concentrations within the portfolios considering multiple dimensions. e.g. counterparty, region/ country, industries, products/ asset classes and business lines.
- Promote balanced risk adjusted performance and be fully responsible for accepting well compensated risks within risk appetite.
- Ensure that any business activity is supported by appropriate processes and controls to minimize operational risk.
- Minimize negative reputational, environmental and social impacts of our business activities.

The Bank assigns key risk appetite metrics that are sensitive to the material risks to which the bank is exposed to and which are able to function as key indicators of the bank's financial health in terms of liquidity and capital requirements. These key metrics are Common Equity Tier 1 (CET1) ratio, Economic Capital Adequacy (ECA) ratio, Liquidity Coverage Ratio (LCR), Stressed Net Liquidity Position (SNLP).

In order to determine risk appetite and capacity, thresholds are set and the escalation mechanism are defined for further action. The levels chosen reflect the Bank's strategic focus and business plan as well as additional internal and external stakeholders. Monitoring of risk profile using key risk appetite metrics is implemented using framework as described below:

Green status (within risk appetite): Performances are in line with the Bank's preparedness to accept risk to achieve its business objectives and risk management is considered to be operating in a normal environment. As part of normal risk management, measures are actively taken to ensure that the risk profile remains within our risk appetite, and move towards the externally disclosed strategic target as in the Risk and Capital Demand plan.

Amber status (within risk capacity): Issues that may position threats to the Bank's business model, deviate from our desired risk appetite and undermine the stakeholder expectations. Heightened risk management or mitigating actions may be applied in reference to the escalation matrix, in ensuring timely intervention.

Red status: Once the risk capacity is crossed, mitigating actions are invoked if not already triggered in the amber range.

In the event that the desired risk appetite is breached under either normal or stress scenarios, an escalation is made to the TMC which has to review and decide if further escalations to the Group and/or mitigating actions are required to bring risk profile back to the desired risk appetite range.

The following tables represent outstanding of on-balance sheet assets, off-balance sheet items and provisions of Deutsche Bank AG, Bangkok Branch as at 31 December 2017 and 2016.

General information on credit risk *

Outstanding amounts of significant on-balance sheet assets and off-balance sheet items before adjusted by credit risk mitigation

(Show outstanding at the end of the period)

Unit : TTHB

Item	2017	2016
1. On-balance sheet assets (1.1 + 1.2 + 1.3)	**82,485,455.01**	**78,983,730.24**
1.1 Net loans [1/]	36,973,147.19	32,664,383.01
1.2 Net Investment in debt securities [2/]	26,988,815.59	24,457,466.85
1.3 Deposits (including accrued interest receivables)	3,853,212.96	879,444.05
1.4 Derivatives	14,670,279.27	20,982,436.33
2. Off-balance sheet items [3/] (2.1 + 2.2 + 2.3)	**1,542,367,292.18**	**2,100,853,244.22**
2.1 Aval of bills, guarantees, and letter of credits	334,488.18	627,823.03
2.2 OTC derivatives[4/]	1,540,741,369.40	2,098,961,130.36
2.3 Undrawn committed line	1,291,434.60	1,264,290.83

* Assets on balance sheet not including equity exposures. Off-balance sheet items including equity exposures

[1/] Including accrued interest receivables and net of deferred incomes, allowances for doubtful accounts and allowances for revaluation from debt restructuring and including net loans of interbank and money market.

[2/] Excluding accrued interest receivables and net of allowances for revaluation of securities and allowances for impairment of securities

[3/] Before multiplying credit conversion factor

[4/] Including equity-related derivatives

Outstanding amounts of on-balance sheet assets and off-balance sheet items before adjusted credit risk mitigation classified by country or geographic area of debtor

Unit : TTHB

2017									
Country or geographic area of debtor	On-balance sheet assets					Off-balance sheet items [3/]			
	Total	Net loans [1/]	Net Investment in debt securities [2/]	Deposits (including accrued interest receivables)	Derivatives	**Total**	Aval of bills, guarantees, and letter of credits	OTC derivatives	Undrawn committed line
1. Thailand	**77,030,856.26**	36,801,311.60	26,988,815.59	3,819,421.52	9,421,307.55	**770,952,056.02**	331,801.06	769,328,820.36	1,291,434.60
2. Asia Pacific (exclude Thailand)	**3,213,885.48**	168,440.00	-	-	3,045,445.48	**536,438,013.60**	-	536,438,013.60	-
3. North America and Latin America	**371,010.61**	-	-	15,970.51	355,040.10	**80,876,076.85**	-	80,876,076.85	-
4. Africa and Middle East	**3,395.58**	3,395.58	-	-	-	**2,687.12**	2,687.12	-	-
5. Europe	**1,863,701.60**	-	-	15,215.47	1,848,486.13	**154,098,458.58**	-	154,098,458.58	-
6. Others	**2,605.46**	-	-	2,605.46	-	**-**	-	-	-
Total	**82,485,454.99**	**36,973,147.18**	**26,988,815.59**	**3,853,212.96**	**14,670,279.26**	**1,542,367,292.17**	**334,488.18**	**1,540,741,369.39**	**1,291,434.60**

Unit : TTHB

2016									
Country or geographic area of debtor	On-balance sheet assets					Off-balance sheet items [3/]			
	Total	Net loans [1/]	Net Investment in debt securities [2/]	Deposits (including accrued interest receivables)	Derivatives	**Total**	Aval of bills, guarantees, and letter of credits	OTC derivatives	Undrawn committed line
1. Thailand	**74,879,150.54**	32,550,309.46	24,457,466.85	844,490.77	17,026,883.46	**1,020,650,689.62**	585,057.78	1,018,801,341.01	1,264,290.83
2. Asia Pacific (exclude Thailand)	**1,699,709.28**	103,845.84	-	-	1,595,863.44	**702,635,905.38**	34,121.11	702,601,784.27	-
3. North America and Latin America	**539,768.72**	-	-	809.53	538,959.19	**111,321,888.18**	-	111,321,888.18	-
4. Africa and Middle East	**10,227.70**	10,227.70	-	-	-	**-**	-	-	-
5. Europe	**1,841,020.80**	-	-	22,069.62	1,818,951.18	**265,527,404.82**	-	265,527,404.82	-
6. Others	**13,853.20**	-	-	12,074.13	1,779.07	**717,356.22**	8,644.14	708,712.08	-
Total	**78,983,730.24**	**32,664,383.00**	**24,457,466.85**	**879,444.05**	**20,982,436.34**	**2,100,853,244.22**	**627,823.03**	**2,098,961,130.36**	**1,264,290.83**

* Commercial banks shall classify countries or geographic areas according to guidelines used in their internal management and shall explain supporting reasons

[1/] Including accrued interest receivables and net of deferred incomes, allowances for doubtful accounts and allowances for revaluation from debt restructuring and including net loans of interbank and money market.

