NIBC

CAPITAL ADEQUACY AND RISK MANAGEMENT REPORT 2018

PILLAR 3

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INTRODUCTION

GOAL AND OVERVIEW

NIBC's Capital Adequacy and Risk Management (Pillar 3) Report contains information that enables an assessment of the risk profile and capital adequacy of NIBC Holding N.V. This publication fulfils the requirements of the Basel III framework, as stipulated in the *Capital Requirements Regulation and Directive* IV **(CRR/CRD IV)**. The CRR/CRD IV is legally enforced by Dutch law by the Financial Supervision Act **(Wft, Wet Financieel Toezicht)**.

The CRR/CRD IV contains three pillars:

- Pillar 1 defines the regulatory minimum capital requirements by providing rules and regulations for the measurement of credit risk, market risk and operational risk. These capital requirements need to be covered by regulatory own funds. NIBC received approval from the *Dutch central bank* **(DNB)** to use the *Advanced Internal Ratings-Based* **(AIRB)** approach for calculating solvency requirements regarding credit risk for its most important exposure classes, namely corporate, retail and institutions, and the *Internal Model Approach* **(IMA)** regarding market risk in the Trading book. Furthermore, NIBC uses the ratings-based approach for the securitisation exposure class and the simplified risk-weight approach for the equity exposure class. Solvency requirements for the remaining portfolios and for operational risk are calculated using the Standardised Approach **(SA)**;
- Pillar 2 covers the Supervisory Review Process. This consists of the *Internal Capital Adequacy Assessment Process* **(ICAAP)**, the bank's own assessment of its capital adequacy in relation to all its risks, and the *Supervisory Review and Evaluation Process* **(SREP),** the response of the Supervisor to the institution's ICAAP. Since 2011, DNB also analyses the *Internal Liquidity Adequacy Assessment Process* (**ILAAP**); and
- Pillar 3 focuses on disclosure requirements, covering all relevant pieces of information for a market participant to assess the risk profile and capital adequacy of a credit institution. The risk disclosures are connected to Pillar 1 of the CRR/CRD IV framework, as information is provided regarding the underlying exposures, risk weighted assets and regulatory capital.

NIBC's Capital Adequacy and Risk Management Report is prepared to meet the requirements of Pillar 3, as well as the increased need for transparency in the financial market. The Capital Adequacy and Risk Management Report follows the structure below:

- Risk Management Strategy & Process
- Credit Risk
- Interest Rate Risk in the Banking book
- Market Risk
- Operational Risk
- Liquidity Risk
- Securitisation Exposures
- Internal Capital Adequacy Assessment Process
- Capital Base Components
- Capital Adequacy
- Remuneration Policy

The scope of application in this report refers to NIBC Holding, henceforth referred to as NIBC. The main entity of NIBC Holding is NIBC Bank. Where necessary, a distinction between NIBC Holding and NIBC Bank is made explicit. The starting point of the CRR/CRD IV prudential scope of application is the consolidation scope of NIBC, according to the *International Financial Reporting Standards* **(IFRS)**. In line with the requirements of the CRR/CRD IV, a prudential filter is applied for non-financial subsidiaries. These entities are excluded from the consolidation scope and are, instead, treated as investments in associates. Appendix 1 provides further details regarding the consolidation scope. We note that this did not occur in 2017 and 2018.

The credit exposures in this report are not directly comparable to the numbers in NIBC's 2018 Annual Report. The numbers in the Annual Report refer to book values and classifications in line with IFRS requirements. The numbers in this report refer to *exposure at default* **(EAD),** which is a risk measure of the potential amount outstanding in the event of default. EAD is a different measure than drawn and undrawn amounts, and the method employed for its calculation differs per exposure class and among credit institutions. A more detailed explanation on EAD can be found in the *Credit Risk* chapter.

NIBC's Risk Management and Capital Adequacy (Pillar 3) report is published annually on NIBC's website. The report may also be published more frequently if special market circumstances require so. Information regarding risk management and key data on capital adequacy is presented in NIBC's Annual Report as well.

RISK MANAGEMENT STRATEGY & PROCESS

Risk management is at the core of our business and sustainable growth strategy. NIBC's approach to risk management results in fast decision making through an experienced, client-focused origination team with detailed knowledge of its client portfolio, allowing for risk exposure to be managed through carefully structured facilities and client-centered restructuring on the corporate side. In the retail offering, risk is managed through simple and transparent products and an experienced arrears management team aimed at preventing foreclosures. We mainly pursue credit and investment risk; lowering our interest rate, currency, liquidity and operational risks while ensuring solid capital and liquidity positions. These are integral aspects of the corporate and retail platform. Our risk appetite defines the scope and boundaries we are comfortable with while our risk management framework provides us with a structured approach for managing the various risks on a daily basis. It is indispensable that sound risk management is rooted in our culture, as it is the responsibility of all our people to service our clients over the long term in the way that they expect us to do, and in relationships based on trust, transparency and reliability.

The origination philosophy is centred around the client relationship, understanding the client's cash flow and the availability of collateral. In our corporate client offering we apply an integrated approach to managing credit risk by focusing on risk-adjusted returns. We assess whether a new opportunity fits our risk appetite, and evaluate commercial and compliance matters prior to engaging with any particular client. In this process we consider credit risk and financial market risk as part of the decision process and conduct risk assessments prior to making the final lending or investment decision. The ultimate decision is dependent on our comfort with the specific client. In our retail client offering we apply a conservative approach to new products and use programme lending for regular mortgage loans. The *Restructuring & Distressed Assets* (**RDA**) department is highly experienced, and typically engaged at an early stage of client financial distress to maximise the probability of a successful work-out and to limit potential losses. In addition, sophisticated tools are used to model credit risk, such as internally developed methodologies under the *advanced internal rating-based* (**AIRB**) approach.

Our business actively supports mid-sized corporates and new ventures at their most decisive moments. For retail clients we aim to support them at their decisive moments, e.g. when buying a property. Therefore, it is vital that we have the room to be inventive in our approach. Although it is the nature of our business to investigate alternative solutions and facilitate exceptions to the standard in order to service our clients efficiently, we benchmark potential transactions against our risk appetite framework.

NIBC has the advantage of its medium scale and the close proximity and collaboration there is between colleagues and with its client base. This provides a setting in which a quick and efficient multidisciplinary approach can be taken in areas of risk management. We therefore have the capacity to keep moving forward as a business while we continue to comply with evolving regulatory requirements.

RISK APPETITE

NIBC's risk appetite framework is comprised of six core values, or pillars:

- **Franchise**: it seeks to be a reliable and client-focused bank.
- **Solvency**: it seeks to be a creditworthy partner for its clients and other stakeholders.
- **Profitability**: its profitability is dependent on its business model and on maintaining its risk profile.
- **Liquidity**: it seeks to maintain sufficient and appropriate liquidity at all times.

- **Funding**: it seeks to maintain a stable and diverse funding base.
- **Asset quality**: it seeks to align its asset quality with its business objectives

Franchise	Solvency	Profitability	Liquidity	Funding	Asset quality
Franchise value Operational assessment (e.g. IT, compliance, legal) Downside risk / wind-down consequences	Risk appetite aligned with capital planning process Solid capital position to absorb stress scenarios	Risk vs return No market share based selling	Liquidity position to cater for prepayments and allow room for growth	Funding base aligned with tenors and composition of assets	Granular portfolio with guidelines towards lower ticket sizes Monitoring and steering of trends at sector and product level Risk forecasts effects on total portfolio
Be a reliable and client focused bank	**Be a credit-worthy partner for our clients and other stake-holders**	**Aligned with business model and risk profile**	**Sufficient and appropriate at all times**	**Stable and diverse funding base**	**Aligned with our business objectives**

Risk appetite framework is rolled out throughout the organisation and incorporated in our policies, procedures, limits and action plans

NIBC measures its performance across these pillars by means of the quantitative and qualitative elements of its risk appetite framework. This framework helps NIBC to implement and execute its strategy for sustainable growth.

NIBC's risk appetite framework has been established across its organisation and incorporated in its policies, procedures, limits and action plans. NIBC has adopted certain key risk and performance indicators and other early warning signals that are used by NIBC's business units to monitor and control developments in key risk areas.

RISK STRATEGY

NIBC has a clearly defined business model around corporate client offering and retail client offering. Next to the retail customers of retail client offering, corporate client offering focuses on mid-sized corporate clients mainly in the Netherlands and Germany, and is a meaningful player in a select number of asset classes. Indispensable to corporate and retail client offerings and the entire business of NIBC are the Treasury, Risk Management and Corporate Center departments. Because of its focus and in-depth understanding of the business and its clients, NIBC has good understanding of the risks in this select number of markets.

The risk strategy of NIBC is aligned with this business model, resulting in the following markets and portfolios, where the risks are concentrated:

- Credit risk in the corporate loan portfolio is segmented in seven sectors (Commercial Real Estate; Infrastructure & Renewables; Shipping & Intermodal, Offshore Energy; Industries & Manufacturing; Food, Agri, Retail & Health; Telecom, Media, Technology & Services) and in the residential mortgage loan portfolio (consisting of mainly Dutch and a small portfolio of German residential mortgage loans). Furthermore, credit risk exists also in the investment loan portfolio. Investment loans may reflect subordination or contain equity characteristics such as attached warrants or conversion features. Examples of these exposures include mezzanine loans, convertible loans and shareholder loans. Finally, credit risk exists in our derivative, lease receivables, cash management and debt investments portfolios;
- Investment risk in equity investments; and
- Market risk in the Treasury portfolios mainly consisting of interest rate risk in the Money markets & Trading book, Mismatch book and Banking book and credit spread risk in the Trading book of NIBC Markets and the debt investments portfolio. The latter consists of the securitisations portfolio and the portfolio of debt investments in institutions and corporate entities.

In addition to the above mentioned risk categories, NIBC also distinguishes liquidity risk and operational risk. Pursuing our two main risks and lowering the other risk categories to an acceptable level is in line with our business strategy. Risk appetite helps to achieve NIBC's targets in a sustainable and controlled manner. One additional element being a key for enabling the business activities is to ensure the bank's capital adequacy.

The business model described above is also reflected in the Economic Capital framework, which is further described in the section *Internal Capital Adequacy Assessment Process* (**ICAAP**). NIBC uses Economic Capital as a risk measure throughout the organisation. For each business activity, Economic Capital is allocated and reported quarterly to the *Asset & Liability Committee* (**ALCO**).

RISK GOVERNANCE AND RISK CULTURE

NIBC relies on a "three lines of defence" risk management governance model, which provides a structure to assign risk management activities and responsibilities at various levels throughout its organisation. Day-to-day responsibility for risk management is assigned to the front office and/or operational departments and constitutes the first line of defence. The risk control functions (consisting of Risk Management, Legal, Compliance & Regulatory Affairs and CSR) form the second line of defence and are responsible for initiating risk policy and supervision of risk control within NIBC. NIBC internal audit forms the third line and is responsible for, among other things, performing independent audits on the risk appetite framework.

1st Line of Defence Business	2nd Line of Defence Risk Control Functions	3rd Line of Defence Internal Audit
Operational Management Risk & Control Self Assessment Internal Controls	Risk Management Compliance Others	
The Management of the Business is primary responsible for the results, the execution, the compliance and effectiveness of risk management	Risk Control functions are responsible for setting policies and advising as well as objectively controlling and reporting on the execution, management, control and reporting of risks	Internal Audit is responsible for the independent assurance on the set up and functioning of the internal control framework.
Risk Ownership	Risk Control	Risk Assurance

To support effective decision-making, the Managing Board has delegated decision-making authority regarding key risk management focus areas to the following committees, each of which includes at least two Executive Committee members:

- **Engagement committee (EC):** Responsible for decision-making with regard to client engagement and conflicts of interest including an assessment of the potential integrity risks when engaging with a client.
- **Transaction committee (TC):** The transaction committee has decision-making power withregards to credit transactions, assessment of credit proposals and the monitoring of credit related risks. The TC approves and monitors transaction proposals which cause NIBC to assume credit risk. Further, the TC decides on impairments and write-offs and reviews all individual transactions at least annually.
- **Investment committee (IC):** The IC is the delegated authority to decide on equity, mezzanine, subordinated, and other equity related financial products. The IC assesses new investment proposals and periodically determines the valuation of our equity portfolio.
- **Strategic investment committee (SIC):**The SIC has decision-making power on equity, mezzanine debt, subordinated debt and senior debt granted to strategic participations and/or strategic investments.
- **Risk management committee (RMC):** The RMC decides on policies, measurement methods, monitoring, and controlling of all risk types. The role of the RMC is to safeguard our risk appetite by monitoring all risks we are exposed to, thereby looking backwards as well as forwards.
- **Asset & liability committee (ALCO):** The ALCO monitors and controls capital ratios, liquidity, earnings, interest rate risk and market risk. As ALCO is responsible for liquidity, as they also decide on funding plans and large funding transactions.

The Supervisory Board supervises, monitors and advises the Managing Board on the risks inherent in NIBC's business activities, including the structure and operation of the internal risk management and control systems and compliance with legislation, regulations and NIBC's code of conduct. The Supervisory Board has set up two committees for this purpose: the Risk Policy and Compliance Committee (the "Risk Policy & Compliance Committee") and the Audit Committee ("Audit Committee"). The Risk Policy & Compliance Committee advises the Supervisory Board on its responsibilities relating to NIBC's risk appetite, risk profile, risk management policies and broader compliance topics. It presents proposals and recommendations, at the request of the Managing Board or Supervisory Board, or otherwise in accordance with the mandates, on credit, market, investment, liquidity, operational and compliance/regulatory risks, and any other material risks NIBC is exposed to. The Audit Committee advises the Supervisory Board on financial reporting, and internal and external audits.

One of the elements of NIBC's risk framework is the application of thorough anti-money laundering, client due diligence and know-your-client procedures and policies. NIBC places particular emphasis on active client monitoring on an ongoing basis. Individual client officers are primarily responsible for the execution of client due diligence onboarding in accordance with NIBC's procedures; however, the day-to-day activities relating to onboarding have been outsourced to the KYC department, which is a separate department within the corporate client offering segment. The CD (as defined below), is responsible for policies, monitoring of regulations and treatment of high risk cases.

RISK MANAGEMENT ORGANISATION

NIBC Holding's risk management committees are supported by a robust risk management organisation, which focuses on the daily monitoring and management of the risks NIBC Holding is exposed to and includes the following departments and teams:

- Credit Risk Management ("**CRM**") is responsible for assessing, managing and advising on credit risk related to corporate counterparties (for the corporate client offering) and high net worth individuals. CRM develops and implements policies and procedures regarding credit risk, advises on credit proposals, reviews, waivers and amendments. Furthermore, CRM validates NIBC's internal counterparty credit ratings ("**CCR**") and loss given default ("**LGD**") ratings.

- Retail Risk Management ("**RRM**") is responsible for maintaining an overview of the total risk of the retail client offering and its portfolios, to review strategic projects, and monitor the development and impact from changes in NIBC's risk appetite.

- Restructuring and Distressed Assets Management ("**RDA**") actively manages and restructures loans of financially distressed clients transferred from the various NIBC business units.

- The Market Risk Management department ("**MRM**") is responsible for monitoring the market risk of NIBC's Treasury activities, both inside and outside the trading book. MRM also monitors NIBC's currency positions.

- The Risk Analytics and Model Validation department ("**RA&MV**") is mainly responsible for economic capital modelling and reporting, model validation and quantitative research projects.

- Financial Markets Credit Risk ("**FMCR**") is responsible for monitoring, assessing and advising on the credit and counterparty risk of NIBC's Treasury activities, including monitoring and advice on counterparty credit limits and issuer limits. In addition, FMCR develops, implements and maintains policies and methodologies regarding credit risk related to financial markets products, including methodologies for counterparty credit exposure, AIRB estimates for NIBC's institutional counterparties and derivative valuation adjustments. Furthermore, FMCR is responsible for performing regulatory and internal stress tests, maintaining NIBC's risk appetite framework and for implementing and managing country risk limits across NIBC.

- The Credit Modelling and Portfolio Analysis department ("**CM&PA**") monitors risk at a portfolio level. CM&PA develops policies and methods for measuring risk, notably the credit rating system used to evaluate probability of default and loss given default in NIBC's credit portfolio. CM&PA is also responsible for the reporting of credit portfolio information to various users within and outside NIBC, for the development and reporting of NIBC's risk appetite framework, and for the development and maintenance of (sub-) portfolio, sector & product limits. It also includes credit risk management of the investment loan portfolio, as well in respect of NIBC's investment risk management for private equity positions and structured transactions involving collateral pools. CM&PA is central to NIBC's Basel III process and also conducts certain quantitative risk modelling including needed for IFRS 9.

- Operational Risk Management ("**ORM**") is responsible for monitoring and managing operational risk stemming from NIBC's business and operational practices incluidng IT risk. ORM co-ordinates the new product approval and review process and the group-wide significant change approval process of new activities ensuring pre-implementation of risk assessments by relevant functions throughout NIBC. NIBC corporate social responsibility activities are also managed by ORM. NIBC's code of conduct, business principles, compliance framework and sustainability framework guide NIBC's business activities and client transactions.

- Compliance Department ("**CD**") is responsible for updating the overall compliance risk analysis for NIBC and all international offices on an annual basis. CD's role is to translate and implement relevant external regulations into sound and clear internal policies and procedures, document as well as update relevant compliance policies, inform and train staff members in order to broaden their compliance awareness, maintain proper information barriers and restricted lists and act as the co-ordinator for correspondence with the AFM and, via its local compliance officers, for the relevant international supervisory bodies. Client due diligence is an important topic as banks fulfil an important role in the prevention of intentional and unintentional wrongdoing. *Know-your-customer* and *Anti-Money Laundering* regulations are updated to meet today's challenges, and banks have to keep pace by adjusting their processes and procedures in order to effectively address the risks and remain compliant with these regulations. NIBC actively reviews and adjusts the client onboarding processes to keep these in line with continuously evolving requirements.

- Legal Department ("**LD**") ensures that the legal risks which NIBC accepts remains within the parameters of NIBC's risk appetite framework. LD proactively assists various parts of the bank and advises on both external and internal transactions, as well as carrying out a control function. In addition, LD assists with various other matters, ranging from administrative matters to corporate affairs and strategic projects.

CREDIT RISK

NIBC defines credit risk as the current or potential threat to the company's earnings and capital as a result of counterparty's failure to make financial payments on time or to otherwise comply with its financial obligations to NIBC.

Many activities at NIBC are related to credit risk: credit risk is present in the corporate loan portfolio, the investment loan portfolio, the residential mortgage loan portfolio, the lease receivables portfolio, the debt investments portfolio (in corporate entities, institutions and securitisations), cash management and derivatives. It is the largest source of risk to which NIBC is exposed, representing approximately 84% of total *Risk Weighted Assets* **(RWA)** and of the company's capital requirements. Specifically for the debt investments portfolio, NIBC defines the credit risk as issuer risk, which is the credit risk of losing the principal amount on products such as bonds. The Pillar 3 disclosure requirements prescribe that a credit institution classifies its assets into a number of standard exposure classes. For a credit institution using the AIRB approach, these exposures are defined in the CRR/CRD IV. Table 1 presents the relationship between the classification in this report and the portfolios in NIBC Annual Report:

Table 1 Comparison between Pillar 3 exposure classes and portfolios in NIBC's Annual report

Pillar 3 exposure classes	Portfolios in Annual Report
Sovereign	Debt investments in sovereign entities and cash at central banks
Institutions	Debt investments in institutions, deposits and derivative transactions with institutions
Corporate	Corporate loan portfolio, including guarantees, derivatives and debt investments in corporate entities, lease receivables (BEEQUIP) and Investment Loan portfolio
Retail	Dutch and German residential mortgage loan portfolios, German lease receivables, securitised RMBS portfolio
Equities	Equity investments and uncalled capital commitments
Securitisations	Securitisation portfolio, derivatives and retained notes of own securitisations
Other	Non-credit related exposures

Apart from the above mentioned differences in classification, differences can also be found between the numbers presented in this report and the numbers in the risk management paragraph and risk notes in NIBC's Annual Report. The main reasons that these numbers are not directly comparable are the following:

- For exposures treated under the AIRB approach, Pillar 3 numbers refer to *Exposure At Default* (**EAD**), a risk measure of the potential outstanding amount in the event of default. Counterparties typically tend to utilise their credit lines more intensively when approaching default, which implies that the amount outstanding at default is expected to be higher than the current outstanding amount. For undrawn parts of credit facilities, a credit conversion factor is applied to the numbers in the Pillar 3 report, which cannot be recognised on the balance sheet. This credit conversion factor is incorporated in the calculation of EAD;
- For derivative transactions, Pillar 3 figures refer to the marked-to-market value and add-on, including the effect of netting and collateral. The add-on reflects a potential future change in the marked-to-market value during the remaining lifetime of the derivative contract for derivatives without a CSA and considering margin period of risk for collateralized derivatives; and
- The treatment of some securitised exposures differs due to differences in de-recognition requirements in IFRS and CRR/CRD IV.

CREDIT RISK EXPOSURES

This section presents NIBC's credit risk exposures based on the definitions and approaches that are used in the calculation of capital requirements. NIBC received approval by the DNB to use the AIRB approach for calculating the capital requirements of the corporate, institutions and retail mortgage loan exposure classes. Furthermore, NIBC uses the ratings-based approach for the securitisation exposure class and the simplified risk-weight approach for the equity exposure class.

The AIRB approach is the most sophisticated approach within CRR/CRD IV for the calculation of capital requirements and it is based on NIBC's internal estimation of various risk parameters. The section *Calculation of Risk Weighted Assets* in this chapter provides more information on the methods NIBC uses for the estimation of these parameters.

The Standardised Approach applies to all other NIBC exposure classes containing credit risk.

Table 2 shows a breakdown of exposure, EAD, RWA and capital requirement per exposure class and calculation approach at 31 December 2018 and 2017.

Table 2 Breakdown of exposure, EAD, RWA and capital requirement for credit risk

	2018				2017			
in EUR millions	Exposure	EAD	RWA	Capital require-ment	Exposure	EAD	RWA	Capital require-ment
AIRB APPROACH								
- of which corporate	9,653	9,035	3,909	313	9,548	8,967	4,066	325
- of which retail	8,701	8,701	726	58	8,516	8,516	826	66
- of which institutions	660	537	208	17	770	596	330	26
- of which securitisations	596	596	63	5	519	519	103	8
- of which equities	215	215	795	64	339	339	1,253	100
SUBTOTAL	**19,824**	**19,084**	**5,700**	**456**	**19,691**	**18,936**	**6,578**	**526**
STANDARDISED APPROACH								
- of which retail	1,231	884	321	26	920	800	304	24
- of which sovereign	2,207	2,207	-	-	1,683	1,683	-	-
- of which institutions	248	230	29	2	354	292	37	3
- of which corporate	479	478	478	38	539	517	517	41
- of which securitisations	-	-	-	-	-	-	-	-
- of which equities	-	-	-	-	-	-	-	-
- of which other	65	65	65	5	149	149	149	12
SUBTOTAL	**4,230**	**3,865**	**893**	**71**	**3,645**	**3,442**	**1,007**	**81**
Total Credit Risk	**24,055**	**22,949**	**6,593**	**527**	**23,336**	**22,378**	**7,585**	**607**

Small differences are possible in the table due to rounding.

