EUROBANK ERGASIAS S.A.

CONSOLIDATED PILLAR 3 REPORT

FOR THE YEAR ENDED

31 DECEMBER 2018

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1. Introduction – General Information

Eurobank Ergasias S.A. (the "Bank" or the "Group") is a credit institution based in Greece and is supervised on a stand alone and consolidated basis by the European Central Bank (ECB) and the Bank of Greece (BoG). The Group is one of the four systemic banks in Greece, operating in key banking product and service markets. The Group offers a wide range of financial services to the retail and corporate clients. It has a strategic focus in Greece in fee-generating activities, such as asset management, private banking, equity brokerage, treasury sales, investment banking, leasing, factoring, real estate and trade finance. The Group is also among the leading providers of banking services and credit to SMEs, small businesses and professionals, large corporates and households.

Eurobank has an international presence in six countries outside of Greece, with operations in Romania (the operations of Romania disposal group are included until 31.3.2018), Bulgaria, Serbia, Cyprus, Luxembourg and the United Kingdom.

On 3 April 2018, Eurobank and Banca Transilvania (BT) concluded all the actions and fulfilled all the conditions precedent for the completion of the transfer of the shares held by the Group in Bancpost S.A., ERB Retail Services IFN S.A. and ERB Leasing IFN S.A. to BT. Prior to this, BT has obtained the relevant regulatory approvals from both the National Bank of Romania and the Romanian Competition Authority for the acquisition. Further information in relation to the completion of the disposal is provided in the Consolidated Financial Statements Note 17.

On 7 November 2018 Eurobank announced that it has concluded an agreement with Piraeus Bank S.A. for the acquisition of Piraeus Bank Bulgaria AD, a subsidiary of Piraeus Bank, by Eurobank's subsidiary in Bulgaria, Eurobank Bulgaria AD (Postbank) for a consideration of € 75 million. The completion of the Transaction is subject to approvals by the relevant competent regulatory and supervisory authorities and is expected to take place during the second quarter of 2019.

1.1 Regulatory framework

The general Basel III framework is structured around three mutually reinforcing pillars:

- Pillar 1 defines the minimum regulatory capital requirements, based on principles, rules and methods specifying and measuring credit, market and operational risk. These requirements are covered by regulatory own funds, according to the rules and specifications of CRR.
- Pillar 2 addresses the internal processes for assessing overall capital adequacy in relation to risks (Internal Capital Adequacy Assessment Process - ICAAP and Internal Liquidity Assessment Process - ILAAP). Pillar 2 also introduces the Supervisory Review & Evaluation Process (SREP), which assesses the internal capital adequacy of credit institutions.
- Pillar 3 deals with market discipline by developing a set of quantitative and qualitative disclosure requirements, which allow market participants to assess key pieces of information on the scope of application, capital, risk exposures, risk assessment processes and hence the capital adequacy and the internal liquidity adequacy of credit institutions.

According to the CRD IV provisions (with gradual implementation until 2019):

- Minimum Common Equity Tier 1 (CET1) ratio: 4.5%;
- Minimum Tier 1 ratio: 6%;
- Minimum Total Capital ratio: 8%
- Furthermore, banks are required to gradually create a capital conservation buffer of 2.5% until 1 January 2019 (0.625% on 1 January 2016, 1.25% on 1 January 2017 and 1.875% on 1 January 2018) beyond the existing minimum capital. Conservation buffer is a capital buffer of 2.5% of total risk exposures that needs to be met with an additional amount of CET1 capital.

As a result the minimum ratios which must be met, including the capital conservation buffer and which shall apply from 1 January 2019 are:

- Minimum CET1 capital ratio 7%; and
- Total capital adequacy ratio 10.5%.

Additional capital buffers that CRD IV introduces are the following:

a) Countercyclical buffer. The purpose of this buffer is to counteract the effects of the economic cycle on banks' lending activity, thus making the supply of credit less volatile and possibly even reduce the probability of credit bubbles or crunches. Credit institutions are required under the CRD IV to build up an additional buffer of 0 - 2.5% of CET1 during periods of excess credit growth, according to national circumstances. According to relevant BoG Executive Committee Acts, the countercyclical buffer was set at 0% for 2018.
b) Global systemic institution buffer (G-SIIs). CRD IV includes a mandatory systemic risk buffer of CET1 for banks that are identified by the relevant authority as globally systemically important, which is not applicable to Greek banks.
c) Other systemically important institutions buffer (O-SIIs). On 23.5.2018, European Banking Authority (EBA) published the updated list of O-SIIs in the EU. O-SIIs are those institutions which are deemed systematically relevant in addition to G-SIIs, already identified. This list reflects also the additional capital buffers that the relevant authorities have set for the O-SIIs. The identification of institutions as O-SIIs is based on 2017 data and the list is disclosed on an annual basis, along with the definition of any CET1 capital buffer requirements which may need to be set. In case of higher capital requirements, these become applicable at least one year after the publication of the O-SIIs list, to give institutions enough time to adjust to the new buffer requirements.

   The EBA methodology has been applied to compute the scores for all the institutions operating in Greece using consolidated data. Based on the above scoring system, all Greek O-SIIs are classified in bucket 4 which corresponds to a capital buffer of 1% which will be phased in until 2022. The date of activation was 1 January 2016 and BoG's Executive Committee Act- 151/30.10.2018 set the O-SII buffer for Greek Institutions for the year 2019 at 0.25%.

The European Commission has released a combined package of proposals covering the review of the Capital Requirements Directive/Regulation (CRD/CRR) that will be applicable from 1.1.2021. The package complements and builds on the existing European prudential framework set out in CRD IV/CRR. The new CRD V/CRR II proposals introduce the Net Stable Funding Ratio (NSFR) and the Leverage Ratio as binding requirements for EU banks. The package also includes the implementation of Total Loss Absorbing Capacity (TLAC) for EU G-SIBs, as well as a number of other Basel standards - including a new framework for market risk capital requirements, changes to the counterparty credit risk framework and for exposures to central counterparties (CCPs).

Regulatory Developments

European Commission published regulations and set out actions and initiatives so as to reinforce the resilience of the banking system.

The major reforms which took place throughout 2018 were the following:
- Regulation 2018/171 on supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for the materiality threshold for credit obligations past due;
- Regulation 2018/728 on supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for procedures for excluding transactions with non- financial counterparties established in a third country from the own funds requirement for credit valuation adjustment risk;
- Regulation 2018/1845 of the European Central Bank on the exercise of the discretion under Article 178(2)(d) of the Regulation (EU) No 575/2013, in relation to the threshold for assessing the materiality of credit obligations past due;
- Commission Implementing Regulation 2018/1889 on the extension of transitional periods related to own funds requirements for exposures to central counterparties set out in Regulation (EU) No 575/2013 and (EU) No 648/2012 of the European Parliament and of the Council.

During 2018, BCBS published the following:
- Pillar 3 disclosure requirements – updated framework;
- Revisions to leverage disclosure requirements;
- Revisions to the minimum capital requirements for market risk;
- Capital treatment for identifying simple, transparent and comparable short-term securitisations.

In March 2018, BCBS published the second set of frequently asked questions (FAQs) on the Basel 3 Standardised approach for measuring counterparty credit risk exposures and the second set of FAQs on the revised market risk standard.

Especially about the second publication the questions and answers address clarifications of the standardised approach, the internal models approach and the scope of application of the standard.

Moreover, EBA has published the following guidelines related to uniform disclosures:
- EBA /GL/2018/01 Guidelines on uniform disclosures under 473a of Regulation (EU) No 575/2013 as regards the transitional period for mitigating the impact of the introduction of IFRS9 on own funds;
- EBA /GL/2018/10 Guidelines on non-performing and forborne exposures.

Single Supervisory Mechanism (SSM)

Pursuant to the proposal of the EU Commission dated 12 September 2012 as regards a Single Supervisory Mechanism (SSM), Council Regulation No 1024/2013 of 15 October 2013 was issued, which conferred specific tasks on the European Central Bank (ECB) concerning policies relating to the prudential supervision of credit institutions. Furthermore, Regulation No 1022/2013 of the European Parliament and of the Council of 22 October 2013 was also issued, amending Regulation No 1093/2010 establishing the EBA as regards the conferral of specific tasks on the ECB pursuant to Council Regulation No 1024/2013.

The Single Supervisory Mechanism (SSM) refers to the system of banking supervision in Europe. It comprises the ECB and the national supervisory authorities of the participating members.

As of November 2014, the ECB directly supervises the largest banks, while the national supervisors continue to monitor the remaining banks. The main task of the ECB and the national supervisors, working closely together within an integrated system, is to check that banks comply with the EU banking rules and tackle problems early on.
The SSM is one of the two pillars of the EU banking union, along with the Single Resolution Mechanism.

Single Rulebook

The Single Rulebook is the foundation of the banking union. The term Single Rulebook was coined in 2009 by the European Council in order to provide a single set of harmonised prudential rules which institutions throughout the EU must comply with. These rules, among other things, lay down capital requirements for banks, ensure better protection for depositors and regulate the prevention and management of bank failures.

Supervisory Review and Evaluation Process (SREP)

Based on Council Regulation 1024/2013, the ECB conducts annually a Supervisory Review and Evaluation Process (SREP), in order to define the prudential requirements of the institutions under its supervision, by defining a total SREP capital requirement.

The key purpose of SREP is to ensure that institutions have adequate arrangements, strategies, processes and mechanisms as well as capital and liquidity to ensure a sound management and coverage of their risks, to which they are or might be exposed, including those revealed by stress testing and risks the institution may pose to the financial system.

The common SREP framework introduced is built around:
- business model analysis;
- assessment of internal governance and institution-wide control arrangements;
- assessment of risks to capital and adequacy of capital to cover these risks; and
- assessment of risks to liquidity and adequacy of liquidity resources to cover these risks.

The minimum capital adequacy requirements are determined by the ECB following the assessment of the bank's risk profile (through SREP). For 2018, the SREP requirements consist of:
- The minimum required CET1 ratio and the minimum required Total capital adequacy ratio, which in case they are breached, can lead to the trigger of the Maximum Distributable Amount (MDA);
- The Pillar 2 Guidance (P2G), which is an additional capital buffer recommended by the ECB to be kept over and above the minimum required CET1.

European Banking Authority 2018 Stress Test

On 31 January 2018, the European Banking Authority (EBA) launched its 2018 EU-wide stress test and released the macroeconomic scenarios. The EBA coordinated the EU-wide stress test exercise in cooperation with the ECB and national authorities. The results of the stress test provide stakeholders and the public with information about the resilience of banks, notably their ability to absorb shocks and meet capital requirements under adverse macroeconomic conditions.

The EU-wide stress test was conducted according to the EBA's methodology, which was published in November 2017, templates and scenarios. The exercise was carried out on the basis of year-end 2017 figures as restated with the impact of the IFRS 9 adoption and assessed the resilience of EU banks under a common macroeconomic baseline scenario and a common macroeconomic adverse scenario, covering the period 2018-2020. The baseline scenario was in line with the December 2017 forecast published by the ECB, while the adverse scenario, which has been developed by the European Systemic Risk Board (ESRB) and the ECB in close cooperation with the EBA and the competent authorities, was designed to ensure an adequate level of severity across all EU countries. No pass-fail threshold has been included as the results of the exercise are designed to serve as an input to the Supervisory Review and Evaluation Process (SREP).

Eurobank, along with the other three Greek systemic banks directly supervised by the ECB, underwent the same stress test (ST) under the EBA scenarios and methodology. The timetable for the Greek systemic banks was accelerated in order to complete the test before the end of the third European Stability Mechanism stability support program for Greece.

2018 Eurobank Stress Test Results

On 5 May 2018, the ECB announced the results of the ST for the four Greek systemic banks, including Eurobank. Based on feedback received by the Single Supervisory Mechanism (SSM), the ST outcome along with other factors that have been assessed by the Supervisory Board (SB) of the SSM, pointed to no capital shortfall and no capital plan needed for the Bank as a result of the exercise.

Under the adverse scenario, the Bank's total capital adequacy ratio (CAD), including the effect of Tier 2 securities, issued in January 2018, is 9.5%, and the Core Tier 1 Capital (CET1) ratio is 6.8%. These ratios would be ca. 40 bps higher, at 9.9% and 7.2% respectively, if the positive impact from the sale of the Romanian disposal group (completed in early April 2018) was taken into account. The capital depletion stood at € 3.4 bn (8.7 ppts, excluding the negative impact of 250 bps related to the phase-out of grandfathered preference shares). Under the baseline scenario, the Bank is capital accretive, with CAD and CET1 ratios increasing at 19.3% and 16.6%, respectively. These ratios would be ca. 40 bps higher if the positive impact from the sale of Romanian disposal group was included.

The Bank's performance in the ST confirms that it remains resilient to external shocks. The Bank's total capital and overall solid performance, allows it to further streamline efforts on the implementation and delivery of its business priorities, focusing on effective management and rapid decrease of stock of non-performing exposures in line with its plans, as well as providing financing to its clients, to the Greek economy and the region. The above business priorities, along with additional initiatives associated with the restructuring, transformation or optimization of operations, in Greece and abroad will generate or release further capital and/or reduce risk weighted assets, contributing to the further strengthening of the Group's capital position.

Regulatory initiatives on Internal Models

<u>SSM initiatives - Targeted Review of Internal Models</u>

Targeted Review of Internal Models (TRIM) is an SSM-wide multi-year project (2016-2019) affecting all significant institutions of the Eurozone with approved internal models and has the following key objectives:

- Assess if internal models comply with the applicable regulation, and whether the risk estimates they produce are reliable and comparable;
- Reduce inconsistencies and unwarranted variability when banks use internal models to calculate Risk Weighted Assets (RWAs).

Between the second half of 2016 and the 2nd quarter of 2018 the Bank has entered TRIM's execution phase and more specifically:

- The General Topic review;
- The investigation of its internal model for Market Risk;
- The investigation of its internal model for Credit Risk of the exposure class "Retail - Secured by real estate non-SME" (mortgage portfolio).

During the last quarter of 2018, SSM initiated a review of Eurobank's credit risk PD models for Corporate exposures under Foundation IRB.

<u>EBA initiatives – Definition of default and other Guidelines</u>

EBA recently issued a number of Guidelines and Regulations, to allow comparability and harmonization of risk estimates and RWAs as well as introducing a level playing field. These include among others:

- The implementation of the new Definition of Default including consistent materiality thresholds for credit obligations past due;
- Guidelines on the estimation of risk parameters under the IRB Approach.

Application of new definition of default is expected from January 1, 2021.

Recovery and Resolution of Credit Institutions

On 15 May 2014 the European Parliament and the Council of the European Union adopted the Directive 2014/59 EU establishing a framework for the recovery and resolution of credit institutions and investment firms (the Bank Recovery and Resolution Directive (BRRD)) which entered into force on 2 July 2014. The European Council has recognised that in the Banking Union, bank supervision and resolution need to be exercised uniformly, thus making obvious the need for the establishment of the Single Resolution Mechanism (SRM), a Single Resolution Board (SRB) and a Single Resolution Fund, (SRF) and in this context, the European Parliament and Council adopted Regulation No 806/2014 (the "SRM Regulation").

The BRRD was transposed into Greek law by virtue of Law 4335/2015, which came into force on 23 July 2015, with the exception of its provisions on the bail-in tool which were initially applicable as at 1 January 2016. Further to the enactment of Law 4340/2015, the bail-in tool came into force as of 1 November 2015, except for the provisions relating to the loss absorption requirements which came into force on 1 January 2016.

The BRRD relies on a network of national authorities and resolution funds to resolve banks. Pursuant to Law 4335/2015, with respect to Greek credit institutions, the BoG has been designated as the national resolution authority and the Resolution Branch of the Hellenic Deposit and Investment Guarantee Fund (HDIGF) as the national resolution fund.

Single Resolution Mechanism

The SRM Regulation builds on the rulebook on bank resolution set out in the BRRD and establishes the SRM, which complements the SSM and centralizes key competences and resources for managing the failure of any bank in the Euro zone and in other Member States participating in the Banking Union. The SRM Regulation also established the SRB, vested with centralised power for the application of the uniform resolution rules and procedures and the SRF, supporting the SRM. The main objective of the SRM is to ensure that potential future bank failures in the banking union are managed efficiently, with minimal costs to taxpayers and the real economy. The SRB started its work as an independent EU agency on 1 January 2015 and is fully operational since January 2016.

1.2 Implementation of Capital Adequacy framework at Eurobank Group

1.2.1 Credit risk

Eurobank Group (the "Bank" or the "Group") first applied the Basel II framework under the Standardised approach in January 2007 and included the respective risk asset ratio figures in its published financial statements. Until that date the Group had been applying the Basel I rules.

In June 2008, the Group received the approval of BoG to use the Internal Ratings Based (IRB) approach to calculate the capital requirement for credit risk. Therefore, with effect from 1 January 2008 the Group applies:

- The Foundation IRB approach to calculate risk weighted assets for the corporate loans' portfolio of Eurobank Ergasias S.A. in Greece;
- The Advanced IRB for the majority of the retail loans' portfolio of the Bank, i.e. mortgages, small business lending, credit cards and revolving credits in consumer lending;
- From September 2009 the Foundation IRB approach was applied for the corporate loans' portfolio of Eurobank Ergasias Leasing S.A. in Greece;
- From March 2010 the Advanced IRB approach was applied for the Bank's portfolio of personal and car loans.

The implementation of IRB covers 78.4% of the Group's lending portfolio excluding portfolio segments which are immaterial in terms of size and risk profile as well as, permanent exemptions. The Bank is in the process of reviewing the IRB roll out plan taking into account the recently issued draft guidelines, the related internal policy and its business plan. The updated roll out plan will be subject to ECB approval.

From January 1 2018, the equity exposures of the Group, according to article 155 of Regulation (EU) No 575/2013 (Risk weighted exposure amounts for equity exposures), are subject to the IRB treatment.

There is a permanent exemption from the IRB approach, up to 10% of Risk Weighted Assets, for which the Standardised approach is applied. In addition to the exemption of up to 10% of Risk Weighted Assets, permanent exemption has been granted for the following exposure classes as prescribed in the CRD:

- exposures to/or guaranteed by central governments and central banks;
- exposures to/or guaranteed by credit and financial institutions; and
- exposures to administrative bodies and non-commercial undertakings.

The Standardised approach is applied for these exposures.

1.2.2 Market risk

The Bank uses its own internal Value at Risk (VaR) model to calculate capital requirements for market risk in its trading book, for the Bank's activities in Greece. The Bank received the official validation of its model for market risk by the BoG in July 2005. The model is subject to periodic review by the regulator.

In 2011, the Bank updated its models and systems in order to fully comply with the BoG Governor's Act 2646/2011 for the trading book capital. The Bank calculates the capital for stressed VaR and IRC (incremental risk capital charge) since 31.12.2011.

For the measurement of market risk exposure and the calculation of capital requirements for the Bank's subsidiaries in Greece and in International operations, the Standardised approach is applied.

Furthermore, the Bank calculates and monitors the market risk of the banking book for its operations in Greece on a daily basis using the internal VaR model. For its operations abroad, Eurobank applies sensitivity analysis, whereas the VaR methodology is applied on a monthly basis.

1.2.3 Operational risk

Capitalizing on the provisions of Regulation (EU) No 575/2013, the Group uses the Standardised Approach to calculate the Pillar 1 regulatory capital requirements for operational risk for its consolidated operations.

1.3 Scope of Pillar 3

The purpose of Pillar 3 report is to provide updated information the Group's risk management practices, risk assessment processes and regulatory capital adequacy ratios.

Pillar 3 disclosures consist of both qualitative and quantitative information and are provided on a consolidated basis. They have been prepared in accordance with Part 8 of the Capital Requirements Regulation within CRD IV (Regulation 2013/575/EU) and according to the regulatory consolidation framework, which is described in the following section.

In December 2016 EBA published EBA/GL/2016/11 guidelines on revised Pillar 3 disclosures requirements to improve the consistency and comparability of institutions' regulatory disclosures. These guidelines are applied from 31 December 2017. Even though these guidelines do not change the substance of the regulatory disclosures, they update the presentational aspect of disclosures by introducing the use of specific tables for qualitative information and templates for quantitative information. Moreover, the guidelines harmonise the frequency of disclosures and update the list of requirements to be considered for more frequent disclosures.

According to the above guidelines, for templates that require the disclosure for current and previous reporting periods, the previous reporting period is always referred to as the last data disclosed according to the frequency of the template. When the disclosure is being reported for the first time, the data of the previous period is not required.

In December 2018 EBA published EBA/GL/2018/10 guidelines, which include enhanced disclosure formats for credit institutions for disclosures related to non-performing exposures, forborne exposures and foreclosed assets. Some templates are applicable to significant credit institutions that have a gross NPL ratio of 5% or above.

Even though these guidelines apply from 31 December 2019, institutions under the scope of application of the templates subject to the 5% gross NPL have to comply with the guidelines prior to the disclosure reference date.

1.3.1 Location, timing and frequency of disclosures

Pillar 3 disclosures are provided on a quarterly basis, following the relevant recommendation of EBA Guidelines 2016/11, which do not change the approach in the EBA Guidelines 2014/14 but update the list of requirements to be considered for more frequent disclosures.

Pillar 3 disclosures are provided with reference date (corresponding period) the close of the previous quarter and in conjunction with the date of publication of the financial statements. Equivalent disclosures made by the Group under accounting, listing or other requirements are deemed to constitute compliance with the requirements of the aforementioned Regulation (EU) No 575/2013 (Part Eight) taking into consideration any existing relevant implementing Regulations as well as the EBA guidelines.

Pillar 3 disclosures are provided in a designated location on the Bank's website (www.eurobank.gr/en/group/investor-relations/financial-results) in chronological order and cover both quantitative and qualitative information.

Quantitative information, which is included in the Group's Consolidated Financial Statements, is also provided at the above location. In this way, the Bank secures easy access of the market participants to continuous and complete information without cross-reference to other locations or media of communication.

The information contained in the Pillar 3 Disclosures has been verified by the Audit Committee.

1.4 Regulatory versus accounting consolidation

1.4.1 Accounting consolidation

The accounting consolidation of the Group is based on the International Financial Reporting Standards (IFRS) and more specifically IFRS 10 Consolidated Financial Statements, IAS 28 Investments in Associates and Joint Ventures and IFRS 11 Joint Arrangements.

Subsidiaries are all entities controlled by the Group. The Group controls an entity when it is exposed, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The Group consolidates an entity only when all the above three elements of control are present.

Power is considered to exist when the Group's existing rights give it the current ability to direct the relevant activities of the entity, i.e. the activities that significantly affect the entity's returns and the Group has the practical ability to exercise those rights. Power over the entity may arise from voting rights granted by equity instruments such as shares or, in other cases, may result from contractual arrangements.

Where voting rights are relevant, the Group is deemed to have control where it holds, directly or indirectly, more than half of the voting rights over an entity, unless there is evidence that another investor has the practical ability to unilaterally direct the relevant activities.