[2/] Excluding accrued interest receivables and net of allowances for revaluation of securities and allowances for impairment of securities

[3/] Before multiplying credit conversion factor

Outstanding amounts of on-balance sheet assets and off balance sheet items before credit risk mitigation classified by residual maturity

Unit : TTHB

Item	2017		
	Maturity not exceeding 1 year	Maturity exceeding 1 year	**Total**
1. On-balance sheet assets (1.1 + 1.2 + 1.3)	**63,347,479.43**	**19,137,975.57**	**82,485,455.00**
1.1 Net loans [1/]	36,311,231.49	661,915.70	**36,973,147.19**
1.2 Net Investment in debt securities [2/]	16,166,719.93	10,822,095.66	**26,988,815.59**
1.3 Deposits (including accrued interest receivables)	3,853,212.96	-	**3,853,212.96**
1.4 Derivatives	7,016,315.05	7,653,964.21	**14,670,279.26**
2. Off-balance sheet items [3/] (2.1 + 2.2 + 2.3)	**914,120,505.28**	**628,246,786.90**	**1,542,367,292.18**
2.1 Aval of bills, guarantees, and letter of credits	257,963.94	76,524.24	**334,488.18**
2.2 OTC derivatives	912,738,847.93	628,002,521.47	**1,540,741,369.40**
2.3 Undrawn committed line	1,123,693.41	167,741.19	**1,291,434.60**

Unit : TTHB

Item	2016		
	Maturity not exceeding 1 year	Maturity exceeding 1 year	**Total**
1. On-balance sheet assets (1.1 + 1.2 + 1.3)	**56,840,983.74**	**22,142,746.48**	**78,983,730.22**
1.1 Net loans [1/]	31,737,193.16	927,189.84	**32,664,383.00**
1.2 Net Investment in debt securities [2/]	18,082,341.83	6,375,125.02	**24,457,466.85**
1.3 Deposits (including accrued interest receivables)	879,444.05	-	**879,444.05**
1.4 Derivatives	6,142,004.70	14,840,431.62	**20,982,436.32**
2. Off-balance sheet items [3/] (2.1 + 2.2 + 2.3)	**1,135,514,863.41**	**965,338,380.82**	**2,100,853,244.23**
2.1 Aval of bills, guarantees, and letter of credits	583,962.92	43,860.11	**627,823.03**
2.2 OTC derivatives	1,133,754,573.32	965,206,557.05	**2,098,961,130.37**
2.3 Undrawn committed line	1,176,327.17	87,963.66	**1,264,290.83**

[1/] Including accrued interest receivables and net of deferred incomes, allowances for doubtful accounts and allowances for revaluation from debt restructuring and including net loans of interbank and money market.

[2/] Excluding accrued interest receivables and net of allowances for revaluation of securities and allowances for impairment of securities

[3/] Before multiplying credit conversion factor

Outstanding amounts of loans including accrued interest receivables and investment in debt securities before adjusted by credit risk mitigation classifed by country or geographical area of debtor* and asset classification as prescribed by the Bank of Thailand

Unit : TTHB

2017							
Country or geographic area of debtor	Loans including accrued interest receivables[1/]						Specific provision for Investment in debt securities[2/]
	Normal	Special mentioned	Substandard	Doubtful	Doubtful loss	**Total**	
1. Thailand	37,030,162.37	97,412.90			53,541.05	**37,181,116.32**	12,377.68
2. Asia Pacific (exclude Thailand)	168,440.00					**168,440.00**	-
3. North America and Latin America						**-**	-
4. Africa and Middle East	3,395.58					**3,395.58**	-
5. Europe						**-**	-
6. Others						**-**	-
Total	**37,201,997.96**	**97,412.90**	**-**	**-**	**53,541.05**	**37,352,951.91**	**12,377.68**

Unit : TTHB

2016							
Country or geographic area of debtor	Loans including accrued interest receivables[1/]						Specific provision for Investment in debt securities[2/]
	Normal	Special mentioned	Substandard	Doubtful	Doubtful loss	**Total**	
1. Thailand	32,507,565.20	47,353.70			115,999.90	**32,670,918.80**	16,118.99
2. Asia Pacific (exclude Thailand)	103,845.84	-	-	-	-	**103,845.84**	-
3. North America and Latin America	301,949.12	-	-	-	-	**301,949.12**	-
4. Africa and Middle East	10,227.70	-	-	-	-	**10,227.70**	-
5. Europe	-	-	-	-	-	**-**	-
6. Others	-	-	-	-	-	**-**	-
Total	**32,923,587.86**	**47,353.70**	**-**	**-**	**115,999.90**	**33,086,941.46**	**16,118.99**

* Commercial banks shall classify countries or geographic areas according to guidelines used in their internal management and shall explain supporting reasons

[1/] Including outstanding amounts of loans and interest receivable receivables of interbank and money market

[2/] Including investments in receivables

Provisions (General provision and Specific provision) and bad debt written-off during period for loan including accrued interest receivables and investment in debt securities classified by country or geographic area*

Unit : TTHB

2017				
Country or geographic area of debtor	Loans including accrued interest receivables[1/]			Specific provision for Investment in debt securities[3/]
	General provision	Specific provision	Bad debt written-off during period	
1. Thailand		55,477.98	57,298.62	12,377.68
2. Asia Pacific (exclude Thailand)		-	-	-
3. North America and Latin America		-	-	-
4. Africa and Middle East		-	-	-
5. Europe		-	-	-
6. Others		-	-	-
Total	**254,908.80**	**55,477.98**	**57,298.62**	**12,377.68**

Unit : TTHB

2016				
Country or geographic area of debtor	Loans including accrued interest receivables[1/]			Specific provision for Investment in debt securities[3/]
	General provision	Specific provision	Bad debt written-off during period	
1. Thailand		116,943.86	-	16,118.99
2. Asia Pacific (exclude Thailand)		-	-	-
3. North America and Latin America		-	-	-
4. Africa and Middle East		-	-	-
5. Europe		-	-	-
6. Others		-	-	-
Total	**254,197.45**	**116,943.86**	**-**	**16,118.99**

* Commercial banks shall classify countries or geographic areas according to guidelines used in their internal management and shall explain supporting reasons.

[1/] Including provision and bad debt written-off during period of loans including accrued interest receivables of interbank and money market

[2/] Disclosed in total amount

[3/] Including investments in receivables

Outstanding amount of loans including accrued interests* before adjusted by credit risk mitigation classified by type of business and by asset classification specified by the Bank of Thailand

Unit : TTHB

2017						
Type of business	Normal	Special mentioned	Substandard	Doubtful	Doubtful loss	**Total**
- Agriculture and mining					53,541.05	**53,541.05**
- Manufacturing and commerce	12,057,275.26	76,400.47	-	-	-	**12,133,675.73**
- Real estate business and construction	384,856.46					**384,856.46**
- Public utilities and services	2,236,476.34	21,012.43				**2,257,488.77**
- Housing loans						**-**
- Others (Commercial banks shall use their owns discretion to dertermine significance)						
1. Finance business group	22,523,325.08					**22,523,325.08**
2. Multilateral organization						**-**
3. Other service	64.81					**64.81**
4. Commodities						**-**
Total	**37,201,997.96**	**97,412.90**	**-**	**-**	**53,541.05**	**37,352,951.90**

Unit : TTHB

2016						
Type of business	Normal	Special mentioned	Substandard	Doubtful	Doubtful loss	**Total**
- Agriculture and mining	-	-	-	-	58,701.28	**58,701.28**
- Manufacturing and commerce	13,053,028.30	47,353.70	-	-	57,298.62	**13,157,680.62**
- Real estate business and construction	400,565.16	-	-	-	-	**400,565.16**
- Public utilities and services	932,430.39	-	-	-	-	**932,430.39**
- Housing loans	-	-	-	-	-	**-**
- Others (Commercial banks shall use their owns discretion to dertermine significance)						
1. Finance business group	18,537,398.42	-	-	-	-	**18,537,398.42**
2. Multilateral organization	-	-	-	-	-	**-**
3. Other service	165.60	-	-	-	-	**165.60**
4. Commodities	-	-	-	-	-	**-**
Total	**32,923,587.87**	**47,353.70**	**-**	**-**	**115,999.90**	**33,086,941.47**

* Including outstanding amount of loans including accrued interest receivables of interbank anad money market

Provisions (General provision and Specific provision) and bad debt written-off during period for loans including accrued interest receivables* classified by types of business