The total RWA of NIBC decreased by 14% between 2018 and 2017 as a result of the following factors:

- RWA for *Institutions* decreased by almost 35% amongst other due to the switch from collateralized-to-market ("CTM") to settled-to-market ("STM") for cleared interest rate swap positions and compression trades on the external derivatives; and

- The RWA consumption of the Equity exposure class has decreased by 37% due to successfully executed divestments.

Breakdown of credit risk exposures

Table 3 shows a breakdown of EAD between exposure classes and exposure types under both the AIRB and the Standardised approach at 31 December 2018.

Table 3 Breakdown of credit EAD types by exposure class, 31 December 2018

in EUR millions Exposure Class	On-Balance	Off-Balance	Derivatives	Total
Airb approach				
- of which corporate	7,452	1,182	401	9,035
- of which retail	8,624	77	-	8,701
- of which institutions	468	-	69	537
- of which securitisations	577	-	18	596
- of which equities	195	20	-	215
Subtotal	**17,316**	**1,279**	**488**	**19,084**
Standardised approach				
- of which retail	728	157	-	884
- of which sovereign	2,207	-	-	2,207
- of which institutions	173	-	57	230
- of which corporate	477	1	-	478
- of which securitisations	-	-	-	-
- of which equities	-	-	-	-
- of which other	65	-	-	65
Subtotal	**3,650**	**157**	**57**	**3,865**
Total	**20,967**	**1,436**	**546**	**22,949**

Small differences are possible in the table due to rounding.

Table 4 shows an average breakdown of 2018, based on beginning and end of the year 2018.

Table 4 Breakdown of credit EAD types by exposure class, average 2018

in EUR millions Exposure Class	On-Balance	Off-Balance	Derivatives	Total
Airb approach				
- of which corporate	7,473	1,090	439	9,001
- of which retail	8,557	51	-	8,608
- of which institutions	463	-	103	566
- of which securitisations	538	-	20	557
- of which equities	261	16	-	277
Subtotal	**17,291**	**1,157**	**562**	**19,010**
Standardised approach				
- of which retail	746	97	-	842
- of which sovereign	1,945	-	-	1,945
- of which institutions	183	-	79	261
- of which corporate	478	16	3	498
- of which securitisations	-	-	-	-
- of which equities	-	-	-	-
- of which other	107	-	-	107
Subtotal	**3,459**	**112**	**82**	**3,654**
NIBC Total	**20,750**	**1,270**	**644**	**22,664**

Small differences are possible in the table due to rounding.

Table 5 shows the breakdown of EAD between regions based on domicile of the counterparty (not country of risk). The geographical distribution of NIBC's assets corresponds to the company's strategy to focus on North Western Europe, with the Netherlands, the United Kingdom and Germany accounting for 87% of the total EAD. This percentage increases to 94% when the rest of Europe is included. With respect to corporate exposures, the Asia/Pacific region mainly contains NIBC's exposures to the sectors Shipping & Intermodal and Offshore Energy (formerly named oil & gas). Exposures to the Offshore Energy sector are also located in North America, as well as in the region Other.

Table 5 Breakdown of EAD per region, 31 December 2018

in EUR millions

Exposure Class	The Netherlands	United Kingdom	Germany	Rest of Europe	North America	Asia / Pacific	Other/ Mixed	Total
Airb approach								
- of which corporate	3,821	1,579	1,266	1,113	239	773	243	9,035
- of which retail	8,701	-	-	-	-	-	-	8,701
- of which institutions	267	80	30	140	21	-	-	537
- of which securitisations	380	28	33	138	-	-	16	596
- of which equities	119	7	11	22	25	-	30	215
Subtotal	**13,288**	**1,695**	**1,341**	**1,413**	**284**	**774**	**289**	**19,084**
Standardised approach								
- of which retail	835	-	50	-	-	-	-	884
- of which sovereign	1,704	17	445	20	22	-	-	2,207
- of which institutions	82	30	41	54	23	-	-	230
- of which corporate	467	12	-	-	-	-	-	478
- of which securitisations	-	-	-	-	-	-	-	-
- of which equities	-	-	-	-	-	-	-	-
- of which other	65	-	-	-	-	-	-	65
Subtotal	**3,152**	**58**	**535**	**74**	**45**	**-**	**-**	**3,865**
Total	**16,440**	**1,753**	**1,876**	**1,487**	**330**	**774**	**289**	**22,949**
Total (in %)	**72%**	**8%**	**8%**	**6%**	**1%**	**3%**	**1%**	**100%**

Small differences are possible in the table due to rounding.

Table 6 shows the breakdown of EAD between industry sectors where NACE sectors are used with the exception of Retail Markets, Government/Central Bank, Financial Markets and Lease Receivables. Note that this table is split into two parts for visibility purposes and should be read as a continuation from upper table to a lower table.

Table 6 Breakdown of EAD per NACE industry sector, 31 December 2018

in EUR millions	Industry sectors Part I							
Exposure Class	Retail Markets	Financial Services	Government/ Central Bank	Infra-structure	Commercial Real Estate	Shipping	Oil & Gas	Manu-facturing
Airb approach								
- of which corporate	-	1,317	-	1,507	1,293	1,347	844	645
- of which retail	8,701	-	-	-	-	-	-	-
- of which institutions	-	537	-	-	-	-	-	-
- of which securitisations	540	-	-	-	27	-	-	-
- of which equities	-	139	-	12	40	-	-	16
Subtotal	**9,241**	**1,994**	**-**	**1,519**	**1,359**	**1,347**	**844**	**661**
Standardised approach								
- of which retail	884	-	-	-	-	-	-	-
- of which sovereign	-	-	2,207	-	-	-	-	-
- of which institutions	-	230	-	-	-	-	-	-
- of which corporate	-	6	-	-	1	-	-	6
- of which securitisations	-	-	-	-	-	-	-	-
- of which equities	-	-	-	-	-	-	-	-
- of which other	-	-	-	-	-	-	-	-
Subtotal	**884**	**236**	**2,207**	**-**	**1**	**-**	**-**	**6**
Total	**10,125**	**2,230**	**2,207**	**1,519**	**1,360**	**1,347**	**844**	**667**
Total (in %)	**44%**	**10%**	**10%**	**7%**	**6%**	**6%**	**4%**	**3%**

Small differences are possible in the table due to rounding.

in EUR millions	Industry sectors Part II							Total
Exposure Class	Services	Agriculture & Food	Wholesale/ Retail/ Leisure	TMT	Lease Receivables	Other	Financial Markets	
Airb approach								
- of which corporate	653	541	455	419	-	15	-	9,035
- of which retail	-	-	-	-	-	-	-	8,701
- of which institutions	-	-	-	-	-	-	-	537
- of which securitisations	-	-	-	-	-	-	29	596
- of which equities	2	-	-	5	-	-	-	215
Subtotal	**655**	**541**	**455**	**424**	**-**	**15**	**29**	**19,084**
Standardised approach								
- of which retail	-	-	-	-	-	-	-	884
- of which sovereign	-	-	-	-	-	-	-	2,207
- of which institutions	-	-	-	-	-	-	-	230
- of which corporate	-	-	-	-	355	111	-	478
- of which securitisations	-	-	-	-	-	-	-	-
- of which equities	-	-	-	-	-	-	-	-
- of which other	-	-	-	-	-	65	-	65
Subtotal	**-**	**-**	**-**	**-**	**355**	**176**	**-**	**3,865**
Total	**655**	**541**	**455**	**424**	**355**	**191**	**29**	**22,949**
Total (in %)	**3%**	**2%**	**2%**	**2%**	**2%**	**1%**	**-**	**100%**

Small differences are possible in the table due to rounding.

Table 7 shows the breakdown of RWA between industry sectors. Note that similar to previous table, this table is split into two parts for visibility purposes and should be read as a continuation from upper table to a lower table. It can be noticed that Financial Services sector has the highest RWA.

Table 7 Breakdown of RWA per NACE industry sector, 31 December 2018

in EUR millions	Industry sectors RWA Part I							
Exposure Class	Financial Services	Retail Markets	Commercial Real Estate	Infra-structure	Manu-facturing	Oil & Gas	Services	Shipping
Airb approach								
- of which corporate	355	-	460	537	482	482	399	403
- of which retail	-	726	-	-	-	-	-	-
- of which institutions	208	-	-	-	-	-	-	-
- of which securitisations	-	43	20	-	-	-	-	-
- of which equities	516	-	148	45	60	-	8	-
Subtotal	**1,080**	**769**	**628**	**582**	**542**	**482**	**407**	**403**
Standardised approach								
- of which retail	-	321	-	-	-	-	-	-
- of which sovereign	-	-	-	-	-	-	-	-
- of which institutions	29	-	-	-	-	-	-	-
- of which corporate	6	-	1	-	6	-	-	-
- of which securitisations	-	-	-	-	-	-	-	-
- of which equities	-	-	-	-	-	-	-	-
- of which other	-	-	-	-	-	-	-	-
Subtotal	**34**	**321**	**1**	**-**	**6**	**-**	**-**	**-**
Total	**1,114**	**1,089**	**629**	**582**	**548**	**482**	**407**	**403**
Total (in %)	**17%**	**17%**	**10%**	**9%**	**8%**	**7%**	**6%**	**6%**

Small differences are possible in the table due to rounding

in EUR millions	Industry sectors RWA Part II							
Exposure Class	Lease Receivables	Wholesale/ Retail/ Leisure	Agriculture & Food	TMT	Other	Financial Markets	Government/ Central Bank	Total
Airb approach								
- of which corporate	-	286	285	216	3	-	-	3,909
- of which retail	-	-	-	-	-	-	-	726
- of which institutions	-	-	-	-	-	-	-	208
- of which securitisations	-	-	-	-	-	-	-	63
- of which equities	-	-	-	18	-	-	-	795
Subtotal	**-**	**286**	**285**	**234**	**3**	**-**	**-**	**5,700**
Standardised approach								
- of which retail	-	-	-	-	-	-	-	321
- of which sovereign	-	-	-	-	-	-	-	-
- of which institutions	-	-	-	-	-	-	-	29
- of which corporate	355	-	-	-	111	-	-	478
- of which securitisations	-	-	-	-	-	-	-	-
- of which equities	-	-	-	-	-	-	-	-
- of which other	-	-	-	-	65	-	-	65
Subtotal	**355**	**-**	**-**	**-**	**176**	**-**	**-**	**893**
Total	**355**	**286**	**285**	**234**	**179**	**-**	**-**	**6,593**
Total (in %)	**5%**	**4%**	**4%**	**4%**	**3%**	**-**	**-**	**100%**

Small differences are possible in the table due to rounding.

Retail Client Offering

The industry sector with the highest EAD is Retail Banking (42% of total EAD), which consists of NIBC's residential mortgage loan portfolios (including buy-to-let) which are primarily located in the Netherlands. The total EAD of the portfolio increased by EUR 154 million mainly due to the further increase of the NIBC Direct mortgage loan book. The NIBC Direct mortgage programme grew to close to EUR 5 billion end of 2018. Retail client offering consumes 16% of the total RWA. For more information about these exposures, we refer to the various Retail sections in this report for the residential mortgage loan portfolio and to the chapter on Securitisations for the RMBS.

Financial Services

The largest NACE industry sector is Financial Services with a total EAD of EUR 2,230 million at 31 December 2018 (10% of total EAD). Institutions and corporates are the largest exposure classes. Institutions relate to the Treasury function. Financial Services corporates exposures contain mainly receivables financing for corporate clients (including factoring companies), exposure to (private equity) funds and financing of leasing companies. At 31 December 2018, the weighted average CCR of all corporate exposures in this sector slightly deteriorated to 5- (BB-) and the weighted average LGD rating remained at B-1 (12.5%). In terms of geographical distribution 46% of the EAD in the Financial Services sector is located in the Netherlands, 9% Germany, 6% in the United Kingdom, 31% in the rest of Europe.

Infrastructure & Renewables

The total EAD of the industry sector Infrastructure & Renewables amounted EUR 1,519 million at 31 December 2018. The EAD relates mostly to corporate loan and derivative exposures with the remaining related to equity exposure. In terms of geographical distribution, 69% of the portfolio's EAD is located in the United Kingdom, 16% in Germany, 12% in the Netherlands and 3% in the rest of Europe. The portfolio spans across various industry sub-sectors of which education (27%), healthcare (28%), renewable energy (14%), other infrastructure (14%), roads & railways (8%), and water supply, waste and sewerage (7%) are the most important ones.

In 2018, the weighted average CCR remained at 5+ (BB+) and the weighted average LGD rating remained at B-1 (12.5%).

Commercial Real Estate

The EAD size of the Commercial Real Estate sector amounted to EUR 1,360 million at 31 December 2018, which contains NIBC's commercial real estate corporate loans and several equity positions. The portfolio had a reduction in 2018 due to a significant exit of legacy exposures. CRE sector RWA usage remained stable at 10% at the end of 2018.

At 31 December 2018, the weighted average CCR of the portfolio remained stable at 5- (BB-) and the weighted average LGD slighlgy deteriorated to B-1 (12.5%). In general, the sector was driven by a low interest rate environment, which resulted in increased deal flow driven by foreign real estate investors. Nevertheless, we focused on high credit quality origination and active portfolio management with the sale and restructuring of pre-crisis exposures.

Commercial Real Estate (corporate and equities) remains a well-diversified portfolio across various commercial real estate classes. The properties being our collateral are located in the Netherlands (97%), Germany (1%) and rest of Europe (2%). Residential commercial property financing accounts for 14% of the portfolio, which significantly reduces the concentration risk in the underlying collateral pool given the large number of tenants. Other prominent segments relate to offices (26%) and develoment companies (24%).

Shipping

The EAD of all shipping exposures increased to EUR 1,332 million at 31 December 2018. Shipping & Intermodal portfolio is skewed towards mid-sized vessels for ship owners and maritime investors in the deep sea segment, mostly dry bulk and wet bulk. Tankers represented 41% of the Shipping portfolio, specialised vessels 29%, bulk carriers 22%, and container vessels 2%. Based on country of risk borrowers are mainly active in Europe (41%), Netherlands (15%), United Kingdom (4%) North America (4%) and Asia/Pacific (36%).

In 2018 the weighted average CCR of the portfolio remained stable 6 (B) and the weighted average LGD rating remained A-2 (7.5%).

Offshore Energy

Offshore Energy portfolio EAD decreased in 2018 to EUR 844 million. The sector mostly contains corporate exposures. The total EAD in this portfolio is mainly split over six subsectors of which offshore support (33%), drilling (21%) and engineering & construction (15%) are the most prominent subsectors. In terms of geographical focus, the sector is balanced across Europe (53%), North America (22%) and Asia/Pacific (18%) and the assets are active all over the world in key oil and gas areas.

Throughout 2018, the credit rating of the Offshore Energy portfolio remained stable (for the non-defaulted portfolio) with the weighted average CCR was 6 (B) and the weighted average LGD remained the same at B-2 (18%).

All Offshore Energy services lending exposure relates to secured transactions. Security consists among others of the underlying assets as well as, in nearly all cases, a corporate guarantee. Drilling exposure relates to corporate transactions secured by the drilling assets, which are in turn contracted to oil companies, typically on medium term contracts. The offshore support sector incorporate transactions for clients that have assets supporting the drilling and production companies. These assets range from platform supply vessels, anchor handlers to subsea construction vessels. Assets in the offshore support segment are normally contracted on short to medium term contracts, but secured by corporate guarantees. Transactions in the production segment concern floating production, storage and offloading assets. These assets are tailor made for a specific oil field and are generally contracted on a long-term basis to oil companies. Floating production, storage and offloading assets are critical for enabling production on their specific oil fields and thereby less impacted by short term oil price fluctuations.

Manufacturing

The exposure of the industry sector increased to EUR 667 million in 2018. Most of the clients are located in the Netherlands (52%) followed by Germany (37%) and the rest of Europe (5%).

The credit quality of the portfolio remained good as a result of portfolio management and new clients. Although the demand for industrial products tends to be cyclical, the sector focused on more stable industry sectors and subsectors, in which it has client and market expertise. We continue to benefit from our solid sector knowledge and tailor made client solutions. The portfolio is well-balanced and split across various industry sectors: industrial products (67%), chemicals (18%), consumer products (8%), pharmaceuticals/biotech (5%) and manufacturing of automotive and vehicles (3%).

Wholesale/Retail/Leisure

The portfolio decreased in the course of 2018 to a total of EUR 455 million and contains corporate exposures which can be subdivided in the sub sectors wholesale (52%), retail (43%) and leisure (4%). The clients of the portfolio are located in the Netherlands (69%), Germany (30%), and United Kingdom (1%). The credit quality remained stable as a result of the continuous emphasis on a diversified credit selection, avoiding more aggressive deals and focusing on mid-market companies and relationships with financial sponsors. At 31 December 2018, the weighted average CCR was 6+ (B+) and the weighted average LGD rating remained at B-2 (18%).

Government/Central Banks

The sector Government/Central Banks EUR 2,207 million or 10% of total EAD) is made up exclusively of NIBC's sovereign exposures. Most of sovereign exposures are related to cash placed with DNB, the Dutch State Treasury Agency and the German Bundesbank. The increase in the total EAD in this sector is the result of our cash management position. In 2018, NIBC has no sovereign debt exposure to Greece, Italy, Spain and Portugal.

Other sectors

The remaining sectors in NIBC's portfolio together account for approximately 10% of the total EAD. With the exception of a few exposures in the equities and securitisations exposure classes, the vast majority are corporate exposures. More specifically, the sector Services consists of non-financial service providers such as transport, storage, healthcare and education. The majority of the counterparties in these sectors are medium-sized to large-sized companies in the Netherlands, Germany and the United Kingdom.

As in 2017, NIBC strengthened its sector focus in 2018 by further concentrating on industries, where it possesses strong expertise and knowledge and where it can best assist its clients to achieve their strategic ambitions.

Equipment leasing grew further following the establishment of BEEQUIP in 2016. This venture primarily focuses on financing/leasing transactions for used equipment, mainly for small and medium enterprises in the sectors infrastructure, earth-moving, construction and logistics sectors. At the end of December 2018, the BEEQUIP portfolio grew close to EUR 400 mln.

The overall credit quality remained relatively stable compared to 2017 and ranged in the 5 (BB) to 6- (B-) categories in terms of weighted average CCR, whereas the weighted average LGD was between 12.5% to 25% (B-1 to B-3 categories).

Table 8 Breakdown of credit risk EAD per maturity, 31 December 2018

in EUR millions

Exposure Class	≤ 1 year	> 1 year ≤ 2 years	> 2 years ≤ 5 years	> 5 years	Total
Airb approach					
- of which corporate	1,120	1,291	4,438	2,186	9,035
- of which retail	30	27	65	8,578	8,701
- of which institutions	406	23	68	39	537
- of which securitisations	-	-	7.00	589	596
- of which equities	215	-	-	-	215
Subtotal	**1,771**	**1,342**	**4,579**	**11,392**	**19,084**
Standardised approach					
- of which retail	-	-	-	884	884
- of which sovereign	2,194	13	-	-	2,207
- of which institutions	38	79	98	16	230
- of which corporate	32	7	416	23	478
- of which securitisations	-	-	-	-	-
- of which equities	-	-	-	-	-
- of which other	44	-	21	-	65
Subtotal	**2,308**	**100**	**535**	**922**	**3,865**
Total EAD	**4,080**	**1,441**	**5,113**	**12,314**	**22,949**

Small differences are possible in the table due to rounding.

CALCULATION OF RISK WEIGHTED ASSETS

AIRB approach

Ratings and rating process in the AIRB approach

The AIRB approach for the corporate, retail and institutions exposure classes has been implemented by NIBC after the approval by DNB. The ratings framework consists of the calculation of three main parameters: *probability of default* **(PD)**, *loss given default* **(LGD)** and *exposure at default* (**EAD)**.

The PD, LGD and EAD that are calculated through NIBC's internal models are used for the calculation of *expected loss* **(EL)** and Pillar-1 *regulatory capital* **(RC)**. Internal ratings enable an objective comparison of the credit risk of different types of assets, making them an essential tool for the commercial and risk management departments to determine whether a transaction fits NIBC's strategy and portfolio, as well as to determine the appropriate pricing. E*conomic capital* **(EC)**, *risk-adjusted return on capital* **(RAROC)** and stress testing are areas within Pillar 2, which make use of the above-mentioned parameters, although the methodologies for both EC and stress testing differ from those employed in Pillar 1. NIBC has developed a variety of stress test scenarios, both on a bank wide and portfolio and sub-portfolio level, to evaluate the impact of the scenarios on its RWA levels and Tier-1 ratio. For more information on the differences between NIBC's calculations under Pillar 1 and Pillar 2, we refer to the *ICAAP* chapter.

NIBC enforces strict separation of responsibilities with respect to its internal rating methodologies and rating process, model development, model validation and internal audit. The roles and responsibilities of each involved unit are explicitly set out in internal policies and manuals, also in conformity with the stipulations of CRR/CRD IV with respect to model governance.

In addition to these three internally calculated parameters, a fourth parameter which influences the calculation of the Pillar-1 RC is the maturity.

This section explains how the PD, LGD and EAD are applied within the AIRB corporate and retail framework of NIBC.

Corporate

NIBC applies its internally-developed credit rating methodology since 2007. This methodology consists of two elements: a counterparty credit rating that reflects the probability of default of the borrower and an anticipated loss element that expresses the potential loss on the facility in the event of default of the borrower. All counterparties are reviewed at least once a year.

The basis for both the PD and the LGD methodologies is the application of constrained expert judgement within rating indicators. From a risk perspective, corporate exposures fall within four financing types (corporate lending, asset finance, leveraged finance and project finance) and for each of these financing types the relevant credit drivers and parameters are captured in the rating models.

Counterparty credit ratings and probability of default

The *counterparty credit rating* **(CCR)** reflects the counterparty's capacity to meet its financial obligations in full and in time. CCRs do not incorporate any recovery prospects, as these are captured by the internal LGD estimates.

NIBC's uses a through-the-cycle CCR rating scale, which consists of 10 grades (1-10). Most of these grades are further divided in notches, by the addition of a plus or minus sign to show the relative standing within the rating grade. NIBC uses a total of 22 notches, each of which is mapped to the rating scale of the main international rating agencies. Each notch carries a PD percentage, which quantifies the likelihood that the counterparty will go into default in the next one year. The CCRs 9 and 10 are assigned to counterparties that have already defaulted and therefore carry a PD of 100%. Furthermore, CCRs are assigned a rating outlook. This assesses the potential direction of the CCR over the medium term. In determining a rating outlook, consideration is given to any changes in the economic and/or fundamental business conditions.

The general methodology for determining a CCR is based on several qualitative and quantitative rating indicators, such as the analysis of the business and financial profile of the counterparty, a cash flow analysis, a sovereign risk analysis and a peer-group analysis. Expert judgement is applied at the end of the rating process and determines what the final rating of the counterparty will be taking into account the rating indicators of the various models.