The Group may have power even when it holds less than a majority of the voting rights of the entity through a contractual arrangement with other vote holders, rights arising from other contractual arrangements, substantive potential voting rights, ownership of the largest block of voting rights in a situation where the remaining rights are widely dispersed ('de facto power'), or a combination of the above. In assessing whether the Group has de facto power, it considers all relevant facts and circumstances including the relative size of the Group's holding of voting rights and dispersions of holdings of other vote holders to determine whether the Group has the practical ability to direct the relevant activities.

The Group is exposed or has rights to variable returns from its involvement with an entity when these returns have the potential to vary as a result of the entity's performance.

In assessing whether the Group has the ability to use its power to affect the amount of returns from its involvement with an entity, the Group determines whether in exercising its decision-making rights it is acting as an agent or as a principal. The Group acts as an agent when it is engaged to act on behalf and for the benefit of another party and as a result does not control an entity. Therefore, in such cases, the Group does not consolidate the entity. In making the above assessment, the Group considers the scope of its decision-making authority over the entity, the rights held by other parties, the remuneration to which the Group is entitled from its involvement and its exposure to variability of returns from other interests in that entity.

The Group has interests in certain entities which are structured so that voting rights are not the dominant factor in deciding who controls the entity, such as when any voting rights relate to administrative tasks only and the relevant activities are directed by means of contractual rights. In determining whether the Group has control over such structured entities, it considers the following factors:
- The purpose and design of the entity;
- Whether the Group has certain rights that give it the ability to direct the activities of the entity unilaterally;
- The existence of any special relationships with the entity; and
- The extent of the Group's exposure to variability of returns from its involvement with the entity and if the Group has the power to affect such variability.

The Group reassesses whether or not it controls an entity if facts and circumstances indicate that there are changes to one or more elements of control. This includes circumstances in which the rights held by the Group and intended to be protective in nature become substantive upon a breach of a covenant or default on payments in a borrowing arrangement and lead to the Group having power over the investee.

Subsidiaries are fully consolidated from the date on which control is transferred to the Group and are no longer consolidated from the date that control ceases.

Investments in joint ventures (the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control and, under which, the parties have rights to the net assets of the arrangement) and investments in associates (investments in which the Group has a significant influence, but which it does not control, generally holding between 20% and 50% of the voting rights) are also part of the accounting consolidation scope, but are accounted for using the equity method.

1.4.2 Regulatory consolidation

From 2017 there is no difference between regulatory and accounting consolidation.

ERB Hellas Funding Ltd and ERB Hellas Plc are included in the calculation of the non-consolidated capital requirements and regulatory own funds of the Bank (solo consolidation).

The following table provides information regarding the consolidation method applied for each entity within the accounting and the regulatory scopes of consolidation.

Table 1: EU LI3 – Outline of the differences in the scopes of consolidation

Name of the entity	Method of accounting consolidation	Method of regulatory consolidation	Description of the entity
Be Business Exchanges S.A. of Business Exchanges Networks and Accounting and Tax Services	Full consolidation	Full consolidation	Business-to-business e-commerce, accounting, tax and sundry services
Eurobank Asset Management Mutual Fund Mngt Company S.A.	Full consolidation	Full consolidation	Mutual fund and asset management
Eurobank Equities S.A.	Full consolidation	Full consolidation	Capital markets and advisory services
Eurobank Ergasias Leasing S.A.	Full consolidation	Full consolidation	Leasing
Eurobank Factors S.A.	Full consolidation	Full consolidation	Factoring
Eurobank FPS Loans and Credits Claim Management S.A.	Full consolidation	Full consolidation	Loans and Credits Claim Management
Eurobank Property Services S.A.	Full consolidation	Full consolidation	Real estate services
Hellenic Post Credit S.A.	Full consolidation	Full consolidation	Credit card management and other services
Herald Greece Real Estate development and services company 1	Full consolidation	Full consolidation	Real estate
Herald Greece Real Estate development and services company 2	Full consolidation	Full consolidation	Real estate
Standard Ktimatiki S.A.	Full consolidation	Full consolidation	Real estate
Modern Hoteling	Full consolidation	Full consolidation	Real estate
Eurobank Bulgaria A.D.	Full consolidation	Full consolidation	Banking
Bulgarian Retail Services A.D.	Full consolidation	Full consolidation	Rendering of financial services and credit card management
ERB Property Services Sofia E.A.D.	Full consolidation	Full consolidation	Real estate services
IMO 03 E.A.D.	Full consolidation	Full consolidation	Real estate services
IMO Property Investments Sofia E.A.D.	Full consolidation	Full consolidation	Real estate services
ERB Leasing Bulgaria EAD	Full consolidation	Full consolidation	Leasing
ERB Hellas (Cayman Islands) Ltd	Full consolidation	Full consolidation	Special purpose financing vehicle
Berberis Investments Ltd	Full consolidation	Full consolidation	Holding company
ERB Hellas Funding Ltd	Full consolidation	Full consolidation	Special purpose financing vehicle
Eurobank Cyprus Ltd	Full consolidation	Full consolidation	Banking
CEH Balkan Holdings Ltd	Full consolidation	Full consolidation	Holding company
Chamia Enterprises Company Ltd	Full consolidation	Full consolidation	Special purpose investment vehicle
ERB New Europe Funding III Ltd	Full consolidation	Full consolidation	Finance company
Foramonio Ltd	Full consolidation	Full consolidation	Real estate
NEU 03 Property Holdings Ltd	Full consolidation	Full consolidation	Holding company
NEU BG Central Office Ltd	Full consolidation	Full consolidation	Holding company
NEU Property Holdings Ltd	Full consolidation	Full consolidation	Holding company
Lenevino Holdings Ltd	Full consolidation	Full consolidation	Real estate
Rano Investments Ltd	Full consolidation	Full consolidation	Real estate
Neviko Ventures Ltd	Full consolidation	Full consolidation	Real estate
Eurobank Private Bank Luxembourg S.A.	Full consolidation	Full consolidation	Banking
Eurobank Fund Management Company (Luxembourg) S.A.	Full consolidation	Full consolidation	Fund management

Name of the entity	Method of accounting consolidation	Method of regulatory consolidation	Description of the entity
Eurobank Holding (Luxembourg) S.A.	Full consolidation	Full consolidation	Holding company
ERB Lux Immo S.A.	Full consolidation	Full consolidation	Real estate
ERB New Europe Funding B.V.	Full consolidation	Full consolidation	Finance company
ERB New Europe Funding II B.V.	Full consolidation	Full consolidation	Finance company
ERB New Europe Holding B.V.	Full consolidation	Full consolidation	Holding company
ERB IT Shared Services S.A.	Full consolidation	Full consolidation	Informatics data processing
Eurobank Finance S.A.	Full consolidation	Full consolidation	Investment banking
Eurobank Property Services S.A.	Full consolidation	Full consolidation	Real estate services
IMO Property Investments Bucuresti S.A.	Full consolidation	Full consolidation	Real estate services
IMO-II Property Investments S.A.	Full consolidation	Full consolidation	Real estate services
Eurobank A.D. Beograd	Full consolidation	Full consolidation	Banking
ERB Leasing A.D. Beograd	Full consolidation	Full consolidation	Leasing
ERB Property Services d.o.o. Beograd	Full consolidation	Full consolidation	Real estate services
IMO Property Investments A.D. Beograd	Full consolidation	Full consolidation	Real estate services
ERB Istanbul Holding A.S.	Full consolidation	Full consolidation	Holding company
ERB Hellas Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Anaptyxi SME I Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Karta II Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Themeleion II Mortgage Finance Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Themeleion III Mortgage Finance Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Themeleion IV Mortgage Finance Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Themeleion Mortgage Finance Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Tegea Plc	Full consolidation	Full consolidation	Special purpose financing vehicle
Maximus Hellas Designated Activity Company	Full consolidation	Full consolidation	Special purpose financing vehicle
Astarti Designated Activity Company	Full consolidation	Full consolidation	Special purpose financing vehicle
Femion Ltd	Equity consolidation	Equity consolidation	Special purpose investment vehicle
Tefin S.A. (1)	Equity consolidation	Equity consolidation	Dealership of vehicles and machinery
Sinda Enterprises Company Ltd	Equity consolidation	Equity consolidation	Special purpose investment vehicle
Singidunum - Buildings d.o.o. Beograd	Equity consolidation	Equity consolidation	Development of building projects
Alpha Investment Property Kefalariou S.A.	Equity consolidation	Equity consolidation	Real estate
Global Finance S.A. (2)	Equity consolidation	Equity consolidation	Investment financing
Rosequeens Properties Ltd (3)	Equity consolidation	Equity consolidation	Special purpose investment vehicle
Famar S.A.	Equity consolidation	Equity consolidation	Holding company
Odyssey GP S.a.r.l.	Equity consolidation	Equity consolidation	Special purpose investment vehicle
Eurolife ERB Insurance Group Holdings S.A. (2)	Equity consolidation	Equity consolidation	Holding company
AEP Commercial Stores S.A.	Equity consolidation	Equity consolidation	Real estate

(1) Entity under liquidation at 31 December 2018.

(2) Eurolife Insurance group (Eurolife ERB Insurance Group Holdings S.A. and its subsidiaries) and Global Finance group (Global Finance S.A. and its subsidiaries) are considered as Group's associates.

(3) Rosequeens Properties Ltd (including its subsidiary Rosequeens Properties SRL) is considered as Group's joint venture.

1.5 Impediments to the prompt transfer of capital

Subordinated loans given by the Bank to its subsidiaries, financial institutions operating outside Greece, are subject to local regulations and subsequently restrictions set by local laws and supervisory authorities. The most common of all restrictions is minimum duration (5 to 7 years in most cases) with no possibility of prepayment without prior permission by the respective supervisory authority.

1.6 Compliance with Basel III Pillar 3 disclosures

The Bank has issued an internal "Policy on compliance with Pillar 3 Disclosures" in order to ensure consistent and continuous compliance with the Pillar 3 disclosures requirements, as these have been specified in the existing regulatory framework. Within this framework the Bank operates as follows:

- Pillar 3 disclosures are provided on a consolidated basis.
- The Bank includes in its disclosures all information deemed necessary to provide users with a clear, complete and accurate view of the Group's structure, capital management, risk management system, unencumbered assets and remuneration policy. During this procedure the Bank also identifies information that is material, confidential and proprietary.
- The Bank has opted to present the full set of Pillar 3 disclosures in a separate document "Consolidated Pillar 3 Report", which is published at least annually on the Bank's website, in conjunction with the date of publication of its financial statements. The Remuneration disclosures are published in a separate document.
- The Bank re-examines the extent and type of information provided at each disclosure date and revises its policy as necessary.
- The Bank assesses the need to publish some or all disclosures more frequently than annually, taking into consideration factors such as scale of operations, range of activities, presence in different countries, involvement in different financial sectors, participation in international financial markets and payment, settlement and clearing systems and paying particular attention to information on own funds, capital requirements, risk exposure and other items prone to rapid change.
- The Audit Committee of the Bank is responsible to review and assess the process for the preparation of the Pillar 3 report, while the Board of Directors (BoD) of the Bank is responsible to approve it.

The aforementioned responsibilities are equivalent to those in respect of the Bank's Consolidated Financial Statements.

2. Capital Management

The amount and quality of the capital held by the Group is subject to certain rules and guidelines. The composition of the Group's available regulatory capital under Pillar 1 is as follows:

2.1 Regulatory capital – definition

The Pillar 1 regulatory capital of the Group at consolidated level is calculated on the basis of IFRS figures and according to the rules set by Regulation (EU) No 575/2013.

According to the CRR, the available regulatory capital is classified under two main categories: Tier 1 and Tier 2 capital. Tier 1 consists of Common Equity (CET1) and Additional Tier 1 capital.

CET1 capital is composed of ordinary shareholders' equity, and minority interest allowed in consolidated CET1, after the following adjustments:
Addition of:

- 95% of IFRS 9 impact of 2018 (refer to par. 2.1.1 and 2.6)

Deductions of:

- Fair value reserves related to gains or losses of cash flow hedges;
- Gains and losses on market valuation of liabilities designated as fair-value-through-profit-or-loss attributable to own credit risk;
- Goodwill and intangible assets;
- Deferred tax assets that rely on future profitability excluding those arising from temporary differences (unused tax losses);
- Participating interests and subordinated loans (and other capital instruments qualifying as own funds) of more than 10% in not fully consolidated credit or other financial institutions, including insurance companies;
- Loan impairment allowances' shortage compared to IRB measurement of Expected Loss;
- Deferred tax assets arising from temporary differences, which exceed 10% threshold of CET1 capital before certain deductions; and
- The sum of deferred tax asset arising from temporary differences and participating interests and subordinated loans of more than 10% that are less than 10% of CET 1 capital and in total exceed the 17.65% threshold of CET1 capital.

Expected Losses (EL) derived under Basel III as defined in para 4.9.4 (c).

Tier 1 capital comprises CET1 capital plus Additional Tier 1 capital including preferred securities subject to phase out.
In case deductions of Tier 1 capital exceed positive amounts of Tier 1 capital, then the difference is deducted from CET1 capital.

Tier 2 capital is composed of the following items:

- Long term subordinated liabilities that meet certain regulatory specified criteria;
- General credit risk provisions up to 1.25% of risk weighted assets calculated under standardised approach;
- Positive difference between the sum of loan impairment allowances over the IRB measurement of Expected Losses, up to 0.6% of risk weighted assets calculated under the IRB approach.

In case deductions of Tier 2 capital exceed positive amounts of Tier 2 capital, then the difference is deducted from Tier 1 capital.

2.1.1 IFRS 9 transition rules

Regarding IFRS 9 adoption from 1.1.2018 and according to Regulation (EU) 2017/2395 of the European Parliament and the Council, a five year transition period is introduced, which allows banks to add back to their CET 1 capital 95% of IFRS 9 impact in 2018 and 85%, 70%, 50% and 25% in the subsequent four years.

The Group has elected to apply the phase in approach for mitigating the impact of IFRS 9 transition on the regulatory capital.

2.2 Preferred securities

As at 31 December 2018, the outstanding amount of preferred securities was € 42 million, 40% of which is classified as Additional Tier 1 capital. Under Basel III they qualify as grandfathered instruments and will gradually phase out until 2022.

A list of the features of Bank's capital instruments in accordance with Annex III of the Commission Implementing Regulation (EU) No 1423/2013 is found in Appendix 2.

Detailed information regarding Preferred securities can be found in the Consolidated Financial Statements Note 41.

2.3 Restructuring plan

The Bank’s commitments included in its restructuring plan, as approved by the European Commission on 26 November 2015, have been fully met until the end of 2018. In particular, during 2018, the Group has met/respected the commitments of the restructuring plan including: (a) the reduction of the portfolio of the Group’s foreign assets (non–related to Greek clients), following the completion of the sale of the Romanian disposal group, in April 2018 and (b) the reduction of the net loans to deposits ratio for the Group’s Greek banking activities below the limit of 115%, as the respective ratio has improved to 105% on 31 December 2018 (31 December 2017: 128%).

Monitoring Trustee

Grant Thornton S.A. was appointed as the Bank’s Monitoring Trustee (MT) on 22 February 2013, with the mandate of the MT been subsequently amended and extended on 29 May 2014. The MT monitored the compliance with the commitments on corporate governance and commercial operational practices and the implementation of the restructuring plan and reported to the European Commission. Following the completion of the Bank’s restructuring plan, the MT’s term of office has also expired at 31 December 2018.

2.4 Reconciliation of Balance Sheets - financial accounting to regulatory scope of consolidation

As noted in section “1.4 Regulatory versus accounting consolidation” due to the sale of Eurolife ERB Insurance Group Holdings S.A. on 4 August 2016, there is no difference between regulatory and accounting consolidation. As a result, the table below presents in one column per period the Balance Sheet both as per published financial statements and regulatory consolidation broken down into different risk types. Certain assets and liabilities can be subject to multiple risk frameworks.

Capital Management

Table 2: EU LI1 - Differences between accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories

	Ref.	31 December 2018					
			Carrying values of items				
		Balance sheet per published financial statements and per regulatory consolidation [1]	Subject to the credit risk framework	Subject to the CCR framework	Subject to the securitisation framework	Subject to the market risk framework	Not subject to capital requirements or subject to deduction from capital
		€ million	€ million	€ million	€ million	€ million	€ million
Assets							
Cash and Balances with central banks		1,924	1,886	38	-	-	-
Due from credit institutions		2,307	2,239	1,630	-	-	-
Securities held for trading		43	-	-	-	43	-
Derivative financial instruments		1,871	-	1,871	-	1,871	-
Loans and advances to customers		36,232	36,161	71	-	-	-
Investment securities		7,772	7,655	4,853	117	-	-
Investments in associated undertakings		113	113	-	-	-	-
Property, plant and equipment		353	353	-	-	-	-
Investment property		316	316	-	-	-	-
Intangible assets	*a*	183	-	-	-	-	183
Deferred tax asset		4,916	4,651	-	-	-	265
of which deferred tax assets that rely on future profitability	*b*	63	-	-	-		63
of which deferred tax credit		3,927	3,927	-	-	-	-
of which deferred tax assets arising from temporary differences	*c*	926	724	-	-	-	202
Other assets		1,934	1,934	-	-	-	-
Assets of disposal group classified as held for sale		20	20	-	-	-	-
Total assets		**57,984**	**55,328**	**8,463**	**117**	**1,914**	**448**
Liabilities							
Due to central banks		2,050	-	-	-	-	2,050
Due to credit institutions		6,376	-	5,652	-	-	724
Derivative financial instruments		1,893	-	1,893	-	1,893	-
Due to customers		39,083	-	200	-	-	38,883
Debt securities in issue		2,707	-	-	-	-	2,707
Other liabilities		844	-	-	-	-	844
Liabilities of disposal group classified as held for sale		-	-	-	-	-	-
Total liabilities		**52,953**	**-**	**7,745**	**-**	**1,893**	**45,208**
of which tier 2 instruments	*d*	950	-	-	-	-	950
Equity		-	-	-	-	-	-
Ordinary share capital		655	-	-	-	-	655
Share premium		8,055	-	-	-	-	8,055
Reserves and retained earnings		(3,721)	-	-	-	-	(3,721)
of which cash flow hedge reserves	*e*	(37)	-	-	-	-	(37)
of which own credit risk		-	-	-	-	-	-
Preference shares		-	-	-	-	-	-
Total equity attributable to shareholders of the Bank		**4,989**	**-**	**-**	**-**	**-**	**4,989**
Preferred securities	*f*	42	-	-	-	-	42
Non controlling interests	*g*	-	-	-	-	-	-
Total equity	*h*	**5,031**	**-**	**-**	**-**	**-**	**5,031**
Total equity and liabilities		**57,984**	**-**	**7,745**	**-**	**1,893**	**50,239**

Capital Management

		31 December 2017					
			Carrying values of items				
		Balance sheet per published financial statements and per regulatory consolidation [1] € million	Subject to the credit risk framework € million	Subject to the CCR framework € million	Subject to the securitisation framework € million	Subject to the market risk framework € million	Not subject to capital requirements or subject to deduction from capital € million
Assets							
Cash and Balances with central banks		1,524	1,524	-	-	-	-
Due from credit institutions		2,123	2,123	1,239	-	-	-
Financial instruments at fair value through profit or loss		49	-	-	-	49	-
Derivative financial instruments		1,878	-	1,878	-	1,601	-
Loans and advances to customers		37,108	37,058	50	-	-	-
Investment securities		7,605	7,457	2,126	148	-	-
Investments in associated undertakings		156	156	-	-	-	-
Property, plant and equipment		390	390	-	-	-	-
Investment property		277	277	-	-	-	-
Intangible assets	*a*	152	-	-	-	-	152
Deferred tax asset		4,859	4,652	-	-	-	207
of which deferred tax assets that rely on future profitability excluding those arising from temporary differences	*b*	33	-	-	-	-	33
of which deferred tax credit		3,952	3,952	-	-	-	-
of which deferred tax assets arising from temporary differences	*c*	874	700	-	-	-	174
Other assets		1,724	1,724	-	-	-	-
Assets of disposal group classified as held for sale		2,184	2,137	47	-	26	-
Total assets		**60,029**	**57,498**	**5,340**	**148**	**1,676**	**359**
Liabilities							
Due to central banks		9,994	-	-	-	-	9,994
Due to credit institutions		3,997	-	3,637	-	-	360
Derivative financial instruments		1,853	-	1,853	-	1,318	-
Due to customers		33,843	-	53	-	-	33,790
Debt securities in issue		549	-	-	-	-	549
Other liabilities		684	-	-	-	-	684
Liabilities of disposal group classified as held for sale		1,959	-	68	-	-	1,891
Total liabilities		**52,879**	**-**	**5,611**	**-**	**1,318**	**47,268**
of which tier 2 instruments	*d*	-	-	-	-	-	-
Equity		-	-	-	-	-	-
Ordinary share capital		655	-	-	-	-	655
Share premium		8,055	-	-	-	-	8,055
Reserves and retained earnings		(2,556)	-	-	-	-	(2,556)
of which cash flow hedge reserves	*e*	(40)	-	-	-	-	(40)
of which own credit risk		-	-	-	-	-	-
Preference shares		950	-	-	-	-	950
Total equity attributable to shareholders of the Bank		**7,104**	**-**	**-**	**-**	**-**	**7,104**
Preferred securities	*f*	43	-	-	-	-	43
Non controlling interests	*g*	3	-	-	-	-	3
Total equity	*h*	**7,150**	**-**	**-**	**-**	**-**	**7,150**
Total equity and liabilities		**60,029**	**-**	**5,611**	**-**	**1,318**	**54,418**

[1] The amounts shown in "Balance sheet per published financial statements and per regulatory consolidation" do not equal to the sum of the amounts shown in the remaining columns, as some assets are subject to credit risk, counterparty risk and market risk.

Capital Management

The table below provides a reconciliation of the consolidated regulatory balance sheet to the Exposure at Default (EAD), allocated to different risk frameworks.