Unit : TTHB

Type of business	2017			2016		
	General provision	Specific provision	Bad debt written-off during period	General provision	Specific provision	Bad debt written-off during period
- Agriculture and mining		53,541.05	-		58,701.28	-
- Manufacturing and commerce		1,516.93	57,298.62		58,242.58	-
- Real estate business and construction		420.00	-		-	-
- Public utilities and services		-	-		-	-
- Housing loans		-	-		-	-
- Others (Commercial banks shall use their owns discretion to dertermine significance)		-	-		-	-
Total	**254,908.80**	**55,477.98**	**57,298.62**	**254,197.45**	**116,943.86**	**-**

* Including outstanding amount of loans including accrued interest receivables of interbank anad money market

[1/] Disclosed in total amount

Reconciliation of change in provisions (General provision and Specific provision) for loans including accrued interest receivables*

Unit : TTHB

Item	2017			2016		
	General provision	Specific provision	**Total**	General provision	Specific provision	**Total**
Provisions at the beginning of the period	254,197.45	116,943.86	**371,141.31**	236,932.70	116,422.42	**353,355.12**
Bad debts written-off during the period	-	(57,298.62)	**(57,298.62)**	-	-	**-**
Increases or Decreases of provisions during the period	711.35	992.97	**1,704.32**	17,264.75	943.96	**18,208.71**
Other provisions (provisions for losses from foreign exchange, provisions for merger and sale of businesses)	-	(5,160.23)	**(5,160.23)**	-	(422.52)	**(422.52)**
Provisions at the end of the period	**254,908.80**	**55,477.98**	**310,386.78**	**254,197.45**	**116,943.86**	**371,141.31**

* Including outstanding amount of loans including accrued interest receivables of interbank and money market

Outstanding amounts of on-balance sheet assets and off-balance sheet items* classified by type of assets under the SA

Unit :TTHB

Type of asset	2017			2016		
	On balance sheet assets	Off balance sheet item **	Total	On balance sheet assets	Off balance sheet item **	Total
1. Performing claims						
1.1 Claims on sovereigns and central banks, multilateral development banks (MDBs), and non-central government public sector entities (PSEs) treated as claims on sovereigns	3,819,200.26	-	**3,819,200.26**	843,999.43	-	**843,999.43**
1.2 Claims on financial institutions , non-central governement public sector entities (PSEs) treated as claims on financial institutions, and securities firms	10,607,419.21	35,869,781.95	**46,477,201.16**	10,594,089.95	40,303,372.26	**50,897,462.21**
1.3 Claims on corporates , non-central governement public sector entities (PSEs) treated as claims on corporate	17,158,251.70	17,092,515.30	**34,250,767.00**	16,257,193.81	17,874,701.62	**34,131,895.43**
1.4 Claims on retail portfolios	64.03	-	**64.03**	163.64	-	**163.64**
1.5 Housing loans	-	-	**-**	-	-	**-**
1.6 Other assets	15,011,926.18	-	**15,011,926.18**	21,324,899.14	-	**21,324,899.14**
2. Non-performing claims	**-**	**-**	**-**	**-**	**-**	**-**
3. First-to-default credit derivatives and Securitisation	**-**	**-**	**-**	**-**	**-**	**-**
Total	**46,596,861.38**	**52,962,297.25**	**99,559,158.63**	**49,020,345.97**	**58,178,073.88**	**107,198,419.85**

* After multiplying with credit conversion factor and specific provision

** Including all Repo-style transactions (including Reverse repo transactions)

Credit risk exposure under the Standardized Approach (SA)

Deutsche Bank AG, Bangkok Branch calculates regulatory capital requirement for credit risk using the Standardized Approach (SA) methodology according to the Bank of Thailand's notification Re: Regulations for Credit Risk Asset Calculations for Commercial Banks Using the Standardized Approach (SA).

In setting risk weights of claims on sovereigns and central banks, claims on financial institutions, claims on securities companies and claims non-central government public sector entities (PSEs) treated as claims on sovereigns and treated as claims on financial institutions, Deutsche Bank use countries rating assessed by External Credit Assessment Institutions (ECAIs) as below:

1. Standard and Poor's
2. Moody's Investors Service
3. Fitch Ratings (Thailand)

In the absence of credit rating from ECAIs, then the rating of the country risk classification of OECD will be used.

In setting risk weights of claims on corporate and claims non-central government public sector entities (PSEs) treated as claims on corporate, Deutsche Bank use rating assessed by External Credit Assessment Institutions (ECAIs) as below:

1. Standard and Poor’s
2. Moody’s Investors Service
3. Fitch Ratings (Thailand)
4. TRIS Rating

For Fitch Ratings (Thailand), Deutsche Bank use Senior Unsecured Debt rating while for TRIS Rating, Deutsche Bank use company rating.

Deutsche Bank then match the debtor’s credit rating given by ECAIs with the rating grade as set out in the Bank of Thailand’s notification in order to identify the risk weights by type of claims on each debtor.

Setting Risk Weights given Multiple Credit Ratings

- Where the claim/debtor has 1 credit rating from the selected ECAI, Deutsche Bank use that rating to assign the risk weight for that claim/debtor.
- Where there are 2 different credit ratings from the selected ECAI with varying risk weights, Deutsche Bank use the higher risk weight.
- Where there are more than 2 credit ratings from the selected ECAI with varying risk weights, Deutsche Bank compare the two lowest risk weights, and use the higher risk weight; except where 2 or more credit ratings correspond to the lowest risk weight, Deutsche Bank use that risk weight.

The table below represents outstanding amount of net on-balance sheet assets and off-balance sheet items (after multiplying credit conversion factor) after adjusted by credit risk mitigation for each type of asset, classified by risk weight under the Standardized Approach (SA) as at 31 December 2017 and 2016.

Credit risk exposures under the SA*

Outstanding amount of net on-balance sheet assets and off-balance sheet items* after adjusted by credit risk mitigation for each type of asset, classified by risk weight under the SA

Unit :TTHB

Type of asset	2017						
	Rated outstanding amount					Unrated outstanding amount	
Risk weight (%)	0	20	50	100	150	0	100
Performing claims							
1. Claims on sovereigns and central banks, multilateral development banks (MDBs), and non-central governement public sector entities (PSEs) treated as claims on sovereigns	3,819,200.26	-	-	-	-		-
2. Claims on financial institutions , non-central governement public sector entities (PSEs) treated as claims on financial institutions, and securities firms	1,351,133.92	18,453,649.13	4,228,414.34	11,442,708.43	-		-
3. Claims on corporates , non-central governement public sector entities (PSEs) treated as claims on corporate	355,050.16	2,808,556.60	743,499.32	2,056.72	-		30,297,198.49
4. Claims on retail portfolios							64.03
5. Claims on housing loans							-
6. Other assets						14,888,128.76	123,797.41
Risk weight (%)			50	100	150		
Non-performing claims			-	-	-		
Capital deduction items prescribed by the Bank of Thailand							

Type of asset	2016						
	Rated outstanding amount					Unrated outstanding amount	
Risk weight (%)	0	20	50	100	150	0	100
Performing claims							
1. Claims on sovereigns and central banks, multilateral development banks (MDBs), and non-central governement public sector entities (PSEs) treated as claims on sovereigns	843,999.43	-	-	-	-		-
2. Claims on financial institutions , non-central governement public sector entities (PSEs) treated as claims on financial institutions, and securities firms	914,349.36	21,599,298.57	4,239,119.52	17,364,919.26	-		-
3. Claims on corporates , non-central governement public sector entities (PSEs) treated as claims on corporate	114,241.22	2,000,400.33	1,150,470.42	104,785.69	-		30,757,177.25
4. Claims on retail portfolios							163.64
5. Claims on housing loans							-
6. Other assets						21,223,755.25	101,143.90
Risk weight (%)			50	100	150		
Non-performing claims			-	-	-		
Capital deduction items prescribed by the Bank of Thailand							

Credit risk mitigation under the Standardized Approach (SA)

Credit Risk Mitigation Techniques

In addition to determining counterparty credit quality and the risk appetite, the Bank also uses various credit risk mitigation techniques to optimize credit exposure and reduce potential credit losses. Credit risk mitigants are applied in the following forms:

- Comprehensive and enforceable credit documentation with adequate terms and conditions.
- Collateral held as security to reduce losses by increasing the recovery of obligations.
- Risk transfers, which shift the probability of default risk of an obligor to a third party including hedging executed by our Credit Portfolio Strategies Group.
- Netting and collateral arrangements which reduce the credit exposure from derivatives and repo- and repo-style transactions.