The performance of the CCR methodology is back-tested annually in order to ensure that consistency is kept throughout the portfolio and to measure the discriminatory power and the ranking ability of the CCRs. Furthermore, NIBC periodically benchmarks its CCRs with external parties.

Loss given default

Whereas CCRs are assigned on a counterparty level, LGD ratings are facility-specific. The LGD ratings reflect the loss that can be expected on a facility in a downturn scenario, given a counterparty defaults. NIBC's internal LGD scale consists of 7 grades (A-F) and 10 notches, each of which represents a different degree of recovery prospects and loss expectations.

NIBC's LGD philosophy is similar to the approach for CCRs. The LGD methodology is also based on a combination of qualitative and quantitative rating indicators that include, among others, the assessment of the available collateral and/or guarantees, the seniority of the loan, the applicable jurisdiction, and the quality of the counterparty's assets. Once the various LGD drivers have been assessed, the final LGD rating is based upon expert judgement.

As is the case for CCRs, the maintenance of NIBC's LGD models involves benchmarking and back-testing. NIBC is a founding member of the *Global Credit Data* (**GCD**), the largest international loan loss data pooling entity. This enables NIBC to exchange anonymous loss data with other large international banks for the purposes of enhancing LGD modelling capabilities, sharing of best practices, LGD calibration and benchmarking.

Exposure at default and credit conversion factor

A third element of the AIRB approach is the calculation of the EAD. It is defined as the amount that is expected to be outstanding at the moment a counterparty defaults. Counterparties typically tend to utilise their credit lines more intensively when approaching default, which implies that the amount outstanding at default is expected to be higher than the current outstanding amount.

In order to quantify the additional expected utilisation, NIBC applies a *credit conversion factor* **(CCF)** on the undrawn portion of every credit facility. The main driver for the value of the CCF is the type of the credit facility (e.g. term loan, working capital facility, guarantee). NIBC produces its own internal estimates of CCF, based on the utilisation of defaulted credit facilities at the time of default and one year prior to default, which are a combination of internal defaulted facilities and defaulted facilities from the GCD data pool. These internal estimates are then benchmarked anonymously to external estimates from other GCD member banks.

Overview of AIRB corporate exposures

Table 9 provides an overview of corporate AIRB EAD types, broken down by NIBC rating grade (equivalent ratings of external rating agencies are provided in parentheses). The table also provides the average PD and LGD, weighted against EAD. As assets with a rating of 9/10 have already defaulted, the notion of LGD as used for non-defaulted assets is no longer applicable. Losses are therefore estimated through a separate impairment model, in order to determine the impairment amounts.

The fact that these exposures are in default does not necessary mean that all the counterparties carry an impairment amount. Reasons for not always taking an impairment amount for a defaulted counterparty may be e.g. over-collateralisation or NIBC's expectation of the company future cash-flow generation. The section on defaulted, non-performing, impaired and forborne exposures contains more information.

Since 2010, NIBC has been using an internally developed methodology for calculating RWAs for the defaulted counterparties. Whereas RWA and Regulatory Capital (RC) for the non-defaulted corporate exposures are calculated based on the CRR/CRD IV AIRB formula, the RWA and RC for the defaulted corporate exposures are a function of the impairment amount, if present, and the proportion of the impairment amount to the defaulted EAD. This methodology results in additional RWA and RC for the corporate exposure class, in line with NIBC's wish for more prudent capital calculations on its defaulted exposures in times of an economic downturn.

In 2018, the weighted average PD of the total corporate exposure class (excluding defaulted assets) was 1.8%. The average weighted CCR in the corporate exposure class (excluding defaulted assets) was 6+ on NIBC's rating scale (B+ in the rating scales of rating agencies) at 31 December 2018. The weighted-average LGD was 14.6% . The CCRs and LGDs remained relatively stable in a changing economic environment and reveal NIBC's focus on active portfolio management and selective high quality new origination.

Table 9 Breakdown of corporate AIRB EAD by weighted average PD, weighted average LGD and EAD type, 31 December 2018

in EUR millions Rating Scale	WA PD	WA LGD	On-balance	Off-balance	Derivatives	Total
1/2 (AAA/AA)	0.04%	7.50%	4	-	-	4
3 (A)	0.12%	4.63%	118	33	1	152
4 (BBB)	0.35%	12.40%	1,048	95	260	1,404
5 (BB)	1.03%	13.44%	2,629	536	56	3,221
6 (B)	2.73%	16.49%	3,053	495	67	3,615
7 (CCC)	12.03%	23.57%	119	22	5	145
8 (CC/C)	34.08%	52.77%	5	-	-	5
9/10 (D)	100.00%	32.55%	476	2	12	490
Total	**1.8%**	**14.6%**	**7,452**	**1,182**	**401**	**9,035**

Retail

The AIRB approach applies to NIBC's Dutch Residential Mortgage portfolio excluding buy-to-let for which the Standardised Approach applies. The calculation of PD, LGD and EAD is performed by an internally developed AIRB model, which has been in use since 2007. The PD estimates are dependent on a variety of factors, of which the key factors are the delinquency status, debt-to-income and loan-to-value ratios. Minor factors that play a role in the PD estimates are several other mortgage loan characteristics and borrower characteristics. The PD scale is based on a continuous scale ranging from 0 - 100%.

The LGD estimates are based on a downturn scenario comparable to the downturn in the Dutch mortgage loan market in the 1980s. In this case, the indexed collateral value is stressed in order to simulate the proceeds of a (forced) sale of the collateral. The stress is dependent on the location of the collateral and its value. Together with assumptions about costs and time to foreclosure, an LGD is derived. The LGD estimate also takes into account whether a mortgage loan has a Dutch government guarantee **(NHG guarantee)** for which the LGD estimate is lower in comparison to a mortgage loan without the NHG guarantee. The LGD estimate is also based on a continuous scale.

The EAD is set equal to the net exposure (outstanding balance minus built-up savings value) for all mortgage loans, except for non-amortising loans (in this case, interest-only loans). For the non-amortising loans, 3 months of accrued interest is added to the EAD.

The validation of these estimates is performed on historical data and is carried out on a yearly basis. For the PD and LGD, the estimates are back tested against realised defaults and realised losses. In this way, it is ensured that the model still functions correctly in a changing economic environment.

Due to the improving economic environment, which is reflected in the Dutch housing market, arrears, defaults and losses decreased in 2017 and this trend continued in 2018. In addition, actual credit losses in the Dutch and German mortgage loan portfolios have remained low in the past years.

Overview of AIRB retail exposures

Table 10 provides an overview of retail AIRB EAD types, broken down by PD buckets. The table also provides the average PD and LGD, weighted against the EAD. Note that the numbers in this table refer to NIBC's Dutch residential mortgage loan portfolio and the underlying portfolio of RMBS securitisations and excluding buy-to-let as this portfolio is on the Standardised Approach. At 31 December 2018, the WA PD and LGD were 0.8% and 13.4% respectively.

Table 10 Breakdown of retail AIRB EAD by weighted average PD, weighted average LGD and EAD type, 31 December 2018

in EUR millions PD Bucket	WA PD	WA LGD	On-balance	Off-balance	Total
<=0.1%	0.1%	7.3%	1,374	10	1,384
0.1% - 0.2%	0.2%	8.5%	2,408	17	2,424
0.2% - 0.3%	0.3%	15.1%	1,912	17	1,929
0.3% - 0.4%	0.4%	17.8%	1,386	15	1,400
0.4% - 0.5%	0.4%	17.7%	722	8	729
0.5% - 1%	0.6%	23.8%	669	9	678
1% - 2%	1.3%	26.5%	29	1	30
2% - 5%	3.7%	9.3%	18	-	18
5% - 99%	21.0%	15.7%	79	-	80
100%	100.0%	17.1%	28	-	28
TOTAL	**0.8%**	**13.4%**	**8,624**	**77**	**8,701**

Institutions

NIBC also uses an AIRB PD and LGD models for rating bank counterparties. These models have been approved by the DNB and implemented in July 2014. The AIRB framework for bank counterparties consists of an externally developed credit rating model that estimates the probability of default of the counterparty and an internally developed model that estimates the loss in the event of default. The bank rating scales are in line with the rating scales used for corporate exposures. All counterparties are reviewed at least once a year. The non-bank institutions are treated under the standardized approach.

Equities

NIBC uses the simple risk weight approach for equity investments. Under this approach, the RWA is calculated by multiplying the exposure amount by 370%. The total EAD for equity investments amounts to EUR 215 million.

Securitisations

NIBC uses the IRB approach for securitisation exposures, both for purchased securitisations as well as for retained notes of own securitisations. Under the IRB approach, the RWA is calculated by multiplying the exposure amount by the appropriate risk weight. The risk weight depends upon the external rating, the granularity and seniority of the pool and on whether the transaction is a resecuritisation. Alternatively, for retained notes of own securitisations, NIBC uses the IRB capital charge had the underlying exposures not been securitised (KIRB approach).

This approach is applicable when the capital requirement under the KIRB approach is lower than the capital requirement under the IRB approach for the securitisation exposure class. More detailed risk information about NIBC's securitisation exposures can be found in the *Securitisations* section.

Table 11 Risk weights of securitisation EAD, 31 December 2018

in EUR millions Risk weight	< 10%	10% - 20%	25% - 50%	50% - 150%	250% - 425%	500% - 650%	1250% or deducted	Total
Retained	-	-	-	18	-	-	28	46
Purchased	509	31	-	-	-	-	9	549
TOTAL	**509**	**31**	**-**	**18**	**-**	**-**	**37**	**596**

Small differences are possible in the table due to rounding

Standardised Approach

For the calculation of RWA under the Standardised approach, drawn exposure is multiplied by a risk weight, depending on the exposure type and the external rating. The undrawn exposures are multiplied by both a risk weight and a credit conversion factor. The risk weights are prescribed in the CRR/CRD IV:

- NIBC's sovereign exposures are exposures with a zero risk weight and vast majority is related to cash placed with DNB and the Dutch State Treasury Agency. NIBC has no sovereign debt exposure to Greece, Italy, Spain and Portugal;
- The risk weight for institutions is either 20% (with a rating equal to or higher than AA-) or 50% (with a rating between A+ and BBB-) for senior unsecured;
- The risk weight for institutions is either 10% (with a rating equal to or higher than AA-) or 20% (with a rating between A+ and BBB-) for covered bonds;
- The risk weight for institutions regarding centrally-cleared derivatives exposures is 2%;
- The corporate exposure class carries a risk weight of 100%. It mainly contains BEEQUIP portfolio, non-rateable exposures and derivatives to corporate counterparties;
- For buy-to-let part of the exposure which is up to 80% secured by residential property receives a 35% risk weight and the other part receives a 75% risk weight. For defaulted retail exposures 100% and 150% risk weights are applicable;
- The retail exposure consists of the German residential mortgage loan portfolio and German lease receivables portfolio. For German residential mortgage loans, part of the exposure which is up to 80% secured by residential property receives a 35% risk weight and the other part receives a 75% risk weight. For defaulted retail exposures 100% and 150% risk weights are applicable.

Overview of Standardised portfolios

Tables 12 and 13 provide a breakdown of EAD and RWA by exposure class together with the applicable risk weight.

Table 12 Standardised EAD per risk weight, 31 December 2018

in EUR millions Exposure Class	0%	2%	10%	20%	35%	50%	75%	100%	150%	Total
Retail	-	-	-	-	857	-	26[1]	1	-	884
Sovereign	2,207	-	-	-	-	-	-	-	-	2,207
Institutions	-	45	97	87	-	2	-	-	-	230
Corporate	-	-	-	-	-	-	-	478	-	478
Securitizations	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	65	-	65
Total	**2,207**	**45**	**97**	**87**	**857**	**2**	**26**	**544**	**-**	**3,865**

Small differences are possible in the table due to rounding

1 Large portion of exposure in this category has a risk weight of 57% but is included in the 75% category due to bucketing.

Table 13 Standardised RWA per risk weight, 31 December 2018

in EUR millions Exposure Class	0%	2%	10%	20%	35%	50%	75%	100%	150%	Total
Retail	-	-	-	-	300	-	19[1]	1	-	321
Sovereign	-	-	-	-	-	-	-	-	-	-
Institutions	-	1	10	17	-	1	-	-	-	29
Corporate	-	-	-	-	-	-	-	478	-	478
Securitizations	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	65	-	65
Total	**-**	**1**	**10**	**17**	**300**	**1**	**19**	**544**	**-**	**893**

Small differences are possible in the table due to rounding

1 Large portion of exposure in this category has a risk weight of 57% but is included in the 75% category due to bucketing.

CREDIT RISK MITIGATION

Institutions

The exposures to financial institutions are either related to *over-the-counter* **(OTC)** derivative transactions, debt investments (in tradable securities) or cash management activities (money-market and repo transactions). Details about credit risk management for OTC derivative transactions can be found in the *Counterparty Credit Risk* section. NIBC only enters into repo transactions if they are secured by highly-rated bonds. Some debt investments of financial institutions are secured by collateral (covered bonds).

Corporate

An important element in NIBC's credit approval process is the assessment of collateral. Almost all exposures in the corporate exposure class have some form of collateralisation, with the main exception of Investment loan exposures. Investment loans may contain equity characteristics such as attached warrants or conversion features; examples of this exposure include mezzanine loans, convertible loans and shareholder loans, which are in many instances unsecured instruments.

In general, NIBC requests collateral to protect its interests. NIBC ascribes value to the collateral it accepts provided that the collateral is sufficiently liquid, that documentation is effective and that enforcing NIBC's legal rights to the collateral will be successful. The type and quantity of the collateral depends on the type of transaction, the counterparty and the risks involved. The most significant types of collateral securing the corporate exposure class are assets, such as real estate, vessels, rigs, equipment and pools of (lease) receivables.

NIBC initially values collateral based on fair market value when structuring a transaction and typically also seeks confirmation from independent third-party experts that its interests are legally enforceable. Furthermore, NIBC evaluates internally the collateral and its value (semi-) annually during the lifetime of the exposure. Exposures in the shipping and Offshore Energy sectors are secured by assets such as ships and drilling equipment. The commercial real estate portfolio is primarily collateralised by mortgages on financed properties. Collateral value is estimated using third-party appraisers, whenever possible, or valuation techniques based on common market practice. Other corporate exposures are, to a large extent, collateralised by assets such as inventory, debtors, and third-party credit protection (e.g. guarantees). The value of these types of collateral can be more difficult to determine, therefore such collateral is assessed on individual basis.

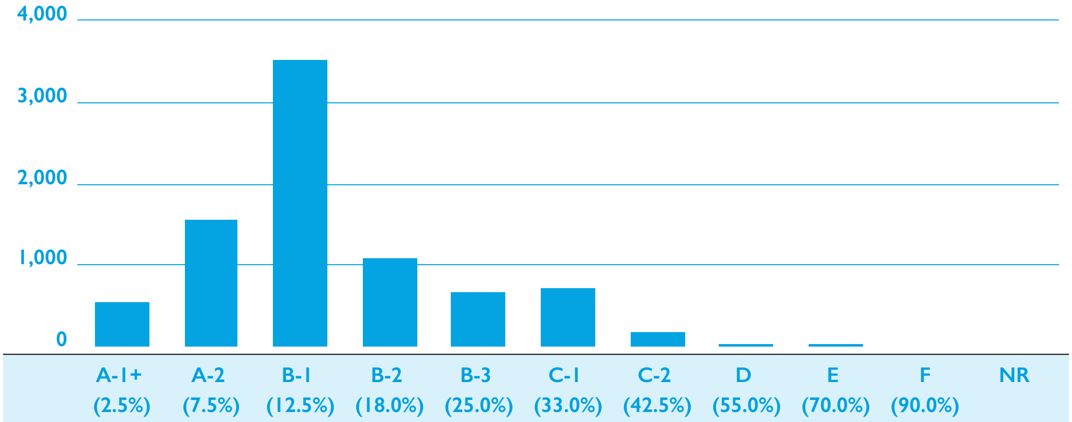
Graph 1 shows the distribution of corporate EAD per internal LGD rating. Note that the corporate exposures of the graph refer to non-defaulted exposures, given that the LGD is a measure of anticipated loss from the facilities of a non-defaulted counterparty. When a counterparty has defaulted, the impairment amount is a more meaningful measure of the loss. More information on impairment amounts can be found in the next section.

The letters on the horizontal axis of the table refer to NIBC's LGD grades and notches, whereas the numbers inside the parentheses refer to the loss percentage assigned to each LGD rating. **NR** stands for *not rateable*. NR is assigned to entities to which NIBC's corporate rating tools were not applicable at the time of rating. Exposures in the NR category fall under the Standardised Approach.

The LGD methodology is based on a combination of qualitative and quantitative rating indicators that include, among others, the assessment of the realisable collateral value, guarantees, the seniority of the exposure, the applicable jurisdiction, and the quality of the counterparty's assets. Once the various LGD drivers have been assessed, the final LGD rating is based upon expert judgement. The assessment of the available collateral is the basis for NIBC's LGD analysis. In determining the realisable collateral value, which is based upon recent appraisals, NIBC applies a number of haircuts on the collateral's fair market value. These haircuts are mainly driven by the type of collateral, the liquidity, the business cycle of the industry, the costs for forced collateral sales and other work-out expenses.

NIBC's weighted average LGD for the non-defaulted corporate exposure class at 31 December 2018 was 14.6.% and decreased in comparison to 2017 (15.8%).

Graph 1 Breakdown of AIRB corporate EAD (EUR 8,541 million) per LGD rating, 31 December 2018



Retail

Dutch residential mortgage loan portfolio

Credit losses are mitigated in a number of different ways:

- The underlying property is pledged as collateral;
- Under Dutch law, NIBC has full recourse to the borrower;
- 24% of the Dutch own book portfolio (and 32% of the Dutch securitised portfolio) is covered by the NHG programme; and
- Approximately 5% of the Dutch portfolio has been securitised (based on a credit risk view).

For the portfolio not covered by the NHG programme, the underlying property is the primary collateral for any mortgage loan granted, though savings and investment deposits may also serve as additional collateral. A measurement for potential losses, taking into account indexation of house prices and seasoning, is achieved by calculating the *loan-to-indexed-market-value* **(LtIMV)**. The indexation is made by using the index of the Dutch Land Registry Office (Kadaster), which is based on market observables. For the total portfolio 2% has an LtIMV above 100%. For the remainder of the portfolio, there is either significant coverage by the NHG programme or the indexed collateral value is sufficient to cover the entire loan balance outstanding.

German residential mortgage portfolio

As is the case in the Netherlands, the underlying property is the primary collateral for any mortgage loan granted. In contrast to the Dutch market, most of the mortgage loans contain an annuity repayment, leading to a lower outstanding loan balance during the lifetime of the loan.

DEFAULTED, NON-PERFORMING, IMPAIRED AND FORBORNE EXPOSURE

Corporate

Portfolio managers within the commercial teams and risk managers at the CRM, FMCR and CM&PA departments monitor the quality of (corporate) counterparties on a regular basis. On a quarterly basis, all corporate exposures are assessed for impairment and all existing impairments are reviewed.

NIBC calculates an impairment amount by taking certain factors into account, particularly the available collateral securing the loan and, if present, the corporate derivative exposure. The amount of loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future losses that have not been incurred). If collateral is present, then the present value of the future cash flows includes the foreclosure value of collateral.

Table 9 in the section *Calculation of Risk Weighted Assets* presents a breakdown of the corporate exposure class in NIBC's internal rating scale. Counterparties with a default rating (9/10) represent a total EAD of EUR 490 million (31 December 2017: EUR 424 million); however, this does not mean that all these counterparties carry an impairment amount. Reasons for not always taking an impairment amount for a defaulted counterparty may be e.g. over-collateralisation or NIBC's expectation of future cash-flow generation.

When a default occurs (in line with the CRR/CRD IV definition[1]), the entire EAD of the borrower is classified as defaulted. On the contrary, if an impairment amount is taken against a facility, only the EAD of that particular facility is classified as impaired.

Tables 14 and 15 show a breakdown of the defaulted, non-performing, impaired and forborne exposure of the corporate exposure class per region and industry sector. Graph 2 provides the numerical overview of the relationship between these measures for the corporate loan portfolio, while tables 14 and 15 give a comprehensive overview. For comparability reasons, graphs and tables for 2017 are also included. All impairmed exposure in the Tables 14, 15 and Graph 2 includes IFRS 9 Stage 3 assets (Expected Credit Loss) only for 2018. As of 2018, IBNR is not applicable anymore.

The column labelled *Defaulted EAD Corporate* shows the total EAD of counterparties carrying an internal default rating 9 or 10 (EUR 478 million (excluding derivatives), 31 December 2018).

Non-performing EAD Corporate shows the EAD of clients considered to be non-performing. A client is non-performing if that client is in default, or if a performing forborne facility under probation is extended additional forbearance measures or payments on a forborne facility become more than 30 days past due (EUR 501 million, 31 December 2018). Note that according to definitions non-performing portfolio contains the defaulted portfolio and also exposures that are for a second time foreborn. From Graph 2 it can be noticed that the non-performing portfolio in 2018 is not equal to defaulted portfolio, while this was the case in 2017.

Impaired EAD Corporate shows the EAD of those facilities carrying an impairment amount (EUR 427 million, 31 December 2018). The difference between the impaired EAD on facility level and the impairment amount can be explained by the presence of collateral or NIBC's expectation of future cash-flow generation. Note that the EAD amount under the column labelled *Impaired EAD Corporate* includes the impairment amount.

Forborne EAD Corporate shows the total EAD of counterparties facing financial difficulties and to whom a concession is granted by NIBC (EUR 670 million, 31 December 2018). Our business model, with a focus on sub-investment grade clients and well secured facilities, can lead to situations that temporary financial concessions are needed which does result in a higher total forborne exposure. Our forborne exposure has a large overlap with our defaulted exposure. This shows that even during difficult periods we stay committed to our clients.

1 According to the CRR/CRD IV definition, a default is determined on borrower level. A default is indicated by using a 9 or 10 rating in NIBC's internal rating scale. A default is considered to have occurred with respect to a particular obligor if either of the two following events have taken place: i) the bank considers that the obligor is unlikely to pay its credit obligations to the banking group in full, without recourse by the bank to actions such as realising security (if held). ii) the obligor is past due more than 90 days on any material credit obligation to the banking group.

The changing economic environment had its impact on the corporate exposure class in 2018. Some of a new impairment amounts were due to challenges in certain markets in which we are active, especially Offshore Energy (formerly named Oil & Gas) and Shipping.