Table 3: EU LI2 – Main sources of differences between regulatory exposure amounts and carrying values in financial statements

	31 December 2018				
		Items subject to			
	Total € million	**Credit risk framework € million**	**CCR framework € million**	**Securitisation framework € million**	**Market risk framework € million**
Assets carrying value amount under the scope of regulatory consolidation (as per template EU LI1)[1]	**57,536**	**55,328**	**8,463**	**117**	**1,914**
Liabilities carrying value amount under the regulatory scope of consolidation (as per template EU LI1)[1]	7,745	-	7,745	-	1,893
Total net amount under the regulatory scope of consolidation	**49,791**	**55,328**	**718**	**117**	**21**
Off-balance-sheet amounts [2]	4,648	2,150	-	-	-
Differences in valuations	-	-	-	-	-
Differences due to different netting rules, other than those already included in row 2	7,797	52	7,745	-	-
Differences due to consideration of provisions	7,657	7,654	3	-	-
Differences due to prudential filters	-	-	-	-	-
Differences due to collateral	2,870	-	2,870	-	-
Corresponding amount of credit risk mitigation techniques (CRM)	-	-	-	-	-
Exposure amounts considered for regulatory purposes as at 31 December 2018	**72,763**	**65,184**	**11,336**	**117**	**21**

	31 December 2017				
		Items subject to			
	Total € million	Credit risk framework € million	CCR framework € million	Securitisation framework € million	Market risk framework € million
Assets carrying value amount under the scope of regulatory consolidation (as per template EU LI1)[1]	59,670	57,498	5,340	148	1,676
Liabilities carrying value amount under the regulatory scope of consolidation (as per template EU LI1)[1]	5,611	-	5,611	-	1,318
Total net amount under the regulatory scope of consolidation	54,059	57,498	(271)	148	358
Off-balance-sheet amounts [2]	4,648	1,992	-	-	-
Differences in valuations	-	-	-	-	-
Differences due to different netting rules, other than those already included in row 2	5,810	199	5,611	-	-
Differences due to consideration of provisions	7,624	7,620	4	-	-
Differences due to prudential filters	-	-	-	-	-
Differences due collateral	5,060	-	5,060	-	-
Corresponding amount of credit risk mitigation techniques (CRM)	(250)	(250)	-	-	-
Exposure amounts considered for regulatory purposes as at 31 Dec 2017	76,951	67,059	10,404	148	358

[1] *Excludes amounts subject to deduction from capital or not subject to regulatory capital requirements.*

[2] *Amounts shown in the "Total" column, relates to exposures pre-CCF and do not equal to the amount shown in "Credit risk framework" as this is post-CCF.*

2.5 Regulatory capital

The table below shows the composition of the Group's regulatory capital as at 31 December 2018, 30 September 2018 and 31 December 2017.

In addition, in Appendix 1 a transitional own fund disclosure template can be found, which presents the components of regulatory capital on transitional and end-point basis as at 31 December 2018 and 2017. The disclosure has been prepared using the format set out in Annex VI of the "Commission Implementing Regulation (EU) No 1423/2013 of 20 December 2013 laying down implementing technical standards with regard to disclosure of own funds requirements for institutions according to Regulation (EU) No 575/2013 of European Parliament and of the Council".

		31 December 2018	30 September 2018 [(1)]	31 December 2017 [(2)]
	Ref.	**€ million**	€ million	€ million
Total equity	*h*	5,031	5,059	7,150
Less: Preferred securities	*f*	(42)	(42)	(43)
Non controlling interests	*g*		-	(3)
Total equity attributable to shareholders of the Bank		4,989	5,017	7,104
Regulatory adjustments				
Cash flow hedge reserves	*e*	37	36	40
Adjustments due to IFRS 9 transitional arrangements		1,003	1,003	-
Fixed assets' revaluation reserve		-	-	(13)
Intangible assets	*a*	(183)	(169)	(122)
IRB shortfall of credit risk adjustments to expected losses		(63)	(71)	(31)
Deferred tax assets that rely on future profitability (unused tax losses)	*b*	(63)	(81)	(26)
Deferred tax assets arising from temporary differences (amount above 10% threshold)	*c*	(202)	(158)	(51)
Prudent Valuation Adjustments		(9)	-	-
Other regulatory adjustments		-	-	(14)
Common Equity Tier I capital		**5,509**	5,577	6,887
Preferred Securities subject to phase-out	*f*	17	17	21
Regulatory adjustments				
Intangible assets	*a*	-	-	(30)
Impairment allowances shortage over expected losses for 2017		-	-	(4)
Other regulatory adjustments		-	-	13
Total Tier I capital		**5,526**	5,594	6,887
Tier II capital - subordinated debt	*d*	950	950	-
Fixed assets' revaluation reserve		-	-	13
IRB Excess of impairment allowances over expected losses eligible		25	-	15
Total Regulatory Capital		**6,501**	6,544	6,915
Risk Weighted Assets		**38,849**	38,239	38,387
Ratios				
Common Equity Tier I		**14.2%**	14.6%	17.9%
Tier I		**14.2%**	14.6%	17.9%
Total Capital Adequacy Ratio		**16.7%**	17.1%	18.0%

[(1)] *Including interim Profits (1/7/2018-30/09/2018) € 45 million.*
[(2)] *Based on the CRR transitional rules*

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As depicted in table above, CET1 ratio has decreased during the 4th quarter 2018, due to the decrease of Other Comprehensive Income (OCI) mainly from Debt securities at FVOCI fair value changes and the increase of Risk Weighted Assets (see section 2.9).

The CET1 ratio is defined as CET1 capital divided by RWAs, the Tier 1 ratio is defined as Tier 1 capital divided by RWAs and Total Capital Adequacy ratio is defined as Total Regulatory Capital divided by RWAs.

As at 31 December 2018, pursuant to the Law 4172/2013, as in force, the Bank's eligible DTAs/deferred tax credits (DTCs) against the Greek State amounted to € 3,927 million (2017: € 3,952 million). The DTCs will be converted into directly enforceable claims (tax credit) against the Greek State provided that the Bank's after tax accounting result for the year is a loss. In particular, DTCs are accounted for on: (a) the losses from the Private Sector Involvement (PSI) and the Greek State Debt Buyback Program and (b) on the sum of (i) the unamortized part of the crystallized loan losses from write-offs and disposals, (ii) the accounting debt write-offs and (iii) the remaining accumulated provisions and other losses in general due to credit risk recorded up to 30 June 2015. For further details please refer to Consolidated Financial Statements, Note 16.

According to Regulation (EU) No. 575/2013, article 39, deferred tax assets that can be replaced with a tax credit, shall not be deducted from CET1, but instead be risk weighted by 100%.

On 18 January 2018, the Bank announced the completion of the full redemption of its preferences shares without voting rights held by the Hellenic Republic of total nominal value € 950,125,000, according to the provisions of par. 1a, article 1, of Law 3723/2008 and the decisions of its Extraordinary General Meeting of its common shareholders as at 3 November 2017.

The redemption has been completed partially with cash and partially with the issuance of Tier 2 capital instrument of total amount € 950,000,000 according to the EU Regulation 575/2013 and does not have any impact on the Group's CET1 based on the full implementation of Basel III rules.

The Group has sought to maintain an actively managed capital base to cover risks inherent in the business. The adequacy of the Group's capital is monitored using, among other measures, the rules and ratios established by the Basel Committee on Banking Supervision and adopted by the European Union and the SSM in supervising the Bank.

To this direction the Group, is focused on the organic strengthening of its capital position by the further expansion of pre-provision income while maintaining its robust risk management practices, the active management of non-performing exposures supported by the fully operational internal bad bank as well as by proceeding to additional initiatives associated with restructuring, transformation or optimization of operations, in Greece and abroad, that will generate or release further capital and/or reduce RWAs.

2.6 IFRS 9 capital impact

The Group's capital impact from the initial application of IFRS 9 is shown in the table below:

Capital impact from the initial application of IFRS 9	As at		
	31 December 2017 IAS 39 € million	01 January 2018 IFRS 9 full impact € million	01 January 2018 IFRS 9 transitional arrangements € million
Common equity Tier 1 Capital	6,887	5,731	6,757
Risk weighed assets	38,387	37,864	38,097
	%	%	%
Common equity Tier 1 (CET 1) Ratio	17.9	15.1	17.7

The Group's capital impact on the pro-forma fully loaded CET1 ratio as at January 2018, based on the full implementation of the Basel III rules in 2024, considering the completion of the disposal of the Romanian subsidiaries classified as held for sale, is shown in the table below:

Pro forma fully loaded with the completion of the disposal of the Romanian subsidiaries	As at		
	31 December 2017 IAS 39 € million	1 January 2018 IFRS 9 full impact € million	IFRS 9 impact € million
Common equity Tier 1 Capital	5,653	4,498	(1,155)
Risk weighed assets	37,154	36,631	(523)
	%	%	%
Common equity Tier 1 (CET 1) Ratio	15.2	12.3	(2.9)

Regarding IFRS 9 adoption from 1.1.2018 and according to Regulation (EU) 2017/2395 of the European Parliament and the Council, a five year transition period is introduced, which allows banks to add back to their CET 1 capital 95% of IFRS 9 impact in 2018 and 85%, 70%, 50% and 25% in the subsequent four years. The full impact is expected as of 1 January 2023.

The Group has elected to apply the phase in approach for mitigating the impact of IFRS 9 transition on the regulatory capital.

Table 6: EU IFRS-FL: Template on the comparison of Institutions' own funds and capital and leverage ratios with and without the application of transitional arrangements for IFRS 9 or analogous ECLs

Available capital	31 December 2018 € million	30 September 2018 [1] € million	30 June 2018 € million	31 March 2018 € million
Common Equity Tier 1 (CET1) capital	5,509	5,577	5,592	5,660
Common Equity Tier 1 (CET1) capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	4,325	4,401	4,437	4,410
Tier 1 capital	5,526	5,594	5,609	5,677
Tier 1 capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	4,325	4,401	4,437	4,410
Total capital	6,501	6,544	6,559	6,664
Total capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	5,379	5,453	5,487	5,458
Risk weighted assets				
Total risk-weighted assets	38,849	38,239	37,795	38,617
Total risk-weighted assets as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	38,354	37,693	37,250	38,035
Capital ratios				
Common Equity Tier 1 (as a percentage of risk exposure amount)	**14.2%**	14.6%	14.8%	14.7%
Common Equity Tier 1 (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	**11.3%**	11.7%	11.9%	11.6%
Tier 1 (as a percentage of risk exposure amount)	**14.2%**	14.6%	14.8%	14.7%
Tier 1 (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	**11.3%**	11.7%	11.9%	11.6%
Total capital (as a percentage of risk exposure amount)	**16.7%**	17.1%	17.4%	17.3%
Total capital (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	**14.0%**	14.5%	14.7%	14.3%
Leverage ratio				
Leverage ratio total exposure measure	60,267	59,873	58,805	61,207
Leverage ratio	**9.17%**	9.34%	9.54%	9.28%
Leverage ratio as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	**7.24%**	7.41%	7.61%	7.27%

[1] *Including interim Profits (1/7/2018-30/09/2018) € 45 million.*

2.7 Countercyclical buffer

The Countercyclical buffer (CCyB) will be applied when the authorities deem that lending growth is giving rise to an unacceptable accumulation of systemic risks. This buffer is specifically calculated for each bank or group and consists of the weighted average of percentages of countercyclical buffers applied in regions in which the bank's credit exposures are located.

The table below shows the geographical distribution of the Group's credit exposures relevant for the calculation of its countercyclical capital buffer and the amount of its institution specific countercyclical capital buffer.

Capital Management

Geographical distribution of credit exposures relevant for the calculation of the countercyclical buffer	31 December 2018											
	General credit exposures		Trading book exposure		Securitisation exposure		Own funds requirements					
	Exposure value for SA	Exposure value for IRB	Sum of long and short position of trading book	Value of trading book exposure for internal models	Exposure value for SA	Exposure value for IRB	of which: General credit exposures	of which: trading exposures	of which: securitisation exposures	Total	Own funds requirement weights	Counter-cyclical capital buffer rate
	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million		
Greece	7,719	33,848	4	-	-	18	1,795	-	1	1,796	0.81	0.00%
Romania	400	-	-	-	-	-	24	-	-	24	0.01	0.00%
Bulgaria	3,132	4	4	-	-	-	182	-	-	182	0.08	0.00%
United Kingdom	122	1	-	-	-	16	8	-	0	9	0.00	1.00%
Cyprus	906	6	-	-	-	-	65	-	-	65	0.03	0.00%
Other Countries	1,957	50	1	-	-	83	131	-	1	132	0.06	0.00%
Total	**14,236**	**33,909**	**9**	**-**	**-**	**117**	**2,205**	**-**	**2**	**2,208**	**1.00**	**0.004%**

Geographical distribution of credit exposures relevant for the calculation of the countercyclical buffer	31 December 2017											
	General credit exposures		Trading book exposure		Securitisation exposure		Own funds requirements					
	Exposure value for SA	Exposure value for IRB	Sum of long and short position of trading book	Value of trading book exposure for internal models	Exposure value for SA	Exposure value for IRB	of which: General credit exposures	of which: trading exposures	of which: securitisation exposures	Total	Own funds requirement weights	Counter-cyclical capital buffer rate
	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million		
Greece	18,538	34,540	14	-	-	24	2,235	1	1	2,237	0.81	0.00%
Romania	3,228	-	46	-	-	-	109	-	-	109	0.04	0.00%
Bulgaria	3,727	-	7	-	-	-	161	-	-	161	0.06	0.00%
United Kingdom	5,958	2	-	-	-	20	34	-	-	34	0.01	0.00%
Cyprus	2,149	5	-	-	-	-	58	-	-	58	0.02	0.00%
Other Countries	10,599	5	3	-	-	104	153	-	1	154	0.06	0.00%
Total	44,199	34,552	70	-	-	148	2,750	1	2	2,753	1.00	0.00%

(1) The difference in the Exposure value between 2018 and 2017 is due to the fact that in 2017 all credit exposures were included, whereas in 2018 only the defined exposures according to Regulation (EU) 1152/2014.
(2) On 26 November 2018 the Bank of England announced that the CCyB was set up at 1%.

	Amount of institution-specific countercyclical buffer	2018	2017
		€ million	€ million
010	Total risk exposure amount	38,849	38,387
020	Institution specific countercyclical buffer rate	0.004%	0.00%
030	Institution specific countercyclical buffer requirement	2	-

2.8 Supervisory Review and Evaluation Process (SREP) capital requirements

According to the decision of the 2017 Supervisory Review and Evaluation Process performed by the ECB, starting from 1 January 2018 the Bank was required to meet on a consolidated basis and on an individual basis a Common Equity Tier 1 ratio of at least 9.375% and a Total Capital Adequacy Ratio of at least 12.875% (Overall Capital Requirements including the Capital Conservation Buffer). According to the 2018 SREP decision, starting from 1 March 2019, the Bank is required to meet on a consolidated basis and on an individual basis a Common Equity Tier 1 ratio of at least 10.25% and a Total Capital Adequacy Ratio of at least 13.75% (Overall Capital Requirements including the Capital Conservation Buffer and the Other Systemically Important Institution Buffer).

2.9 Capital requirements under Pillar 1

The table below shows the Group's risk weighted assets (RWAs) and capital requirements as at 31 December 2018 and 2017. The minimum capital requirements under Pillar 1 are calculated as 8% of RWAs.

Table 8: EU OV1 – Overview of RWAs

	31 December 2018 RWAs € million	30 September 2018 RWAs € million	31 December 2017 RWAs € million	31 December 2018 Minimum capital requirements € million
Credit risk (excluding CCR)	**32,574**	31,816	31,815	**2,605**
Of which the standardised approach	15,442	15,071	15,723	1,235
Of which the foundation IRB (FIRB) approach	8,243	7,953	8,564	659
Of which the advanced IRB (AIRB) approach	8,596	8,539	7,379	688
Of which equity IRB under the simple risk-weighted approach or the IMA	293	253	149	23
Counterparty Credit Risk	**575**	760	620	**46**
Of which mark to market	111	133	149	9
Of which original exposure	-	-	-	-
Of which the standardised approach	387	474	330	31
Of which internal model method (IMM)	-	-	-	-
Of which risk exposure amount for contributions to the default fund of a CCP	-	-	-	-
Of which CVA	77	153	141	6
Settlement risk	-	-	-	-
Securitisation exposures in the banking book (after the cap)	**18**	20	27	**1**
Of which IRB approach	18	20	27	1
Of which IRB supervisory formula approach (SFA)	-	-	-	-
Of which internal assessment approach (IAA)	-	-	-	-
Of which standardised approach	-	-	-	-
Market risk	**855**	798	726	**68**
Of which the standardised approach	197	105	85	16
Of which IMA	658	693	641	53
Large exposures	-	-	-	-
Operational risk	**3,175**	3,122	3,122	**254**
Of which basic indicator approach	-	-	-	-
Of which standardised approach	3,175	3,122	3,122	254
Of which advanced measurement approach	-	-	-	-
Amounts below the thresholds for deduction (subject to 250% risk weight)	**1,652**	1,723	2,077	**132**
Floor adjustment	-	-	-	-
Total (1)	**38,849**	38,239	38,387	**3,108**

(1) The increase of RWAs compared to 30 September 2018, is mainly due to the increase of loans in International operations and corporate customers in Greece.
(2) The increase of the RWAs compared to 31 December 2017, is mainly due to the increase of RWAs on the IRB defaulted portfolio.

The table below shows the Bank's significant investments in insurance holding companies and financial sector entities which are not deducted from CET 1 because the total investment does not exceed the 10% of the aggregate amount of CET1 before certain deductions.

INS1 – Non deducted participation in insurance undertakings

	31 December 2018	31 December 2017
	€ million	€ million
Holdings of own funds instruments of a financial sector entity where the institution has a significant investment not deducted from own funds (before risk-weighting)	89	135
Total RWAs	**223**	338

[1] The decrease of the above participation in insurance undertakings is mainly due to the Bank's share to the capital return of Eurolife and to the dividend distribution of Insurance.

2.10 Internal Capital Adequacy Assessment Process (ICAAP)

ICAAP aims to identify and assess risks that are inherent in the Group's business model, determine their materiality and allocation at an entity and Group level, evaluate risk monitoring and risk mitigation processes and quantify the relevant internal capital charge where appropriate so as to ensure the ongoing capital adequacy of the Group versus its risk profile.

To accomplish these objectives, the ICAAP leverages upon and integrates the Group's well-established activities on risk, capital and performance management, including in particular planning and monitoring, while also continuously refining its approach to ensure high standards of capital assessment and management.

Oversight and ultimate responsibility for the ICAAP lies with the BoD, which has assumed a leading role in developing a risk conscious organization and maintaining the Group's risk management at high levels of sophistication. Its vision and guidance are distilled in the Group's risk appetite framework, which describes the risk boundaries within which the Group is willing to operate.

Moreover, acting as an evaluation mechanism of the Group's entire risk management framework, an integral component of ICAAP is the identification and assessment of current and emerging risks in terms of their materiality at Group level, thus allowing the organization to focus its resources and management attention to those risks that could potentially threaten its business or capital standing and ensuring that all material risks are properly managed and monitored.

Material risks are evaluated qualitatively and quantitatively, as appropriate. The aggregation of the individual capital charges comprises the Group's total internal capital requirement, meaning the amount of capital the Group needs to hold for the purpose of absorbing unexpected losses deriving from its risk profile.

All categories of material risks are appropriately managed and the relevant frameworks are regularly evaluated in order to identify ways of strengthening the risk management structure, enhance existing policies, establish new mitigation techniques and improve the internal calculation of capital requirements. Risk and capital management responsibility, including compliance with regulatory requirements and corporate policies, lies with the Group's senior management.

The Group uses the regulatory capital requirements ("Pillar 1 required capital") as a starting point for the internal determination of its capital requirements, adjusting for additional capital where appropriate. "Internal capital" better represents the Group's risk profile, compared to regulatory capital, since it takes into account a wider range of risks and utilizes more sophisticated calculation approaches. This approach allows the Group to leverage its advanced risk measurement infrastructure.

Regular scenario-based simulations and stress tests are also used in order to assess specific risks as well as the overall risk profile. Stress tests can be classified as follows:

- Risk specific stress tests, where particular risk factors, exposures or portfolios are stressed at a range of severities in order to assess individual risk impacts and threshold effects;
- Integrated stress tests across risks, which evaluate the resilience of the Group's capital position to adverse economic conditions, in case of a systemic deterioration of the business environment in a macroeconomic downturn;
- Reverse stress tests, which assess the resilience of the Group's capital position to specific adverse circumstances starting from the identification of the pre-defined outcome (e.g. points at which an institution business model becomes unviable, or at which the institution can be considered as failing or likely to fail in the meaning of Article 32 of Directive 2014/59/EU) and then exploring scenarios and circumstances that might cause this outcome to occur.

The Group also develops forecasts on capital consumption and availability and integrates them into the strategic planning process so as to optimize capital return and allocation, whilst maintaining adequate capital levels. The results of the stress tests are utilised during the capital planning process to ensure that the contingency plans in place are adequate if stressed conditions materialize and to produce a set of plausible action plans to mitigate the impact of the stress scenario.

The Group maintains adequate pre-provision earnings in the medium term and robust risk management practices which along with the capital actions already executed or underway, allow the Group to meet both regulatory and internal capital requirements. As a result, the Group will be in a position to support the risk profile of its balance sheet and its business operations going forward, even under further adverse conditions, should they materialize.

2.11 Internal Liquidity Adequacy Assessment Process (ILAAP)

ILAAP is the internal process for the identification, measurement, management and monitoring of liquidity and it is being implemented by the institution according to Article 86 of Directive 2013/36/EU.

The Group's ILAAP covers the following areas:

- Liquidity and funding risk management framework: identification of the functions/units and management committees responsible for the policy making, management, control, monitoring and reporting of liquidity and funding;
- Description of the liquidity and funding risks: comprehensive description of the liquidity and funding risks that the Group faces taking into account the current macro-economic environment and country-specific and idiosyncratic factors;
- Liquidity risk monitoring process and stress testing: detailed description of the processes, tools and reports that the Group uses for the monitoring and the control of liquidity, with particular emphasis on the following: stress test analysis, liquidity buffer analysis, liquidity & funding indicators;
- Contingency funding plan and liquidity & funding strategy: description of the contingency funding plan and the liquidity and funding strategy;
- Information on strategy regarding liquidity buffers and collateral management;
- Information of cost benefit allocation mechanism;
- Information on intraday liquidity risk management.

3. Risk management overview

3.1 Risk management objectives and policies

The Group acknowledges that taking risks is an integral part of its operations in order to achieve its business objectives. Therefore, the Group's management sets adequate mechanisms to identify those risks at an early stage and assesses their potential impact on the achievement of these objectives.

Due to the fact that economic, industry, regulatory and operating conditions will continue to change, risk management mechanisms are set (and evolve) in a manner that enables the Group to identify and deal with the risks associated with those changes. The Bank's structure, internal procedures and existing control mechanisms ensure both the independence principle and the exercise of sufficient supervision.

Group's management considers effective risk management as a top priority, as well as a major competitive advantage, for the organization. As such, the Group has allocated significant resources for upgrading its policies, methods and infrastructure, in order to ensure compliance with the requirements of the ECB, the guidelines of the EBA and of the Basel Committee for Banking Supervision and the best international banking practices. The Group implements a well- structured credit approval process, independent credit reviews and effective risk management policies for credit, market, liquidity and operational risk, both in Greece and in each country of its international operations. The risk management policies implemented by the Bank and its subsidiaries are reviewed annually.

The Board Risk Committee (BRC) is a committee of the BoD and its task is to assist the BoD to ensure that the Group has a well-defined risk and capital strategy in line with its business plan and adequate risk appetite.