Collateral Held as Security

The Bank regularly agrees on collateral to be received from or to be provided to customers in contracts that are subject to credit risk. Collateral is security in the form of an asset or third-party obligation that serves to mitigate the inherent risk of credit loss in an exposure, by either substituting the borrower default risk or improving recoveries in the event of a default. While collateral can be an alternative source of repayment, it generally does not replace the necessity of high quality underwriting standards.

We segregate collateral received into the following two types:

- Financial and other collateral, which enables us to recover all or part of the outstanding exposure by liquidating the collateral asset provided, in cases where the borrower is unable or unwilling to fulfill its primary obligations. Cash collateral, securities (equity, bonds), and collateral assignments of other claims or inventory, equipment (i.e., plant, machinery) and real estate typically fall into this category.
- Guarantee collateral, which complements the borrower's ability to fulfill its obligation under the legal contract and as such is provided by third parties. Letters of credit, insurance contracts, export credit insurance, guarantees, credit derivatives and risk participations typically fall into this category.

Our processes seek to ensure that the collateral we accept for risk mitigation purposes is of high quality. This includes seeking to have in place legally effective and enforceable documentation for realizable and measureable collateral assets which are evaluated regularly by dedicated teams. The assessment of the suitability of collateral for a specific transaction is part of the credit decision and must be undertaken in a conservative way, including collateral haircuts that are applied. We have collateral type specific haircuts in place which are regularly reviewed and approved. In this regard, we strive to avoid "wrong-way" risk characteristics where the borrower's counterparty risk is positively correlated with the risk of deterioration in the collateral value. For guarantee collateral, the process for the analysis of the guarantor's creditworthiness is aligned to the credit assessment process for borrowers.

Risk Transfers

Risk transfers to third parties form a key part of our overall risk management process and are executed in various forms, including outright sales, single name and portfolio hedging, and securitizations. Risk transfers are conducted by the respective business units.

Netting and Collateral Arrangements for Derivatives and Securities Financing Transactions

Netting is applicable to over-the-counter ("OTC") derivative transactions. Netting is also applied to securities financing transactions as far as documentation, structure and nature of the risk mitigation allow netting with the underlying credit risk.

In order to reduce the credit risk resulting from OTC derivative transactions, where CCP clearing is not available, the Bank regularly seeks the execution of standard master agreements (such as master agreements for derivatives published by the International Swaps and Derivatives Association, Inc. (ISDA) with our counterparts. A master agreement allows for the close-out netting of rights and obligations arising under derivative transactions that have been entered into under such a master agreement upon the counterparty's default, resulting in a single net claim owed by or to the counterparty. For parts of the derivatives business (i.e., foreign exchange transactions) we also enter into master agreements under which payment netting applies in respect to transactions covered by such master agreements, reducing our settlement risk. In our risk measurement and risk assessment processes we apply close-out netting only to the extent we have satisfied ourselves of the legal validity and enforceability of the master agreement in all relevant jurisdictions.

Also, we enter into credit support annexes ("CSA") to master agreements in order to further reduce our derivatives-related credit risk. These annexes generally provide risk mitigation through periodic, usually daily, and margining of the covered exposure. The CSAs also provide for the right to terminate the related derivative transactions upon the counterparty's failure to honor a margin call. As with netting, when we believe the annex is enforceable, we reflect this in our exposure measurement.

Certain CSAs to master agreements provide for rating dependent triggers, where additional collateral must be pledged if a party's rating is downgraded. We also enter into master agreements that provide for an additional termination event upon a party's rating downgrade. These downgrading provisions in CSAs and master agreements usually apply to both parties but may also apply to us only. We analyze and monitor our potential contingent payment obligations resulting from a rating downgrade in our stress testing approach for liquidity risk on an ongoing basis.

Concentrations within Credit Risk Mitigation

Concentrations within credit risk mitigations taken may occur if a number of guarantors and credit derivative providers with similar economic characteristics are engaged in comparable activities with changes in economic or industry conditions affecting their ability to meet contractual obligations. We use a range of quantitative tools and metrics to monitor our credit risk mitigating activities. These also include monitoring of potential concentrations within collateral types.

The following table represents credit risk mitigation under the Standardized Approach (SA) as at 31 December 2017 and 2016.

Credit risk mitigation* under SA
Part of outstanding that is secured by collateral under SA classified by type of assets and collateral

Unit : TTHB

Type of asset	2017		2016	
	Eligible financial collateral[1/]	Guarantee and credit derivatives	Eligible financial collateral[1/]	Guarantee and credit derivatives
Performing assets				
1 Claims on sovereigns and central banks, multilateral development banks (MDBs), and non-central governement public sector entities (PSEs) treated as claims on sovereigns	-	-	-	-
2 Claims on financial institutions , non-central governement public sector entities (PSEs) treated as claims on financial institutions, and securities firms	11,001,295.34	-	6,779,775.50	-
3 Claims on corporates , non-central governement public sector entities (PSEs) treated as claims on corporate	44,405.71	16,775.06	4,820.50	13,028.12
4 Claims on retail portfolios	-	-	-	-
5 Claims on housing loans	-	-	-	-
6 Other assets	-	-	-	-
Non-performing assets				
Substandard assets				
Total	**11,045,701.05**	**16,775.06**	**6,784,596.00**	**13,028.12**

* Excluding securitisation.

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

[1/] Eligible financial collateral that the Bank of Thailand allows to use for risk mitigation. The value after haircut.

Market risk

Deutsche Bank AG, Bangkok Branch uses Internal Model Approach for internal risk management.

Market risk exposure under the Standardized Approach (SA)

Deutsche Bank AG, Bangkok Branch calculates regulatory capital requirement for market risk using the Standardized Approach (SA) methodology according to the Bank of Thailand's notification Re: Market Risk Supervision Guidelines for Financial Institutions.

The table below represents minimum capital requirements for each type of market risk under the Standardized Approach (SA) as at 31 December and 30 June 2017.

Market risk under the Standardised Approach
Minimum capital requirements for each type of market risk under the Standardised Approach

Unit: TTHB

Minimum capital requirements for market risk under the Standardized Approach	Dec-17	Jun-17
Interest rate risk	2,023,620.36	2,252,880.07
Equity position risk	-	-
Foreign exchange rate risk	178,541.99	255,696.31
Commodity risk	-	-
Total minimum capital requirements	**2,202,162.35**	**2,508,576.38**

Trading Market Risk

Market Risk

The vast majority of the Group's businesses are subject to market risk, defined as the potential for change in the market value of the Group's trading and investing positions. Risk can arise from adverse changes in interest rates, credit spreads, foreign exchange rates, equity prices, commodity prices and other relevant parameters, such as market volatility and market implied default probabilities.