Graph 2 Overview of credit quality measures Corporate Portfolio (excluding derivatives but including EUR 20 million lease receivables classified under Retail), 31 December 2018

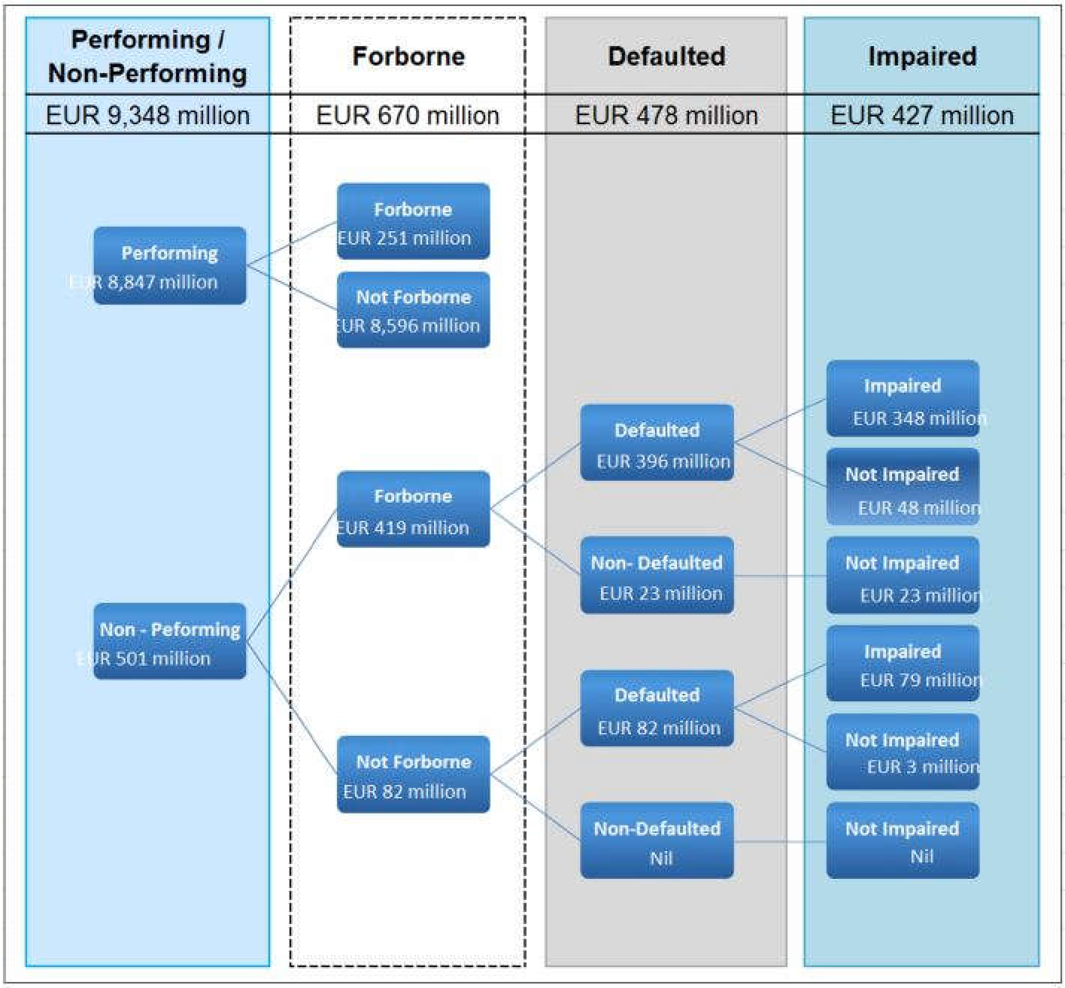


Table 14a Breakdown of defaulted, non-performing, impaired and forborne exposure in corporate exposure class per region, 31 December 2018

in EUR millions

Region	Total EAD Corporate	Defaulted EAD Corporate	Non-performing EAD Corporate	Impaired EAD Corporate	Forborne EAD Corporate	Impairment
The Netherlands	4,288	210	233	205	311	52
United Kingdom	1,591	38	38	38	20	20
Germany	1,266	94	94	48	116	14
Rest of Europe	1,113	121	121	121	93	38
North America	239	-	-	0	51	0
Asia / Pacific	773	0	0	0	24	-
Other	243	15	15	15	55	9
IBNR	-	-	-	-	-	-
Total	**9,514**	**478**	**501**	**427**	**670**	**133**
In % Total EAD		**5.0%**	**5.3%**	**4.5%**	**7.0%**	

Small differences are possible in the table due to rounding.

Table 14b Breakdown of defaulted, non-performing, impaired and forborne exposure in corporate exposure class per region, 31 December 2017

in EUR millions

Region	Total EAD Corporate	Defaulted EAD Corporate	Non-performing EAD Corporate	Impaired EAD Corporate	Forborne EAD Corporate	Impairment
The Netherlands	4,027	144	163	132	306	12
United Kingdom	1,801	27	27	27	86	24
Germany	1,448	95	95	95	103	53
Rest of Europe	958	69	69	37	146	8
North America	232	49	49	-	49	-
Asia / Pacific	723	-	-	-	81	17
Other	295	40	40	40	73	15
IBNR	-	-	-	-	-	17
Total	**9,484**	**424**	**443**	**331**	**845**	**146**
In % Total EAD		**4.5%**	**4.7%**	**3.5%**	**8.9%**	

Small differences are possible in the table due to rounding

IBNR stands for *incurred but not reported.*

Table 15a Breakdown of defaulted, non-performing, impaired and forborne exposure in corporate exposure class per industry sector, 31 December 2018

in EUR millions

Industry sector	Total EAD Corporate	Defaulted EAD Corporate	Non-performing EAD Corporate	Impaired EAD Corporate	Forborne EAD Corporate	Impairment
Infrastructure	1,507	56	56	11	61	2
Commercial Real Estate	1,293	65	65	65	99	21
Shipping	1,347	111	111	111	174	22
Offshore Energy	844	132	132	132	156	53
Financial Services	1,323	17	17	17	15	6
Manufacturing	651	26	48	24	65	8
Services	653	33	33	33	37	13
Wholesale/Retail/Leisure	455	38	38	35	32	8
Agriculture & Food	541	0	0	0	24	0
TMT	419	-	-	-	5	-
Lease Receivables	355	-	-	-	-	-
Other	126	-	-	-	-	-
Total	**9,514**	**478**	**501**	**427**	**670**	**133**
In % Total EAD		**5.0%**	**5.3%**	**4.5%**	**7.0%**	

Small differences are possible in the table due to rounding.

Table 15b Breakdown of defaulted, non-performing, impaired and forborne exposure in corporate exposure class per industry sector, 31 December 2017

in EUR millions

Industry sector	Total EAD Corporate	Defaulted EAD Corporate	Non-performing EAD Corporate	Impaired EAD Corporate	Forborne EAD Corporate	Impairment
Infrastructure	1,768	61	61	61	52	15
Commercial Real Estate	1,324	98	98	98	97	39
Shipping	1,281	48	48	48	213	16
Offshore Energy	897	173	173	92	323	50
Financial Services	1,072	2	2	2	-	1
Manufacturing	623	5	5	5	47	2
Services	710	19	38	19	69	6
Wholesale/Retail/Leisure	500	18	18	6	12	-
Agriculture & Food	537	-	-	-	27	-
TMT	399	-	-	-	5	-
Lease Receivables	197	-	-	-	-	-
Other	176	-	-	-	-	-
IBNR	-	-	-	-	-	17
Total	**9,484**	**424**	**443**	**331**	**845**	**146**
In % Total EAD		**4.5%**	**4.7%**	**3.5%**	**8.9%**	

Small differences are possible in the table due to rounding

Table 16 presents the corporate EADs with an amount in arrear. The amounts between 1 and 5 days may be adminstrative in nature. However, late payments that are not yet received are not automatically assumed to be uncollectible. NIBC applies a threshold for determining whether a corporate loan carries a non-material arrear. If the total of the sum of all individual arrears on facility level is lower than 1% of the loan amount outstanding and EUR 500, and the oldest due date of individual counterparty is less than 90 days, then the arrear is considered insignificant. If arrears fall within the threshold, the EAD is placed on the 'no payment in arrear' line. The application of this threshold does not influence the total arrears amount.

Table 16 EAD with an amount in arrear corporate exposure class, 31 December 2018

in EUR millions	Corporate EAD	Amount in arrear
1 - 5 days	152	4
6 - 30 days	43	30
31 - 60 days	23	16
61 - 90 days	-	-
Subtotal less than 90 days	**218**	**51**
Over 90 days	92	21
No payment arrear	9,203	-
Total	**9,514**	**72**

Small differences are possible in the table due to rounding

Retail

Both the Dutch and German residential mortgage loan portfolio are classified as amortised cost. Under IFRS 9, impairment amounts or Expected Credit Losses (ECL) are calculated on each individual mortgage loan. The last year showed a further decrease in losses, due to improving market circumstances. The performance of NIBC's securitised mortgage portfolio is also good compared to other Dutch RMBS issuers as evidenced by arrears levels and realised loss levels.

NIBC has an in-house arrears management department, actively managing arrears, foreclosures, client retention and residual debts of the Dutch residential mortgage loan portfolio. Table 17 shows an overview of the retail EAD with an amount in arrear at 31 December 2018. The table also shows those EADs with technical past-due amounts. These amounts contain those borrowers with an amount in arrear below EUR 250. At 31 December 2018, the total amount in arrear was EUR 1.0 million (0.01% of the portfolio EAD).

Table 17 EAD with an amount in arrear, retail exposure class, 31 December 2018

in EUR millions	Retail EAD	Amount in arrear
Technical past-due amounts	28	0.0
1 - 30 days	69	0.2
31 - 60 days	18	0.1
61 - 90 days	9	0.1
Subtotal less than 90 days	**124**	**0.4**
Over 90 days	19	1.0
No payment arrear	9,104	-
Total	**9,247**	**1.4**

Small differences are possible in the table due to rounding.

Forbearance Dutch Residential Mortgage Loans

NIBC has developed a forbearance policy for mortgage loan clients experiencing financial difficulties and who consequently are unable to meet the original terms and conditions of the contract. The forbearance policy is defined, formalized and implemented in the standard working routines and processes and is similar to the policy applied for the corporate loan portfolio.

NIBC has been providing a forbearance program to its borrowers who are experiencing financial difficulties since May 2013. The Client Retention team of Special Servicing department has the responsibility of assessing the nature and the expected duration of a client's financial distress, and will determine the necessity of providing forbearance measures to that client and the conditions that should apply. The team considers forbearance solutions for clients who do not fully meet their financial obligations to NIBC. Forbearance solutions are also submitted to the Arrears Management Committee for further approval. At 31 December 2017, EUR 43 million was forborne of which EUR 29 million was performing and EUR 15 million non-performing. At 31 December 2018, EUR 50 million is forborne of which EUR 35 million is performing and EUR 16 million nonperforming.

Equities

IFRS 9 has an effect on the classification of financial assets and on the calculation of credit losses. As a result of adopting IFRS 9, NIBC's Equity Investment portfolio has zero impairment losses on equity investments at 31 December 2018. Please refer to the IFRS 9 transition tables in the accounting policies section of the NIBC Holding Annual Report for details of the reclassification and measurement effect.

Securitisations

NIBC classified all its securitisation exposures at amortised cost, with the exception of synthetics and equity tranches. Synthetics are classified at fair value through profit or loss, while equity tranches are classified as available for sale (fair value through equity). Impairments for the securitisation exposures only refer to the period after 30 June 2008 and only for the portion that is on accounting classification at amortised cost. The impairment amount takes the carrying value as reference. This carrying value is the market value as at 30 June 2008, adjusted for 'pull-to-par' effects. For the 'first loss' notes, the impairment amount is equal to the difference between the carrying value prior to the impairment and the current market value. For the other tranches, the impairment amount is equal to the difference between the carrying value and the expected cash flows, discounted by the original effective yield, if positive.

Table 20 shows a breakdown of (stand-alone) impairments on securitisations per collateral type. The column labelled *Impaired EAD Securitisation* presents the remaining EAD after the impairment has been taken. As of 31 December 2018 there were no IFRS 9 Stage 3 Expected Credit Losses (impairments).

Table 20 Breakdown of impairments on securitisation exposure class per collateral type, 31 December 2018

	Total EAD Securitisation after impairment	Impaired EAD Securitisation after impairment	Impairment
ABS	1	-	-
CDO/CLO	29	-	-
CMBS	22	-	-
RMBS	32	-	-
Total Western European securitisations	**83**	**-**	**-**
NL - RMBS AAA Liquidity portfolio	386	-	-
EU - ABS AAA Liquidity portfolio	126	-	-
Total securitisation exposure	**596**	**-**	**-**

Sovereign and Institutions

In 2018, NIBC did not take any IFRS 9 Stage 3 impairments on these exposure classes.

EXPECTED LOSS AND REALISED LOSS

NIBC regularly reviews the methodology and assumptions used for estimating both the amount and timing of future cash flows, to reduce any differences between loss estimates (*Expected Loss*, **EL**) and actual loss (*Realised Loss*, **RL**) experience.

The EL is a statistical measure that is based on the calculated PD, LGD and EAD, and it represents the average loss that NIBC expects to incur. Table 21 shows the expected losses of the non-defaulted portfolio in basis points in 2018 and 2017 for NIBC's corporate and retail exposure classes. Knowing that expected loss gives a one year forward looking expectation on losses, the EL values corresponding to January 2018 and January 2017 are presented in the table.

Table 21 Expected Loss (EL) in basis points of EAD for corporate and retail exposure classes

1 January 2018	1 January 2017
EL (in bps)	EL (in bps)
21	15

The RL is the actual loss that NIBC has experienced over the course of a given year. For the corporate exposure class, realised loss refers to the impairment movements and write-offs that took place in each year. For the retail exposure class, realised losses refer to the actual losses that were incurred in each year. Table 22 shows the realised losses in basis points from December 2018 and December 2017 for NIBC's corporate and retail exposure classes.

Table 22 Realised Loss (RL) in basis points of EAD for corporate and retail exposure classes

31 December 2018	31 December 2017
RL (in bps)	RL (in bps)
34	22[1]

1 Excluding Vijlma impact.

It can be noticed that 2018 ended with higher realised losses for NIBC (34 basis points) compared to 2017 (22 basis points, excluding Vijlma). Please refer to NIBC's annual report for more information on Vijlma. Excluding this impact, the 2017 RL would be 9 basis points where impairment releases had an impact. Note that in general, EL and RL figures should be seen in the context over a longer period of time through the cycle.

In 2018, new impairments were mainly taken in Offshore Energy and Shipping & Intermodal, while other parts of the corporate exposures required fewer impairments. Write-offs of previously impaired exposures were taken for certain exposures in diverse industry sectors and has a major impact on the realised loss.

With respect to retail exposures, a decrease in defaults and losses was observed in the last year due to the further improving housing market and economic recovery. In 2018, the amount of losses arising from these defaults further decreased compared to 2017. The performance of NIBC's securitised mortgage loan portfolio is also good compared to other Dutch RMBS issuers in the market as evidenced by arrears levels and realised loss levels. The relatively low loss levels together with the relatively high seasoning of the portfolio gives us comfort about the credit risk in our mortgage loan portfolio.

Note that expected losses are related to the non-defaulted portfolio (beginning of the year) with a one year forward looking expectation, while realised losses contain movements in impairments for entire portfolio (both non-defaulted and defaulted) at one point in time (end of the year). Hence, these two metrics are not directly comparable to each other.

COUNTERPARTY CREDIT RISK

NIBC defines counterparty credit risk as the credit risk resulting from OTC derivative transactions, where there is none or limited initial investment, such as *interest rate swaps* **(IRS)**, *credit default swaps* **(CDS)** and *foreign exchange* **(FX)** transactions.

NIBC is exposed to counterparty credit risk from derivative transactions both with corporate clients as well as with institutions. For both types of counterparties, counterparty credit risk is measured similarly, being the sum of the positive replacement value and the add-on. The add-on reflects the potential future change in the marked-to-market value during the remaining lifetime of the derivative contract. All derivative transactions are legally covered by *International Swaps and Derivatives Association* **(ISDA)** agreements. Derivative transactions with corporate clients are concluded as part of the relationship with the client. Credit limits for corporate clients are allocated on a one-obligor basis. The credit risk resulting from counterparty credit risk is monitored in combination with other exposures (e.g. loans) to these clients, and in the majority of cases, the security of the loan is also to the benefit of the derivative exposure.

- The major part of the outstanding derivatives with financial counterparties is cleared via a central counterparty clearing house. For cleared derivatives, NIBC mitigates the counterparty credit risk by using "settle-to-market" (STM) for movements in marked-to-market value. The compression of derivatives with financial counterparties resulted in a decrease of RWA and capital in 2018.

In line with market practice, *credit value adjustments* (**CVA**) and *debt value adjustments* (**DVA**) are incorporated into the derivative valuations to reflect the risk of default of the counterparty as well as the own default risk of NIBC. The adjustments are applied to all OTC derivative contracts, except for those that benefit from a strong collateral agreement where cash collateral is regularly exchanged, mitigating the credit risk.

As of 2014, the European-wide CRR/CRD IV introduces a capital charge for CVA risk for all derivatives excluding those with sovereigns, pension funds and non-financial counterparties. The exemption of derivatives with non-financial counterparties implies limited impact of the introduction of the CVA capital charge on the NIBC's Tier 1 capital ratio.

Table 23 shows the breakdown of EAD, RWA and capital requirement for derivatives at 31 December 2018.

Table 23 Breakdown of EAD, RWA and capital requirement for derivatives, 31 December 2018

in EUR millions	EAD	RWA	Capital requirement
Airb approach			
- of which corporate	401	190	15
- of which institutions	62	26	2
- of which securitisations	6	4	-
Standardised approach			
- of which corporate	-	-	-
- of which institutions	57	4	-
Total derivatives	**527**	**224**	**18**

Small differences are possible in the table due to rounding

As discussed above, the EAD for derivatives is based on the sum of the positive replacement value (marked-to-market value) and the applicable add-on. Under the AIRB approach, the PD is derived from the CCR of the counterparty and the LGD is set equal to the facility weighted-average LGD.

Since 2014, NIBC is also using internal ratings to assess the creditworthiness of an institution (next to corporate exposures, which have been internal rated since 2008).

Table 24 Gross and net fair value exposure from derivative contracts

in EUR millions	2018
Gross exposure	578
Netting benefits	(29)
Reduction from collateral	(121)
Net current exposure	428

NIBC has a limited number of CDS transactions to protect its exposure in the portfolio. Tables 25 and 26 show the breakdown of all CDS contracts:

Table 25 Breakdown of CDS contracts by exposure class (nominal amounts)

in EUR millions

CDS contract exposure class	Sold protection	Bought protection
Sovereign	-	-
Institutions	-	-
Corporate	-	-
Securitisations	-	4
Total	**-**	**4**

Table 26 Breakdown of CDS contracts by name type (nominal amounts)

in EUR millions

CDS contract name type	Sold protection	Bought protection
Single name	-	4
Multiple name	-	-
Total	**-**	**4**

INTEREST RATE RISK IN THE BANKING BOOK

NIBC defines interest rate risk in the banking book (IRRBB) as the risk of losses from interest rate sensitive positions in non-trading activities due to movements in interest rates. Interest rate risk is measured both from an economic value perspective and an earnings perspective. The first perspective considers the impact on the market value, while the latter considers the impact on net interest income.

NIBC's banking book consists of:
- Corporate treasury;
- Commercial treasury;
- Corporate banking;
- Retail banking.

GOVERNANCE

Interest rate risk in the banking book is measured and monitored by the risk management function. For this purpose the IRRBB framework applies across the whole institution.

The risk appetite for IRRBB from an economic value perspective is measured by the modified duration of equity and equal to 5 (with a tolerance of 7.5), while the risk appetite from an earnings perspective is measured by the impact on 1Y earnings and equal to EUR 18 million (assuming on average a shift in interest rates of 100 bps).

Limits are set on the interest rate risk, both from the economic value perspective and from an earnings perspective. For portfolios that are accounted on amortised cost, notional hedging is applied to hedge the interest rate risk, while for the portfolios that are accounted on Fair Value bpv (basis point value) hedging is applied. The limits and utilisation are reported to the ALCO once every month. Any major breach of IRRBB limits is reported to the CRO immediately.

MEASUREMENT METHODS

From an economic value perspective the impact of an instantaneous shift in interest rates on a static portfolio is considered. Interest *Basis Point Value* (**BPV**) and interest *Value at Risk* (**VaR**) measures are calculated on a daily basis and reviewed by the Market Risk department:
- The interest BPV measures the sensitivity of the market value to an instantaneous change of one basis point in each time bucket of the interest rate curve. The BPV as displayed in the tables below represents the sensitivity of the market value to a one basis point, parallel upward shift of the underlying curve;
- The interest VaR measures the threshold value, which daily marked-to-market losses with a confidence level of 99% will not exceed, based on four years of historical data for weekly changes in interest rates. These weekly changes are superimposed on the current market rates. The VaR is calculated by means of full valuation to take non-linearity into account.

From the earnings perspective changes in interest rates occur both instantaneously and gradually over time. The combination of static and dynamic (changes to the current portfolio composition) analyses are used. The dynamic analysis allows the integration of the business strategy in the earnings, by aligning the development of the balance sheet with the business plan, taking into account both refinancing and reinvestments. Earnings at risk (EaR) is calculated by means of the following measure:
- 12 months earnings impact due to a 200 bps gradual upwards or downwards interest rate shift per currency.

EaR as displayed in the tables below represents the 200 bps gradual upwards measure.

Stress testing

The interest rate risk analysis is complemented by a set of scenarios, including scenarios intended as stress testing and vulnerability identification, both based on historical events and on possible future events.

In addition to the VaR, NIBC has defined a number of stress tests. These stress tests consist both of historical events as well as potential extreme market conditions. NIBC uses the following stress tests and scenario analysis:

- An instantaneous parallel shift of all interest rates by 200 bps (both upwards and downwards);
- A steepening or flattening in the yield curve;
- A widening of basis spreads;
- A change in prepayment rate (CPR) for the residential mortgage loan portfolio.

Interest rate risk in the Mismatch book

NIBC accepts a certain economic value risk exposure in the Mismatch book to stabilize earnings. We call this our strategic mismatch exposure. If we would not have this exposure and hedge all our interest bearing assets and liabilities to 3-months Euribor/Libor, our (non-interest bearing) capital will effectively be financing very short-term assets and the interest return on our (non-interest bearing) capital will fluctuate with these short term rates earned on those assets. The Mismatch book exclusively contains swaps in EUR and GBP as these are, next to USD, the major currencies in which lending activities take place. The Mismatch book contained no USD position in 2018. At year-end 2018 the total notional position is EUR 511 million, with 69% of the mismatch position held in EUR, 31% in GBP and 0% in USD. Duration based the relative positions would be 77% in EUR, 23% in GBP, 0% in USD.

Interest rate risk in the remaining Banking book

Apart from the Mismatch book, interest rate risk is also present in the following books:

- Liquidity portfolio, Collateral portfolio and Debt Investments portfolio
- Mortgage loan book
- Corporate Treasury book

The Liquidity portfolio, Collateral portfolio and Debt Investments portfolio consist mostly of investments in institutions and securitisations, while the Corporate Treasury book mainly contains the funding and the corporate loans of the bank.

The Mortgages loan book consists of:

- The White Label portfolio which has a size of EUR 4.0 billion at year-end 2018; with EUR 29 million in Germany.
- The NIBC Direct portfolio, which was launched in 2013 and has significantly grown since then. At year-end 2017 this portfolio's size was EUR 4.4 billion and at year-end 2018 the size of this portfolio is EUR 5.2 billion.