The Group Risk and Capital Strategy, which has been formally documented, outlines the Group's overall direction regarding risk and capital management issues, the risk management mission and objectives, risk definitions, risk management principles, risk appetite framework, risk governance framework, strategic objectives and key initiatives for the improvement of the risk management framework in place.

The BRC assesses the Group's risk profile, monitors compliance with the approved risk appetite and risk tolerance levels and ensures that the Group has developed an appropriate risk management framework with appropriate methodologies, modeling tools, data sources and sufficient and competent staff to identify, assess, monitor and mitigate risks.

The BRC updates the Board of Directors on risk management issues and recommends the future risk management strategy. It consists of five independent non-executive directors and one non-executive director, the representative of the HFSF, meets on a monthly basis and reports to the BoD on a quarterly basis and on ad hoc instances. During 2018 the BRC met sixteen (16) times.

The Management Risk Committee (MRC) is a management committee, established by the CEO in 2016. It operates as an advisory committee to the BRC.

The main responsibility of the MRC is to oversee the risk management framework of the Group. As part of its responsibility, the MRC facilitates reporting to the Board Risk Committee on the range of risk-related topics under its purview. The MRC ensures that material risks are identified and promptly escalated to the BRC and that the necessary policies and procedures are in place to prudently manage risks and to comply with regulatory requirements. Additionally, the MRC determines appropriate management actions which are discussed and presented to the Executive Board ("EXBO") for information and submitted to BRC for approval.

The Group's Risk Management General Division, which is headed by the Group Chief Risk Officer (GCRO), is independent from the business units and has full responsibility for the monitoring, measurement and the management of credit, market, operational and liquidity risks of the Group. It comprises of the Group Credit General Division, the Group Credit Control Sector, the Group Credit Risk Capital Adequacy Control Sector, the Group Market & Counterparty Risk Sector, the Group Operational Risk Sector, the Group Model Validation & Governance Sector, the Group Risk Management Strategy Planning and Operations Unit and the Supervisory Relations & Resolution Planning Division (with dual reporting also to Group CFO). Additionally a position of a Senior Advisor has been established who has a direct reporting line to the Group Chief Risk Officer.

3.2 Risk appetite framework

The maximum amount of risk which the Group is willing to assume in the pursuit of its strategic objectives is articulated via a set of quantitative and qualitative statements for specific risk types, including specific tolerance levels as described in the Group's Risk Appetite Framework. The objectives are to support the Group's business growth, balance a strong capital position with higher returns on equity and to ensure the Group's adherence to regulatory requirements.

Risk appetite is clearly communicated throughout the Group, determines risk culture and forms the basis on which risk policies and risk limits are established at Group, business and regional level.

The Group's Risk Appetite Framework comprises the following components:

- Risk Bearing Capacity – this reflects the maximum amount of risk the Group can assume given any regulatory, operating, capital base or liquidity constraints and other obligations;
- Risk Appetite – this reflects the maximum level of risk that the Group is willing to assume (seek, accept or tolerate) in pursuit of its strategic and business objectives. Risk Tolerance reflects the degree of management's acceptance of current risk exposure levels, applicable to certain non-financial risks (e.g. operational risk) which are not actively taken but are tolerated;
- Risk Limits – these reflect limiting values placed on specific measures designed to prevent risk exposures from exceeding predefined risk appetite thresholds.

The risk appetite is structured as a series of qualitative and quantitative statements that cover the following broad risk categories:

- Capital adequacy and leverage
- Credit risk and asset quality
- Market risk
- Interest Rate risk in the Banking Book (IRRBB)
- Liquidity risk
- Operational risk
- Earnings risk
- Country risk
- Business risk
- Strategic risk
- Reputational risk

The Risk Appetite Framework is appropriately documented and revisited at least on an annual basis. The BRC reviews and approves the risk appetite statements and thresholds on an annual basis to ensure that they are consistent with the Group's strategy, business environment and stakeholder requirements. Setting risk appetite aims to ensure that risk is proactively managed to the level desired and approved by the BRC. Senior management has the responsibility to monitor and manage risk exposures in order to remain within risk appetite levels and to ensure an appropriate level of risk is assumed to achieve business objectives. In addition, appropriate arrangements have been put in place for the regular monitoring of the risk appetite indicators. The Group has established a standardised, regular flow of information, based on its Management Information Systems, that ensures the timely and accurate monitoring of the indicators' levels. Also, clear escalation requirements are in place in case of limit breaches, in order to enable appropriate actions.

3.3 Types of risk

The Group is exposed to various types of risk that are managed at various levels of the organization.
The most important types of risk are:

- credit risk;
- market and liquidity risk;
- operational risk.

The individual risk types are defined in the subsequent sections.

3.4 Organization

The risk management functions of the BRC are performed by the GCRO and risk management sectors, which cover the following areas:

- Credit risk;
- Market, Counterparty and Liquidity risk;
- Operational risk.

Group Chief Risk Officer (GCRO)		
Credit Risk	**Market, Counterparty & Liquidity Risk**	**Operational Risk**
• Basel III IRB approach compliance for significant part of Group loan portfolios; • Advanced IRB for all retail portfolios (consumer, mortgage, small business) and Foundation IRB for Corporate; • Independent and centralised approval system; • Systematic follow up of credits; • Differentiated credit scoring system for consumer and small business banking, full financial and sectorial analysis for corporates based on independent credit rating; • Disciplined provisioning policy (wholesale) and statistical portfolio behaviour (retail); • Regular and ad hoc reporting to Senior Management (Executive Board Committee, BoD, BRC) regarding progress of portfolios and evolution of provisions.	• First Greek bank with complete and validated market risk management system by local regulator (BoG), which covers both trading and banking books; • Compliance with new CRD IV rules for Trading book (stressed VaR and IRC); • All market risks monitored daily against approved VaR limits; • VaR methodology used for business decisions; • Considerable stress testing development for non normal market conditions, results monitored on a continuous basis; • Liquidity ratios and liquidity stress test LCR is calculated and monitored on a monthly basis; • Daily monitoring of credit risk of derivatives' positions using PFE methodology; • The operation and the monitoring of credit risk mitigation contracts (ISDA/CSA, GMRA) is done on a daily basis through an appropriate tool; • Country risk, Counterparty and Issuer Risk monitored daily on a Group level through a centralised counterparty risk monitoring tool; • CVA modelling; • International operations: market risk for all International subsidiaries managed centrally in Greece; • Interest rate risk in the Banking Book is monitored at least on a monthly basis.	• Standardised Approach for Eurobank's consolidated operations; • Documented and functioning operational risk framework & risk management system implemented Group-wide; • Risk & Control Self Assessment program (RCSA); • Operational risk events collection; • Key Risk Indicator (KRI) set-up & monitoring; • Operational risk scenario analysis; • Operational risk reporting (internal & external); • A number of operational risk mitigation programs underway throughout the Group; • Center of competence for counter–fraud activity, coordinating & monitoring respective initiatives.

4. Credit Risk

4.1 Definition of credit risk

Credit risk is the risk that a counterparty will be unable to fulfill its payment obligations in full when due. Credit risk also includes country risk and settlement risk.

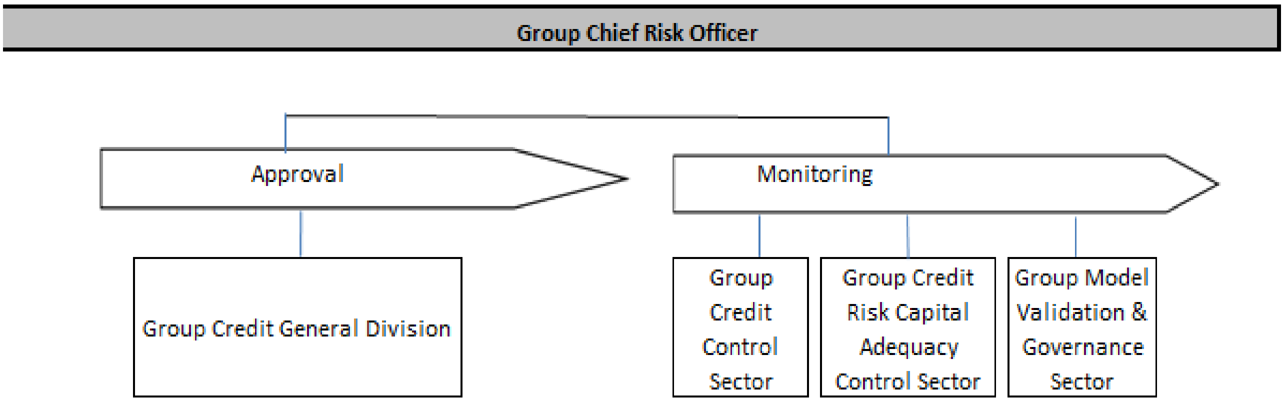
Country risk is the risk of losses arising from economic difficulties or political unrest in a country, including the risk of losses following nationalization, expropriation and debt restructuring.

Settlement risk is the risk arising when payments are settled, for example for trades in financial instruments, including derivatives and currency transactions. The risk arises when the Group remits payments before it can ascertain that the counterparties' payments have been received.

Credit risk arises principally from the corporate and retail lending activities of the Group, including from credit enhancement provided, such as financial guarantees and letters of credit. The Group is also exposed to credit risk arising from other activities such as investments in debt securities, trading activities, capital markets and settlement activities. Taking into account that credit risk is the principal risk the Group is exposed to, it is rigorously managed and is monitored by centralised dedicated risk units, reporting to the GCRO.

4.2 Credit risk organization and processes

4.2.1 Credit risk organization



The diagram above depicts the organizational structure of credit risk of the Bank. The functions of each sector are described below.

The organization of the credit risk divisions of the Group's subsidiary banks in International operations (Bulgaria, Serbia, Cyprus, Luxembourg) also follows the model of the Bank depicted above. The Risk Executive of each subsidiary bank reports directly to GCRO.

4.2.2 Credit approval process

The credit approval and credit review processes are centralised both in Greece and in the International operations. The segregation of duties ensures independence among executives responsible for the customer relationship, the approval process and the loan disbursement, as well as monitoring of the loan during its lifecycle.

The credit approval process in Corporate Banking is centralised through establishment of Credit Committees with escalating Credit Approval Levels, in order to manage the corporate credit risk. Main Committees of the Bank are considered to be the following:

- Credit Committees (Central and Local) authorised to approve new financing, renewals or amendments in the existing credit limits, in accordance with their approval authority level, depending on total limit amount and customer risk category (i.e. high, medium or low), as well as the value and type of security;
- Special Handling Credit Committees authorised to approve credit requests and take actions for distressed clients;
- International Credit Committees (Regional & Country) established for credit underwriting to wholesale borrowers for the Group's international Bank subsidiaries, authorised to approve new limits, renewals or amendments to existing limits, in accordance with their approval authority level, depending on total customer exposure and customer risk category (i.e. high, medium or low), as well as the value and type of security;
- International Special Handling Committees established for handling distressed problematic wholesale borrowers of the Group's international Bank subsidiaries.

The Credit Committees meet on a weekly basis or more frequently, if needed.

Group Credit General Division (GCGD)

The main responsibilities of the GCGD of the Risk Management General Division are:

- Review and evaluation of credit requests of:
  - Domestic large and medium scale corporate entities of every risk category;
  - Specialised units such as Shipping Structured Finance; and
  - Retail sector's customers (small business and individual banking) above a predetermined threshold.
- Issuance of an independent risk opinion for each credit request, which includes:
  - Assessment of the customer credit profile based on the qualitative and quantitative risk factors identified (market, operations, structural and financial);
  - A focused sector analysis; and
  - Recommendations to structure a bankable, well-secured and well-controlled transaction;
- Review and confirmation of the ratings of each separate borrower, to reflect the risks acknowledged;
- Participation with voting rights in all credit committees, as per credit approval procedures (except for Special Handling Committee I - no voting rights);
- Active participation in all external/regulatory audits of the Bank;
- Preparation of specialised reports to Management on a regular basis, with regards to Top 25 biggest Borrower groups and statistics on the new approved financings;
- Safeguard compliance of the Lending Units with specialised policies (such as SPPI (solely payments principal and interest) assessment in the accounting classification process of the wholesale exposures, assessment of individual customers for impairment review purposes , environmental and social policy); and
- Provision of specialised knowledge, expertise and support to other divisions of the Bank, in relation to operational and credit procedures, security policies, new lending products and restructuring schemes.

The GCGD through its specialized International Credit Sector (ICS) is also responsible to actively participate in the design, implementation and review of the credit underwriting function for the wholesale portfolio of the International Subsidiaries. Moreover, ICS advises and supports Risk Divisions of the International Subsidiaries.
In this context, ICS is responsible for the implementation of the below activities:

- Participation with voting right in all International Committees (Regional and Special Handling);
- Preparation of the secretariat work of the International Committees including arrangement of the agenda and submission / circulation of the minutes of the respective committees;
- Participation in the sessions of Special Handling Monitoring Committee (for Bulgaria, Serbia) responsible to monitor and decide on the strategy of problematic corporate relationships with loan outstanding exceeding a certain threshold, that is jointly set by ICS and Country TAG;

- Continuous support to the Credit Risk Units of international subsidiaries by means of providing advice on best practices and training;
- Participation in the preparation and periodic update of the International Credit Policy Manual (Wholesale Banking) of international subsidiaries;
- Implementation of Group Risk's credit related special projects such as acquisition and/or sale of wholesale portfolio.

In cooperation with Group Credit Control Sector, it conducts field reviews of loan quality and specific loan segments.

4.2.3 Credit risk monitoring

The quality of the Group's loans portfolios (business, consumer and mortgage in Greece and abroad) is monitored and assessed by the Group Credit Control Sector (GCCS). The Sector operates independently from all the business units of the Bank and reports directly to the GCRO.

The main activities of Group Credit Control Sector are:

- Continually monitor and assess the quality of Group's loan portfolio;
- Ensure that EBA classifications are made in accordance with the relevant provisions and Guidelines;
- Supports various corporate rating systems and maintain the Bank's Early Warning System for Corporate Borrowers [proactive and periodic assessment of the use and effectiveness of MRA and ICR systems, reviewing / monitoring of the Transactional Rating (TR) application which takes into account both the credibility of the borrower and the amount of required collaterals];
- Conducting field reviews and preparing written reports to management on the quality of loan portfolios for all the lending units of the Group;
- Supervising and controlling the credit control functions in the subsidiary Banks in South Eastern Europe;
- Participate in the Credit Committees, Special Handling Committees and Non-Performing Loans Committee without voting right, to ensure that Borrower Ratings and EBA Classifications have been appropriately depicted;
- Participate in the Troubled Assets Committee and in the Loans and Products Committee;
- Regular monitoring and monthly/quarterly reporting to MRC, BRC and quarterly reporting to BoD asset quality issues;
- Preparing the proposals of the provisioning policy and regularly reviewing the adequacy of provisions for all portfolios in Greece and in the International subsidiaries;
- Formulate, in collaboration with GCIB, the Credit Policy Manual for Performing Borrowers and in collaboration with IAGD and ICS the International Credit Policy Manual for Performing Borrowers;
- Assess the effectiveness of forbearance measures and the achievement of NPE's reduction budget;
- Formulate credit impairment policies for Group's total portfolio including completion of the IFRS9 adoption program;
- Prepare key supervisory disclosures;
- Provide strong guidance and monitor the process of designing and reviewing credit policies and procedures, with a view to incorporate best practices and address possible issues identified in the past, before they are approved by management.

The Group Credit Risk Capital Adequacy Control Sector's principal aim is to control, measure and monitor the capital requirements arising from the Bank's loan portfolio along with the relevant reporting to Management and Regulators (ECB/SSM); to develop and maintain the credit risk models for the Bank's loan portfolio; to measure the credit risk parameters (PD, LGD, EAD) for the loan portfolio and to coordinate the stress testing exercises for the loan portfolios at Group Level. The Sector reports directly to GCRO.

The main activities of Group Credit Risk Capital Adequacy Control Sector are:

- Implementation of the IRB roll-out plan of the Group;
- Development, implementation and update of IRB models of Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD) for evaluating credit risk;
- Development, implementation and update of forecasting models linking macroeconomic factors with credit quality (e.g. forecasted 1yr PD, lifetime PD metrics etc) for the loan portfolios of the Group for IFRS9 and Stress Testing purposes;

- Measurement and monitoring of risk parameters (PD, LGD, EAD) for the purposes of capital adequacy calculations, as well as, for provisioning purposes;
- Monthly capital adequacy calculations (Pillar I) and preparation of relevant management, as well as, regulatory reports (COREPs, STE reports) on a quarterly basis;
- Performing stress tests, both internal and external (EBA/SSM), under the dynamic and static Balance Sheet approach, and maintaining the credit risk stress testing infrastructure;
- Preparation of credit risk analyses for the loan book of the Group for Internal Capital Adequacy Assessment (ICAAP) / Pillar II purposes;
- Preparation of Basel Pillar III disclosures for credit risk;
- Participation in the preparation of the Bank's Business plan, the NPE TAG Plan and the Recovery plan of the Group in relation to asset quality and capital requirements for the loan book (projected impairments projected RWAs and expected losses, excess/shortfall);
- Support the Business Units in the use of credit risk models in business decisions and the development and usage of risk related metrics such as Risk Adjusted Pricing, Risk Adjusted Return on Capital (RAROC) etc;
- Participation in several TAG related projects in terms of development of the "loss budget", risk assessment/impact of various programmes and new products, sensitivity scenarios;
- Monitoring of the regulatory framework in relation to the IRB framework performing impact assessment (e.g. QIS, benchmarking etc.), initiating and managing relevant projects;
- Reviewing the grouping of lending exposures and ensuring their homogeneity under IFRS standard;
- Re-assessing and re-developing the significant increase in credit risk (SICR) threshold under the IFRS9 standard;
- Monitor and guide International on credit risk related ICAAP, stress testing and other regulatory credit risk related issues, based on Group standards. Review of local credit risk stress test exercises;
- Regular reporting to the GCRO, to the Management Risk Committee and to the Board Risk Committee on the following topics: risk models performance, risk parameters (PD, LGD, EAD), updates on regulatory changes and impact assessment, credit risk analysis and stress testing.

All International bank subsidiaries apply the same credit risk management structure and control procedures as the parent Bank, reporting directly to the Group Chief Risk Officer. Risk management policies and processes are approved and monitored by the credit risk Sectors of the parent bank ensuring that group guidelines are in place and credit risk strategy is uniformly applied across the Group.

The Group structures the levels of credit risk it undertakes by placing limits on the amount of risk accepted in relation to one borrower, or groups of borrowers and to industry segments. The exposure to any one borrower including banks and brokers is further restricted by sub limits covering on and off-balance sheet exposures and daily delivery risk limits in relation to trading items such as forward foreign exchange contracts.

Such risks are monitored on a revolving basis and are subject to an annual or more frequent review. Risk concentrations are monitored regularly and reported to the BRC.

4.2.4 Troubled Assets Management

The Bank utilizes a robust and interactive governance model for the management of troubled assets, which strengthens the Bank's borrower centric approach, through remedial management demarcation of the Business Units. The target is to reinstate customers' solvency, reduce overall handling costs for delinquent accounts and improve the portfolio profitability by maintaining low portfolio delinquency rates and facilitating negotiations with delinquent customers. This approach is supported by a combination of experienced personnel and statistical analysis, which highlights the trends and the high risk areas.

Following the publication of the BoG Executive Committee's Act No.42/30.05.2014 and its amendments that details the supervisory directives for the administration of exposures in arrears and non-performing loans, the Bank has responsibly proceeded with a number of initiatives to adopt the regulatory requirements and empower the management of troubled assets. In particular, the Bank transformed its troubled assets operating model into a vertical organizational structure through the establishment of the Troubled Assets Committee (TAC) and Troubled Assets Group General Division (TAG).

A Troubled Assets Committee has been established at top management level, chaired by Senior Advisor Group Risk and reporting to the BRC. The TAC's propositions and reports are also submitted to the Group Chief Risk Officer, who expresses his opinion on the effectiveness of the troubled assets management strategy to the Board of Directors by submitting the relevant report to the Board Risk Committee.

The Troubled Assets Committee (TAC) has been established in order to provide strategic guidance and monitoring of the troubled assets of Eurobank ensuring independence from business and compliance with the requirements of BoG Act 42/30.5.2014.

The main responsibilities of the Troubled Assets Committee are the following:

- Process centrally all the internal reports regarding troubled assets management under the provisions of BoG Acts 42/30.05.2014 and its amendments;
- Approve the available forbearance, resolution and closure solutions by loan sub-portfolio and monitor their performance through suitable key performance indicators (KPIs);
- Define criteria to assess the sustainability of credit and collateral workout solutions (design and use of "decision trees");
- Determine the parameters and the range of responsibilities of the bodies and officers involved in the assessment of viability and sustainability of the proposed modifications and the subsequent monitoring of their implementation;
- Design, monitor and assess pilot modification programs (in cooperation with other business units);
- Evaluate proposals for the sale of the Bank's distressed assets portfolio, as well as for the potential provision of services of managing troubled assets of third parties; and
- Supervise and provide guidance and know-how to the respective troubled assets units of the Bank's subsidiaries abroad.

In order to fully and effectively manage borrowers that are in early arrears, non-performing or in permanent delinquency status the Bank established the Troubled Assets Group Division (TAG) with a direct reporting line to the Chief Executive Officer. The Deputy CEO and Executive member of the Board of Directors is specifically entrusted with the close monitoring of the troubled assets management strategy. The TAG is the overall responsible body for the management of Group's troubled assets portfolio for the whole process, from the pre-delinquency status in case of high risk exposures up to legal workout. It comprises the Retail Remedial General Division, the Corporate Remedial General Division, the Collaterals Recovery Sector, the TAG Business Planning Sector, the TAG Risk Management & Business Policies Sector, the TAG Operational Risk Management Sector and the Business Improvement Program Management Sector.

The target of the operating model is to reinstate customers' solvency, reduce overall handling costs for delinquent accounts and improve the portfolio profitability by maintaining low portfolio delinquency rates and facilitating negotiations with delinquent customers. In order to ensure the efficient management of the troubled assets portfolio, more than 2,500 full-time equivalent employees are involved in NPLs management operations across the Issuer, of whom c.a 1,200 are dedicated professionals within the various TAG operating units.

TAG, by employing best-in-class strategies, tools, technical resources and human capital, aims to significantly contribute to the Group's profitability, in a socially responsible manner. The key principles that govern Troubled Assets management are described below:

- Preserve the clear demarcation line between business units and troubled assets management Ensured direct top management involvement in troubled assets management and close monitoring of the respective portfolio;
- Ensured direct top management involvement in troubled assets management and close monitoring of the respective portfolio;
- Deploy a sound credit workout strategy through innovative propositions that will lead to viable solutions, ensuring a consistent approach for managing troubled assets across portfolios;
- Ensure a consistent approach for managing troubled assets across portfolios;
- Prevent non-performing loans formation through early intervention and clear definition of primary financial objectives of troubled assets;
- Monitor the loan delinquency statistics, as well as define targeted risk mitigating actions to ensure portfolio risk reduction;

- Target maximization of borrowers who return to current status through modifications or collections;
- Monitor losses related to troubled assets; and
- Defined criteria to assess the sustainability of proposed forbearance or resolution and closure measures and design decision trees.