The primary objective of Market and Liquidity Risk Management (MLRM), as part of the Group's independent Risk function, is to ensure that the business units optimize the risk-reward relationship and do not expose the Group to unacceptable losses outside of its risk appetite. To achieve this objective, MLRM works closely together with risk takers ("the business units") and other control and support groups.

The Group differentiates between three substantially different types of market risk:

— **Trading market risk** arises primarily through the market-making activities of the Corporate and Investment Bank Division. This involves taking positions in debt, equity, foreign exchange, or other securities and commodities as well as in equivalent derivatives.
— **Traded default risk** arising from defaults and rating migrations.
— **Non-trading market risk** arises in various forms. Equity risk arises primarily from non-consolidated strategic investments, alternative asset investments and equity compensation. Interest rate risk stems from the Group's non-trading asset and liability positions. Structural foreign exchange risk exposure arises from capital and retained earnings in non-euro currencies in certain subsidiaries, and represents the bulk of foreign exchange risk in the Group's non-trading portfolio. Other non-trading market risk elements are risks arising from asset management and fund related activities as well as model risks in Private Business Clients ("PBC"), Global Transaction Banking ("GTB") and Private Wealth Management ("PWM"), which are derived by stressing assumptions of client behavior in combination with interest rate movements.

Trading Market Risk Management Framework

Trading Market Risk Management Framework at Deutsche Bank

The Group's primary instrument to manage trading market risk is the limit setting process. The Group's Management Board, supported by Market Risk Management, sets Group-wide Value-at-Risk and Economic Capital limits for market risk in the trading book. MLRM sub-allocates this overall limit to the Group's divisions and individual business units within Corporate and Investment Bank (e.g. FIC, Equity, etc.) based on anticipated business plans and risk appetite. Within the individual business units, the business heads establish business limits, by sub-allocating the overall limit down to individual portfolios or geographical regions.

In practice, MLRM sets key limits, which tend to be global in nature, necessary to capture an exposure to a particular risk factor. Business limits are specific to various factors, including a particular geographical region or specific portfolio.

Value-at-risk and Economic Capital limits are used for managing relevant types of market risk at an overall portfolio level. As an additional and complementary tool for managing certain portfolios or risk types, MLRM sets sensitivity and concentration/liquidity limits.

Business units are responsible for adhering to the limits against which exposures are monitored and reported. The market risk limits set by MLRM are monitored on a daily, weekly and monthly basis. Where limits are exceeded, MLRM is responsible for identifying and escalating those excesses, on a timely basis.

To manage the exposures inside the limits, the business units apply several risk mitigating measures, most notably the use of:

- Portfolio management: Risk diversification arises in portfolios which consist of a variety of positions. Since some investments are likely to rise in value when others decline, diversification can help to lower the overall level of risk profile of a portfolio.
- Hedging: Hedging involves taking positions in related financial assets, including derivative products, such as futures, swaps and options. Hedging activities may not always provide effective mitigation against losses due to differences in the terms, specific characteristics or other basis risks that may exist between the hedge instrument and the exposure being hedged.

Quantitative Risk Management Tools

- **Value-at-Risk**
- Value-at-risk is a quantitative measure of the potential loss (in value) of trading positions due to market movements that will not be exceeded in a defined period of time and with a defined confidence level.
- The Group's Value-at-Risk for the trading businesses is based on its own internal Value-at-Risk model. In October 1998, the German Banking Supervisory Authority (now the BaFin) approved the Group's internal Value-at-Risk model for calculating the regulatory market risk capital for the general and specific market risks. Since then the model has been periodically refined and approval has been maintained. Deutsche Bank AG, Bangkok Branch uses VaR measurements only for internal control purposes. Deutsche Bank AG, Bangkok Branch's Regulatory Capital requirement for market risk is calculated using Standardized Approach.
- Deutsche Bank calculates value-at-risk using a 99% confidence level and a one day holding period. This means Deutsche Bank estimates there is a 1 in 100 chance that a mark-to-market loss from our trading positions will be at least as large as the reported value-at-risk.

— Deutsche Bank uses one-year historical market data to calculate value-at-risk. The calculation employs a Monte Carlo simulation technique, and Deutsche Bank assumes that changes in risk factors follow a well-defined distribution, e.g. normal, lognormal, or non-normal (T, skew-T, Skew-Normal). To determine its aggregat Value-at-Risk, Deutsche Bank uses observed correlations between the risk factors during this one-year period.
— Our VaR model is designed to take into account the following risk factors: interest rates, credit spreads, equity prices, foreign exchange rates and commodity prices, as well as their implied volatilities and common basis risk. The model incorporates both linear and, especially for derivatives, nonlinear effects of the risk factors on the portfolio value.
— The VaR measure enables us to apply a constant and uniform measure across trading businesses and products. It allows a comparison of risk in different businesses, and also provides a means of aggregating and netting positions within a portfolio to reflect correlations and offsets between different asset classes. Furthermore, it facilitates comparisons of our market risk both over time and against our daily trading results.
— Back-testing provides an analysis of the predictive ability of the value-at-risk calculations based on actual experience. Deutsche Bank compares the hypothetical daily profits and losses under the buy-and-hold assumption with the estimates from our value-at-risk model.
— A committee chaired by MLRM and with participation from Market Risk Analysis and Control (MRAC), Finance and others, meets every month to discuss back-testing results of Deutsche Bank AG, Bangkok Branch and of individual businesses. The committee analyzes performance fluctuations and assesses the predictive ability of our VaR model, which in turn allows us to improve the risk estimation process.

— **Sensitivities**
— Sensitivities show the effect on mark to market P&L of a change in an underlying risk factor. Sensitivities are typically used at a desk level by traders to micro-manage their position on an intra-day basis.
— Sensitivities are able to describe the economic effects of risks not catered for by other risk measures (such as VAR) and can be aggregated across numerous businesses which take similar risk. The sensitivities are reflected on the Daily Risk Report which provides an aggregated picture of Deutsche Bank AG, Bangkok Branch’s market risk exposure for close of business on the previous day.

— **Stress Testing and Event Risk Scenarios (ERS)**
— A key limitation of VaR is that it is based on relatively recent historical data, and therefore typically reflects losses only under normal market conditions. To address this, Deutsche Bank performs stress tests in which the bank values its trading portfolios under extreme market scenarios not covered by the confidence interval of our VaR model.
— The stress tests can be derived from historically observed severe market shocks or by creating hypothetical scenarios.
— Deutsche Bank AG, Bangkok Branch performs three different types of stress testss to investigate the potential losses under crisis scenario on weekly basis. Global Market Stress Testing - under which the, Bangkok Branch's positions in each currency are stressed to see the potential loss under various crisis situations, e.g. foreign currency devaluation, shock in interest rate market and etc. This is the main stress test for Deutsche Bank AG, Bangkok Branch.
— Deutsche Bank also performs Foreign Exchange Options Stress Tests and Interest Rate Options Stress Test which complements the Global Market Stress Tests and involves non-linear effects from options portfolio that is not captured by Global Market Stress Tests.
— For Emerging Markets, including Thailand, the Group calculates country-specific Event Risk Scenario (ERS) stress test and assesses the results of such event risks. A specialist committee reviews the country risk ratings and scenario loss limits monthly. Ad hoc reviews take place as required. For each major emerging markets country (determined by the size of Deutsche Bank's activities in the country), a "tailor-made" stress scenario is determined, which covers a combination of market disruptions affecting the major risk factors based on historically observable events or hypothetical situations. By and large, these scenarios are a combination of FX devaluation, credit spreads widening, increasing interest rates and depreciating equity prices..