In Table 27 Interest rate statistics of the Banking Book are presented. As explained earlier, the BPV is the economic value impact of a 1 bp upward shift of interest rate curves. EaR represents the 12 months earnings impact due to a 200 bps gradual upward shift of interest rate curves (resulting in an on average 100 bps upward shift).

Table 27-1 Interest rate statistics Banking Book, 31 December 2018

	Economic value perspective (BPV)			Earnings perspective (EaR)		
in EUR thousands	Mismatch	Other	Total	Mismatch	Other	Total
EUR	(166)	437	271	(2,798)	16,643	13,845
USD	-	(6)	(6)	-	(192)	(192)
GBP	(51)	6	(45)	(1,031)	(1,257)	(2,288)
Other	-	-	-	-	973	973
Total	**(217)**	**437**	**220**	**(3,830)**	**16,167**	**12,338**

Table 27-2 Interest rate statistics Banking Book, 31 December 2017

	Economic value perspective (BPV)			Earnings perspective (EaR)		
in EUR thousands	Mismatch	Other	Total	Mismatch	Other	Total
EUR	(91)	291	199	(1,954)	16,046	14,092
USD	-	(4)	(4)	-	(343)	(343)
GBP	(68)	8	(60)	(1,377)	445	(932)
Other	-	-	-	-	296	296
Total	**(159)**	**294**	**135**	**(3,331)**	**16,445**	**13,114**

From the economic value perspective the impact of a 100 bps (upwards or downwards) shock is presented in table 28.

Table 28 Effect of an interest rate shock on economic value Banking Book

in EUR thousands	31 December 2018		31 December 2017	
Interest rate shock	-100bp	+100bp	-100bp	+100bp
EUR	(31,544)	23,291	(22,868)	17,386
USD	630	(600)	449	(452)
GBP	4,613	(4,339)	6,183	(5,774)
Other	51	(50)	24	(24)
Total	**(26,250)**	**18,301**	**(16,211)**	**11,136**

MARKET RISK

NIBC defines market risk as:

- the risk of losses in the Trading book arising from adverse movements in market rates and;
- the risk of losses in the Banking Book from NIBC's credit spread risk position and equity positions (exclusively non-tradable equities);
- the risk of losses in both the banking and trading book from adverse movements in foreign currencies.

In Money Markets & Trading, NIBC takes short-term EUR, GBP and USD yield curves positions based upon plain vanilla interest rate derivatives. This book also contains interest rate risk related to derivative transactions of NIBC's clients. All positions within NIBC Markets are part of the Trading book. The Trading book of NIBC Markets contains bonds and a relatively small equity portfolio in exchange listed equities, for which NIBC Markets is a liquidity provider.

The capital requirement for market risk is based on internal models for Money Market & Trading (the Trading book excluding NIBC Markets) and on the standardised approach for NIBC Markets. The capital requirement for the overall FX position of the bank is calculated with the standardised method.

The risk appetite for market risk is moderate. For all market risk types limits are set and monitored on a daily basis. The capital requirement for the trading activities is small, in line with the moderate risk appetite for trading activities.

FX risk arises primarily from customer-driven loans, investments and funding or mismatch positions in foreign currencies. The general guiding principle for market risk management is to hedge FX risk completely, although small residual positions, for example from profits in foreign currencies, are allowed.

The RWA and capital requirement for Market risk for both 31 December 2018 and 31 December 2017 are provided in table 29. The RWA throughout 2018 fluctuated between EUR 180 million and EUR 318 million.

Table 29 Breakdown of RWA and capital requirement for market risk

	31 December 2018		31 December 2017	
in EUR millions	RWA	Capital requirement	RWA	Capital requirement
- of which trading portfolio excl NIBC Markets	201	16	97	8
- of which trading portfolio NIBC Markets	19	2	22	2
- of which FX	10	1	11	1
Total Market Risk	**230**	**19**	**130**	**10**

GOVERNANCE

The objectives of the market risk function are to measure, report and control the market risk of NIBC subject to the Market Risk framework[2]. Interest rate risk, credit spread risk and traded equity risk limits are defined and positions are monitored daily. The risk management and control function is independent of the trading activities. The market risk position is monitored daily and reported to the ALCO once every month. Any requests for new limits have to be approved by the ALCO. Any major

2 Interest rate risk in the Banking Book is separately monitored subject to the IRRBB framework.

breach of market risk limits is forthwith reported to the CRO and acted upon immediately. Market Risk analyses all overshootings (i.e. occasions, where either the hypothetical or actual P&L exceeds the VaR) in the Trading book and reports them both to the CRO and regulator (DNB) within 5 working days, in accordance with Article 366 point 5 of the CRR.

The risk appetite is set, among others, by the Value-at-Risk (VaR, 99% confidence level, one-day holding period) limits. The Money Market & Trading book exists of plain vanilla interest rate risk positions only. For this book the interest VaR limit was kept constant at EUR 2.25 million during 2018 and equals the 2017 limit.

The Trading Book of NIBC Markets contains debt instruments, which are subject to interest rate risk and credit spread risk and a relatively small position in equities. For NIBC Markets the interest VaR limit is EUR 0.6 million, the credit spread VaR limit is EUR 1.2 million and the equity VaR limit is EUR 0.45 million; these are equal to the 2017 limits.

MEASUREMENT METHODS

NIBC uses multiple risk metrics to capture all aspects of market risk. These include interest *basis point value* **(BPV)**, credit BPV, interest VaR and credit VaR. These metrics are calculated on a daily basis and are reviewed by the Market Risk department:

- Interest and credit BPV measure the sensitivity of the market value for a change of one basis point in each time bucket of the interest rate and credit spread, respectively. In the valuation and risk management framework of fixed income products, NIBC uses multiple forward curves (o/n, 1M, 3M, 6M, 12M) and differentiates between collateralised (discounted on o/n curve) and non-collateralised (discounted on 3M curve) transactions;
- The interest VaR, credit spread VaR and total VaR measure the threshold value which daily marked-to-market losses with a confidence level of 99% will not exceed, based upon four years of historical data for weekly changes in interest rates, credit spreads and both simultaneously. For Money Markets & Trading, additional VaR scenarios based upon daily historical market data both for limit-setting as well as for the calculation of the capital requirement;
- As future market price developments may differ from those that are contained by the four-year history, the risk analysis is complemented by a wide set of scenarios, including scenarios intended as stress testing and vulnerability identification, both based on historical events and on possible future events.

Stress testing

In addition to the VaR, NIBC has defined a number of stress tests. These stress tests consist both of historical events as well as potential extreme market conditions. Market risk stress tests are conducted and reported regularly, both on portfolio as well as on a consolidated level.

Below some examples of stress tests are mentioned:

- An instantaneous parallel shift of all interest rates by 200 bps (both upwards and downwards);
- Credit crisis of 2008, where credit and basis risk spreads rose significantly;
- Hypothetical scenario, where interest rates shift by -100 basis points or + 100 basis points;
- Hypothetical scenario, where credit spreads rise significantly.

REGULATORY CAPITAL FOR MARKET RISK IN THE TRADING BOOK

Since 2008 NIBC uses the *Internal Model Approach* (**IMA**) for general interest rate risk of the Money Market & Trading book, which is the only risk driver in this book. Articles 362 to 369 of the

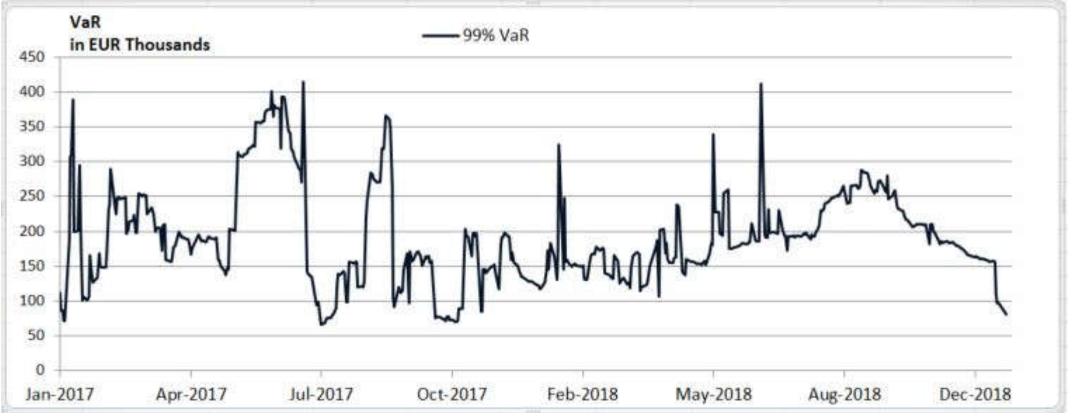
CRR/CRD IV set all regulatory requirements for the use of Internal Models for the Trading book. NIBC complies in all material aspects with these requirements. The capital requirement for market risk in the Trading book for banks using internal models is based on the combination of the VaR and *Stressed VaR* **(SVaR)**. The Stressed VaR uses the same methodology as the normal VaR, but based upon a different historical period with extreme stress in the markets. Currently, 2008 is used as historical period to determine the Stressed VaR.

For NIBC Markets, which was acquired in June 2016, NIBC uses the standardised approach to calculate the capital requirement.

VaR

By nature, trading positions fluctuate during the year. This is illustrated in graph 3-1, which shows the development of the VaR for the Money Market & Trading book for the years 2017 and 2018. The Money Market & Trading book consisted solely of interest rate-driven exposures. Activities comprise short-term (up to two years) interest position-taking, money-market and bond futures trading and swap spread position taking.

Graph 3-1 Development of VaR in the Money Market & Trading book during 2018 and 2017



In the following table key risk statistics of the Money Market & Trading book are included.

Table 30-1 Key risk statistics, Money Market & Trading book

	2018		2017	
in EUR thousands	Interest rate BPV	Interest rate VaR	Interest rate BPV	Interest rate VaR
Max[1]	(107)	411	(80)	415
Average	(72)	188	(25)	193
Min[2]	(10)	81	1	67
Year-end	**(40)**	**128**	**38**	**116**

1 Max: value farthest from zero
2 Min: value closest to zero

For NIBC Markets the development of the one-day 99% VaRs during 2018 is displayed in graph 3-2. VaR Fixed Income includes both interest rate risk and credit spread risk of the Fixed Income portfolio.

Graph 3-2 Development of VaR, NIBC Markets 2018

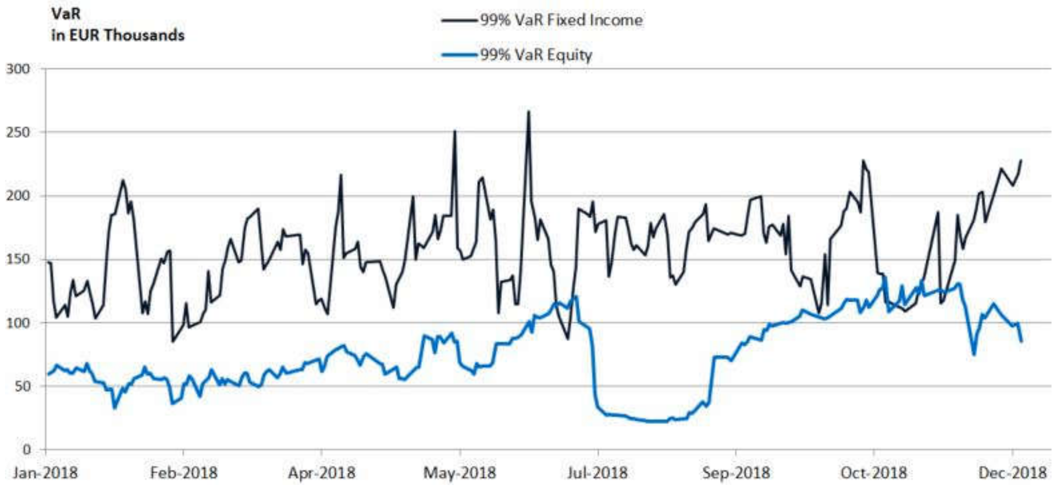


Table 30-2 Key risk statistics, NIBC Markets 2018

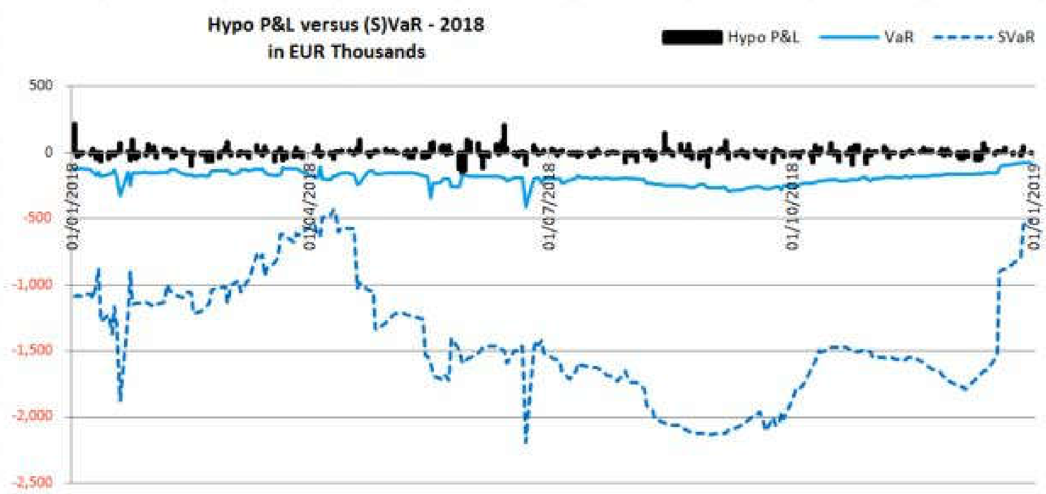
	2018			
in EUR thousands	Interest rate BPV	Credit BPV	VaR Fixed Income	VaR Equity
Max[1]	(107)	411	(80)	415
Average	(72)	188	(25)	193
Min[2]	(10)	81	1	67
Year-end	(18)	82	(40)	128

1 Max: value farthest from zero
2 Min: value closest to zero

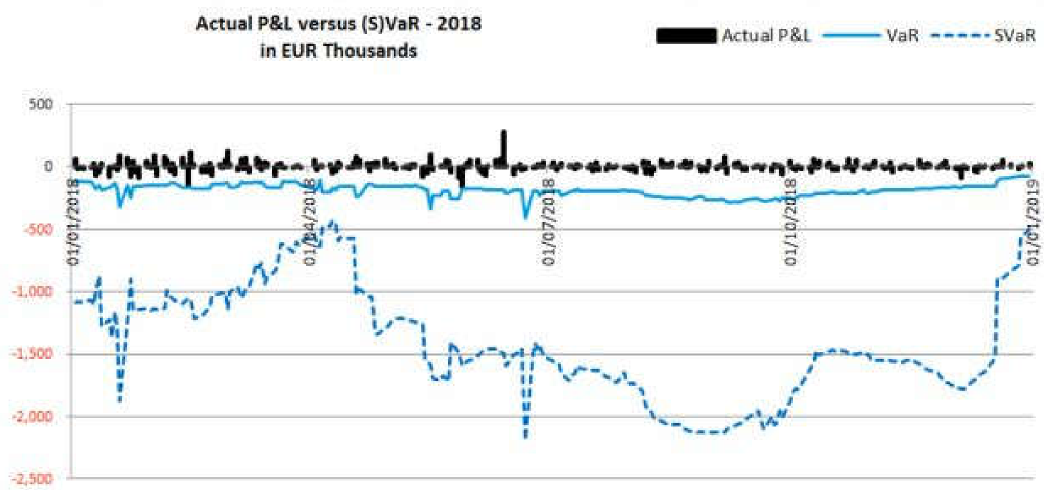
Back testing

Back testing for the Money Market & Trading book (for NIBC Markets the standardized approach is used) is conducted in accordance with the guidelines of the Basel Committee on Banking Supervision, as implemented in Europe by the CRR. The one-day 99% VaR is back tested with both the hypothetical *profit and loss* **(P&L)** and the actual profit and loss. The hypothetical profit and loss is calculated based upon the end-of-day trading position and the changes in market rates from the trading day to the next business day using full revaluation. Graph 4 shows the hypothetical profit and loss and 99% VaR and Graph 5 the actual profit and loss and 99% VaR. In 2018, there were no outliers.

Graph 4 Back test results of the Money Market & Trading book during 2018 (Hypothetical profit and loss versus (S)VaR)



Graph 5 Back test results of the Money Market &Trading book during 2018 (Actual profit and loss versus (S)VaR)



MARKET RISK OUTSIDE THE TRADING BOOK

Credit spread risk

Within Treasury, credit spread risk is concentrated in the Debt Investments book, which contains investments in institutions, corporate entities and securitisations. Total credit spread sensitivity within Treasury changed from minus 0.267 million EUR/bp at 31 December 2017 to minus 0.236 million EUR/bp at 31 December 2018.

Foreign exchange risk

As stated previously, it is the policy of NIBC to hedge its currency risk as much as possible. NIBC uses the Standardised Approach for the calculation of regulatory capital for currency risk. At year-end 2018, the capital requirement for FX risk was EUR 0.8 million.

OPERATIONAL RISK

Operational risk is the risk of direct or indirect loss resulting from inadequate or failed processes or systems, from human error, fraud, or external events including legal risk and compliance risk. Operational risk includes reputational risk, however strategic risks are not included.

NIBC strives for a ‘no surprises’ operating environment, i.e. a transparent and consistent way of effectively managing operational risk across all our business lines, banking activities and countries. Operational risk management is embedded in day-to-day processes; NIBC business units and international offices (first line of defence) have an operational risk management ‘Champion’. These employees assess their department’s activities for potential operational risks, monitor the control mechanisms in place to mitigate, avoid, transfer or accept these, coordinate ways of resolving loss-making events and promote awareness for operational risks within their departments. Since the scheme was launched in 2012, this has created a valuable network of experts that shares its knowledge and expertise across the bank.

The central ORM function identifies, monitors, controls and reports on operational risk at group level, develops policies and processes and provides methodology and tools. The tools enable an assessment whether the operational risk profile of the bank fits within the operational risk appetite. They provide an integrated view of the operational risk and control self-assessments **(RCSA)** performed bottom-up by all BUs and countries, action planning, and event and loss registration and support the operational risk management process, including planning mitigation measures. Furthermore, the department also co-ordinates the development of periodic, forward-looking scenario analysis (hypothetical external or internal scenarios ensuring that a plan exists in case these events occur) and actively supports corporate social responsibility, business continuity management and information security professionals.

In 2018, NIBC continued enhancing its forward-looking, proactive attitude and its structured approach to managing operational risk across all three lines of defence. This also entails the analysis of new products and services that NIBC plans to launch for its customers, as well as the ongoing review of existing products and services. The central element in the New Product Approval and Review Process **(NPARP)** is the client’s interest; i.e. determining how the product is suitable for its clients and how NIBC will ensure it can offer the product to its clients in a responsible and sustainable manner in the markets where NIBC is active. The NPARP was fully updated in order to facilitate compliance with MiFID-2 requirements. Furthermore, the NPARP assesses the operational capacity of all internal stakeholders that need to cooperate for launching an efficient and effective product. The NPARP includes a mandatory and risk-based product review at a predefined period after launch. In addition to the NPARP, NIBC has implemented a Significant Change Approval Process **(SCAP)**. This process is used to assess the impact of material adjustments in internal processes. These adjustments are reviewed for impact on operational risk.

Operational risk in all its facets - including compliance and regulation, legal risk, dealing with integrity, change management, technology and IT risk, reputation and conduct risk - is a key part of a bank’s overall risk management practice. Doing more business always means more risk: that is not negative in itself, but must be properly understood and managed. As such, NIBC’s risk appetite framework also includes specific risk appetite statements for operational risk, as well as other non-financial risks, such as legal and compliance/conduct risks.

As part of the yearly cycle, NIBC uses the operational risk management process also as a basis for the in control and responsibility statement of the Managing Board as included in NIBC’s annual report.

The capital requirement under the Standardised Approach is the sum of the requirement per individual business line. Within each business line, gross income is the indicator that serves as a proxy for the scale of business operations and as such, the likely scale of operational risk exposure within each of these business lines.

The average gross income is multiplied by a CRR/CRD IV regulated factor assigned to that business line. This factor serves as a proxy for the industry-wide relationship between the operational risk loss experience for a given business line and the aggregate level of gross income for that business line.

The determination of the regulatory capital requirement for operational risk is performed annually. Table 31 shows the amount of RWA and the capital requirement for operational risk as at year-end 2018 and 2017.

The operational risk calculation includes data from the last three twelve-monthly observations to determine the regulatory capital charge and is restated yearly after the year-end financial closing is complete. Operational risk at year-end 2017 include the years 2015 to 2017; at year-end 2018, it was based on the years 2016 to 2018.

In 2018, the capital requirements for operational risk were higher than those of 2017 due to the gross income of the year 2018 added to the calculation which is higher than the gross income of the year 2015 that is removed, resulting in EUR 12 million increase of capital requirement.

Table 31 Breakdown of RWA and capital requirement for operational risk

	2018		2017	
in EUR millions	RWA	Capital requirement	RWA	Capital requirement
Standardised approach	932	75	784	63
Total Operational Risk	**932**	**75**	**784**	**63**

LIQUIDITY RISK

NIBC defines liquidity risk as the inability of the company to fund its assets and meet its obligations as they become due at an acceptable cost.

NIBC further developed its diversified funding base in 2018. In January 2018 NIBC issued a EUR 500 million 10 year public covered bond. In April 2018, we issued a EUR 500 million 5 year public senior preferred. In July 2018, a EUR 300 million 2 year public senior preferred floating rate note was issued. In September 2018, another EUR 500 million public covered bond 10 year was issued and in November 2018, we issued a GBP 250 million 5 year public senior preferred note. In November 2018, we returned to the RMBS market with EUR 447 million AAA rated notes. Furthermore, NIBC issued several senior private placements of approximately EUR 280 million in various formats with various maturities and currencies. Our retail savings remained sticky with limited managed outflow and a volume of EUR 8.9 billion at the end of 2018. The ESF funding portfolio increased to a level of EUR 1.5 billion. Overall, NIBC maintained its strong position in the various funding markets and has a stable and well-diversified funding mix.

LIQUIDITY FRAMEWORK

Based on the current maturity profiles of existing assets and liabilities as well as on projections prepared by our business units and reviewed by the Asset and Liability Management department, several liquidity projections and stress tests are prepared and presented every two weeks to the ALCO. These reports constitute the foundation of NIBC's Liquidity Risk Management. The Base Case Liquidity forecast has a 5 year horizon and takes into consideration the expected cash flows (such as maturing loans and funding, production of new assets, liquidity actions and the future cash flows due to CSA collateral postings) of NIBC's assets and liabilities.