The Financial Planning Services (FPS) Subsidiary

The Bank's subsidiary Financial Planning Services (FPS) was established in 2006 and transformed into a Servicer Company under the L4354/2015 in Q1 2017,is fully dedicated to the remedial management of Retail products in all stages of the loan remedial cycle.

FPS ensures that internal and external collection resources are focused and allocated appropriately and efficiently. The installation of a customised collections management system and an automated dialer has enhanced the operational efficiency of collections.

Moreover, FPS is responsible for:

- Delinquent borrowers communication according to L3758 that sets the frame of its responsibilities and the Bank's call center) in order to provide extrajudicial notification or propose loan modifications by negotiation of time and type of debts repayment;
- Remedial channels' coordination;
- Delinquent borrowers' performance monitoring;
- Pre-legal and legal actions.

Collateral Recovery Sector

Collaterals Recovery Sector (CRS) is a centralized unit with direct report to the Troubled Assets Group Head, responsible for managing forced liquidations and claim announcement. It is a dedicated "auction house" with a special focus on developing best-in-class auction expertise, accelerating the forced liquidations execution and the collection of the auctions proceeds and reassuring the announcement of Bank's claims in auctions.

4.2.5 Recent developments

In 2018 the real GDP rate according to the latest data from ELSTAT closed at 1.9% lower compared to the most recent official forecast (European Commission 2018 Autumn forecast at 2.0%) from 1.5% in 2017 and -0.2% in 2016. Consumption and exports of goods and services (tourism) constituted the main drivers of growth in 2018. According to the 2019 Budget real GDP is expected at 2.5% while the respective European Commission forecast for 2019 is expected at 2.2%.

On the fiscal front, according to the 2019 Budget, the primary surplus for 2018 is estimated at 4.0% of GDP while the respective forecast for 2019 is expected at 3.6% of GDP, both figures were above the 3.5% threshold required by the Extended Post Programme Surveillance scheme. Public debt for 2018 and 2019 is expected at 180.4% and 167.8% of GDP respectively. The achievement of sustainable primary surpluses, at the level of 3.5 per cent of GDP up to the end of 2022 with a gradual decrease afterwards, constitutes a necessary condition for the achievement of debt sustainability.

Conditions in the domestic labour market continued to improve throughout 2018. Unemployment was at 18.0% in December 2018 from 20.8 in December 2017, a difference of 7.2 ppts compared to its peak of 28% in July 2013. Employment growth averaged 2.0% in 2018 from 2.2% in 2017.

Finally, according to the Bank of Greece, the stock of NPEs in the Greek Banking Sector was at €88.6 bn or 47.6% of total exposures in the second quarter of 2018. All the 4 systemic Banks have submitted their NPE strategy and targets to SSM for the three year period 2019-2021. In addition, according to the respective ECB announcement on 5 May 2018, the four Greek systemic banks completed successfully the 2018 EBA stress tests, a positive development that contributes to the return of confidence to the banking sector.

4.3 Credit risk reporting

Group Credit Control and Group Credit Risk Capital Adequacy Sectors regularly prepare a detailed analysis of information to quantify, monitor and evaluate risks, as well as provide support to implement the BRC risk management decisions. It has a fixed reporting cycle to ensure that the relevant management bodies and the Board Risk Committee, are updated on an ongoing basis on the developments in the credit portfolio.

The principal risk reports submitted to the relevant management bodies, on a quarterly basis, deal with the following topics:

The quality of the Group's portfolio:	Analysis of provisions for impairment and losses by business unit. Portfolio breakdowns and evolution by rating category, size, delinquency, industry, tenor, vintage and collateralization etc.
Large exposures:	- An overview of the twenty five (25) largest exposures (for Greece and International subsidiaries). -The largest problematic and non performing exposures (o/s balances, collaterals, provisions).
Forborne loans evolution	Analysis by portfolio, delinquency status; re-default statistics on a vintage basis; impairment levels and evolution over time.
The Bank's risk management models and parameters:	Update on the use of risk models, including risk parameters applied and the key results of the models' validation.
	Update on capital adequacy.
	Stress testing scenarios.

In addition, there are reports which are prepared on a monthly basis, in order to inform the relevant management bodies on the evolution of each business area's balances, delinquencies and provisions (impairment charges).

4.4 Credit exposures

The following table presents the Group's total and average values of on and off-balance sheet exposures, after impairments and before any credit risk mitigation (CRM) and any credit conversion factor (CCF), as at 31 December 2018 and 2017:

Table 10: EU CRB-B - Total and average net amount of exposures

	2018		2017	
	Net value of exposures € million	Average net exposures € million	Net value of exposures € million	Average net exposures € million
Central governments or central banks	-	-	-	-
Institutions	-	-	-	-
Corporates	11,692	11,646	11,661	11,616
- Corporates (Foundation IRB approach)	11,374	11,335	11,341	11,290
- Retail exposures that exceed € 1 million (Advanced IRB approach)	318	311	320	327
Of which: Specialised lending	2,346	2,201	2,164	2,086
Of which: SMEs	4,247	4,392	4,600	4,704
Retail [3]	16,064	16,038	16,794	17,001
Secured by real estate property	10,970	10,958	11,440	11,689
SMEs	2,942	2,923	3,140	3,178
Non-SMEs	8,028	8,035	8,300	8,511
Qualifying revolving [3]	2,204	2,209	2,380	2,364
Other retail [3]	2,890	2,871	2,974	2,948
SMEs	1,559	1,546	1,609	1,555
Non-SMEs	1,331	1,325	1,365	1,393
Equity	124	97	56	66
Asset backed securities	117	126	148	158
Total IRB approach	**27,997**	**27,907**	28,659	28,841
Central governments or central banks [1]	15,824	15,536	17,442	16,634
Regional governments or local authorities	55	61	78	82
Public sector entities [4]	726	543	9	11
Multilateral development banks	122	64	43	57
International organisations	453	327	565	3,549
Institutions [2]	10,315	10,161	8,196	9,144
Corporates	5,100	4,791	4,880	4,496
Of which: SMEs	777	750	770	737
Retail [3]	3,152	3,342	3,919	3,880
Of which: SMEs	640	633	624	592
Secured by mortgages on immovable property [3]	3,845	3,958	4,266	4,195
Of which: SMEs	184	192	213	213
Exposures in default [3]	1,575	1,772	1,776	2,115
Items associated with particularly high risk	139	35	1	3
Covered bonds	162	153	100	100
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-
Collective investments undertakings	-	14	38	43
Equity exposures	89	121	164	139
Other exposures	2,229	2,254	2,722	3,186
Total standardised approach	**43,786**	**43,132**	44,199	47,634
Total	**71,783**	**71,039**	72,858	76,475

[1] The decrease in Central governments or central banks compared to 2017, is mainly due to the reduction of the posted collateral (€ 1.2 bn) due to the reduction of Eurosystem's funding.
[2] The increase in Institutions compared to 2017, is mainly due to the increase of the posted collateral (€ 2.1 bn) due to the increase of the market repos.
[3] The difference in loan portfolios, both under IRB and standardised approaches, compared to 2017, is due to sales, write-offs and deleveraging.
[4] The increase in Public sector entities compared to 31 December 2017, is due to the reclassification of Greek Deposit and Investment Guarantee fund receivables from "Other exposures" to "Public Sector entities". 31 December 2017 reporting has not been restated.
[5] Exposures with counterparties are included in the table.

4.4.1 Geographical and industry analysis

The following table presents the geographical breakdown of the net value of exposures as at 31 December 2018 and 2017.

Table 11: EU CRB-C – Geographical breakdown of exposures

	31 December 2018						
	Net values						
	Greece	Romania [1]	Bulgaria	United Kingdom	Cyprus	Other countries	Total
	€ million	€ million	€ million	€ million	€ million	€ million	€ million
Central governments or central banks	-	-	-	-	-	-	-
Institutions	-	-	-	-	-	-	-
Corporates	11,692	-	-	-	-	-	**11,692**
- Corporates (Foundation IRB approach)	11,374	-	-	-	-	-	**11,374**
- Retail exposures that exceed € 1 million (Advanced IRB approach)	318	-	-	-	-	-	**318**
Of which: Specialised lending	2,346	-	-	-	-	-	**2,346**
Of which: SMEs	4,247	-	-	-	-	-	**4,247**
Retail	16,064	-	-	-	-	-	**16,064**
Secured by real estate property	10,970	-	-	-	-	-	**10,970**
SMEs	2,942	-	-	-	-	-	**2,942**
Non-SMEs	8,028	-	-	-	-	-	**8,028**
Qualifying revolving	2,204	-	-	-	-	-	**2,204**
Other retail	2,890	-	-	-	-	-	**2,890**
SMEs	1,559	-	-	-	-	-	**1,559**
Non-SMEs	1,331	-	-	-	-	-	**1,331**
Equity	63	-	4	1	6	50	**124**
Asset backed securities	18	-	-	16	-	83	**117**
Total IRB approach	**27,837**	**-**	**4**	**17**	**6**	**133**	**27,997**
Central governments or central banks	9,200	61	580	-	1,280	4,703	**15,824**
Regional governments or local authorities	54	-	1	-	-	-	**55**
Public sector entities [2]	726	-	-	-	-	-	**726**
Multilateral development banks	-	-	-	5	-	117	**122**
International organisations	-	-	-	-	-	453	**453**
Institutions [3]	377	50	-	6,768	110	3,010	**10,315**
Corporates	1,162	-	1,304	98	926	1,610	**5,100**
Retail	1,446	21	889	12	259	525	**3,152**
Secured by mortgages on immovable property	2,305	161	941	41	122	275	**3,845**
Exposures in default	1,193	112	185	-	33	52	**1,575**
Items associated with particularly high risk	2	-	52	-	75	10	**139**
Covered bonds	61	-	-	-	-	101	**162**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	**-**
Collective investments undertakings	-	-	-	-	-	-	**-**
Equity exposures	89	-	-	-	-	-	**89**
Other exposures	1,748	106	239	6	26	104	**2,229**
Total standardised approach	**18,363**	**511**	**4,191**	**6,930**	**2,831**	**10,960**	**43,786**
Total	**46,200**	**511**	**4,195**	**6,947**	**2,837**	**11,093**	**71,783**

	Greece	Romania	Bulgaria	United Kingdom	Cyprus	Other countries	Total
	31 December 2017						
	Net values						
	€ million	€ million	€ million	€ million	€ million	€ million	€ million
Central governments or central banks	-	-	-	-	-	-	-
Institutions	-	-	-	-	-	-	-
Corporates	11,661	-	-	-	-	-	11,661
- Corporates (Foundation IRB approach)	11,341	-	-	-	-	-	11,341
- Retail exposures that exceed € 1 million (Advanced IRB approach)	320	-	-	-	-	-	320
Of which: Specialised lending	2,164	-	-	-	-	-	2,164
Of which: SMEs	4,600	-	-	-	-	-	4,600
Retail	16,794	-	-	-	-	-	16,794
Secured by real estate property	11,440	-	-	-	-	-	11,440
SMEs	3,140	-	-	-	-	-	3,140
Non-SMEs	8,300	-	-	-	-	-	8,300
Qualifying revolving	2,380	-	-	-	-	-	2,380
Other retail	2,974	-	-	-	-	-	2,974
SMEs	1,609	-	-	-	-	-	1,609
Non-SMEs	1,365	-	-	-	-	-	1,365
Equity	35	-	-	2	5	14	56
Asset backed securities	24	-	-	20		104	148
Total IRB approach	28,514	-	-	22	5	118	28,659
Central governments or central banks	9,766	651	539	-	813	5,673	17,442
Regional governments or local authorities	60	17	1	-	-	-	78
Public sector entities	4	5	-	-	-	-	9
Multilateral development banks	-	-	-	1	-	42	43
International organisations	-	-	-	-	-	565	565
Institutions	92	290	-	5,819	51	1,944	8,196
Corporates	922	539	906	119	968	1,426	4,880
Retail	1,627	836	830	4	159	463	3,919
Secured by mortgages on immovable property	2,466	500	962	14	98	226	4,266
Exposures in default	1,271	176	236	-	33	60	1,776
Items associated with particularly high risk	-	-	-	-	1	-	1
Covered bonds	-	-	-	-	-	100	100
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-
Collective investments undertakings	16	-	-	-	2	20	38
Equity exposures	154	5	3	-	-	2	164
Other exposures	2,160	209	250	1	24	78	2,722
Total standardised approach	18,538	3,228	3,727	5,958	2,149	10,599	44,199
Total	47,052	3,228	3,727	5,980	2,154	10,717	72,858

(1) The decrease in Romania exposures compared to 31 December 2017, is mainly due to the derecognition of the Romanian disposal Group.
(2) The figures that are presented in the line Institutions are mainly the result of repo transactions and do not include any collateral posted to the Bank (the repo amount) and any other credit risk mitigation mechanism. The final exposure from these repo transactions which are all under GMRA contacts with daily exchange of margin is significantly lower.
(3) The increase in Public sector entities compared to 31 December 2017, is due to the reclassification of Greek Deposit and Investment Guarantee fund receivables from "Other exposures" to "Public Sector entities". 31 December 2017 reporting has not been restated.
(4) Exposures with counterparties are included in the table.

Credit Risk

The following table shows a breakdown by industry sector as at 31 December 2018 and 2017.

Table 12: EU CRB-D - Concentration of exposures by industry or counterparty types

	31 December 2018																		
	Net values																		
	Agriculture, forestry and fishing	Mining and quaring	Manufacturing	Electricity, gas, steam and air conditioning supply	Construction	Wholesale and retail trade	Transport and storage	Accomodation and food service activities	Information and communication	Real estate activities	Professional, scientific and technical activities	Administrative and support service activities	Human health services and social work activities	Arts, entertainment and recration	Other services ²	Households	Central Banks & Central Governments	Financial and Insurance activities	Total
Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporates	165	68	2,252	591	998	2,410	1,349	1,376	190	919	257	134	181	299	121	9	-	373	**11,692**
Retail	71	10	452	9	360	1,659	208	356	66	33	755	55	110	39	298	11,569	-	14	**16,064**
Equity	1	-	-	2	2	6	-	-	6	21	-	-	-	5	26	-	-	55	**124**
Asset backed securities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117	-	-	-	**117**
Total IRB approach	**237**	**78**	**2,704**	**602**	**1,360**	**4,075**	**1,557**	**1,732**	**262**	**973**	**1,012**	**189**	**291**	**343**	**562**	**11,578**	**-**	**442**	**27,997**
Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	15,816	-	**15,824**
Regional governments or local authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	-	-	-	**55**
Public sector entities [1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	717	-	**726**
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122	-	-	-	**122**
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	453	-	-	-	**453**
Institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10,315	**10,315**
Corporates	65	178	830	286	271	932	424	450	179	418	47	10	26	15	293	82	-	594	**5,100**
Retail	26	4	82	5	78	192	38	27	12	57	39	20	8	5	43	2,504	-	12	**3,152**
Secured by mortgages on immovable property	4	-	39	-	84	104	19	89	3	195	17	10	13	5	12	3,230	-	21	**3,845**
Exposures in default	15	2	47	12	41	94	17	15	3	22	14	3	2	2	29	1,241	-	16	**1,575**
Items associated with particularly high risk	-	-	1	-	28	3	2	6	-	86	2	3	-	-	2	4	-	2	**139**
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101	61	**162**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89	**89**
Other exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	**17**
Total standardised approach	**110**	**184**	**999**	**303**	**502**	**1,325**	**500**	**587**	**197**	**778**	**119**	**46**	**49**	**27**	**1,043**	**7,061**	**16,634**	**11,110**	**41,574**
Total	**347**	**262**	**3,703**	**905**	**1,862**	**5,400**	**2,057**	**2,319**	**459**	**1,751**	**1,131**	**235**	**340**	**370**	**1,605**	**18,639**	**16,634**	**11,552**	**69,571**

	31 December 2017																		
	Net values																		
	Agriculture, forestry and fishing	Mining and quaring	Manufacturing	Electricity, gas, steam and air conditioning supply	Construction	Wholesale and retail trade	Transport and storage	Accomodation and food service activities	Information and communication	Real estate activities	Professional, scientific and technical activities	Administrative and support service activities	Human health services and social work activities	Arts, entertainment and recration	Other services [2]	Households	Central Banks & Central Governments	Financial and Insurance activities	Total
Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporates	156	72	2,150	504	1,047	2,562	1,190	1,383	214	960	397	147	201	205	473	-	-	-	11,661
Retail	69	11	460	9	384	1,728	222	372	66	32	852	-	118	40	385	12,046	-	-	16,794
Equity	-	-	-	5	2	2	-	-	5	19	-	-	-	-	18	-	-	5	56
Asset backed securities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148	-	-	-	148
Total IRB approach	225	83	2,610	518	1,433	4,292	1,412	1,755	285	1,011	1,249	147	319	245	1,024	12,046	-	5	28,659
Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	17,439	-	17,442
Regional governments or local authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78	-	-	-	78
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	6	-	9
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	-	-	43
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	565	-	-	-	565
Institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	1	-	8,148	8,196
Corporates	71	16	637	143	392	823	351	397	179	671	86	46	43	20	246	-	-	759	4,880
Retail	4	1	11	2	9	39	9	7	3	1	12	-	1	2	27	3,791	-	-	3,919
Secured by mortgages on immovable property	-	-	-	2	1	569	1	2	-	-	2	-	1	-	5	3,683	-	-	4,266
Exposures in default	-	-	8	-	2	5	2	-	-	-	2	-	-	-	21	1,736	-	-	1,776
Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	100
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	38
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	154	164
Other exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
Total standardised approach	75	17	656	147	404	1,436	363	406	182	672	102	46	45	24	1,090	9,211	17,545	9,061	41,482
Total	300	100	3,266	665	1,837	5,728	1,775	2,161	467	1,683	1,351	193	364	269	2,114	21,257	17,545	9,066	70,141

(1) The increase in Public sector entities compared to 31 December 2017, is due to the reclassification of Greek Deposit and Investment Guarantee fund receivables from "Other exposures" to "Public Sector entities". 31 December 2017 reporting has not been restated.
(2) Other services include Water supply, Public administration and defence compulsory social security, Education, Food & Beverages, Industrial and Securitisation position.
(3) The table above does not include fixed assets, other assets and cash.
(4) Exposures with counterparties are included in the table.

4.4.2 Maturity analysis

The following table presents a breakdown of net exposures by residual maturity and exposure classes as at 31 December 2018 and 2017.

Table 13: EU CRB-E – Maturity analysis of exposures

	31 December 2018					
	Net exposure value					
	On demand € million	<= 1 year € million	> 1 year <= 5 years € million	> 5 years € million	No stated maturity € million	Total € million
Central governments or central banks	-	-	-	-	-	-
Institutions	-	-	-	-	-	-
Corporates	-	4,189	3,840	2,843	43	**10,915**
Retail	-	280	2,075	9,671	1,848	**13,874**
Equity	-	-	-	-	124	**124**
Asset backed securities	-	-	-	117	-	**117**
Total IRB approach	**-**	**4,469**	**5,915**	**12,631**	**2,015**	**25,030**
Central governments or central banks	-	5,456	1,992	3,669	4,707	**15,824**
Regional governments or local authorities	-	-	9	45	-	**54**
Public sector entities	-	8	-	-	718	**726**
Multilateral development banks	-	59	63	-	-	**122**
International organisations	-	-	453	-	-	**453**
Institutions	-	8,518	103	1,562	51	**10,234**
Corporates	-	3,750	295	86	-	**4,131**
Retail	-	158	466	1,890	27	**2,541**
Secured by mortgages on immovable property	-	16	300	3,515	-	**3,831**
Exposures in default	-	261	184	1,122	1	**1,568**
Items associated with particularly high risk	-	137	-	-	-	**137**
Covered bonds	-	-	61	101	-	**162**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-
Collective investments undertakings	-	-	-	-	-	-
Equity exposures	-	-	-	-	89	**89**
Other exposures	426	77	-	-	1,726	**2,229**
Total standardised approach	**426**	**18,440**	**3,926**	**11,990**	**7,319**	**42,101**
Total	**426**	**22,909**	**9,841**	**24,621**	**9,334**	**67,131**

	31 December 2017					
	Net exposure value					
	On demand € million	<= 1 year € million	> 1 year <= 5 years € million	> 5 years € million	No stated maturity € million	Total € million
Central governments or central banks	-	-	-	-	-	-
Institutions	-	-	-	-	-	-
Corporates	-	4,775	3,216	2,946	49	10,986
Retail	-	358	2,244	9,959	2,082	14,643
Equity	-	-	-	-	56	56
Asset backed securities	-	-	-	148	-	148
Total IRB approach	-	5,133	5,460	13,053	2,187	25,833
Central governments or central banks	-	7,327	2,571	2,609	4,935	17,442
Regional governments or local authorities	-	-	14	64	-	78
Public sector entities	-	3	-	5	-	8
Multilateral development banks	-	43	-	-	-	43
International organisations	-	-	203	362	-	565
Institutions	-	6,605	79	1,388	30	8,102
Corporates	-	3,651	240	94	-	3,985
Retail	-	165	543	2,343	58	3,109
Secured by mortgages on immovable property	-	20	310	3,916	-	4,246
Exposures in default	-	282	186	1,301	5	1,774
Items associated with particularly high risk	-	-	-	-	1	1
Covered bonds	-	-	-	100	-	100
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-
Collective investments undertakings	-	-	-	-	38	38
Equity exposures	-	-	-	-	164	164
Other exposures	505	75	-	-	2,142	2,722
Total standardised approach	505	18,171	4,146	12,182	7,373	42,377
Total	505	23,304	9,606	25,235	9,560	68,210

(1) *The table above does not include Off Balance Sheet items*
(2) *Exposures with counterparties are included in the table.*

4.5 Credit quality of loans and advances to customers

a. Impairment indicators

Applicable from 01.01.2018

To determine the risk of default, the Group applies a default definition for accounting purposes, which is consistent with the European Banking Authority (EBA) definition for non-performing exposure. The accounting definition of default is consistent with the one used for internal credit risk management purposes.
A financial asset is credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of that exposure have occurred:

- The borrower faces a significant difficulty in meeting his financial obligations;
- There has been a breach of contract, such as a default or past due event;
- The Group, for economic or contractual reasons relating to the borrower’s financial difficulty, has granted to the borrower a concession(s) that the Group would not otherwise consider;
- There is a probability that the borrower will enter bankruptcy or other financial re-organization;
- For Purchased or originated credit impaired (POCI) asset, a purchase or origination at a deep discount that reflects incurred credit losses is considered a detrimental event. The Group assesses the deep discount criterion following a principle -based approach with the aim to incorporate all reasonable and supportable information which reflects market conditions that exist at the time of the assessment.