— Our stress testing results are necessarily limited by the number of stress tests executed and the fact that not all downside scenarios can be predicted and simulated. While our risk managers have used their best judgment to define worst case scenarios based upon the knowledge of past extreme market moves, it is possible for our market risk positions to lose more value than even our estimates. Deutsche Bank also continuously assesses and refines its stress tests in an effort to ensure they capture material risks as well as reflect possible extreme market moves.

— **Value-at-Risk of Trading Units of Deutsche Bank AG, Bangkok Branch**

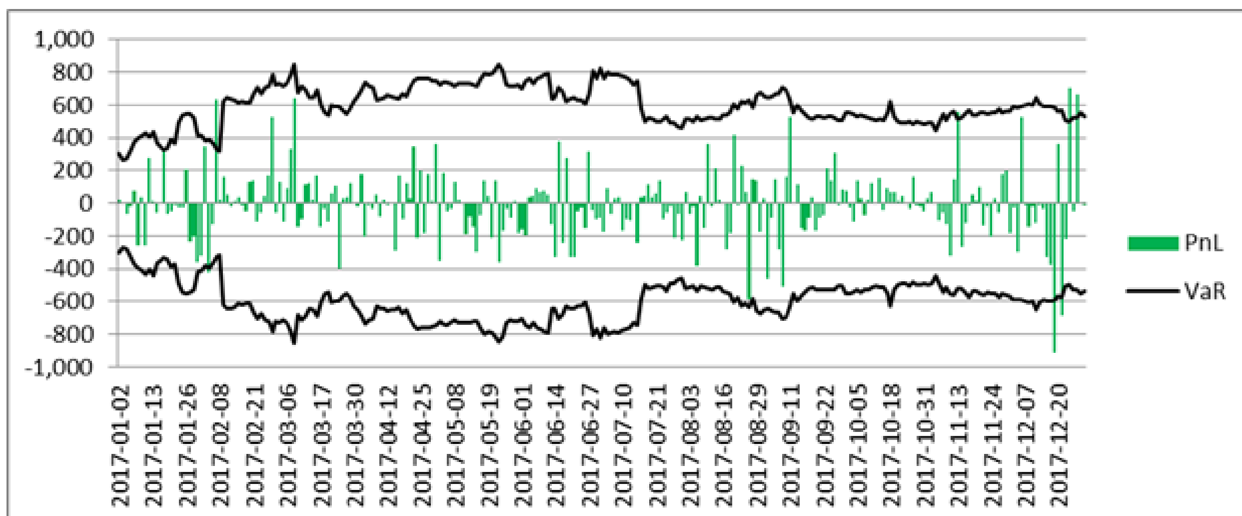
— The following table shows the value-at-risk (with a 99 % confidence level and a one-day holding period) of the trading units of Deutsche Bank AG, Bangkok Branch. “Diversification effect” reflects the fact that the total value-at-risk on a given day will be lower than the sum of the values-at-risk relating to the individual risk classes. Simply adding the value-at-risk figures of the individual risk classes to arrive at an aggregate value-at-risk would imply the assumption that the losses in risk categories occur simultaneously.

Value-at-risk of trading units in EUR million	**Dec 29, 2017**	**Dec 30, 2016**
Interest rate risk	0.3	0.3
Foreign exchange risk	0.4	0.1
Commodity price risk	0	0
Equity price risk	0	0
Diversification effect	-0.2	-0.1
Total	**0.5**	**0.3**

Backtesting of Trading Market Risk

Backtesting is a procedure used to verify the predictive ability of the VaR calculations involving the comparison of hypothetical daily profits and losses under the buy-and-hold assumption with the estimates from the value-at-risk model. An outlier is a hypothetical buy-and-hold trading loss that exceeds the Group’s value-at-risk estimate. In our backtesting in 2016, Deutsche Bank observed 3 outliers driven by market events. Deutsche Bank continues to believe that our value-at-risk model will remain an appropriate measure for our trading market risk under normal market conditions.

The following graph shows the daily buy-and-hold trading results in comparison to the value-at-risk as of the close of the previous business day for the trading days of the reporting period.



— **Interest Rate Risk in the Banking Book**

— The nature of interest rate risk in the banking book stems from residual asset/liability mismatches. Measuring interest rate risks in the banking book is based upon assumptions with respect to client behavior, future availability of deposit balances and sensitivities of deposit rates versus market interest rates resulting in a longer than contractual effective duration. Additionally, consideration is made regarding early prepayment behavior for loan products.

— In DB, the majority of the interest rate risk arising from non-trading asset and liability positions is transferred through internal hedges to Treasury and is thus managed on the basis of Banking Book Value-at-Risk.

Operational Risk

Group Non-Financial Risk Management ("NFRM") is responsible for the design, implementation and maintenance of the Operational Risk Management Framework including the associated governance structures. NFRM is also responsible for providing a cross-risk assessment and aggregation of risks to provide a holistic portfolio view of the non-financial risk profile of the Bank, which includes oversight of risk and control mitigation plans to return risk within risk appetite, where required.

We take decisions to manage operational risks, both strategically as well as in day-to-day business. Four principles form the foundation of the Operational Risk Management Framework ("ORMF") at Deutsche Bank:

Operational Risk Principle I: Risk owners have full accountability for their operational risks and have to manage against a defined risk specific appetite. Risk owners are defined to be: First Line of Defence ("LoD") (GM, CIB, Deutsche AM, PW&CC and Infrastructure Functions), for all of their operational risks, and second LoD control functions (Infrastructure Functions), for the operational risks that arise in their own activities and processes.

Risk owners are accountable for managing all operational risks in their business/processes with an end-to-end process view, within a defined operational risk specific appetite and for identifying, establishing and maintaining risk owner (i.e. Level 1) controls. In addition they mitigate identified and assessed risk within the risk specific appetite through remediation actions, insurance or by ceasing/reducing business activities.

Divisional Control Officers, or the equivalent in infrastructure functions, support the risk owners. They are responsible for embedding the ORMF within the relevant business division or infrastructure function. They assess the effectiveness of the Level 1 Controls, monitor the aggregated risk profile and put the appropriate control and mitigating actions in place within the relevant division. The Divisional Control Officers also establish appropriate governance forums to oversee the operational risk profile and are involved in decision making processes.

Operational Risk Principle II: Risk Type Controllers are independent second LoD control functions that control specific risk types as identified in the Operational Risk Type Taxonomy.

Risk Type Controllers are responsible for establishing an effective risk management framework for the risk type they control. They define risk type taxonomy and minimum control standards and set the risk specific appetite. Risk Type Controllers challenge, assess and report the risks in their remit and perform Level 2 Controls, complementary to the Level 1 Controls. Finally they establish independent operational risk governance, and prepare aggregated reporting into the Group Non-Financial Risk Committee.

Operational Risk Principle III: Group NFRM establishes and maintains the Group Operational Risk Management Framework. Group NFRM develops and maintains the Group's framework, defining the roles and responsibilities for the management of operational risk across the Bank and the process to identify, assess, mitigate, monitor, report and escalate operational risks. Group NFRM also maintains the operational risk type taxonomy and oversees the complete- ness of coverage of risk types identified in the taxonomy by second LoD control functions, in line with the Group wide risk taxonomy standards. It also provides the tools for, and monitors execution and results of, the Group's Risk and Control Assessment process.

Group NFRM also provides independent challenge of the Group's operational risk profile providing independent risk views to facilitate forward looking management of the risks. The function independently reviews, monitors and assesses material risks and key controls at a divisional and infrastructure level across the Bank. It further monitors and reports on the Group's operational risk profile in comparison to the Group Risk Appetite, to systematically identify operational risk themes and concentrations, and to oversee that risk mitigating measures and priorities have been agreed. Group NFRM establishes reporting and escalating procedures up to the Management Board for risk assessment results and identified material control gaps, while informing Group Audit of material control gaps.