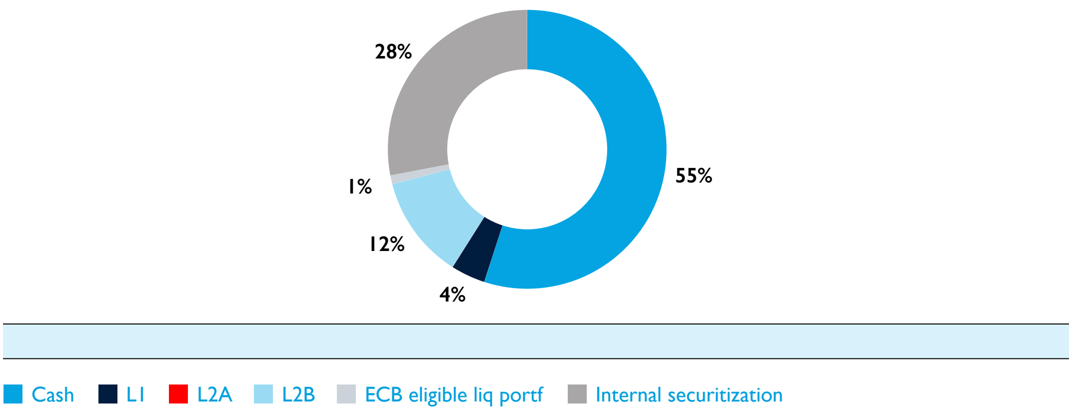
Furthermore, we monitor the development of the ECB eligible assets which consist of treasury assets and internal securitisations. Additionally, the Basel III Liquidity Ratios, the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR) are both monitored within NIBC's Liquidity Framework and are subject to regulatory minimum levels.

Also part of the Liquidity Framework are periodical gap analyses, monitoring of the coverage of on demand savings, the asset encumbrance ratio and the loan-to-deposit ratio. For the end of 2018 a selection of the main Liquidity Ratios is presented below as well as a split of the Liquidity Buffer:

Table 32 Key Liquidity Indicators, 31 December 2018

in %	
LCR	241%
NSFR	123%
Loan-to-deposit	152%
Asset encumbrance	26%
in EUR millions	
Liquidity buffer	3,620

Graph 6 Liquidity Buffer Composition, 31 December 2018



STRESS SCENARIOS

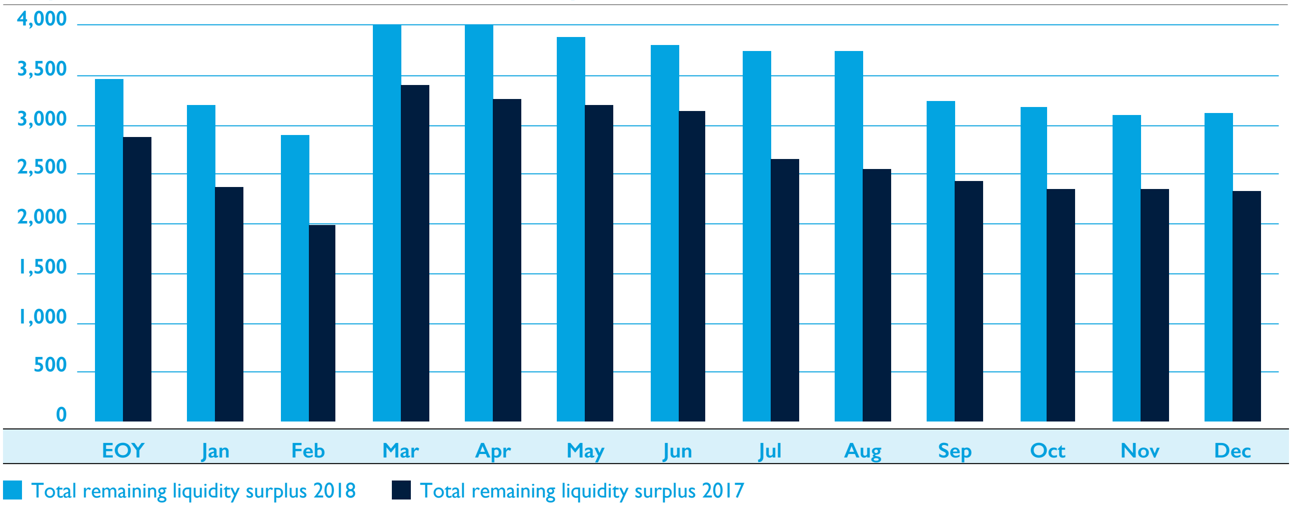
Our liquidity needs are carefully considered in the following stress scenarios:

- A 12-month market-wide liquidity crisis, characterised by an economic downturn with impact on both financial institutions (their willingness to lend and to purchase assets from each other) and non-financial institutions (leading to lower loan prepayments and larger/faster drawdowns of committed credit facilities). Such a market situation is assumed to result in no access to wholesale funding and worsening market variables (rating migration, additional haircuts on market value of collateral, CSA cash outflow, slower prepayments, etc.);
- A 12-month institution-specific stress test, caused by a material event that calls into question the reputation and/or credit quality of the institution, leading to a subsequent run on the bank. Furthermore, a significant credit rating downgrade applies. This is assumed to result in a significant outflow of retail savings and no access to ECB-financing in the first three months in addition to having no access to wholesale funding;
- An 8-month combined stress test that combines elements from the aforementioned market-wide and institution-specific liquidity stress tests. Essentially it captures a prolonged market stress with a relatively short period of a severe NIBC specific stress. Due to the severe character of the stress, the minimum survival period of this combined stress test equals eight months, assuming earlier management intervention. Under this scenario ECB lending is assumed to be available whereas asset market liquidity is worsened due to fire sales of assets and increased credit spreads.

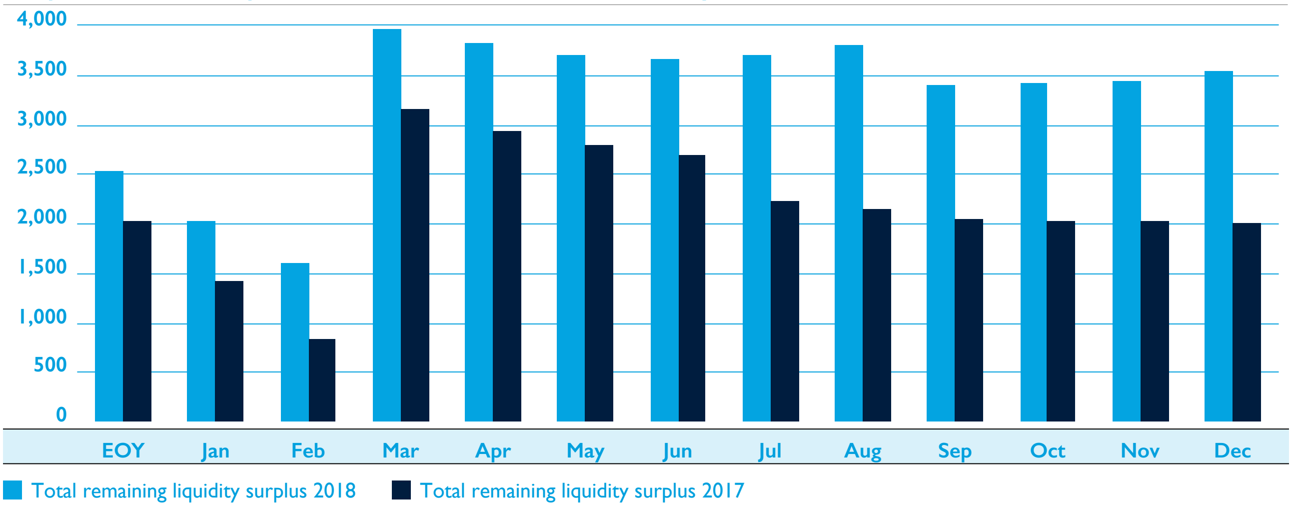
The liquidity stress tests assume that all of NIBC's contractual obligations are met and take into consideration varying levels of access to funding markets. The outcomes of the liquidity stress tests are at a comfortable positive level and remain positive for a prolonged period, under the assumptions that normal measures are carried out. The survival period and the sufficiency of the liquidity buffers are monitored on a bi-weekly basis.

Graphs 7 to 9 show the outcomes of the 12-month market-wide stress test, the 12-month institution-specific stress test and the 8-month combined stress tests. Dependent on the stress test, the projected liquidity surplus consists of the cash position, the liquidity portfolio and other ECB capacity and is adjusted monthly for maturing assets and liabilities and the outflows as prescribed by the liquidity stress tests. For each of the three stress tests, the outcomes remain positive throughout its horizon. As displayed in the graphs below, the outcomes at 31 December 2018 are at comfortably high levels. The stress test figures are more or less in line with the last year.

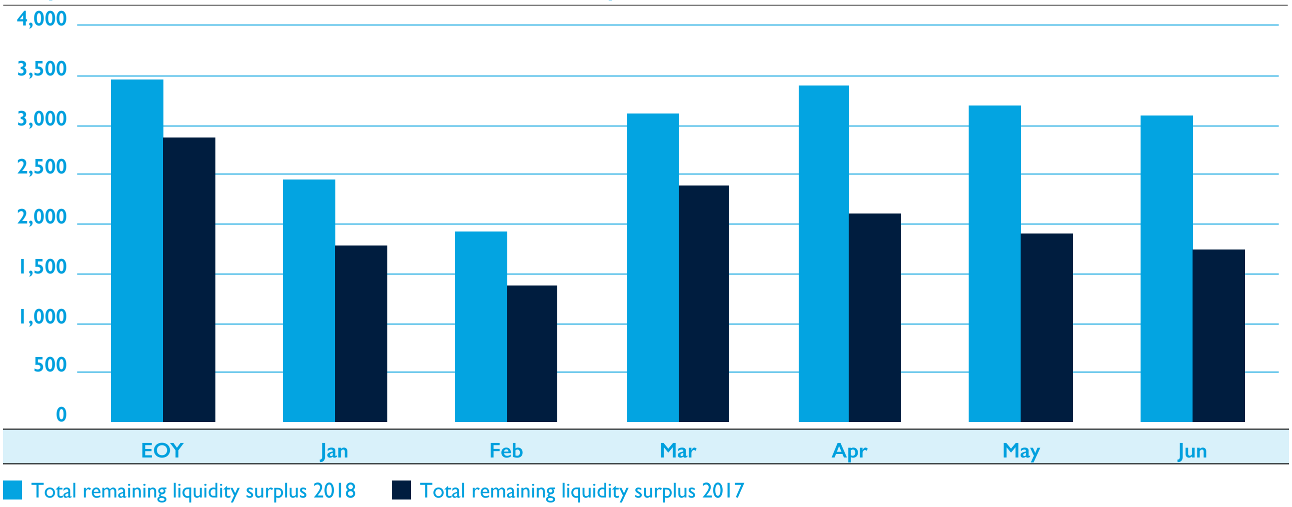
Graph 7 Market Stress Scenario, short-term analysis, 31 December 2018 and 31 December 2017



Graph 8 Institution Specific Stress Scenario, short-term analysis, 31 December 2018 and 31 December 2017



Graph 9 Combined Stress Scenario, short-term analysis, 31 December 2018 and 31 December 2017

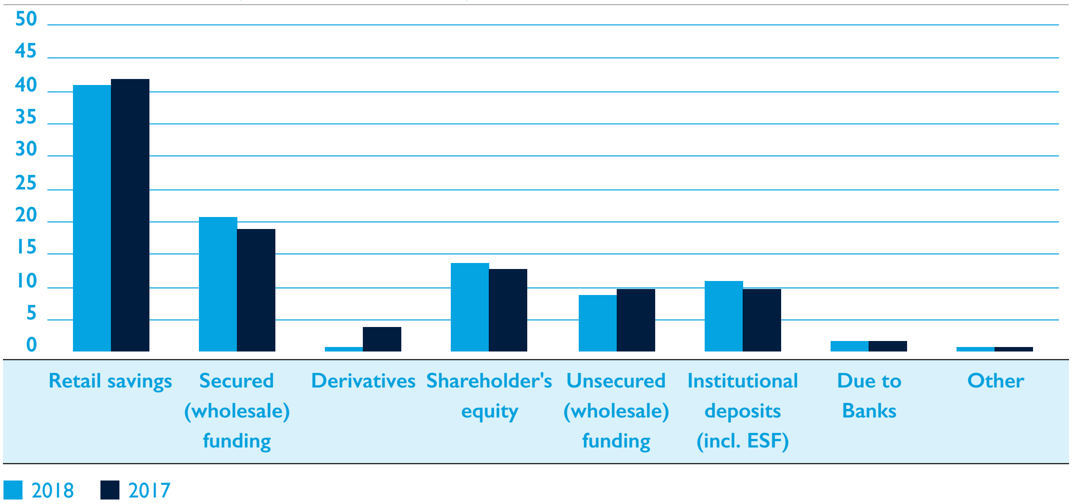


In addition to the 12-month liquidity stress analysis described above, NIBC also conducts liquidity analyses over longer periods once every two weeks according to a base scenario. These analyses assume a growth in our loan portfolio in combination with new funding initiatives. The outcome of, for example, a three or five year liquidity analysis shows again a positive buffer throughout the period.

FUNDING

NIBC Holding further diversified its funding base by the initiatives mentioned earlier. An overview of the total liabilities portfolio at 31 December 2018 and 31 December 2017 is shown in graph 10. The liabilities overview is based on total balance sheet amounts.

Graph 10 Breakdown of Total Liabilities in %, 31 December 2018 (EUR 21,550 million) and 31 December 2017 (EUR 22,148 million)



SECURITISATION EXPOSURES

OVERVIEW AND STRATEGY

NIBC as originator

NIBC has been active in the securitisation and structuring market for over twenty years. The types of collateral for these securitisations include residential mortgages, commercial mortgages and leveraged loans. NIBC's *Dutch Residential Mortgage Backed Securities* (**RMBS**) programme was established in 1997. NIBC's residential mortgage programme was later extended with the Sound and Essence issues. In 2003, NIBC started its North Westerly *Collateralised Loan Obligations* **(CLO)** programme. In 2004, NIBC became the collateral manager of its first US *Collateralised Debt Obligations* **(CDO)** transaction. In 2006, NIBC launched its introductory *Commercial Mortgage-Backed Securities* **(CMBS)** transaction under its MESDAG programme. In addition, NIBC has acted as arranger and lead manager on a number of third-party transactions. Table 33 gives an overview of the cumulative nominal amounts at 31 December 2018 of which NIBC was originator:

Table 33 Cumulative nominal amounts of NIBC's securitisations

in EUR millions	Total
Underlying asset	
Residential mortgage loans	481
Commercial mortgage loans	74
CLO	2,841
Total	**3,396**

At 31 December 2018, there were no synthetic originated securitisations in NIBC's Securitisations portfolio.

Objectives

NIBC's objectives in relation to securitisation activities are:

- Transfer of credit risk;
- Obtain funding, reduce funding cost and diversify funding sources;
- Earn management fees on the assets under management;
- Support selected clients in their funding needs;
- Offering attractive yields and quality investments for investors;
- Earn fees on ancillary roles in securitisations.

Roles and involvement

NIBC has fulfilled the following roles in the securitisation process:

- Arranger (structuring) of both third-party and proprietary securitisation transactions;
- Underwriter in securitisation transactions involving both third-party and proprietary transactions;
- Collateral manager for a number of managed CDO/CLO transactions;
- Swap counterparty for a number of commercial mortgage securitisations;
- Liquidity facility provider for a number of residential and commercial mortgage securitisations;
- Calculation agent and paying agent for number of residential and commercial mortgage securitisations;
- Company administrator for a number of securitisations; and Investor in securitisations.

Securitisation activity in 2018

In 2018, NIBC called the RMBS Dutch MBS XVIII and Originated RMBS Dutch MBS XIX and North Westerly V.

Names of the External Credit Assessment Institutions used for securitisations

NIBC uses Fitch, Moody's and Standard & Poor's to rate its securitisations.

Accounting policy

NIBC consolidates securitisation *Special Purpose Entities* **(SPE)** in its financial statements when:

- It will obtain the majority of the benefits of the activities of an SPE;
- It retains the majority of the residual ownership risks related to the assets in order to obtain the benefits from its activities;
- It has decision-making powers to obtain the majority of the benefits;
- The activities of the SPE are being conducted on NIBC's behalf according to NIBC's specific business needs so that it obtains the benefits from the SPE operations. Such an evaluation is necessarily subjective.

NIBC does not consolidate SPEs that it does not control.

The Annual Report contains more detailed information on the accounting policies used by NIBC.

NIBC as investor

Next to its role as originator of securitised products, NIBC has also been active as an investor in securitised products. Since the end of 2009, NIBC has a Liquidity Investments portfolio. This portfolio was set up to invest part of NIBC's excess liquidity in the securitisation market. Investments are limited to predominantly AAA rated RMBS/ABS transactions backed by Dutch collateral or AAA-rated ABS transactions, and are eligible to be pledged as collateral with the *European Central Bank* **(ECB).**

In addition to this restrictive mandate, each investment is pre-approved by the Financial Markets Credit Risk department.

SECURITISATION EXPOSURES

Under this heading, several overviews regarding the securitisation exposures (retained and purchased) of NIBC are presented, detailing underlying collateral type and credit quality. The figures in this section are different from those in the risk notes of the Annual Report, because the IFRS rules for consolidating securitisation exposures differ from Pillar 3 classifications under the securitisation framework. Table 34 provides an overview of NIBC's exposures in securitisations at 31 December 2018.

Table 34 EAD of Securitisations portfolio at NIBC, 31 December 2018

in EUR millions	Investor	Originator	Total
ABS	1	-	1
CDO/CLO	1	28	29
CMBS	4	18	22
RMBS	32	-	32
Total Western European securitisations	**37**	**46**	**83**
NL - RMBS AAA Liquidity portfolio	386	-	386
EU - ABS AAA Liquidity portfolio	126	-	126
Total securitisation exposure	**549**	**-**	**596**

Small differences are possible in the table due to rounding

Credit quality of Securitisations portfolio

The credit quality is based on an internal composite, following CRR/CRD IV guidelines, including external ratings from Standard & Poor's, Moody's and Fitch. The non-rated portion of the portfolio relates to first-loss positions in both NIBC's own securitisations and third-party securitisations, which have been marked down to between 1% and 10% of their nominal value at 31 December 2018.

Table 35 Rating distribution of Securitisations portfolio (investor), 31 December 2018

in EUR millions	AAA	AA	A	BBB	BB	Below BB	Total
ABS	-	-	-	-	-	1	1
CDO/CLO	-	-	-	-	-	1	1
CMBS	-	-	-	-	-	4	4
RMBS	2	4	22	-	-	3	32
Total Western European securitisations (Investor)	**3**	**4**	**22**	**-**	**-**	**9**	**37**
NL - RMBS AAA Liquidity portfolio	383	-	3	-	-	-	386
EU - ABS AAA Liquidity portfolio	126	-	-	-	-	-	126
Total securitisation exposure (Investor)	**511**	**4**	**26**	**-**	**-**	**9**	**549**

Small differences are possible in the table due to rounding

Table 36 Rating distribution of retained positions in the Securitisations portfolio (originator), 31 December 2018

in EUR millions	AAA	AA	A	BBB	BB	Below BB	Total
ABS	-	-	-	-	-	-	-
CDO/CLO	-	-	-	-	-	28	28
CMBS	-	-	-	-	-	18	18
RMBS	-	-	-	-	-	-	-
Total securitisation exposure (Originator)	**-**	**-**	**-**	**-**	**-**	**46**	**46**

Small differences are possible in the table due to rounding. One asset has a split rating AAA / A.

INTERNAL CAPITAL ADEQUACY ASSESSMENT PROCESS

The *Internal Capital Adequacy Assessment Process* **(ICAAP)** of each institution refers to the process in which risks and related capital are internally measured, allocated and managed, and by which the adequacy of available capital is assessed.

The internal capital requirements of NIBC under the ICAAP are based upon an internal Economic Capital framework. In addition to this, NIBC has set up an extensive framework of historical and theoretical stress scenarios that analyse the impact of severe shocks in the credit risk and market risk environment. The outcomes of these stress scenarios are compared to the available capital and to the Economic Capital usage on a semi-annual basis.

ECONOMIC CAPITAL

Economic Capital (**EC**) is the amount of capital that NIBC allocates as a buffer against potential losses from business activities, based upon its internal assessment of risks. EC is based on the CRR/CRD IV regulatory capital, with the addition of EC for risks not captured by the regulatory method. Business profitability is measured relative to the risk taken using the *Risk-Adjusted Return On Capital* (**RAROC**), a risk-weighted measure of return. EC and RAROC are key tools used in support of the capital allocation process according to which shareholders' equity is allocated as efficiently as possible based on expectations of both risk and return. The usage of EC is steered in the ALCO. The ALCO can adjust the maximum EC level allocated to and within each business, taking into account business expectations and the desired risk profile.

EC methodology

The EC calculation is based on a one-year risk horizon, using a 99.9% confidence level. This confidence level means that there is a probability of 0.1% that losses in a period of one year will be larger than the allocated EC, based on a constant portfolio and no management intervention.

NIBC uses a bank-wide EC framework and fully attributes all EC charges to portfolios.

NIBC uses regulatory capital for all Pillar I risks, whereas internal models are used for Pillar II risks.

Pillar I risks

Pillar I risks include credit risk, market risk (including CVA) and operational risk. As stated above the EC for Pillar I risks follows the regulatory capital treatment:

- The Credit EC is mostly based upon the AIRB formula, using internal estimates of PD, LGD, EAD and M (Maturity), whereas for a limited number of exposures the Standardised Approach is used;
- The Market risk EC includes regulatory capital for the Trading Book, FX risk and CVA;
- The EC for Operational risk is based upon the Standardised method for Regulatory Capital.

Pillar II risks

As part of the risk identification process, NIBC has assessed all risks to which it is exposed in addition to the Pillar I risks. These include both financial and non-financial risks. For the financial risks, NIBC uses internally developed models. Examples of these other financial risks are Interest Rate Risk in the Banking Book (IRRBB), concentration risk both single name and sector concentration and market risk for fair value positions. The EC for non-financial risks is based on stylized scenarios and business projections. Examples of non-financial risk are business risk, model risk and reputational risk.

Diversification

NIBC does not recognise any diversification between risk types. Within certain risk types diversification is inherently included, like market risk, IRRBB and concentration risk.

Table 37 shows the EC usage per risk type for NIBC Holding.

Table 37 EC usage per risk type

in EUR millions	31 December 2018
Credit Risk	528
Market Risk (including CVA)	22
Operational Risk	75
Total Pillar 1 Risks	**624**
Other financial risks	379
Other non-financial risks	99
Total Pillar 2 Risks	**478**
TOTAL ECONOMIC CAPITAL	**1,102**

STRESS SCENARIOS

NIBC performs internal Stress Testing as part of the overall Pillar 2 framework for CRR/CRD IV. On a semi-annual basis, stress scenario outcomes estimated by NIBC's Stress Testing Framework are presented to the RMC and RPCC, providing senior management and the Supervisory Board members with information that can be taken into account for strategic decision making. Moreover, outcomes are directly linked to NIBC's Risk Appetite Framework, based on which management steers the bank's aggregated risks. The Stress Testing Framework accounts for the impact of a set of historical and hypothetical stress scenarios on the profit and loss and capital adequacy of NIBC.

CAPITAL BASE COMPONENTS

The capital base, also referred to as regulatory capital, is calculated in accordance with the CRR/CRD IV. The available regulatory capital is based on capital contributed by subsidiaries covered by prudential consolidation accounts, which should be available, without restrictions or time constraints, to cover risks and absorb potential losses. All amounts are included net of tax charges.