For debt securities, the Group determines the risk of default using an internal credit rating scale and considers the securities as credit impaired if the internal credit rating of the issuer/counterparty at the reporting date is equivalent to “C” (Moody’s rating scale). Debt instruments with external rating equivalent to “C” are always considered impaired and carry the equivalent internal rating.

Applicable before 01.01.2018

For the Group’s retail loan exposures, objective evidence that a loan or group of loans is impaired refers to observable data that comes to the attention of the Group about the following loss events:

- significant financial difficulty of the borrower, significant reduction of personal and/or family income or loss of job;
- a default or breach of contract;
- significant changes in the financial performance and behavior of the borrower (for example, a number of delayed contractual payments);
- measurable decrease in the estimated future cash flows of a group of loans through a negative payment pattern such as missed payments or a decrease in property prices;
- the Group granting to the borrower, for economic or legal reasons relating to the borrower’s financial difficulty, a concession that the lender would not otherwise consider, such as a reduction of the borrower's monthly installment for a specific period of time, or a temporary or permanent reduction of interest rate;
- it is becoming probable that the borrower will enter into bankruptcy status or other financial reorganization; and
- loss events that could affect the ability of the borrower to repay contractual obligations within the agreed time, such as:
  - serious illness or disability or death of the obligor, or a family member.

For all other financial assets including wholesale loan exposures, the Group assesses on a case-by-case basis whether there is any objective evidence of impairment using the following criteria:

- significant financial difficulty of the issuer or borrower;
- a default of breach of contract;
- significant changes in the financial performance of the borrower that affect the borrower’s ability to meet its debt obligations, such as:
  - operating losses;
  - working capital deficiencies;
  - the borrower having a negative equity;

- other facts indicating a deterioration of the financial performance of the borrower, such as a breach of loan covenants or other terms, or a partial write-off of the borrower's obligations due to economic or legal reasons relating to his financial status;
- significant changes in the value of the collateral supporting the obligation;
- the Group granting to the borrower, for economic or legal reasons relating to the borrower's financial difficulty, a concession that the lender would not otherwise consider, such as a reduction of the obligors monthly installment for a specific period of time, or a temporary or permanent reduction of interest rate;
- it is becoming probable that the borrower will enter into bankruptcy or other financial reorganization;
- significant adverse changes in the borrower's industry or geographical area that could affect his ability to meet its debt obligations;
- any material facility at the debtor level failing beyond 90 days past due;
- market related information including the status of the borrower's other debt obligations; and
- a significant downgrade in the internal or external credit rating of the borrower's financial instruments when considered with other information.

For further details please refer to Consolidated Financial Statements, Note 2.

b. Impairment assessment

Applicable from 01.01.2018

The assessment of loss allowance is performed either on an individual basis or on a collective basis for groups of similar items with homogeneous credit risk characteristics. The Group applies the same principles for assessing significant increase in credit risk (SICR) since initial recognition when estimating ECLs on a collective or on an individual basis.

The Group segments its lending exposures on the basis of shared credit risk characteristics for the purposes of both assessing significant increase in credit risk and measuring loan loss allowance on a collective basis. The different segments aim to capture differences in PDs and in the rates of recovery in the event of default.

The shared credit risk characteristics used for the segmentation of exposures include several elements such as: instrument type, portfolio type, asset class, product type, industry, originating entity, credit risk rating, remaining term to maturity, geographical location of the borrower, value of collateral to the financial asset, forbearance status and days in arrears.

The Group identifies individually significant exposures and performs the ECL measurement based on borrower specific information for both retail and wholesale portfolios. This measurement is performed at a borrower level, hence the criteria are defined at this level, while both qualitative and quantitative factors are taken into consideration including forward looking information.

For the remaining retail and wholesale exposures, ECL are measured on a collective basis. This incorporates borrower specific information, collective historical experience of losses and forward-looking information. For debt securities, the measurement of impairment losses is performed on an individual debt security basis

Applicable before 01.01.2018

For accounting purposes, the Group reviews its loan portfolios to assess whether there is objective evidence of impairment on an ongoing basis. This assessment is performed individually for loans and advances that are individually significant and collectively (a) for loans and advances that are not individually significant and (b) for those that are individually significant but were found not to be impaired following the individual assessment. Management is required to exercise judgment in making assumptions and estimates when calculating the present value of the cash flows expected to be received on both, individually and collectively assessed loans and advances.

Individual impairment assessment

For loans assessed on an individual basis, mainly the Group's wholesale lending portfolio, management uses its best estimate to determine the present value of the cash flows that are expected to be received. In estimating these cash flows, management makes judgments about the borrower's financial position and the net realizable value of any underlying collaterals.

Each individually assessed loan for impairment is assessed on a case-by-case basis (in cooperation between Credit Risk Management function and the business units) and subsequently it is independently approved by the Credit Risk Management function.

Collective impairment assessment

Collective impairment allowance is established for (a) groups of non-impaired or impaired retail homogenous loans that are not considered individually significant and (b) groups of corporate or retail loans that are individually significant but that were not found to be individually impaired.

In determining whether an impairment loss should be recorded in the income statement, management makes judgments as to whether there is any observable data indicating that there is a measurable decrease in the estimated future cash flows of a loan portfolio before the decrease can be identified on an individual loan basis in that portfolio. This evidence may include observable data indicating that there has been an adverse change in the payment status of borrowers in a group, or national or local economic conditions that correlate with defaults on assets in the group.

In assessing the need for collective impairment, management considers factors such as credit quality, portfolio size, concentrations and economic factors. Management's estimates are based on historical loss experience for assets with similar credit risk characteristics to those in the loan portfolio under assessment when scheduling its future cash flows. Management also applies significant judgment to assess whether current economic and credit conditions are such that the actual level of impairment loss is likely to be greater or lower than that suggested by historical experience. In normal circumstances, historical loss experience provides objective and relevant information in order to assess the loss within each loan portfolio. In other circumstances, historical loss experience provides less relevant information, for example when recent trends in risk factors are not fully reflected in the historical information. Where changes in economic, regulatory and behavioral conditions result in most recent trends in portfolio risk factors not being fully reflected in the impairment calculation model used, the Group adjusts the impairment allowance derived from historical loss experience accordingly.

The uncertainty inherent in the estimation of impairment loss is increased in the current macroeconomic environment and is sensitive to factors such as the political uncertainty, level of economic activity, bankruptcy rates, geographical concentrations, changes in laws and regulations, property prices and level of interest rates.

For further details please refer to Consolidated Financial Statements Note 2.

c. Impairment measurement

Applicable from 01.01.2018

The measurement of ECL is an unbiased probability-weighted average estimate of credit losses that reflects the time value of money, determined by evaluating a range of possible outcomes. A credit loss is the difference between the cash flows that are due to the Group in accordance with the contractual terms of the instrument and the cash flows that the Group expects to receive (i.e. cash shortfalls) discounted at the original effective interest rate (EIR) of the same instrument, or the credit-adjusted EIR in case of purchased or originated credit impaired assets (POCI). In measuring ECL, information about past events, current conditions and reasonable and supportable forecasts of future conditions are considered. For undrawn commitments, ECLs are calculated as the present value of the difference between the contractual cash flows due if the commitment is drawn down and the expected cash flows while for financial guarantees ECLs are measured as the expected payments to reimburse the holder less any amounts that the Group expects to receive.

The Group estimates expected cash shortfalls, which reflect the cash flows expected from all possible sources, including collateral and other credit enhancements that are part of the contractual terms and are not recognized separately. In case of a collateralized financial instrument, the estimated expected cash flows related to the collateral reflect the amount and timing of cash flows that are expected from liquidation less the discounted costs of obtaining and selling the collateral, irrespective of whether liquidation is probable.

ECL are calculated over the maximum contractual period over which the Group is exposed to credit risk, which is determined based on the substantive terms of the instrument, or in case of revolving credit facilities, by taking into consideration factors such as the Group's expected credit risk management actions to mitigate credit risk and past practice.

Receivables from customers arising from the Group's activities other than lending, are presented under Other Assets and are typically short term. Therefore, considering that usually there is no significant financing component, the loss allowance for such financial assets is measured at an amount equal to the lifetime expected credit losses under the simplified approach.

Significant increase in credit risk (SICR) and staging allocation

Determining whether a loss allowance should be based on 12-month expected credit losses or lifetime expected credit losses depends on whether there has been a significant increase in credit risk (SICR) of the financial assets, issued loan commitments and financial guarantee contracts, since initial recognition.

The ECL calculations are based on the term structures of the probability of default (PD), the loss given default (LGD), the exposure at default (EAD) and other input parameters such as the credit conversion factor (CCF) and the prepayment rate. Generally, the Group derives these parameters from internally developed statistical models and observed point-in-time and historical data, leveraging the existing infrastructure development for the regulatory framework and risk management practices.

The PD, LGD and EAD used for accounting purposes may differ from those used for regulatory purposes. For the purposes of IFRS 9 impairment measurement, PD is a point-in-time estimate whereas for regulatory purposes PD is a 'through-the-cycle' estimate. In addition, LGD and EAD for regulatory purposes are based on loss severity experienced during economic downturn conditions, while for impairment purposes, LGD and EAD reflect an unbiased and probability-weighted amount.

Applicable before 01.01.2018

If there is objective evidence that an impairment loss on a financial asset carried at amortized cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of its estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. If a financial asset has a variable interest rate, the discount rate for measuring the impairment loss is the current effective interest rate determined under the contract. The carrying amount of the asset is reduced through the use of an allowance account for loans and advances or directly for all other financial assets, and the amount of the loss is recognized in the income statement. As a practical expedient, the Group may measure impairment on the basis of an instrument's fair value using an observable market price.

The present value of the estimated future cash flows of a collateralized financial asset reflects the cash flows that may result from foreclosure less costs for obtaining and selling the collateral, whether or not foreclosure is probable.

For collective impairment purposes, the financial assets are grouped on the basis of similar credit risk characteristics (i.e., on the basis of the Group's grading process that considers asset type, industry, geographical location, collateral type, past-due status and other relevant factors). Those characteristics are relevant to the estimation of future cash flows for groups of such assets by being indicative of the borrowers' ability to pay all amounts due according to the contractual terms of the assets being evaluated.

For further details please refer to Consolidated Financial Statements, Note 2.

d. Definitions

Applicable from 01.01.2018

Loans and advances to customers carried at amortised cost are classified depending on how ECL is measured.

Accordingly, loans reported as non-impaired include loans for which a '12-month ECL allowance' is recognized as they exhibit no significant increase in credit risk since initial recognition and loans for which a 'Lifetime ECL allowance' is recognized as they exhibit a significant increase in credit risk since initial recognition but are not considered to be in default.

Credit impaired loans category includes loans that are considered to be in default, for which a loss allowance equal to 'Lifetime ECL' is recognized and loans classified as 'Purchased or originated credit impaired' (POCI) which are always measured on the basis of ECL.

Loans and advances to customers carried at fair value through profit or loss (FVTPL) are not subject to ECL measurement and therefore are not included in the quantitative information provided in the below sections for loans and advances measured at amortised cost, except where indicated.

Regulatory definitions

'Default exposures', in line with the regulatory definition of default as adopted by the Group, include material exposures that are past due more than 90 days, exposures that are assessed by Group as unlikely to pay as well as those that are assessed for impairment individually and carry an individual impairment allowance.

'Non-performing exposures' as currently monitored and reported by the Group, in line with the guidelines set by the European Banking Authority (EBA Implementing Technical Standards), include material exposures that are in arrears for more than 90 days or assessed as unlikely to pay, impaired exposures under individual or collective impairment assessment, exposures categorized as defaulted for regulatory purposes, as well as forborne non performing exposures.

'Unlikely to pay' category refers to exposures where a borrower's ability to repay his credit obligations in full without realization of collateral is assessed as unlikely, regardless the existence of any past due amounts or the number of days past due.

Applicable before 01.01.2018

Loans and advances to customers are classified as 'neither past due nor impaired', 'past due but not impaired' and 'impaired'.

A financial asset is past due if a counterparty has failed to make a payment when contractually due. Exposures more than 90 days past due include the assets for which counterparties have failed to make a contractual payment for more than 90 days, irrespective of whether the asset is considered as impaired or not.

For accounting purposes, "past due but not impaired" category includes loans with contractual payments overdue by at least one day but which are not impaired unless specific information indicates to the contrary. For retail exposures, this is typically when loans are in arrears less than 90 days past due, while for wholesale exposures both the delinquency status and the internal rating, which reflects the borrower's overall financial condition and outlook, are assessed. For loans in the above categories, although not considered impaired, the Group recognizes a collective impairment loss.

For accounting purposes, 'Impaired' loans that are individually assessed include all wholesale exposures as well as small business and mortgage loans which carry an individual impairment allowance. The rest of retail exposures are considered impaired when they are in arrears for more than 90 days or earlier in case there is an objective evidence of impairment and carry a collective impairment allowance. Furthermore, impaired retail loans under forbearance measures may include loans in arrears less than 90 days.

For further information please refer to Consolidated Financial Statements Note 6.

The following table presents a breakdown of their defaulted and non-defaulted exposures by exposure classes as at 31 December 2018 and 30 June 2018.

Table 14: EU CR1-A – Credit quality of exposures by exposure class and instrument

	31 December 2018						
	Gross carrying values of						
	Defaulted exposures € million	Non-defaulted exposures € million	Specific credit risk adjustment[5] € million	General credit risk adjustment € million	Accumulated write-offs[4] € million	Credit risk adjustment charges 1/1-31/12/2018 € million	Net values € million
Central governments or central banks	-	-	-	-	-	-	-
Institutions	-	-	-	-	-	-	-
Corporates	5,664	9,259	3,231	-	320	215	11,692
Of which: Specialised lending	678	2,081	413	-	32	26	2,346
Of which: SMEs	3,835	2,567	2,155	-	217	145	4,247
Retail	7,537	12,645	4,118	-	608	303	16,064
Secured by real estate property	5,923	7,950	2,903	-	51	144	10,970
SMEs	2,214	1,827	1,099	-	-	75	2,942
Non-SMEs	3,709	6,123	1,804	-	51	69	8,028
Qualifying revolving	382	2,150	328	-	20	82	2,204
Other retail	1,232	2,545	887	-	537	77	2,890
SMEs	608	1,450	499	-	420	26	1,559
Non-SMEs	624	1,095	388	-	117	51	1,331
Equity	-	124	-	-	-	-	124
Asset backed securities	-	117	-	-	-	-	117
Total IRB approach	**13,201**	**22,145**	**7,349**	**-**	**928**	**518**	**27,997**
Central governments or central banks[2]	-	15,849	25	-	-	-	15,824
Regional governments or local authorities	1	56	1	-	-	-	55
Public sector entities	19	726	-	-	-	-	726
Multilateral development banks	-	122	-	-	-	-	122
International organisations	-	453	-	-	-	-	453
Institutions[3]	-	10,329	14	-	-	-	10,315
Corporates	224	5,106	6	-	-	23	5,100
Of which: SMEs	127	779	2	-	-	-	777
Retail	1,510	3,326	174	-	-	133	3,152
Of which: SMEs	196	647	7	-	-	19	640
Secured by mortgages on immovable property	855	3,854	9	-	-	8	3,845
Of which: SMEs	66	186	2	-	-	-	184
Exposures in default [1]	*2,609*	-	1,034	-	517	-	1,575
Items associated with particularly high risk	46	164	25	-	27	-	139
Covered bonds	-	162	-	-	-	-	162
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-
Collective investments undertakings	-	-	-	-	-	-	-
Equity exposures	-	89	-	-	-	-	89
Other exposures[3]	-	2,229	-	-	-	-	2,229
Total standardised approach	**2,655**	**42,465**	**1,288**	**-**	**544**	**164**	**43,786**
Total	**15,856**	**64,610**	**8,637**	**-**	**1,472**	**682**	**71,783**
Of which: Loans to banks and customers[5]	15,753	31,773	8,555	-	1,472	682	38,971
Of which: Debt Securities	-	7,703	25	-	-	-	7,678
Of which: Off-balance sheet exposures	103	4,604	54	-	-	-	4,653

Credit Risk

	30 June 2018						
	Gross carrying values of						
	Defaulted exposures € million	Non-defaulted exposures € million	Specific credit risk adjustment € million	General credit risk adjustment € million	Accumulated write-offs[4] € million	Credit risk adjustment charges 1/1-30/06/2018 € million	Net values € million
Central governments or central banks	-	-	-	-	-	-	-
Institutions	-	-	-	-	-	-	-
Corporates	5,929	9,127	3,304	-	264	95	11,752
Of which: Specialised lending	706	1,878	433	-	13	11	2,151
Of which: SMEs	3,979	2,631	2,166	-	189	64	4,444
Retail	8,327	12,549	4,894	-	127	193	15,982
Secured by real estate property	6,029	7,981	3,102	-	1	90	10,908
SMEs	2,316	1,839	1,279	-	-	49	2,876
Non-SMEs	3,713	6,141	1,823	-	1	41	8,031
Qualifying revolving	742	2,105	666	-	14	59	2,181
Other retail	1,557	2,462	1,126	-	112	44	2,893
SMEs	912	1,389	735	-	2	20	1,566
Non-SMEs	646	1,072	391	-	110	24	1,327
Equity	-	80	-	-	-	-	80
Asset backed securities		128				-	128
Total IRB approach	14,256	21,884	8,198	-	391	288	27,942
Central governments or central banks	-	15,321	43	-	-	-	15,278
Regional governments or local authorities	1	59	1	-	-	-	58
Public sector entities	19	719	-	-	-	-	719
Multilateral development banks	-	23	-	-	-	-	23
International organisations	-	201	-	-	-	-	201
Institutions	-	9,495	4	-	-	-	9,491
Corporates	463	4,516	7	-	-	12	4,509
Of which: SMEs	120	758	3	-	-	-	755
Retail	2,375	3,388	206	-	1	32	3,182
Of which: SMEs	241	601	7	-	-	11	594
Secured by mortgages on immovable property	843	3,864	9	-	-	5	3,855
Of which: SMEs	50	188	2	-	-	-	186
Exposures in default [1]	*3,701*	-	1,874	-	267	-	1,827
Items associated with particularly high risk	-	-	-	-	-	-	-
Covered bonds	-	153	-	-	-	-	153
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-
Collective investments undertakings	-	17	-	-	-	-	17
Equity exposures	-	129	-	-	-	-	129
Other exposures	-	2,043	-	-	-	-	2,043
Total standardised approach	3,701	39,928	2,144	-	268	49	41,485
Total	17,957	61,812	10,342	-	659	337	69,427
Of which: Loans to banks and customers	17,849	31,253	10,242	-	659	337	38,860
Of which: Debt Securities	-	6,869	43	-	-	-	6,826
Of which: Off-balance sheet exposures	108	4,219	54	-	-	-	4,273

[1] *Includes subtotal of gross carrying values of all other asset classes and is not added in "Total standardised approach"*
[2] *The increase in Central governments or central banks compared to 30 June 2018, is mainly due to the increased position on government bonds.*
[3] *The increase in Institutions compared to 30 June 2018 is mainly due to increased position on repos/reverse repos.*
[4] *Presents the cumulative write offs within the year.*
[5] *Includes HFS assets.*

The following table presents the movement in the provision on loans and advances to customers from 1 July 2018 to 31 December 2018 according to the Consolidated Financial Statements.

Table 15: EU CR2-A – Changes in the stock of general and specific risk adjustments

	31 December 2018	
	Accumulated specific credit risk adjustment € million	Accumulated general credit risk adjustment € million
Opening balance as at 1 July 2018	10,555	-
Transfer of ECL allowance for off balance sheet items	-	-
Increases due to amounts set aside for estimated loan losses during the period	321	-
Decreases due to amounts reversed for estimated loan losses during the period	(24)	-
Decreases due to amounts taken against accumulated credit risk adjustments (write offs)	(812)	-
Transfers between credit risk adjustments	-	-
Impact of exchange rate differences	30	-
Business combinations, including acquisitions and disposals of subsidiaries	-	-
NPV unwinding	(135)	-
Recoveries of amounts previously written off	8	-
Other adjustments(1)	(1,143)	-
Closing balance as at 31 December 2018	**8,800**	**-**
Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	-	-
Specific credit risk adjustments directly recorded to the statement of profit or loss	-	-

(1) *The "Other adjustments" include derecognition adjustments due to sales of non-performing exposures (retail and corporate)*

The following table shows the changes in the stock of defaulted and impaired loans and debt securities from 1 July to 31 December 2018.

Table 16: EU CR2-B – Changes in the stock of defaulted and impaired loans and debt securities

	31 December 2018
	Gross carrying value defaulted exposures € million
Opening balance as at 1 July 2018	**17,849**
Loans and debt securities that have defaulted or impaired since the last reporting period	646
Returned to non-defaulted status	(463)
Amounts written off	(812)
Other changes(1)	(1,467)
Closing balance as at 31 December 2018	**15,753**

(1) *The "Other changes" include derecognition adjustments due to sales of non-performing exposures (retail and corporate)*

The following table presents an overview of the quality of forborne exposures as at 31 December 2018.

Table 17: Credit quality of forborne exposures

	31 December 2018							
	Gross carrying amount/nominal amount with forbearance measures				Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions		Collaterals received and financial guarantees received on forborne exposures	
		Non-performing forborne						
	Performing forborne € million	€ million	Of which defaulted € million	Of which impaired € million	On performing forborne exposures € million	On non-performing forborne exposures € million	€ million	Of which: Collateral and financial guarantees received on non-performing exposures with forbearance measures € million
Loans and advances	**4,893**	**4,853**	**3,865**	**4,779**	**(545)**	**(1,739)**	**5,895**	**2,500**
Central banks	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-
Other financial corporations	16	75	75	75	(1)	(38)	43	31
Non-financial corporations	1,720	2,360	2,016	2,286	(220)	(817)	2,382	1,209
Households	3,157	2,418	1,774	2,418	(324)	(884)	3,470	1,260
Debt Securities	-	-	-	-	-	-	-	-
Loan commitments given	-	-	-	-	-	-	-	-
Total	**4,893**	**4,853**	**3,865**	**4,779**	**(545)**	**(1,739)**	**5,895**	**2,500**

The following template provides an overview of credit quality of non performing exposures as at 31 December 2018.