Operational Risk Principle IV: Group Operational Risk Management aims to maintain sufficient capital to underpin operational risk. Group NFRM is accountable for the design, implementation and maintenance of an appropriate approach to determine a sufficient level of capital demand for operational risk for recommendation to the Management Board. To fulfill this requirement Group NFRM is accountable for the calculation and allocation of operational risk capital demand and Expected Loss planning under the Advanced Measurement Approach ("AMA"). Group NFRM is also ac- countable for the facilitation of the annual operational risk capital planning and monthly review process.

Organisational and Governance Structure for Thailand

The roles and responsibilities of the NFRM function with respect to Country Coverage are defined as part of the 'Operational Risk Country Coverage Key Operating Procedure'.
The Head of NFRM for Thailand is responsible for overseeing the adequate implementation of the local NFRM governance process in Thailand.

The Head of NFRM for Thailand is a permanent member of the Operating Committee ("OpCo") and updates the committee about the non-financial risk profile of the country through the Country Flash Card (CFC) that includes, but is not limited to:

- The aggregated operational loss reporting and outline of material events
- Relevant key risk indicators
- Specific insights on divisional relevant risks
- Operational risk capital developments
- Overview of the management of issues and findings

Organisational and Governance Structure for DB Group (Global):

At the DB Group level, Operational Risk Management and Information and Resilience Risk Management were merged into an integrated Non-Financial Risk Management ("NFRM") department as a result of a reorganisation in April 2017, NFRM is part of the Group Risk function which is headed by the Chief Risk Officer ("CRO"). The CRO appoints the Head of NFRM.

Within Group NFRM, the Head is accountable for the design, implementation and maintenance of an effective and efficient Group ORMF, including the operational risk capital model.

The Non-Financial Risk Committee, which is co-chaired by the Chief Risk Officer and the Chief Regulatory Officer, is responsible for the oversight, governance and coordination of the management of operational risk in the Group on behalf of the Management Board by establishing a cross-risk and holistic perspective of the key operational risks of the Group. Its decision-making and policy related authorities include the review, advice and management of all operational risk issues which may impact the risk profile of our business divisions and infrastructure functions.

The Head of Group NFRM is fully accountable for the setup and maintenance of the ORMF, including the adherence to all applicable legal and regulatory requirements. He is the owner of the Group's operational risk capital model and oversees its ongoing development as well as the capital calculation process. As the Model Owner, he manages relevant model risks and sets up appropriate controls. He approves quantitative and qualitative changes impacting the Group's regulatory or economic capital, within the limits defined by the Chief Risk Officer.

While the day-to-day management of operational risk is the primary responsibility of our business divisions and infra- structure functions, Group ORM oversees the Group-wide management of operational risks, identifies and reports risk concentrations and promotes a consistent application of the ORMF across the Bank.

In 2016, we further embedded and refined our "Three Lines of Defence" model across the Bank. Our core areas of focus were on business leaders continuing to assume primary accountability for the risks and controls in their units and the second LoD Risk Type Controllers developing their risk management capabilities via the implementation of mini- mum standards.

Managing Our Operational Risk

We manage operational risk using the ORMF which enables us to determine our operational risk profile in comparison to our risk appetite, to systematically identify operational risk themes and concentrations, and to define risk mitigating measures and priorities.

In order to cover the broad range of risk types underlying operational risk, our framework contains a number of operational risk management techniques. These aim to efficiently manage the operational risk in our business and are used to identify, assess and mitigate operational risks:

- Loss Data Collection: The continuous collection of operational risk loss events, as a prerequisite for operational risk management, includes analyses and provision of timely information to senior management. All losses above € 10,000 are collected in our incident reporting system (dbIRS).
- The Lessons Learned process is triggered for events, including near misses, starting from €500 thousand. This process includes, but is not limited to:
  - Systematic risk analyses, including a description of the business environment in which the loss occurred, previous events, near misses and event-specific Key Risk Indicators,
  - Root cause analysis,
  - Review of control improvements and other actions to prevent or mitigate the recurrence, and
  - Assessment of the residual risk exposure.

  The execution of corrective actions identified in this process are systematically tracked and reported monthly to senior management.

- Emerging Risk Identification: We assess and approve the impact of changes on our risk profile as a result of new products, outsourcing activities, strategic initiatives, acquisitions and divestments as well as material systems and process changes. Once operational risks are identified and assessed, they are compared to the relevant specific risk appetite statement and either mitigated or accepted. Risks that violate applicable national or international regulations and legislation cannot be accepted; once identified, such risks must always be mitigated.

- Risk Mitigation: When we implement risk mitigating measures, we systematically monitor their resolution. Residual operational risks rated “significant” or above, which the risk owner decides not to remediate, need to be formally risk accepted by the risk owner of the risk bearing division. The decision is reviewed by relevant second LoD functions and Group NFRM. The Non-Financial Risk Committee has the right to veto the decision.

- We perform Top Risk Analyses in which the results of the aforementioned activities are considered. The Top Risk Analyses are a primary input for the annual operational risk management strategy and planning process and aim to identify our most critical risks in terms of probability and severity.

- Key Risk Indicators are used to monitor the operational risk profile and alert the organization to impending problems in a timely fashion. Key Risk Indicators enable the monitoring of the Bank’s control culture and business environment and trigger risk mitigating actions. They facilitate the forward looking management of operational risks, based on early warning signals.

Additional Group-Level Risk Management Tools:

- Scenario Analyses: We complete our risk profile using a set of scenarios including relevant external cases provided by a public database and additional internal scenarios. We thereby systematically utilise information on external loss events occurring in the banking industry to prevent similar incidents from

happening to us, for example through particular deep dive analyses or risk profile reviews.

- Read-across Analysis: We continuously seek to enhance the process to assess whether identified issues require a broader approach across multiple entities and locations within the Bank. A review of material findings is performed in order to assess their relevance to areas of the Bank other than where they originated. We are developing business intelligence software to identify risk clusters across the Bank accessing various sources of information. We aim to increase our predictive analysis and clustering capabilities and to identify risk concentrations in a timely manner through the use of this tool.

In our bottom-up Self-Assessment process areas with high risk potential are highlighted, and risk mitigating measures to resolve issues are identified. On a regular basis we conduct risk workshops aiming to evaluate risks specific to local legal entities and the countries we operate in, and take appropriate risk mitigating actions. We are in the course of replacing this existing Self-Assessment process by an enhanced Risk and Control Assessment process, supported by a group wide IT tool.

Additional functions, methodologies and tools implemented by the responsible second LoD Risk Type Controllers are utilised to complement the ORMF and address specific risk types. These include:

- Compliance Risk is managed by the Compliance Department.
- Financial Crime risks are managed by the Anti-Financial Crime ("AFC") function.
- Legal Risk is managed by the Legal Department, with the assistance of its Legal Risk Management ("LRM") function.
- NFRM Risk Type Controllers are the Risk Type Controller for a number of risks in our Group Risk Type Taxonomy. These include controls over infrastructure risks to prevent technology or process disruption, maintain information security and ensure businesses have robust plans in place to recover critical business processes and functions in the event of disruption from technical or building outage, or the effects of cyber-attack or natural disaster. NFRM Risk Type Controllers also manage the risks arising from the Bank's outsourced activities via the provision of a comprehensive vendor risk management framework.
- Model Risk has been classified as a material risk for the Bank and is managed by a dedicated second LoD model risk function.