The available regulatory own funds at NIBC are classified under three main categories, being Common Equity Tier 1 capital, Tier 1 capital and Tier 2 capital. The two main components in the regulatory own funds are core equity and subordinated debt. The full year net profit, excluding dividend pay-out, is included in the Common Equity Tier 1 capital. The key terms and conditions of each of these categories are summarised below.

The capital ratio is calculated by dividing the regulatory capital by the *risk weighted assets* (**RWA**).

COMMON EQUITY TIER 1 CAPITAL

Common Equity Tier 1 capital

Common Equity Tier 1 capital consists of common share capital including share premium accounts, retained earnings, accumulated other comprehensive income, adjusted by deduction of repurchased own shares and other eligible items.

Deduction from Common Equity Tier 1 capital

Cash flow hedge reserve

The amount of the cash flow hedge reserve that relates to the hedging of items that are not fair valued on the balance sheet is derecognised in the calculation of Common Equity Tier 1. This means that positive amounts are deducted.

Intangible assets (goodwill)

The deducted intangible assets contain goodwill.

Funding revaluation

Unrealized gains and losses that have resulted from changes in the fair value of liabilities that are due to changes in NIBC's own credit risk.

Deferred tax assets

Deferred tax assets are deducted from the Common Equity Tier 1 capital as far as they rely on future profitability

Securitisation exposures

NIBC has purchased subordinated bonds issued by various securitisation entities. According to CRR/CRD IV the subordinated bonds are deducted fully from the Common Equity Tier 1 capital.

AIRB provision excess of expected loss (EL)

An adjustment is made for the difference between EL and provisions for the related exposures in the regulatory own funds. The negative difference (when EL amount is larger than the provision amount) is included in the regulatory own funds as shortfall. According to CRR/CRD IV the shortfall amount shall be deducted fully from the Common Equity Tier 1 capital.

TIER I CAPITAL

Tier I capital is composed of Common Equity Tier I capital and additional Tier I capital instruments after deduction of eligible items.

Additional Tier I capital

Additional Tier I capital instruments are deeply subordinated debt instruments, senior only to Shareholders' Equity. These instruments must meet strict rules predefined by the CRR/CRD IV.

Deduction from Tier I capital

Transitional Recognition in Consolidated own funds:
The recognition in consolidated own funds refers to the treatment of capital issued by subsidiaries to third parties. Capital instruments issued by consolidated subsidiaries and held by third parties may no longer be fully recognised towards capital at group level under the CRR but only to the extent used by the subsidiary to cover the minimum capital requirements, including capital buffers. The partial de-recognition of capital issued to third parties by subsidiaries applies to all fully consolidated subsidiaries, including wholly-owned and partly owned. The partial de-recognition will affect the Additional Tier I and Tier 2 provided to third parties by all subsidiaries.

TIER 2 CAPITAL

The Tier 2 capital is composed of subordinated debt instruments after deduction of eligible items. Tier 2 capital includes two types of subordinated debt instruments; perpetual and dated instruments. Tier 2 capital may not exceed total Tier I capital, and long-term subordinated debt may not exceed 50% of Tier I capital. The limits are set after deductions.

The amount possible to include in the Tier 2 capital related to dated Tier 2 capital instruments is reduced if the remaining maturity is less than five years. The outstanding amount in the specific issue is deducted by 20% for each year beyond five years.

Revaluation reserve

Under CRR/CRD IV revaluation reserve is part of OCI.

Deductions from Tier 2 capital

Transitional Recognition in Consolidated own funds:
The recognition in consolidated own funds refers to the treatment of capital issued of subsidiaries to third parties. Capital instruments issued by consolidated subsidiaries and held by third parties may no longer be fully recognised towards capital at group level under the CRR but only to the extent used by the subsidiary to cover the minimum capital requirements, including capital buffers. The partial de-recognition of capital issued to third parties by subsidiaries applies to all fully consolidated subsidiaries, including wholly-owned and partly owned. The partial de-recognition will affect the Additional Tier I and Tier 2 provided to third parties by all subsidiaries.

A summary of items included in the regulatory capital is as follows:

Table 38 Reconciliation of shareholders' equity to regulatory capital of NIBC Holding N.V.

in EUR millions	2018	2017
TOTAL SHAREHOLDERS' EQUITY PER ACCOUNTING BALANCE SHEET	**1,701**	**1,849**
Called-up share capital	3	148
Other reserves & OCI	1,408	1,229
Retained earnings	200	322
Net result attributable to parent shareholders	217	216
Interim dividend paid	(127)	(66)
REGULATORY ADJUSTMENTS TO ACCOUNTING BASIS & PRUDENTIAL FILTERS	**(257)**	**(183)**
Prudent additional value adjustments	(2)	(8)
Cash flow hedge reserve and other reserves	(20)	(30)
Intangible assets (goodwill)	(2)	(2)
Funding revaluation	(95)	(52)
Deferred tax assets	(96)	(26)
Securitisation exposures	(37)	(27)
AIRB provision excess of expected loss (EL)	(5)	(38)
Regulatory adjustments relating to unrealised gains and losses pursuant to articles 467 and 468 CCR	-	-
COMMON EQUITY TIER 1 CAPITAL	**1,444**	**1,666**
Additional Tier 1 Capital	126	118
AIRB provision excess of expected loss (EL)	-	(5)
Directly issued capital instruments subject to phase out from Additional Tier 1	250	261
Transitional recognition in consolidated own funds	(124)	(138)
TIER 1 CAPITAL	**1,570**	**1,785**
Additional Tier 2 Capital	138	121
Subordinated Loans	258	240
Revaluation reserve	-	-
Securitisation exposures	-	-
AIRB provision excess of expected loss (EL)	-	(6)
Transitional recognition in consolidated own funds	(120)	(113)
TOTAL REGULATORY CAPITAL	**1,708**	**1,906**

In 2018 the CET 1 capital further improved compared to 1 January 2018, after transition to IFRS 9. It is important to distinguish the effect related to the adoption of IFRS 9 at 1 January 2018, and the increase in the capital position during 2018.

Impact IFRS 9 on capital position

For NIBC, the main impact of IFRS 9 on 1 January 2018 was related to the reclassification of the mortgage loan portfolio at FVtPL to amortised cost, in line with the hold to collect business model and with general market practice. This reclassification resulted in a one-off loss of EUR 321 million before tax, relating to the revaluation amount on the mortgage loans, which was charged directly to shareholders' equity. The adoption of IFRS 9 at 1 January 2018 resulted in a one-off negative impact on NIBC's CET 1 capital of EUR 298 million.

In addition to the reclassification of the FVtPL mortgage loan portfolio, the change from an incurred loss to an *expected credit loss* (**ECL**) impairment model increased the level of loan provisions by EUR 22 million. This led to a limited impact on NIBCs CET1 capital as a result of compensating effect of the (expected loss) shortfall

Overall, the reduction of capital following the transition to IFRS 9 on 1 January 2018 led to a reduction of NIBC's fully loaded capital. Taking into consideration the secondary effects such as the adjustment of the expected loss shortfall deduction, the total impact on CET 1 capital is EUR 274 million.

Changes in Common Equity Tier 1 and Tier 1 capital

During 2018 the CET 1 capital increased from EUR 1.379 million at 1 January 2018 to EUR 1.444 million at the end of 2018. The increase of EUR 65 million is mainly driven by the net profit of EUR 90 million at year end 2018 which is partly offset by an increase in regulatory deductions on CET 1 capital of EUR 35 million.

Changes in Tier 2 capital

The Tier 2 capital remains stable in 2018 and at year end 2018 the total Tier 2 capital is EUR 167 million.

CAPITAL ADEQUACY

The capital adequacy of NIBC is managed at NIBC Holding level.

The principal ratios for reviewing the capital adequacy of NIBC are the Common EquityTier 1 ratio and the Tier 1 ratio. These ratios, which were implemented by the *Bank for International Settlements* (**BIS**), are intended to promote comparability between financial institutions. They are based on the CRR/CRD IV legislation.

NIBC monitors balance sheet developments on a continuous basis and evaluates the effects on capital ratios, including comparison between the expected ratios and the actual ratios. These ratios indicate capital adequacy to mitigate on-balance credit risks, including off-balance sheet commitments, market risks, operational risks and other risk positions expressed as risk-weighted items in order to reflect their relative risk.

CAPITAL RATIOS OF NIBC HOLDING

The Common Equity Tier-1 ratio is defined as Common Equity Tier-1 capital divided by the total RWA.

The Tier-1 ratio is defined as Tier-1 capital divided by the total RWA.

The Total Capital ratio is defined as Total Capital (which is the sum of Tier-1 capital and Tier-2 capital) divided by RWA.

NIBC Holding's fully loaded Tier-1 capital ratio was 18.5% at end-2018. This is a healthy position that also implies that NIBC Holding can fulfil the CRR/CRD IV requirements when fully implemented as of December 31, 2018

Basel IV

The solvency ratios are comfortably above our SREP-levels and provide us with a sufficient buffer to comply with the future Basel IV regulation. Although the regulation has not been finalised and full implementation is only expected in 2027, we estimate the impact for NIBC to be an increase in our RWAs in the range of 25% to 35% (2017: 20% - 30%). The increase is primarily related to the reduction of our equity investments. This impact analysis does not include any management actions, implying we have a similar portfolio upon implementation of the Basel III reforms as we currently have.

An uncertainty for banks is that the new framework will have to be incorporated into legislation within the European Union based on the European Commission proposal. This entire process is expected to take several years. During this process of endorsement by the EU and subsequent transfer to local law, certain adjustments to the regulation may be implemented. We aim to meet the final requirements early in the phase-in period while we continue to execute our client-focused strategy.

Tables 39 shows the capital ratios of NIBC Holding.

Table 39 NIBC Holding N.V. capital ratios, Basel III

in %	2018		2017	
	Fully Loaded	Transition	Fully Loaded	Transition
Capital ratios				
Common Equity Tier 1 ratio	18.5	18.5	19.3	19.4
Tier 1 ratio	19.9	20.1	20.4	20.8
Total Capital / BIS ratio	22.0	21.9	22.2	22.2

Table 40 Breakdown of EAD, capital requirements and RWA of NIBC Holding N.V.

	2018			2017		
in EUR millions	EAD	RWA	Capital requirement	EAD	RWA	Capital requirement
Credit Risk	**22,949**	**6,593**	**527**	**22,378**	**7,588**	**607**
Airb approach						
- of which corporate	9,035	3,909	313	8,966	4,068	325
- of which institutions	537	208	17	596	330	26
- of which retail	8,701	726	58	8,516	826	66
- of which securitisations	596	63	5	519	103	8
- of which equities	215	795	64	339	1,253	100
Standardised approach						
- of which institutions	230	29	2	292	37	3
- of which sovereign	2,207	0	0	1,683	0	0
- of which retail	884	321	26	800	304	24
- of which corporate	478	478	38	518	518	41
- of which equities	0	0	0	0	0	0
- of which other	65	65	5	149	149	12
Market Risk		**230**	**18**		**130**	**10**
- of which trading book VaR		201	16		97	8
- of which FX Standardised approach		10	1		11	1
- of which Debt Instruments Standardised approach		14	1		18	1
- of which Equities Standardised approach		5	0		3	0
Operational Risk		**932**	**75**		**784**	**63**
Standardised approach		932	75		784	63
Credit value adjustment		**49**	**4**		**83**	**7**
Standardised approach		49	4		83	7
Total	**22,949**	**7,805**	**624**	**22,378**	**8,584**	**687**

The recognition in consolidated own funds refers to the treatment of capital issued of subsidiaries to third parties. Capital instruments issued by consolidated subsidiaries and held by third parties may no longer be fully recognised towards capital at group level under the CRR/CRD IV but only to the extent used by the subsidiary to cover the minimum capital requirements including capital buffers. The partial de-recognition of capital issued to third parties by subsidiaries applies to all fully consolidated subsidiaries, including wholly-owned and partly owned. The partial de-recognition will affect the Additional Tier-1 and Tier-2 provided to third parties by all subsidiaries.

Table 41 on the next page presents the leverage ratio based on CRR/CRD IV regulation, calculated for NIBC Holding on a fully loaded Tier 1 capital. The leverage ratio of NIBC Holding decreased in 2018 to 6.5%.

Table 41 Leverage ratio based on fully loaded Tier 1 Capital of NIBC Holding N.V. (balance sheet)

in EUR millions		2018
	Summary reconciliation of accounting assets and leverage ratio exposures	
1	Total assets as per published financial statements	21,550
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	-
3	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio exposure measure in accordance with Article 429(11) of Regulation (EU) No 575/2013 'CRR')	-
4	Adjustments for derivative financial instruments	(677)
5	Adjustments for securities financing transactions 'SFTs'	-
6	Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	(1,140)
EU-6a	(Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (7) of Regulation (EU) No 575/2013)	-
EU-6b	(Adjustment for exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (14) of Regulation (EU) No 575/2013)	-
7	Other adjustments	
8	**Total leverage ratio exposure**	**19,733**
	Leverage ratio common disclosure	
	On-balance sheet exposures (excluding derivatives and SFTs)	
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets)	20,817
2	(Asset amounts deducted in determining Tier 1 capital)	(159)
3	**Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets) (sum of lines 1 and 2)**	**20,658**
	Derivative exposures	
4	Replacement cost associated with all derivatives transactions (ie net of eligible cash variation margin)	375
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	302
EU-5a	Exposure determined under Original Exposure Method	677
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	-
7	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	-
8	(Exempted CCP leg of client-cleared trade exposures)	-

in EUR millions		2018
9	Adjusted effective notional amount of written credit derivatives	-
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	-
11	**Total derivative exposures (sum of lines 4 to 10)**	**677**
	Derivative exposures	
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	-
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	-
14	Counterparty credit risk exposure for SFT assets	-
EU-14a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 429b (4) and 222 of Regulation (EU) No 575/2013	-
15	Agent transaction exposures	-
EU-15a	(Exempted CCP leg of client-cleared SFT exposure)	-
16	**Total securities financing transaction exposures (sum of lines 12 to 15a)**	**-**
	Other off-balance sheet exposures	
17	Off-balance sheet exposures at gross notional amount	2,368
18	(Adjustments for conversion to credit equivalent amounts)	(1,228)
19	**Other off-balance sheet exposures (sum of lines 17 to 18)**	**1,140**
	Other off-balance sheet exposures	
EU-19a	(Exemption of intragroup exposures (solo basis) in accordance with Article 429(7) of Regulation (EU) No 575/2013 (on and off balance sheet))	-
EU-19b	(Exposures exempted in accordance with Article 429 (14) of Regulation (EU) No 575/2013 (on and off balance sheet))	-
	Capital and total exposures	
20	**Tier 1 capital**	**1,463**
21	**Total leverage ratio exposures (sum of lines 3, 11, 16, 19, EU-19a and EU-19b)**	**22,475**
	Leverage ratio	
22	**Leverage ratio**	**6.5%**
	Choice on transitional arrangements and amount of derecognised fiduciary items	
EU-23	Choice on transitional arrangements for the definition of the capital measure	-
EU-24	Amount of derecognised fiduciary items in accordance with Article 429(11) of Regulation (EU) NO 575/2013	-
	Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)	
EU-1	Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	20,817
EU-2	Trading book exposures	-

in EUR millions		2018
EU-3	Banking book exposures, of which:	20,817
EU-4	Covered bonds	97
EU-5	Exposures treated as sovereigns	2,164
EU-6	Exposures to regional governments, MDB, international organisations and PSE NOT treated as sovereigns	-
EU-7	Institutions	547
EU-8	Secured by mortgages of immovable properties	879
EU-9	Retail exposures	8,545
EU-10	Corporate	7,129
EU-11	Exposures in default	508
EU-12	Other exposures (eg equity, securitisations, and other non-credit obligation assets)	948

REMUNERATION POLICY

The Supervisory Board reviewed and amended NIBC's Remuneration Policy in 2018. The review took account of all relevant laws, regulations and guidelines: the Dutch Corporate Governance Code, the Dutch Banking Code, the *DNB Principles on Sound Remuneration Policies* Policies (WFT 2017), EBA Guidelines on Sound Remuneration and CRDIV and the Dutch remuneration legislation for financial services companies (Wet beloningsbeleid financiële onderneming, Wbfo).

NIBC's remuneration policy is sustainable, balanced and in line with our chosen strategy and risk appetite.

It revolves around these five key principles: remuneration is (i) aligned with business strategy; (ii) appropriately balanced between short and long term; (iii) differentiated and linked to the achievement of performance objectives and the results of the bank; (iv) externally competitive and internally fair; and (v) managed in an integrated manner that takes into account total compensation.

The *Remuneration and Nominating Committee* (**RNC**) and the Supervisory Board believe that the remuneration policy is compliant with the latest laws, regulations and is prudent and sustainable. The Supervisory Board continues to believe in prudent management of remuneration but recognises that NIBC operates in a competitive marketplace where it needs to be able to attract, motivate and retain sufficient talent. NIBC is determined to make a positive contribution towards creating the level playing field that regulators envisage with regard to variable compensation.

The 2018 Annual Report contains a detailed overview of NIBC's remuneration policy.

APPENDIX I SCOPE OF APPLICATION

The basis of NIBC's financial consolidation scope is described in the accounting policies section of NIBC Holding financial statement 2018. The scope is based on IFRS, which is determined in accordance with IAS 27 Consolidated and Separate Financial Statements, IAS 28 Investments in Associates, IAS 31 Interest in Joint Ventures and SIC 12 Consolidation Special Purpose Entities.

The regulatory consolidation scope differs from the financial consolidation scope. The regulatory consolidation does not include Special Purpose Entities where significant risk has been transferred to investors. Subsidiaries engaged in non-financial activities are excluded from the regulatory consolidation. Exposures to the Special Purpose Entities and non-financial subsidiaries are risk weighted as securitisation exposures and investments in associates (equity method).

The table present the entities that form part of the capital base of NIBC Holding N.V.

	Principal place of business	Country	Nature of activity	Percentage of voting rights held
Subsidiaries of NIBC Holding N.V.				
NIBC Bank N.V.	The Hague	Netherlands	Banking	100%
NIBC Investment Management N.V.	The Hague	Netherlands	Financing	100%
NIBC Investment N.V.	The Hague	Netherlands	Financing	100%
BEEQUIP B.V.	Rotterdam	Netherlands	Financing	75%
Subsidiaries of NIBC Bank N.V.				
NIBC Bank Deutschland AG	Frankfurt	Germany	Banking	100%
Parnib Holding N.V.	The Hague	Netherlands	Financing	100%
Counting House B.V.	The Hague	Netherlands	Financing	100%
B.V. NIBC Mortgage-Backed Assets	The Hague	Netherlands	Financing	100%
NIBC Principal Investments B.V.	The Hague	Netherlands	Financing	100%
NIBC Financing N.V.	The Hague	Netherlands	Financing	100%

APPENDIX 2 OWN FUNDS

The recognition in consolidated own funds refers to the treatment of capital issued of subsidiaries to third parties. Capital instruments issued by consolidated subsidiaries and held by third parties may no longer be fully recognised towards capital at group level under the CRR/CRD IV but only to the extent used by the subsidiary to cover the minimum capital requirements including capital buffers. The partial de-recognition of capital issued to third parties by subsidiaries applies to all fully consolidated subsidiaries, including wholly-owned and partly owned. The partial de-recognition will affect the Additional Tier-1 and Tier-2 provided to third parties by all subsidiaries.

The tables in this appendix contain information on:
- Reconciliation from IFRS to regulatory balance sheet;
- Own funds disclosure reflecting the capital position of NIBC;
- Transitional disclosure covering the phasing in of the regulatory adjustments;
- Capital instruments main features.

Table 42 Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation.

in EUR millions	Accounting Balance sheet	Regulatory balance sheet
Assets		
Cash and balances with central banks	2,056	2,056
Due from other banks	575	575
FINANCIAL ASSETS AT FAIR VALUE THROUGH PROFIT OR LOSS		
Debt investments	77	77
Equity investments (including investments in associates)	187	187
Loans	148	148
Derivative financial instruments	579	579
FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME		
Debt investments	788	788
FINANCIAL ASSETS AT AMORTISED COST		
Loans and receivables		
Loans	7,462	7,462
Mortgage loans	8,990	8,990
Secured mortgage loans	461	461
OTHER		
Assets of disposal group classified as held for sale	13	13
Investments in associates and joint ventures (equity method)	12	12
Property, plant and equipment	65	65
Intangible assets	2	2
Current tax assets	2	2
Deferred tax assets	106	106
Other assets	27	27
Total assets	**21,550**	**21,550**

Table 42 Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation.

in EUR millions	Accounting Balance sheet	Regulatory balance sheet
Liabilities		
Due to other banks	1,511	1,511
Deposits from customers	11,233	11,233
FINANCIAL LIABILITIES AT FAIR VALUE THROUGH PROFIT OR LOSS		
Own debt securities in issue	39	39
Debt securities in issue structured	282	282
Derivative financial liabilities	210	210
Liabilities of disposal group classified as held for sale	13	13
Current tax liabilities	1	1
Deferred tax liabilities	7	7
Provisions	5	5
Accruals, deferred income and other liabilities	115	115
DEBT SECURITIES IN ISSUE AT AMORTISED COST		
Own debt securities in issue	5,451	5,451
Debt securities in issue related to securitised mortgages and lease receivables	447	447
SUBORDINATED LIABILITIES		
Fair value through profit or loss	162	162
Amortised cost	116	116
TOTAL LIABILITIES	**19,592**	**19,592**
SHAREHOLDERS' EQUITY		
Share capital	3	3
Share premium	1,286	1,286
Other reserves	122	122
Retained earnings including profit for the year	344	344
TOTAL PARENT SHAREHOLDERS' EQUITY	**1,755**	**1,755**
Capital secuities (non-controlling interest)	**200**	**200**
Non-controlling interests	3	3
TOTAL SHAREHOLDERS' EQUITY	**1,958**	**1,958**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	**21,550**	**21,550**

In table 43 information on NIBC own funds are shown in accordance with the specific format that was provided in the Implementation Technical Standards of the *European Banking Authority* (**EBA**) and which is according to CRR/CRD IV.