Table 18: Credit quality of performing and non-performing exposures by past due days

	31 December 2018									
	Gross carrying amount/nominal amoumt									
	Performing exposures			Non-performing exposures						
	€ million	Not past due or Past due <= 30 days € million	Past due >30 days <= 90 days € million	€ million	Unlikely to pay that are not past-due or past-due <=90 days € million	Past due > 90 days <=180 days € million	Past due > 180 days <=1 year € million	Past due > 1 year < = 5 year € million	Past due > 5 years € million	Of which defaulted € million
Loans and advances	**32,151**	**31,432**	**719**	**16,734**	**3,547**	**494**	**412**	**6,514**	**5,769**	**15,738**
Central banks	1,466	1,466	-	-	-	-	-	-	-	-
General governments	66	66	-	1	-	-	-	-	1	1
Credit institutions	1,760	1,760	-	-	-	-	-	-	-	-
Other financial corporations	1,488	1,467	21	209	60	6	-	52	92	209
Non-financial corporations	14,505	14,261	244	8,870	2,043	174	153	3,446	3,055	8,526
of which SMEs	5,984	5,833	151	6,699	1,141	140	115	2,611	2,693	6,375
Households	12,866	12,412	454	7,654	1,444	314	259	3,016	2,621	7,002
Debt Securities	**7,721**	**7,721**	-	-	-	-	-	-	-	-
Central banks	-	-	-	-	-	-	-	-	-	-
General governments	6,854	6,854	-	-	-	-	-	-	-	-
Credit institutions	340	340	-	-	-	-	-	-	-	-
Other financial corporations	122	122	-	-	-	-	-	-	-	-
Non-financial corporations	405	405	-	-	-	-	-	-	-	-
Off-balance sheet exposures	**4,841**			**107**						**107**
Central banks	-			-						-
General governments	262			19						19
Credit institutions	73			-						-
Other financial corporations	122			4						4
Non-financial corporations	2,568			83						83
Households	1,816			1						1
Total	**44,713**	**39,153**	**719**	**16,841**	**3,547**	**494**	**412**	**6,514**	**5,769**	**15,845**

The following templates provide an overview of the credit quality of non-performing exposures and related impairments, provisions and valuation adjustments by portfolio and exposure class, by geography and by industry as at 31 December 2018.

Table 19: Performing and non-performing exposures and related provisions

	31 December 2018														
	Gross carrying amount/nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions						Collaterals and financial guarantees received	
	Performing exposures			Non-performing exposures			Performing exposures - Accumulated impairment and provisions			Non-performing exposures - Accumulated impairment, accumulated negative changes in fair value due credit			On performing exposures	On non - performing exposures
		of which: stage 1	of which: stage 2		of which: stage 2	of which: stage 3		of which: stage 1	of which: stage 2		of which: stage 2	of which: stage 3		
	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million
Loans and advances	**32,151**	**25,170**	**6,981**	**16,734**	**-**	**16,734**	**(858)**	**(147)**	**(713)**	**(7,992)**	**-**	**(7,992)**	**17,973**	**6,909**
Central banks	1,466	1,466	-	-	-	-	-	-	-	-	-	-	-	-
General governments	66	65	1	1	-	1	(1)	(1)	-	(1)	-	(1)	8	-
Credit institutions	1,760	1,760	-	-	-	-	(1)	(1)	-	-	-	-	-	-
Other financial corporations	1,488	1,359	129	209	-	209	(8)	(2)	(7)	(146)	-	(146)	719	41
Non-financial corporations	14,505	11,528	2,977	8,870	-	8,870	(387)	(68)	(318)	(4,381)	-	(4,381)	8,501	3,451
Of which: SMEs	5,984	4,085	1,899	6,699	-	6,699	(291)	(30)	(261)	(3,243)	-	(3,243)	3,937	2,693
Households	12,866	8,992	3,874	7,654	-	7,654	(461)	(75)	(388)	(3,464)	-	(3,464)	8,745	3,417
Debt Securities	**7,721**	**6,940**	**781**	**-**	**-**	**-**	**(50)**	**(19)**	**(28)**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	6,854	6,094	760	-	-	-	(46)	(15)	(28)	-	-	-	-	-
Credit institutions	340	340	-	-	-	-	(2)	(2)	-	-	-	-	-	-
Other financial corporations	122	106	16	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	405	400	5	-	-	-	(2)	(2)	-	-	-	-	-	-
Off-balance sheet exposures	**4,841**	**4,649**	**192**	**107**	**-**	**107**	**(56)**	**(54)**	**(1)**	**(45)**	**-**	**(45)**	**331**	**4**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	262	262	-	19	-	19	(43)	(43)	-	(17)	-	(17)	-	-
Credit institutions	73	73	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	122	106	16	4	-	4	-	-	-	(1)	-	(1)	11	-
Non-financial corporations	2,568	2,416	152	83	-	83	(7)	(6)	(1)	(27)	-	(27)	304	4
Households	1,816	1,792	24	1	-	1	(6)	(5)	-	-	-	-	16	-
Total	**44,713**	**36,759**	**7,954**	**16,841**	**-**	**16,841**	**(964)**	**(220)**	**(742)**	**(8,037)**	**-**	**(8,037)**	**18,304**	**6,913**

Table 20: Quality of Non-performing exposures by geography

	31 December 2018						
	Gross carrying/nominal amount						
		of which: non-performing		of which: subject to impairment	Accumulated impairment	Provisions on off-balance sheet commitments and financial guarantees given	Accumulated negative changes in fair value due to credit risk on non-performing
			of which defaulted				
	€ million	€ million	€ million	€ million	€ million	€ million	€ million
On balance sheet exposures	**56,606**	**16,734**	**15,738**	**56,492**	**(8,850)**		**(50)**
Greece	40,848	15,710	14,792	40,781	(8,308)		(33)
Romania	462	166	135	441	(20)		(18)
Bulgaria	3,471	355	306	3,471	(179)		-
United Kingdom	1,469	4	4	1,469	(2)		-
Cyprus	2,387	165	165	2,387	(117)		-
Other countries	7,969	334	336	7,943	(224)		1
Off balance sheet exposures	**4,948**	**107**	**107**			**(101)**	
Greece	3,406	102	101			(99)	
Romania	2	-	-			-	
Bulgaria	627	1	-			-	
United Kingdom	68	-	-			-	
Cyprus	471	1	1			-	
Other countries	374	3	5			(2)	
Total	**61,554**	**16,841**	**15,845**	**56,492**	**(8,850)**	**(101)**	**(50)**

The following table provides an overview of the credit quality of loans and advances to non-financial corporations

Table 21: Credit quality of loans and advances by industry

	31 December 2018					
	Gross carrying/nominal amount					
		of which: non-performing		of which loans and advances subject to impairment	Accumulated impairment	Accumulated negative changes in fair value due to credit risk on non-performing exposures
			of which defaulted			
	€ million	€ million	€ million	€ million	€ million	€ million
Agriculture, forestry and fishing	366	169	163	360	(67)	-
Mining and quarrying	212	48	46	212	(30)	-
Manufacturing	4,024	1,244	1,213	4,024	(679)	-
Electricity, gas, steam and air conditioning supply	711	26	26	711	(20)	-
Water supply	46	9	8	46	(7)	-
Construction	1,882	1,075	1,046	1,859	(594)	(8)
Wholesale and retail trade	6,110	2,734	2,624	6,089	(1,490)	(11)
Transport and storage	2,221	448	434	2,209	(265)	-
Accommodation and food service activities	2,353	760	729	2,353	(297)	-
Information and communication	407	222	217	390	(128)	(12)
Financial and insurance activities	26	15	13	26	(8)	-
Real estate activities	1,940	628	605	1,919	(335)	(17)
Professional, scientific and technical activities	1,543	930	878	1,543	(498)	-
Administrative and support service activities	222	63	60	222	(36)	-
Public administration and defense, compulsory social security	3	3	3	3	(1)	-
Education	64	36	33	64	(14)	-
Human health services and social work activities	379	113	105	370	(65)	(2)
Arts, entertainment and recreation	371	75	73	371	(37)	-
Other services	495	272	250	494	(147)	-
Total	**23,375**	**8,870**	**8,526**	**23,265**	**(4,718)**	**(50)**

4.6 Standardised approach

The Group applies the Standardised approach for all subsidiaries exposures and for a part of the Bank's retail loans. Moreover, the Standardised approach is applied for credit exposures with sovereign and institutional counterparties, as well as with corporate bond issuers, for which a permanent exemption has been granted by the BoG.

Credit ratings are retrieved from External Credit Assessment Institutions (ECAIs), such as Moody's or Standard & Poor's or Fitch. In the cases where more than one rating is available, the second better rating is used.

ECAIs are not used for loans' portfolios directly, but only in cases when they are guaranteed by central governments or institutions (risk substitution). In such a case the ECAIs used are the same as the ones described above.

In the case of corporate bond issues, the corresponding issue rating by these agencies is used. In case that an issue rating is not available, rating for other issues by the same issuer can be used, if: (a) the corporate bond under review has equal or better seniority with these rated bonds or (b) the resulting risk weight is lower than the applicable risk weight of unrated bonds.

The table below presents Standardised exposures on two different basis (before CCF and CRM and after CCF and CRM) as at 31 December 2018 and 30 June 2018.

Table 22: EU CR4 – Standardised approach – Credit risk exposure and CRM effects

	31 December 2018					
	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
Exposure classes	On Balance sheet amount € million	Off Balance sheet amount € million	On Balance sheet amount € million	Off Balance sheet amount € million	RWAs € million	RWA density %
Central governments or central banks	12,418	-	12,691	-	5,692	44.9%
Regional government or local authorities	54	1	50	-	10	20.0%
Public sector entities	726	-	726	-	719	99.0%
Multilateral development banks	119	-	119	-	1	0.8%
International organisations	453	-	453	-	-	0.0%
Institutions	2,471	81	2,516	73	322	12.4%
Corporates	4,049	969	3,345	216	3,443	96.7%
Retail	2,541	611	2,449	118	1,856	72.3%
Secured by mortgages on immovable property	3,831	14	3,831	11	1,405	36.6%
Exposures in default	1,568	7	1,564	6	1,645	104.8%
Higher-risk categories	137	2	136	-	204	0.0%
Covered bonds	162	-	162	-	32	19.8%
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	0.0%
Collective investment undertakings	-	-	-	-	-	0.0%
Equity	89	-	89	-	224	251.7%
Other items	2,229	-	2,229	-	1,541	69.1%
Total	**30,847**	**1,685**	**30,360**	**424**	**17,094**	**55.5%**

	30 June 2018					
	Exposures before CCF and CRM		Exposures post CCF and CRM		RWAs and RWA density	
Exposure classes	On Balance sheet amount € million	Off Balance sheet amount € million	On Balance sheet amount € million	Off Balance sheet amount € million	RWAs € million	RWA density %
Central governments or central banks	12,057	-	12,320	-	5,779	46.9%
Regional government or local authorities	58	1	54	-	11	20.4%
Public sector entities	717	1	717	1	717	99.9%
Multilateral development banks	4	-	4	-	-	-
International organisations	201	-	201	-	-	0.0%
Institutions	2,277	82	2,311	64	305	12.8%
Corporates	3,660	775	2,912	206	2,982	95.6%
Retail	2,591	581	2,511	119	1,902	72.3%
Secured by mortgages on immovable property	3,844	11	3,844	8	1,412	36.7%
Exposures in default	1,822	5	1,817	4	1,897	104.2%
Higher-risk categories	-	-	-	-	-	0.0%
Covered bonds	153	-	153	-	36	23.5%
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	0.0%
Collective investment undertakings	17	-	17	-	17	100.0%
Equity	129	-	129	-	304	235.7%
Other items	2,042	-	2,042	-	1,421	69.6%
Total	29,572	1,456	29,032	402	16,783	57.0%

[(1)] Exposures with counterparties are not included in the table.

Table 23: EU CR5 – Standardised approach

The table below presents the credit exposures post conversion factor and post risk mitigation techniques (i.e. collaterals), broken down to different credit quality steps as at 31 December 2018 and 30 June 2018:

	Supervisory risk weightings - 31 December 2018																	
Exposure classes	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	deducted	Total	Of which unrated
	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million
Central governments or central banks	7,425	-	106	305	37	-	50	-	-	4,197	-	571	-	-	-	-	12,691	4,743
Regional government or local authorities	-	-	-	-	49	-	-	-	-	1	-	-	-	-	-	-	50	50
Public sector entities	-	-	-	-	8	-	-	-	-	718	-	-	-	-	-	-	726	717
Multilateral development banks	114	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	119	-
International organisations	453	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	453	-
Institutions	1,329	190	-	-	810	-	211	-	-	46	3	-	-	-	-	-	2,589	461
Corporates	-	-	-	-	13	-	17	-	-	3,412	119	-	-	-	-	-	3,561	3,222
Retail	-	-	-	-	-	-	-	-	2,567	-	-	-	-	-	-	-	2,567	2,567
Secured by mortgages on immovable property	-	-	-	-	-	3,310	532	-	-	-	-	-	-	-		-	3,842	3,842
Exposures in default	-	-	-	-	-	-	-	-	-	1,422	148	-	-	-	-	-	1,570	1,570
Higher-risk categories	-	-	-	-	-	-	-	-	-	-	136	-	-	-	-	-	136	136
Covered bonds	-	-	-	100	31	-	31	-	-		-	-	-	-	-	-	162	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collective investment undertakings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equity	-	-	-	-	-	-	-	-	-	-	-	89	-		-	-	89	89
Other items	667	-	-	-	26	-	-	-	-	1,536	-	-	-	-	-	-	2,229	2,229
Total	**9,988**	**190**	**106**	**405**	**979**	**3,310**	**841**	**-**	**2,567**	**11,332**	**406**	**660**	**-**	**-**	**-**	**-**	**30,784**	**19,626**

Credit Risk

Exposure classes	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	deducted	Total	Of which unrated
	Supervisory risk weightings - 30 June 2018																	
	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million
Central governments or central banks	7,040	-	106	230	27	-	58	-	-	4,287	-	572	-	-	-	-	12,320	5,190
Regional government or local authorities	-	-	-	-	53	-	-	-	-	1	-	-	-	-	-	-	54	54
Public sector entities	-	-	-	-	-	-	-	-	-	718	-	-	-	-	-	-	718	718
Multilateral development banks	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
International organisations	201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	201	-
Institutions	1,278	96	-	-	676	-	316	-	-	6	3	-	-	-	-	-	2,375	246
Corporates	-	-	-	-	13	-	37	-	-	2,972	96	-	-	-	-	-	3,118	2,831
Retail	-	-	-	-	-	-	-	-	2,630	-	-	-	-	-	-	-	2,630	2,630
Secured by mortgages on immovable property	-	-	-	-	-	3,303	549	-	-	-	-	-	-	-	-	-	3,852	3,852
Exposures in default	-	-	-	-	-	-	-	-	-	1,670	151	-	-	-	-	-	1,821	1,821
Higher-risk categories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Covered bonds	-	-	-	100	-	-	53	-	-	-	-	-	-	-	-	-	153	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collective investment undertakings	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	17	17
Equity	-	-	-	-	-	-	-	-	-	11	-	118	-		-	-	129	129
Other items	604	-	-	-	23	-	-	-	-	1,415	-	-	-	-	-	-	2,042	2,042
Total	9,127	96	106	330	792	3,303	1,013	-	2,630	11,097	250	690	-	-	-	-	29,434	19,530

[(1)] *Exposures with counterparties are not included in the table.*

Credit exposures shown in the above table do not include goodwill, intangible assets and deferred tax which are deducted from regulatory own funds.

4.7 Internal Ratings Based (IRB) approach

4.7.1 Exposures subject to IRB approach

Eurobank Group (the "Bank" or the "Group") first applied the Basel II framework under the Standardised approach in January 2007 and included the respective risk asset ratio figures in its published financial statements. Until that date the Group had been applying the Basel I rules.

In June 2008, the Group received the approval of BoG to use the Internal Ratings Based (IRB) approach to calculate the capital requirement for credit risk. Therefore, with effect from 1 January 2008 the Group applies:

- The Foundation IRB approach to calculate risk weighted assets for the corporate loans' portfolio of Eurobank Ergasias S.A. in Greece;
- The Advanced IRB for the majority of the retail loans' portfolio of the Bank, i.e. mortgages, small business lending, credit cards and revolving credits in consumer lending;
- From September 2009 the Foundation IRB approach was applied for the corporate loans' portfolio of Eurobank Ergasias Leasing S.A. in Greece;
- From March 2010 the Advanced IRB approach was applied for the Bank's portfolio of personal and car loans.

The implementation of IRB covers 78.4% of the Group's lending portfolio excluding portfolio segments which are immaterial in terms of size and risk profile as well as, permanent exemptions. The Bank is in the process of reviewing the IRB roll out plan taking into account the recently issued draft guidelines and its business plan. The updated roll out plan will be subject to ECB approval.

	2018 € million	2017 € million
Credit risk (pursuant IRB Approach)		
- Corporate exposures (Foundation IRB approach) and specialised lending (Slotting methodology)	14,232	14,341
- Retail exposures that exceed € 1 million (Advanced IRB approach)	396	412
Retail exposures	-	-
- Secured by immovable property - non SME	9,831	9,921
- Qualifying revolving retail exposures	2,026	2,417
- SME exposures	5,255	5,706
- Other retail exposures	1,719	1,699
Equity	124	56
Asset backed securities	117	148
Credit risk total, IRB approach	**33,700**	34,700

4.7.2 Risk classifications

The Bank's risk classifications can be divided into the following main categories:

- rating of large corporate and medium size customers; and
- credit scores assigned to retail customers.

(a) Rating of large corporate and medium size customers

The Bank has decided upon the differentiation of rating models for corporate banking, in order to better reflect the risk for customers with different characteristics. Hence, rating models are employed for a number of general, as well as specific customer segments:

- **Traditional corporate lending:**
  - Moody's Risk Advisor (MRA).
  - Internal credit rating for those customers that cannot be rated by MRA.

MRA is a rating system that aggregates quantitative and qualitative information on individual obligors to perform the assessment of their creditworthiness and determine the credit rating for the obligor. It takes into account the company's financial performance, its cash flows, industry sector trends, peers' performance, as well as qualitative assessment of management, the company's status, market and industry structural factors. MRA is used for the assessment of all legal entities with full accountancy tax books irrespective of their legal form and is calibrated on the Greek corporate environment.

The table below shows the mapping of MRA internal rating to ICAP (ECAI) ratings:

Mapping of internal (MRA) ratings to ECAIs	
ICAP ratings	MRA ratings
AA, A	1,0 - 2,0
BB, B	2,1 - 3,3
C, D	3,4 - 4,3
E	4,4 - 5,5
F	5,6 - 7,4
G, H	7,5 - 9,9

Mappings are primarily based on medium size corporate customers.

Certain types of companies cannot be analysed with MRA due to the special characteristics of their financial statements such as insurance companies, state-owned organizations, brokerage firms and start ups. In such cases an internal credit rating system is applied. It is an expert judgment borrower rating system and, similarly to MRA, it combines quantitative and qualitative assessment criteria (such as size, years in business, credit history, industry sector etc.).

Customers are classified with respect to their credit worthiness to 11 Borrower rating categories. Categories 1 to 3 correspond to low risk customers, whereas categories 4 to 6 to customers with medium credit risk. Categories 7 to 9 apply to customers with higher risk who are monitored more closely. Categories 10 and 11 apply to non-performing exposures and write offs respectively.

In addition, the Bank performs an overall assessment of corporate customers, based both on the borrower rating of the obligors (MRA or ICR) and the collaterals and guarantees referred to in its approved credit limit, using a 14 grade rating scale. Credit exposure is subject to detailed reviews by the appropriate approval level of the Bank based on the respective transactional rating (TR). Low risk corporate customers are reviewed at least once a year, whereas higher risk customers are reviewed either on a semi-annual (watchlist) or quarterly basis (substandard and distressed).

- **Specialised lending (shipping, real estate and project finance):** slotting methodology

For the specialised lending portfolios i.e. the primary source of repayment of the obligation is the income generated by the asset(s), rather than the independent capacity of the commercial enterprise, the Bank utilizes the Slotting Method by adapting and refining the CRD criteria to the Bank's risk practices. Customers falling in the specialised lending category (shipping, real estate and project finance) are classified in 5 categories: strong, good, satisfactory, weak and default. Each of the 5 categories is associated with a specific risk weight and EL percentage.

The fundamental standards underlying the Group's centralis8ed loan approval and rating processes are to review the global exposure of the customer and to use the 'four-eyes' principle, which requires each credit limit/rating to be evaluated by more than one individual. Ratings are approved by Credit Committees according to the level of exposure involved and each committee has its own specific approval limit. Ratings of customers whose exposure exceed Credit Committees' thresholds are reviewed by the Group's Central Committee. The Credit Committees are composed of senior managers from different business units, as well as from risk management and each committee has its own independent chairman.

As a general rule, each corporate customer is rated separately. For major corporate customers – where it is customary to assign a rating based on the customer's affiliation to a group or parent company – the rating of the parent company is transferred to the subsidiaries, if the Group believes that the parent company can and will guarantee the fulfilment of the obligations of its subsidiaries.

The rating systems described above are an integral part of the Corporate Banking decision making and risk management processes:

- the credit approval process, both at the origination and review process;
- the calculation of Economic Value Added (EVA) and risk-adjusted pricing; and
- the quality assessment of issuers of cheques prior to their pledge as collateral.

(b) Credit scores assigned to retail customers

The Bank assigns credit scores to its retail customers using a number of statistically based models both at origination and an ongoing basis through behavioral scorecards. Those models have been developed to predict, on the basis of available information, the probability of default (PD), loss given default (LGD) and exposure at default (EAD). They cover the entire spectrum of retail products (Credit Cards, Consumer Lending unsecured revolving credits, Car loans, Personal loans, Mortgages and Small Business Loans).

The models were developed based on the Bank's historical data and credit bureau data. Behavioral scores are calculated automatically on a monthly basis, thus ensuring that credit risk assessments are up to date.

The models are used in the credit approval process, in credit limit management, as well as in the collections' process for the prioritization of the accounts in terms of handling. Furthermore, the models have been often used for the risk segmentation of the customers. They are also utilised for risk based pricing in particular segments or new products introduced as well as in the calculation of the Economic Value Added (EVA) and Risk Adjusted Return On Capital (RaRoC) measures.

All of the above processes are centralised and based on the 'four-eyes' principle.

Retail exposures are grouped into homogeneous pools (refer to credit risk measurement in paragraph 4.9.4(f)).

4.7.3 Rating process and models' monitoring

The Bank considers the process and periodic review of credit policy implementation to be of critical importance, as they enable both the integration of the latest market information and analysis into the decision process and ensure the necessary uniformity in the face of the customer. Accordingly, a comprehensive credit policy manual is utilised on the extension and monitoring of credit, detailing the guiding principles, as well as specific rules relating to lending policies.

The credit rating process is also monitored independently by the Group Credit Control Sector via post approval control and evaluation of all credit portfolios through field reviews (case by case) for corporate lending.

Group Credit Risk Capital Adequacy Control Sector monitors the capacity of the rating models and the associated risk parameters on PD, LGD and EAD on an on going basis.

The Group Model Validation & Governance Sector is performing independent annual validations of the IRB models. The scope of the Sector is to:

- Establish and monitor the governance framework for the models used by the Group;

- Perform an independent validation of significant models used by the Group, in order to ensure that the results produced are correct, cover fully business needs, as well as that the methodologies and tools applied are in alignment with industry standards and the corresponding regulatory requirements; and
- Maintain the Group model's registry.