Measuring Operational Risks

Measuring Operational Risk within DB AG, Bangkok Branch

For risk management ppurposes on a global level, the DB Group uses Advanced Measurement Approach ("AMA") methodology across all divisions and legal entities to calculate the regulatory capital requirements for operational risk. Locally, the Bank uses the Basic Indicator Approach ("BIA") to assess its local regulatory capital requirements for operational risk. The operational risk capital charge using BIA is equal to the average of a fixed percentage (15%) of positive annual gross income over the previous three years. Gross income figures are categorised into twelve quarters (equivalent to three years), and if the annual gross income for any given year is negative or zero, the figure shall not be included for the purposes of calculating the operational risk charge.

Measuring Operational Risk at DB Group

Our AMA capital calculation is based upon the Loss Distribution Approach. Gross losses from historical internal and external loss data (Operational Riskdata eXchange Association consortium data) and external scenarios from a public database (IBM OpData) complemented by internal scenario data are used to

estimate the risk profile (i.e., a loss frequency and a loss severity distribution). Our Loss Distribution Approach model includes conservatism by recognizing losses on events that arise over multiple years as single events in our historical loss profile.

Within the Loss Distribution Approach model, the frequency and severity distributions are combined in a Monte Carlo simulation to generate potential losses over a one year time horizon. Finally, the risk mitigating benefits of insurance are applied to each loss generated in the Monte Carlo simulation. Correlation and diversification benefits are applied to the net losses in a manner compatible with regulatory requirements to arrive at a net loss distribution at Group level, covering expected and unexpected losses. Capital is then allocated to each of the business divisions after considering qualitative adjustments and expected loss.

The regulatory capital requirement for operational risk is derived from the 99.9 % percentile. The economic capital is set at a level to absorb at a 99.98 % percentile very severe aggregate unexpected losses within one year. Both regulatory and economic capital requirements are calculated for a time horizon of one year.

The Regulatory and Economic Capital demand calculations are performed on a quarterly basis. Group NFRM aims to ensure that for the approach for capital demand quantification appropriate development, validation and change governance processes are in place, whereby the validation is performed by an independent validation function and in line with the Group's model risk management process.

Equity exposure in the banking book

Equity investments which are neither consolidated for regulatory purposes nor deducted from the Group's own funds are held as equity positions in the regulatory banking book. In the Group's consolidated balance sheet, these equity investments are either classified as "Financial assets available for sale ("AFS")" or "Equity method investments". An immaterial amount of financial assets designated at fair value through profit and loss which are equity interests is included in the banking book.

Accounting and Valuation Policies for Equity Investments

AFS equity instruments are initially recognized at fair value plus transaction costs that are directly attributable to the acquisition of that financial asset. Financial assets classified as AFS are carried at fair value with the changes in fair value generally reported in equity unless the asset is subject to a fair value hedge or is impaired. At each balance sheet date, management assesses whether there is objective evidence that an individual asset is impaired. Objective evidence of impairment includes a significant or prolonged decline in the fair value of the investment below cost. The amount of impairment is the difference between the acquisition cost and current fair value of the asset less previously recognized impairment. Impairments of AFS equity investments cannot be reversed. Increases in their fair value after impairment are recognized in equity.

Consistent with the valuation of financial instruments, fair value of equity securities is initially and subsequently determined using quoted prices in active markets or valuation techniques, where prices quoted in active markets are not available.

The Group reports investments in associates and joint ventures under the equity method of accounting. Equity method investments are initially recorded at cost, and subsequently increased (or decreased) to reflect both the Group's pro-rata share of the post-acquisition net income (or loss) and other movements included directly in the equity of the entity. Goodwill arising on the acquisition is included in the carrying value of the investment (net of accumulated impairment loss). At each balance sheet date, the Group assesses whether there is objective evidence that the investment in an associate or jointly controlled entity is impaired. If there is objective evidence of impairment, an impairment test is performed by

comparing the investment's recoverable amount, which is the higher of its value in use and fair value less costs to sell, with its carrying amount. Equity method losses in excess of the Group's carrying value of the investment in the entity are charged against other assets held by the Group related to the investee. If those assets are written down to zero, a determination is made whether to report additional losses based on the Group's obligation to fund such losses.

The Group holds equity investments with the intent to realize profits by taking advantage of market opportunities as well as for strategic reasons. Only a smaller part of the investments are intended to support a specific business strategy of a business division as part of a complex customer transaction.

From a management point of view, the following group divisions assume responsibility for equity investments the Group entered into:
— The Corporate Investments Group Division ("CI") manages the global principal investment activities of the Group. The principal investment activities include certain credit exposures, certain private equity and venture capital investments, certain private equity fund investments, certain corporate real estate investments, the industrial holdings of the Group and certain other non-strategic investments. Historically, the mission of CI has been to provide financial, strategic, operational and managerial capital to enhance the values of the portfolio companies in which the group division has invested.
— The group divisions Corporate Banking & Securities and Private Clients & Asset Management mainly hold investments in the bank's alternative asset portfolio for profit realization as well as for strategic reasons.

Our equity exposures in the banking book contain only shares received from loan restructuring which Deutsche Bank use the market price at end of each month from the Stock Exchange of Thailand to mark to market value of the shares. However, Deutsche Bank have no intention to trade these equities.

The table below shows equity exposures in banking book as at 31 December 2017 and 2016.

Equity position of Banking Book

Unit: TTHB

Equity exposures	2017	2016
1. Equity exposures		
1.1 Equities listed and publicly traded in the Stock Exchange		
- Book value	3,569.02	3,569.02
- Fair value	-	-
- Impairment	(3,569.02)	(3,569.02)
1.2 Other equities	-	-
2. Gains (losses) of sale of equities in the reporting period	-	-
3. Surplus (deficit) from revaluation of available for sale equities	**-**	**-**
Deferred tax	-	-
Net surplus (deficit) from revaluation of available for sale equities	**-**	**-**
4. Minimum capital requirements for equity exposures classified by the calculation methods		
- SA	-	-
- IRB	-	-
5. Equity values for commercial banks applying IRB which the Bank of Thailand allows to use SA	-	-

Interest rate risk exposure in banking book

Please refer to topic “Nontrading Market Risk Management” under section “Market risk exposure under the Internal Model Approach (IMA)” for the internal risk management.

In line with Deutsche Bank Group, the banking book in Deutsche Bank AG, Bangkok Branch does not carry interest rate risk. However, in order to comply with the Bank of Thailand’s notification Re: Supervisory Guidelines on Interest Rate Risk in the Banking Book for Financial Institutions, Deutsche Bank AG, Bangkok Branch calculates earnings as a result of upward 100 basis points (bps) changes in interest rate as at 31 December 2017 and 2016 as per the following table. The internal transactions which transfer the interest rate risk to the trading book have been excluded from the calculation.

Interest rate risk in the banking book
The effect of changes in interest rates* to net earnings

Unit: TTHB

Currency	Effect to net earnings	
	2017	**2016**
Baht	6,381.35	65,343.55
USD	(108,575.25)	(73,164.34)
EURO	(2,930.75)	(17,669.01)
Others	(223.55)	(115.40)
Total effect from changes in interest rate	(105,348.20)	(25,605.20)
% of anticipated net interest income for the next one year	**-36.48%**	**-5.67%**

* Use the percentage changes in interest rates of 100 bps

Composition of capital disclosure requirements as BCBS

Capital during gradually add on/ deduction during Basel III (Transitional period)

As at 31 December 2017, Deutsche Bank Bangkok Branch has deducted 80% of net book value of intangible assets from capital during Basel III transitional period while as at 31 December 2016, there is no any add on or deduction item from capital during Basel III transitional period.