Table 43 Disclosure NIBC own Funds (Transitional), 31 December 2018

in EUR millions	2018	2017
Common Equity Tier 1 (CET1) Capital: instruments and reserves		
Capital instruments and the related share premium accounts	1,289	1,286
of which: instrument type 1	1,289	1,286
of which: instrument type 2	-	-
of which: instrument type 3	-	-
Retained earnings	200	322
Accumulated other comprehensive income	122	91
Funds for general banking risk	-	-
Amount of qualifying items referred to in art. 484 (3) and the related share premium accounts subject to phase out from CET1	-	-
Public sector capital injections grandfathered until 1 January 2018	-	-
Minority interests	-	-
Independently reviewed interim profits net of any foreseeable charge or dividend	90	150
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	**1,701**	**1,849**

in EUR millions	2018	2017
CET1 Capital: regulatory adjustments		
Additional value adjustments (-)	(2)	(8)
Intangible assets (net of related tax liability) (-)	-	-
Empty set in the EU	-	-
deferred tax assets that rely on future profitability excluding those arising from temporary differences	(96)	(26)
Fair value reserves related to gains or losses on cash flow hedges	(20)	(30)
Negative amounts resulting from the calculation of expected loss amounts	(5)	(38)
Any increase in equity that results from securitised assets (-)	-	-
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	(95)	(52)
Defined-benefit pension fund assets (negative amount)	-	-
Direct and indirect holding by an institution of own CET1 instruments (-)	-	-
Holdings of the CET 1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (-)	-	-
Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions)(-)	-	-
Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions)(-)	-	-
Empty set in the EU	-	-
Exposure amount of the following items which qualify for a RW of 1250%, where the institution opts for the deduction alternative	(37)	(26)
of which: qualifying holdings outside the financial sector (-)	-	-

in EUR millions	2018	2017
of which: securitisation positions (-)	(37)	(26)
of which: free deliveries (-)	-	-
Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related eligible tax liabilities)	-	-
Amount exceeding the 15% threshold	-	-
Of which: direct and indirect holding by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities	-	-
Empty set in the EU	-	-
of which: deferred tax assets arising from temporary differences	-	-
Losses for the current financial year (-)	-	-
Foreseeable tax charges relating to CET1 items (-)	-	-
Regulatory adjustments applied to CET1 in respect of amounts subject to pre-CRR treatment	-	-
Regulatory adjustments relating to unrealised gains and losses pursuant to articles 467 and 468	(2)	(2)
Of which: …. Filter for unrealised losses	1	1
Of which: …. Filter for unrealised loss on exposures to central governments classified in the "available for sale" category in the EU endorsed IAS 39.		
Of which: …. Filter for unrealised gains	(3)	(3)
Of which: …. Filter for unrealised gains on exposures to central governments classified in the "available for sale" category in the EU endorsed IAS 39.	-	-
Amount to be deducted from or added to CET1 capital with regard to additional filters and deductions required pre CRR	-	-
Of Which: …	-	-
Qualifying AT1 deductions that exceed the AT1 capital of the institution (-)	-	-
Total regulatory adjustments to CET1	**(257)**	**(182)**
CET1 capital	**1,444**	**1,667**

in EUR millions	2018	2017
Additional Tier 1 (AT1) capital: instruments		
Capital instruments and the related share premium accounts	-	-
of which: classified as equity	-	-
of which: classified as liabilities	-	-
Amount of qualifying items referred to in art. 484 (3) and the related share premium accounts subject to phase out from AT1	-	-
Public sector capital injections grandfathered until 1 January 2018	-	-
Qualifying Tier 1 capital included in consolidated AT1 capital issued by subsidiaries and held by third parties	250	261
of which: instruments issued by subsidiaries subject to phase out	250	261
AT 1 capital before regulatory adjustments	**250**	**261**
AT 1 Capital: regulatory adjustments		
Direct and indirect holding by an institution of own AT1 instruments (-)		
Holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (-)		

in EUR millions	2018	2017
Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions)(-)		
Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions)(-)		
Regulatory adjustments applied to AT1 in respect of amounts subject to pre-CRR treament and transitional treatments subject to phase out as prescribed in Reg. (EU) No 575/2013	(124)	(138)
Residual amounts deducted from AT1 capital with regard to deduction from CET1 capital during the transitional period pursuant to art. 472 of Reg. (EU) No 575/2013	-	(7)
Of which: intangibles	-	(2)
Of which: shortfall of provisions to expected losses	-	(5)
Residual amounts deducted from AT1 capital with regard to deduction from T2 capital during the transitional period pursuant to art. 475 of Reg. (EU) No 575/2013		
Of which items to be detailed line by line, e.g. reciprocal cross holding in T2 instruments, direct holding of non-significant investments in the capital of other financial sector entities, etc.		
Amount to be deducted from or added to AT1 capital with regard to additional filters and deductions required pre CRR		
Of which: … possible filter for unrealised losses		
Of which: … possible filter for unrealised gains		
Of which: …		
Qualifying T2 deductions that exceed the T2 capital of the institution (-)		
Total regulatory adjustments to AT1 capital	**(124)**	**(145)**
Additional Tier 1 Capital	**126**	**116**
Tier 1 Capital (T1=CET1+AT1)	**1,570**	**1,785**
Tier 2 (T2) capital: instruments and provisions		
Capital instruments and the related share premium accounts		
Amount of qualifying items referred to in art. 484 (3) and the related share premium accounts subject to phase out from T2		
Public sector capital injections grandfathered until 1 January 2018		
Qualifying own funds instruments included in consolidated T2 capital issued by subsidiaries and held by third parties (excluding row 5 and 34)	258	240
of which: instruments issued by subsidiaries subject to phase out	-	-
Credit risk adjustments		
T2 capital before regulatory adjustments	**258**	**240**
T2 capital: regulatory adjustments		
Direct and indirect holding by an institution of own T2 instruments and subordinated loans (-)		
Holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (-)		
Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entitities (amount above 10% threshold and net of eligible short positions)(-)		
Of which new holdings not subject to transitional arrangements		

in EUR millions	2018	2017
Of which holdings existing before 1 January 2013 and subject to transitional arrangements		
Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entitities (amount above 10% threshold and net of eligible short positions)(-)		
Regulatory adjustments applied to T2 in respect of amounts subject to pre-CRR treament and transitional treatments subject to phase out as prescribed in Reg. (EU) No 575/2013	(120)	(113)
Residual amounts deducted from T2 capital with regard to deduction from CET1 capital during the transitional period pursuant to art. 472 of Reg. (EU) No 575/2013	-	(5)
Of which: shortfall of provisions to expected losses	-	(5)
Residual amounts deducted from T2 capital with regard to deduction from AT1 capital during the transitional period pursuant to art. 475 of Reg. (EU) No 575/2013		
Of which items to be detailed line by line, e.g. reciprocal cross holding in T2 instruments, direct holding of non-significant investments in the capital of other financial sector entities, etc.		
Amount to be deducted from or added to T2 capital with regard to additional filters and deductions required pre CRR		
Of which: … possible filter for unrealised losses		
Of which: … possible filter for unrealised gains		
Of which: …		
Total regulatory adjustments to T2 capital	**(120)**	**(118)**
Tier 2 Capital	**138**	**122**
Total Capital (TC = T1 + T2)	**1,708**	**1,906**

in EUR millions	2018	2017
RWA in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out as prescribed in Reg. (EU) No 575/2013	-	-
Of which: … items not deducted from CET1	-	-
Of which: … items not deducted from AT1 items	-	-
Of which: … items not deducted from T2 items	-	-
Total risk weighted assets	**7,805**	**8,584**
Capital Ratios and buffers (Transitional)		
CET1 (as a % of total risk exposure amount)	18.5%	19.4%
T1 (as a % of total risk exposure amount)	20.1%	20.8%
TC (as a % of total risk exposure amount)	21.9%	22.2%
Institution specific buffer requirement	-	-
of which: capital conservation buffer requirement	-	-
of which: countercyclical buffer requirement	-	-
of which: systemic buffer requirement	-	-
of which: G-SII or O-SII buffer	-	-
CET1 available to meet buffers (as a % of risk exposure amount)	8.5%	10.9%
[non relevant EU regulation]	-	-
[non relevant EU regulation]	-	-
[non relevant EU regulation]	-	-
Amounts below the thresholds for deduction		
Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	-	-
Direct and indirect holdings of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	-	-
Empty set in the EU	-	-
deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability where the conditions in Article 38 (3) are met)	-	-
Applicable caps on the inclusion of provisions in Tier 2		
Credit risk adjustments included in T2 in respect of exposures subject to standardised approach	-	-
Cap on inclusion of credit risk adjustments in T2 under standardised approach	-	-
Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach	-	-
Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	-	-
Capital Instruments subject to phase-out arrangements (1 Jan 2014 - a Jan 2022)		
Current cap on CET1 instruments subject to phase out arrangements	-	-
Amount excluded from CET1 due to cap	-	-
Current cap on AT1 instruments subject to phase out arrangements	148	185
Amount excluded from AT1 due to cap	-	-
Current cap on T2 instruments subject to phase out arrangements	4	4
Amount excluded from T2 due to cap	-	-

Table 44 Capital instruments' main features - Regulatory treatment

	Tier 1 Instrument	Tier 1 instruments	Tier 1 instruments	Tier 2 instrument
Issuer	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.
Unique identifier (eg CUSIP, ISIN or Bloomberg identifier for private placement)	XS1691468026	XS0215294512	XS0249580357	NIB 6.95 09APR27
Governing law(s) of the instrument	The securities are governed by, and construed in accordance with the Dutch law	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The loan is governed by the laws of the Netherlands
Regulatory treatment				
Transitional CRR rules	Additional Tier 1	Additional Tier 1	Additional Tier 1	Tier 2
Post-transitional CRR rules	Additional Tier 1	Tier 2	Tier 2	Tier 2
Eligible at solo/ (sub-)consolidated/ solo & (sub-)consolidated	Solo & consolidated	Solo & consolidated	Solo & consolidated	Solo & consolidated
Instrument type (types to be specified by each jurisdiction)	Additional Tier 1 as published in Regulation (EU) No 575/2013 article 52	Additional Tier 1 (grandfathered) as published in Regulation (EU) No 575/2013 article 484.3; Tier 2 as published in Regulation (EU) No 575/2013 article 63	Additional Tier 1 (grandfathered) as published in Regulation (EU) No 575/2013 article 484.3; Tier 2 as published in Regulation (EU) No 575/2013 article 63	Tier 2 as published in Regulation (EU) No 575/2013 article 63
Amount recognised in regulatory capital (currency in million, as of most recent reporting date)	EUR 200 mln	EUR 32mln as AT1 and EUR 47mln as Tier 2	EUR20 mln as AT1 and EUR 30mln as Tier 2	EUR 11 mln
Nominal amount of instrument	EUR 200 mln	USD 90 mln	EUR 50 mln	EUR 11 mln
Issue price	100%	100%	100%	100%
Redemption price	Redemption at par	Redemption at par	Redemption at par	Redemption at par
Accounting classification	Equity	Liability - fair value	Liability - fair value	Liability - amortised cost
Original date of issuance	29-09-17	24-03-05	30-03-06	09-04-97
Perpeptual or dated	Perpetual	Perpetual	Perpetual	Dated
Original maturity date	Perpetual	Perpetual	Perpetual	09-04-27
Issuer call subject to prior supervisory approval	Yes	Yes	Yes	N/A
Optional call date, contingent call dates, and redemption amount	First call date 15/10/2024; tax, reg call; all calls at the outstanding amounts	First call date 24/03/2015; tax call, reg call; all calls at par	First cal date 30/03/2011; tax call, reg call; all calls at par	N/A
Subsequent call dates, if applicable	semi-annual calls on 15/10 and 15/04	annual call on 24/03	annual call on 30/03	N/A

Table 44 Capital instruments' main features - Regulatory treatment

	Tier 2 Instrument	Tier 2 Instrument	Tier 2 Instrument	Tier 2 Instrument
Issuer	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.
Unique identifier (eg CUSIP, ISIN or Bloomberg identifier for private placement)	XS0161702914	NIB VAR 01JUL99	XS0210781828	XS1183596151
Governing law(s) of the instrument	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The loan is governed by the laws of the Netherlands	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The securities are governed by, and construed in accordance with the Dutch law
Regulatory treatment				
Transitional CRR rules	Tier 2	Tier 2	Tier 2	Tier 2
Post-transitional CRR rules	Tier 2	Tier 2	Tier 2	Tier 2
Eligible at solo/ (sub-)consolidated/ solo & (sub-)consolidated	Solo & consolidated	Solo & consolidated	Solo & consolidated	Solo & consolidated
Instrument type (types to be specified by each jurisdiction)	Tier 2 as published in Regulation (EU) No 575/2013 article 63	Tier 2 (grandfathered Tier 2 according to Regulation (EU) No 575/2013 article 490) compliant with (EU) No 575/2013 article 63 on a rolling 10 yeas basis	Tier 2 as published in Regulation (EU) No 575/2013 article 63	Tier 2 as published in Regulation (EU) No 575/2013 article 63
Amount recognised in regulatory capital (currency in million, as of most recent reporting date)	EUR 27 mln	EUR 41 mln	EUR 55 mln	EUR 50 mln
Nominal amount of instrument	EUR 25 mln	USD 47 mln	EUR 55 mln	EUR 50 mln
Issue price	100%	100%	100%	100%
Redemption price	Redemption at par	Redemption at par	Redemption at par	Redemption at par
Accounting classification	Liability - fair value	Liability - amortised cost	Liability - fair value	Liability - amortised cost
Original date of issuance	10-02-03	30-06-99	21-02-05	24-03-15
Perpeptual or dated	Dated	Perpetual	Dated	Dated
Original maturity date	10-02-43	Perpetual	21-02-40	24-03-25
Issuer call subject to prior supervisory approval	Yes	Yes	Yes	N/A
Optional call date, contingent call dates, and redemption amount	First call date 10/02/2013; tax call, reg call; all calls at par	First call date 01/07/2009; tax call, reg call; all calls at par	First call date 21/02/2035	N/A
Subsequent call dates, if applicable	call every 5 years starting in Feb 2013	call every 10 years starting in July 2009	one time call	N/A

Table 44 Capital instruments' main features - Coupons/dividends

	Tier 1 Instrument	Tier 1 instruments	Tier 1 instruments	Tier 2 instrument
Issuer	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.
Unique identifier (eg CUSIP, ISIN or Bloomberg identifier for private placement)	XS1691468026	XS0215294512	XS0249580357	NIB 6.95 09APR27
Governing law(s) of the instrument	The securities are governed by, and construed in accordance with the Dutch law	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The loan is governed by the laws of the Netherlands
Coupons / dividends				
Fixed or floating dividend/coupon	Fixed to floating	Fixed to floating	Fixed to floating	Fixed
Coupon rate and any related index	6% till October 2024; 5 year EUR swap rate + 5.5564% afterwards	7.5% p.a. till March 2007; min(10 year USD swap rate + 0.1%, 8.25%) afterwards	8% p.a. till March 2011; min(10 year EUR swap rate + 0.1%, 8%) afterwards	6.95% p.a.
Existence of a dividend stopper	No	No	No	No
Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully discretionary	Partially discretionary - Existence of the mandatory payment event	Partially discretionary - Existence of the mandatory payment event	Mandatory
Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully discretionary	Partially discretionary	Partially discretionary	Mandatory
Existence of step up or other incentive to redeem	No	No	No	No
Noncumulative or cumulative	Non-cumulative	ACSM	ACSM	N/A
Convertible or non-convertible	Non-convertible	Convertible	Convertible	Non-convertible
If convertible, conversion trigger (s)	N/A	Total capital ratio below 8%	Total capital ratio below 8%	N/A
If convertible, fully or partially	N/A	Always Fully	Always Fully	N/A
If convertible, conversion rate	N/A	1 to 1	1 to 1	N/A
If convertible, mandatory or optional conversion	N/A	Mandatory	Mandatory	N/A
If convertible, specifiy instrument type convertible into	N/A	Preference shares	Preference shares	N/A
If convertible, specifiy issuer of instrument it converts into	N/A	NIBC Bank N.V.	NIBC Bank N.V.	N/A
Write-down features	Yes	No	No	No
If write-down, write-down trigger (s)	CET1 ratio of the Bank or Holding below 5.125%	N/A	N/A	N/A
If write-down, full or partial	Partial	N/A	N/A	N/A
If write-down, permanent or temporary	Temporary	N/A	N/A	N/A
If temporary write-down, description of write-up mechanism	Discretionaty write-up provided the CET1 ratio is in excess of the regulatory minimum	N/A	N/A	N/A
Position in subordination hierachy in liquidation (specify instrument type immediately senior to instrument)	Senior only to common equity tier 1 instruments	Subordinated to all claims subordinated only to the claims of unsubordinated creditors	Subordinated to all claims subordinated only to the claims of unsubordinated creditors	Subordianted only to claims of unsubordinated creditors
Non-compliant transitioned features	No	Yes	Yes	No
If yes, specifiy non-compliant features	N/A	Mandatory payment event, Conversion to preference shares	Mandatory payment event, Conversion to preference shares	N/A

Table 44 Capital instruments' main features - Coupons/dividends

	Tier 2 Instrument	Tier 2 Instrument	Tier 2 Instrument	Tier 2 Instrument
Issuer	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.	NIBC Bank N.V.
Unique identifier (eg CUSIP, ISIN or Bloomberg identifier for private placement)	XS0161702914	NIB VAR 01JUL99	XS0210781828	XS1183596151
Governing law(s) of the instrument	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The loan is governed by the laws of the Netherlands	The securities are governed by, and construed in accordance with the English law save for the subordination clause which is governed by, and construed in accordance with, the laws of the Netherlands	The loan is governed by the laws of the Netherlands
Coupons / dividends				
Fixed or floating dividend/coupon	Fixed	Floating to Floating	Fixed to Floating	Fixed
Coupon rate and any related index	0% (6.35% yield)	6m USD Libor + 0.55% till 1 july 2009; 6m USD Libor + 1.55% afterwards	7% p.a till Feb 2007; afterwards min(8.5; max(10 year EUR swap rate-2 year EUR swap rate)*4, 2.85)	4.00% p.a.
Existence of a dividend stopper	No	No	No	No
Fully discretionary, partially discretionary or mandatory (in terms of timing)	N/A	Mandatory	Mandatory	Mandatory
Fully discretionary, partially discretionary or mandatory (in terms of amount)	N/A	Mandatory	Mandatory	Mandatory
Existence of step up or other incentive to redeem	No	Yes	No	No
Noncumulative or cumulative	N/A	N/A	N/A	N/A
Convertible or non-convertible	Non-convertible	Non-convertible	Non-convertible	Non-convertible
If convertible, conversion trigger (s)	N/A	N/A	N/A	N/A
If convertible, fully or partially	N/A	N/A	N/A	N/A
If convertible, conversion rate	N/A	N/A	N/A	N/A
If convertible, mandatory or optional conversion	N/A	N/A	N/A	N/A
If convertible, specifiy instrument type convertible into	N/A	N/A	N/A	N/A
If convertible, specifiy issuer of instrument it converts into	N/A	N/A	N/A	N/A
Write-down features	No	No	No	No
If write-down, write-down trigger (s)	N/A	N/A	N/A	N/A
If write-down, full or partial	N/A	N/A	N/A	N/A
If write-down, permanent or temporary	N/A	N/A	N/A	N/A
If temporary write-down, description of write-up mechanism	N/A	N/A	N/A	N/A
Position in subordination hierachy in liquidation (specify instrument type immediately senior to instrument)	Subordianted only to claims of unsubordinated creditors	Subordinated to all claims subordinated to the claims of unsubordinated creditors	Subordinated to all claims subordinated to the claims of unsubordinated creditors	Subordinated to all claims subordinated to the claims of unsubordinated creditors
Non-compliant transitioned features	No	No	No	Yes
If yes, specifiy non-compliant features	N/A	step-up	N/A	N/A

Table 45 Encumbered assets NIBC Holding N.V

in EUR millions	2018	2017	2016	2015
Carrying amount of encumbered assets				
Debt investments / Residential mortgages own book	4,525	4,085	3,518	1,902
Securitised loans and mortgages	864	944	2,170	3,619
Cash collateral (due from other banks)	154	669	1,004	1,128
	5,543	**5,698**	**6,692**	**6,649**
Matching liabilities, contigent liabilities or securities lent				
Due to other banks / Own debt securities in issue	3,732	3,443	2,943	1,865
Debt securities in issue related to securitised loans and mortgages	823	691	1,945	2,802
Derivative financial liabilities	112	566	888	1,128
	4,667	**4,700**	**5,776**	**5,795**

As part of NIBC's funding and credit risk mitigation activities, the cash flows of selected financial assets are transferred or pledged to third parties. Furthermore, NIBC pledges assets as collateral for derivative transactions. Substantially all financial assets included in these transactions are residential mortgages loans, other loan portfolios, debt investments and cash collateral. The extent of NIBC's continuing involvement in these financial assets varies by transaction.

The asset encumbrance ratio at year end 2018 was 26% (2017: 25%).

APPENDIX 3 LIST OF ABBREVIATIONS

	Other Comprehensive Income
AFM	Authority for Financial Markets
AIRB	Advanced Internal Ratings' Based (approach)
ALCO	Asset & Liability Committee
ALM	Asset & Liability Management (department)
BIS	Bank for International Settlements
BPV	Basis-point Value
CC	Compliance & CSR
CCF	Credit Conversion Factor
CCR	Counterparty Credit Rating
CDO	Collateralised Debt Obligations
CDS	Credit Default Swap
CEBS	Committee of European Banking Supervisors
CLO	Collateralised Loan Obligations
CM&PA	Credit Modelling & Portfolio Analysis (department)
CMBS	Collateralised Mortgage-Backed Securities
CRM	Credit Risk Management (department)
CRO	Chief Risk Officer
CRR/CRD IV	Capital Requirements Regulation and Directive IV
CSA	Credit Support Annex
CSR	Corporate Social Responsibility
CVA	Credit Value Adjustment
DNB	Dutch Central Bank
DVA	Debt Value Adjustment
EAD	Exposure at Default
EBA	European Banking Authority
EC	Economic Capital
EC	Engagement Committee
ECB	European Central Bank
EL	Expected Loss
FMCR	Financial Markets Credit Risk (department)
FX	Foreign Exchange
GCD	Global Credit Data
IBNR	Incurred but not reported
IC	Investment Committee
ICAAP	Internal Capital Adequacy Assessment Process
IFRS	International Financial Reporting Standards
ILAAP	Internal Liquidity Adequacy Assessment Process
IMA	Internal Model Approach
IRS	Interest Rate Swaps
ISDA	International Swaps and Derivatives Association
LGD	Loss Given Default
LtIMV	Loan-to-Indexed Market Value
M	Maturity
MRM	Market Risk Management (department)
NHG Guarantee	Dutch government guarantee
NPAP	New Product Approval Process
OCI	Other Comprehensive Income
OE	Offshore Energy
ORM	Operational Risk Management (department)
OTC	Over-the-Counter derivatives
P&L	Profit & Loss (account)
PD	Probability of Default
RA&MV	Risk Analytics and Model Validation (department)
RAROC	Risk-Adjusted Return on Capital
RC	Pillar-I Regulatory Capital
RCSA	Operational Risk and Control Self-assessments
RDA	Restructuring & Distressed Assets Management (department)
RL	Realised Loss
RLCC	Risk Management, Legal, Compliance and Corporate Social Responsibility
RMBS	Residential Mortgage-Backed Securities
RMC	Risk Management Committee
RNC	Remuneration and Nominating Committee
RPCC	Risk Policy & Compliance Committee
RWA	Risk Weighted Assets
SA	Standardized Approach
SPE	Special Purpose Entity
SREP	Supervisory Review and Evaluation Process
SvaR	Stressed VaR
TC	Transaction Committee
TLTRO	Targeted Long Term Refinancing Operation
VaR	Value-at-Risk
WbFO	Wet beloning Financiële ondernemingen
Wft	Wet op het Financieel Toezicht