The Bank's validation policy follows a procedure that complies with international best practices and regulatory requirements. The Bank verifies the validity of the rating models and scoring systems on an annual basis and the validation includes both quantitative and qualitative aspects.

The quantitative validation includes statistical tests relating to the following:

- Model stability reports such as population stability, comparison of actual and expected score distributions and characteristic analysis;
- Discriminatory power of rating models i.e. the ability to distinguish default risk on a relative basis;
- Accuracy/backtesting, i.e. comparison of ex ante probabilities of default and other risk parameters and ex post observed default/loss/credit exposure as defined for regulatory purposes level.

The validation of risk parameters is based on historical in house data utilising confidence intervals or market data/benchmarks, where such benchmarks exist. The qualitative assessment includes the use of the models, data, model design, structures and processes underlying the rating systems. In addition to the annual validation of the models, the Bank has established a quarterly monitoring procedure to assess the significance of any changes.

Validation procedures are documented and regularly reviewed and reported to the BRC. Group Internal Audit also independently reviews the validation process annually.

4.7.4 Credit risk measurement

The credit risk framework is articulated around two measures: expected loss (EL) and unexpected loss (UL) for credit risk.

- EL is the expected annual credit loss as defined in paragraph (c) below;
- UL is defined as the volatility (or one standard deviation) of annual losses. If losses always equaled their expected levels then there would be no uncertainty. UL outlines the risk arising from volatility in loss levels and thus in earnings.

The core credit risk parameters included in the estimation of expected loss, unexpected loss and credit RWAs are: Probability of Default (PD), Loss Given Default (LGD), credit exposure as defined for regulatory purposes (EAD) and Effective Maturity (M).

(a) Probability of Default (PD)

The PD represents the probability that a customer will default on his credit obligation within the next 12 months. The definition of default used by the Bank is consistent with the requirements of the CRD and BoG.

The Bank's historical default data have been used in developing PD estimates. For each grade or pool, the long term average default rate expanding over a 10 years period is used as reference when assessing the PD values.

Under the Bank's validation framework, models are validated at least annually. This back testing is performed in order to timely identify possible misalignments of the model or possible reverse trends of the PDs. In this way, the Bank reassures that the PDs used are representative of the portfolios' quality and no underestimation underlies the information disclosed.

(b) Loss Given Default (LGD)

LGD represents the loss on an exposure after a customer defaults. It is expressed as a percentage of the exposure that the Bank expects to lose at the point of default.

The first step in the development process of behavioral LGD models or segments for the Retail portfolios of the Bank was to calculate realised (historical) LGD for a significant number of years starting before 2000. Data was collected and realised losses were calculated taking into account the concept of economic loss. To calculate historical LGD values for retail exposures, the workout LGD method was employed.

The statistical modeling technique employed for the development of behavioral LGD models for consumer lending was Stepwise Linear Regression. This technique is used to first select the most predictive characteristics and then to determine the weights for each variable. For the remaining portfolios the segmentation approach was used for estimating the LGD, based on material loss drivers.

When determining the final parameter, the Bank allows for uncertainty in the data and also applies an additional margin for economic downturn, by reference to external data.

For corporate lending which is under Foundation IRB, the supervisory LGD parameters are applied.

(c) Expected Loss Best Estimate (ELbe)

ELbe is the institution's best estimate of expected loss for the defaulted exposures in accordance with Article 181(1) (h). The ELbe estimation methods take into account all currently available and relevant information and, in particular, consider current economic circumstances and exposure status.

In view of the improvement of the macro-environment and the corresponding differentiation of the Pit LGD and the downturn LGD, reflecting the worst economic conditions, the Bank has re-assessed the appropriate ELbe estimates by examining the most appropriate macro coefficients that affect ELbe.

For the selection of the macroeconomic variables, a structured process was followed. Long-list of factors was created using macroeconomic factors such as House Price Index (HPI), Gross Domestic Product growth (GDP), Deposit growth and others, provided by Group Economic Division. The historical data were extracted from 2005-Q1 to 2016-Q4. Independent variables were entered in different time lags in order to assess the time lag of the dependency. The sign of the coefficients were examined for intuitiveness and any counterintuitive coefficients were excluded from the model.
Several methods were tested on the aforementioned time series data and the best model based on performance both in accuracy and diagnostic tests was selected.

In addition, the Bank has also reviewed the framework for the ELbe estimation and update.

(d) Credit exposure as defined for regulatory purposes (EAD)

For estimating credit exposures for regulatory purposes, future draw downs are taken into account through the use of Credit Conversion Factors (CCFs).

This is meaningful only for products with a risk of drawings that is loan commitments, credit cards and the like, as ordinary loans do not involve a risk of future drawings. Conversion factors are influenced by the Bank's ability to identify slow paying borrowers at an early stage and reduce their access to additional drawings.

CCF estimates for the retail portfolios of the Bank are based on the Bank's historical data. As in the LGD estimation, the Bank employed statistical modeling techniques for consumer lending products (credit cards and open line) and for small business revolving and overdraft facilities, based on key drivers.

It is noted that in some cases credit exposure as defined for regulatory purposes is observed to be lower than the current balance outstanding. In these cases a capping has been applied at the pool design stage and credit exposure as defined for regulatory purposes has been set to equal current balance outstanding, as stipulated by CRD, thus allowing for an additional margin of conservatism.

For corporate lending which is under Foundation IRB, the supervisory CCF parameters are applied.

(e) Effective Maturity (M)

For corporate lending which is under Foundation IRB, the supervisory parameter is applied (i.e. 2.5 years).

(f) Pools (retail asset classes)

For retail lending portfolios, after building the models, ratings have been defined for the risk parameters (PD, LGD and CCF) with the purpose of smoothing out fluctuations by score in the development sample and help the derivation of statistically reliable estimates of the relationship between the score and PD, LGD and CCF, respectively.

The functional relationship between the score and the risk parameter was used to create a harmonised rating scale of PD, LGD and CCF across all retail portfolios. For example, the harmonised PD Rating 1 corresponds to the same PD range regardless of unit, product or scorecard in use.

Rated exposures have been assigned into particular pools, each containing groups of sufficiently homogenous exposures to allow for accurate and consistent estimation of loss characteristics at pool level.

Pools' setting for the retail lending portfolios was driven by a number of segmentation variables (product, financial status, time on books, current delinquency status, etc.), as well as the score. All these provide for a meaningful differentiation of risk as the score is based on the assessment of numerous variables (borrower and transaction characteristics).

Back testing and comparison analysis with external data, where available, are conducted at least annually to validate the risk parameters' estimations and pools, as described in rating process and models' monitoring in paragraph 4.8.2.

The Group has received approval for using the internal rating models and all detailed validations of the parameters were submitted to and reviewed by the regulator, as part of the IRB approval process and also as part of the ongoing supervisory monitoring. Annual validation results and actions taken (redevelopment or refit of scorecards; calibration of risk parameters of PD, LGD and EAD) are also independently reviewed by Internal Audit as part of the annual recurring Basel III compliance audit in accordance with BoG Governor's Act 2577. During 2016, the Bank has performed all required adjustments and re-calibrations and incorporated in the capital calculations revised through the cycle (TTC) risk parameters to reflect the macroeconomic environment and loss severities affecting the portfolios leveraging up to date performance.

4.7.5 Exposures subject to IRB approach

The following tables present the back testing results for the PD parameter for the full spectrum of the models applied in both Retail and Corporate portfolios. The purpose of the back testing is to identify deviations between the PDs produced by the internal models and actual default rates observed. It is noted that the PDs presented below are calibrated to the long run average default rate thus they may deviate from the observed one year default rates.

Table 26: EU CR9 – IRB approach – Backtesting of PD per exposure class as at 31 December 2018 and 2017.

31 December 2018									
					Number of obligors				
Exposure class	PD range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	% Defaulted accounts in the year	Average historical annual default rate
	%		%	%				%	%
Corporates									
Other	0.03% - 99.99%	-	2.3%	3.0%	534	508	19	3.6%	3.6%
SMEs	0.03% - 99.99%	-	6.1%	6.8%	1,993	1,779	79	4.0%	7.9%
Total Foundation IRB	**0.03% - 99.99%**	**-**	**3.6%**	**6.0%**	**2,527**	**2,287**	**98**	**3.9%**	**7.4%**

31 December 2017									
					Number of obligors				
Exposure class	PD range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	% Defaulted accounts in the year	Average historical annual default rate
	%		%	%				%	%
Corporates									
Other	0.03% - 99.99%	-	3.1%	3.9%	470	534	12	2.6%	3.7%
SMEs	0.03% - 99.99%	-	7.9%	8.1%	2,301	1,993	104	4.5%	8.1%
Total Foundation IRB	0.03% - 99.99%	-	4.9%	7.2%	2,771	2,527	116	4.2%	7.5%

31 December 2018									
					Number of accounts				
Exposure class	**PD range**	**External rating equivalent**	**Weighted average PD**	**Arithmetic average PD by obligors**	**End of previous year**	**End of the year**	**Defaulted obligors in the year**	**% Defaulted accounts in the year**	**Average historical annual default rate**
	%		**%**	**%**				**%**	**%**
Secured by immovable property non-SME retail exposures	0.47% - 99.99%	-	15.6%	17.7%	109,915	108,449	13,148	12.0%	12.7%
Qualifying revolving retail exposures	0.03% - 99.99%	-	2.1%	1.2%	853,301	858,860	12,930	1.5%	7.0%
Retail exposures-Other non- SME	0.03% - 99.99%	-	14.4%	7.6%	87,764	94,481	4,383	5.0%	8.1%
Retail SME[1]	0.03% - 99.99%	-	21.4%	20.2%	52,265	51,076	7,028	13.4%	18.4%
Total Advanced IRB	**0.03% - 99.99%**	**-**	**14.5%**	**4.2%**	**1,103,245**	**1,112,866**	**37,489**	**3.4%**	**8.2%**

31 December 2017									
					Number of accounts				
Exposure class	PD range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	End of previous year	End of the year	Defaulted obligors in the year	% Defaulted accounts in the year	Average historical annual default rate
	%		%	%				%	%
Secured by immovable property non-SME retail exposures	0.47% - 99.99%	-	17.0%	17.7%	117,398	109,915	19,029	16.2%	12.4%
Qualifying revolving retail exposures	0.03% - 99.99%	-	2.1%	1.2%	858,073	853,301	13,706	1.6%	7.2%
Retail exposures-Other non- SME	0.03% - 99.99%	-	16.4%	7.6%	86,096	87,764	5,797	6.7%	8.2%
Retail SME[1]	1.83% - 99.99%	-	23.3%	20.3%	51,901	52,415	8,732	16.8%	18.4%
Total Advanced IRB	0.03% - 99.99%	-	16.5%	4.2%	1,113,468	1,103,395	47,264	4.2%	8.4%

(1) This exposure class includes the following three regulatory classes: Retail exposures that exceed €1mil, Retail exposures – Other SME, Retail exposures – secured by immovable property SME

Note: Average historical annual default rate represents the average annual default rate of the period 2006-2017 i.e. the calibrated through the cycle PDs used in the RWAs calculation.
Overall, the weighted average PDs which they have been calibrated in an economic cycle spanning from early 2006 and including the performance of the distressed financial period of the Greek economy up to and including December 2017 are higher than the annual default rate of 2018, where the macro economic environment is improving.

The default rate is following a decreasing trend within 2018 to 3.9% from 4.2% in 2017 for Corporate and to 3.4% from 4.2% for the Retail reflecting the improving quality of the loan portfolio.

4.7.6 Risk profile of exposures subject to IRB approach

The following table presents exposure classes broken down by PD band as at 31 December 2018 and 30 June 2018:

Table 27: EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range

Corporate exposures (Foundation IRB)	31 December 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	710	51	91.4%	756	0.1%	94	44.3%	4	210	27.8%	-	2
0.15 to <0.25	696	46	79.4%	733	0.2%	269	42.3%	3	300	40.9%	1	2
0.25 to <0.50	1	1	80.0%	2	0.4%	81	26.1%	1	1	36.1%	-	-
0.50 to <0.75	814	235	77.3%	995	0.7%	83	43.2%	2	792	79.5%	3	5
0.75 to <2.50	1,694	108	80.5%	1,781	1.4%	588	41.5%	3	1,616	90.7%	10	13
2.50 to <10.00	1,912	134	82.9%	2,021	5.7%	744	40.5%	3	2,715	134.4%	46	56
10.00 to <100.00	502	42	78.4%	533	17.9%	418	39.4%	5	916	172.1%	38	51
100.00 (Default)	4,677	80	62.3%	4,664	100.0%	3,409	41.9%	2	-	0.0%	1,952	2,560
Sub-total	**11,006**	**697**	**78.4%**	**11,485**	**42.4%**	**5,686**	**41.7%**	**3**	**6,550**	**57.0%**	**2,050**	**2,689**

Retail exposures that exceed € 1 million (Advanced IRB)	31 December 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity [2] yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	1	1	28.0%	1	0.0%	1	26.7%	1	-	3.7%	-	-
0.15 to <0.25	4	8	12.7%	4	0.2%	10	26.9%	4	1	19.2%	-	-
0.25 to <0.50	-	-	-	-	-	-	-	N/A	-	-	-	-
0.50 to <0.75	-	-	-	-	-	-	-	N/A	-	-	-	-
0.75 to <2.50	18	21	13.6%	18	1.8%	47	21.6%	4	6	34.2%	-	-
2.50 to <10.00	74	12	8.6%	74	4.5%	81	23.9%	9	43	58.8%	1	7
10.00 to <100.00	70	6	8.4%	70	29.8%	89	23.8%	11	58	82.6%	5	10
100.00 (Default)	232	-	-	229	100.0%	183	55.9%	11	-	0.0%	128	112
Sub-total	**399**	**48**	**11.7%**	**396**	**64.0%**	**411**	**42.3%**	**10**	**108**	**27.3%**	**134**	**129**
		Average PD for non defaulted			*14.7%*							

Secured by immovable property non-SME retail exposures	31 December 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity [2] yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	-	-	-	-	0.0%	-	-	N/A	-	-	-	-
0.15 to <0.25	-	-	-	-	0.0%	-	-	N/A	-	-	-	-
0.25 to <0.50	45	5	100.0%	50	0.5%	626	3.3%	N/A	1	2.4%	-	-
0.50 to <0.75	577	-	-	577	0.5%	8,935	13.3%	N/A	64	11.1%	-	6
0.75 to <2.50	2,467	4	100.0%	2,470	1.4%	33,585	15.7%	N/A	640	25.9%	6	59
2.50 to <10.00	899	1	100.0%	900	4.8%	14,772	17.7%	N/A	541	60.1%	8	35
10.00 to <100.00	2,125	-	100.0%	2,125	41.9%	37,417	27.2%	N/A	2,746	129.2%	243	227
100.00 (Default)	3,709	-	-	3,710	100.0%	47,272	47.9%	N/A	2,232	60.2%	1,597	1,477
Sub-total	**9,822**	**10**	**100.0%**	**9,832**	**47.6%**	**142,607**	**30.3%**	**N/A**	**6,224**	**63.3%**	**1,854**	**1,804**
		Average PD for non defaulted			*15.9%*							

Credit Risk

Qualifying revolving retail exposures	31 December 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity [(2)] yrs	RWAs € million	RWA density %	EL € million	Value adjustments and provisions € million
0.00 to <0.15	109	795	64.2%	619	0.1%	406,019	69.1%	N/A	20	3.2%	-	6
0.15 to <0.25	41	192	84.6%	203	0.2%	51,311	68.6%	N/A	14	6.9%	-	2
0.25 to <0.50	71	182	57.6%	176	0.4%	97,929	74.1%	N/A	26	14.6%	1	2
0.50 to <0.75	58	91	71.8%	123	0.7%	58,688	78.9%	N/A	29	23.2%	1	1
0.75 to <2.50	178	123	54.8%	246	1.4%	77,209	79.4%	N/A	103	41.7%	3	2
2.50 to <10.00	187	52	47.7%	212	5.4%	71,133	78.9%	N/A	222	104.8%	9	3
10.00 to <100.00	61	10	40.0%	65	24.0%	14,654	75.2%	N/A	122	190.5%	12	3
100.00 (Default)	382	-	-	382	100.0%	55,627	82.4%	N/A	-	0.0%	314	309
Sub-total	**1,087**	**1,445**	**65.0%**	**2,026**	**20.5%**	**832,570**	**75.0%**	**N/A**	**536**	**26.5%**	**340**	**328**
		Average PD for non defaulted			*2.0%*							

SME retail exposures	31 December 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity [(2)] yrs	RWAs € million	RWA density %	EL € million	Value adjustments and provisions € million
0.00 to <0.15	-	-	-	-	0.1%	4	-	N/A		-	-	-
0.15 to <0.25	-	-	-	-	0.0%	-	0.0%	N/A	-	0.0%	-	-
0.25 to <0.50	-	-	-	-	-	-	-	N/A	-	-	-	-
0.50 to <0.75	9	5	1.5%	9	0.6%	146	46.9%	N/A	3	29.5%	-	-
0.75 to <2.50	190	327	13.4%	179	1.9%	6,188	31.9%	N/A	58	32.6%	1	1
2.50 to <10.00	307	242	7.9%	274	4.5%	9,924	33.7%	N/A	107	39.0%	4	10
10.00 to <100.00	308	62	5.3%	297	34.1%	12,180	42.9%	N/A	210	70.8%	44	73
100.00 (Default)	608	-	-	576	100.0%	25,706	77.3%	N/A	-	0.0%	446	415
Sub-total	**1,422**	**636**	**10.4%**	**1,335**	**51.9%**	**54,148**	**54.4%**	**N/A**	**378**	**28.3%**	**495**	**499**
		Average PD for non defaulted			*15.4%*							

Other non-SME retail exposures PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity [2] yrs	RWAs € million	RWA density %	EL € million	Value adjustments and provisions € million
	31 December 2018											
0.00 to <0.15	-	-	-	-	0.0%	6	84.5%	N/A	-	12.3%	-	-
0.15 to <0.25	-	-	-	-	-	-	-	N/A	-	-	-	-
0.25 to <0.50	99	2 .		101	0.5%	16,606	58.6%	N/A	44	43.6%	-	1
0.50 to <0.75	125	-	-	125	0.6%	6,968	35.1%	N/A	38	30.2%	-	1
0.75 to <2.50	357	1 .		358	1.4%	36,280	38.1%	N/A	165	46.1%	2	11
2.50 to <10.00	178	-	61.3%	178	4.9%	18,624	41.9%	N/A	116	65.1%	4	16
10.00 to <100.00	332	-	-	332	41.9%	44,583	34.4%	N/A	244	73.4%	47	41
100.00 (Default)	625	-	-	625	100.0%	27,717	62.0%	N/A	282	45.2%	365	318
Sub-total	**1,716**	**3**	**7.5%**	**1,719**	**45.3%**	**150,784**	**47.5%**	**N/A**	**889**	**51.7%**	**418**	**388**
		Average PD for non defaulted			*14.1%*							

Retail exposures - Secured by immovable property SME PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity [2] yrs	RWAs € million	RWA density %	EL € million	Value adjustments and provisions € million
	31 December 2018											
0.00 to <0.15	-	-	-	-	-	-	-	N/A	-	-	-	-
0.15 to <0.25	-	-	-	-	-	-	-	N/A	-	-	-	-
0.25 to <0.50	-	-	-	-	-	-	-	N/A	-	-	-	-
0.50 to <0.75	-	-	-	-	-	-	-	N/A	-	-	-	-
0.75 to <2.50	53	46	17.1%	60	1.9%	909	14.6%	N/A	9	14.9%	-	-
2.50 to <10.00	508	41	9.1%	512	4.4%	4,750	14.1%	N/A	83	16.3%	3	29
10.00 to <100.00	1,165	14	7.8%	1,163	38.4%	11,651	19.8%	N/A	369	31.6%	91	171
100.00 (Default)	2,214	-	-	2,185	100.0%	26,660	44.0%	N/A	-	0.0%	961	899
Sub-total	**3,940**	**101**	**12.5%**	**3,920**	**67.7%**	**43,970**	**32.4%**	**N/A**	**461**	**11.8%**	**1,055**	**1,099**
		Average PD for non defaulted			*27.1%*							
Total all Advanced IRB	**18,386**	**2,243**	**46.1%**	**19,228**	**49.3%**	**1,224,490**	**38.9%**	**10**	**8,596**	**44.7%**	**4,296**	**4,247**
		Average PD for non defaulted			*15.3%*							

Corporate exposures (Foundation IRB)	30 June 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	643	53	91.4%	692	0.1%	88	44.4%	3	193	27.8%	-	2
0.15 to <0.25	822	75	89.2%	889	0.2%	300	42.9%	4	375	42.1%	1	3
0.25 to <0.50	2	1	87.1%	3	0.4%	87	22.0%	1	1	30.5%	-	-
0.50 to <0.75	1,063	88	75.8%	1,130	0.6%	104	43.9%	2	862	76.3%	3	5
0.75 to <2.50	1,378	188	89.7%	1,547	1.5%	664	40.8%	3	1,399	90.4%	10	12
2.50 to <10.00	1,928	115	82.1%	2,019	6.2%	870	40.8%	3	2,835	140.4%	51	63
10.00 to <100.00	585	32	79.5%	604	18.3%	495	39.7%	5	1,064	176.2%	44	63
100.00 (Default)	4,880	88	65.0%	4,873	100.0%	4,063	41.8%	2	-	0.0%	2,038	2,576
Sub-total	11,301	640	82.6%	11,757	43.7%	6,671	41.8%	3	6,729	57.2%	2,147	2,724
				Average PD for non defaulted	*3.9%*							

Retail exposures that exceed € 1 million (Advanced IRB)	30 June 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity (2) yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	1	-	10.2%	1	0.0%	1	6.0%	8	-	2.5%	-	-
0.15 to <0.25	2	1	0.7%	2	0.2%	2	25.5%	2	-	12.6%	-	-
0.25 to <0.50	-	-	-	-	-	-	-	N/A	-	-	-	-
0.50 to <0.75	-	-	-	-	-	-	-	N/A	-	-	-	-
0.75 to <2.50	19	14	11.0%	18	2.0%	34	22.4%	3	6	35.2%	-	-
2.50 to <10.00	56	12	8.5%	54	5.0%	75	23.3%	9	30	55.8%	1	5
10.00 to <100.00	81	8	9.6%	82	25.8%	97	25.7%	10	81	99.1%	5	14
100.00 (Default)	256	-	-	254	100.0%	200	54.7%	11	50	19.6%	135	126
Sub-total	415	35	9.6%	411	67.7%	409	43.1%	10	167	40.6%	141	145
				Average PD for non defaulted	*15.4%*							

Credit Risk

Secured by immovable property non-SME retail exposures	30 June 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity (2) yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	-	-	-	-	0.0%	-	-	N/A	-	-	-	-
0.15 to <0.25	-	-	-	-	0.0%	-	-	N/A	-	-	-	-
0.25 to <0.50	40	6	100.0%	46	0.5%	576	1.9%	N/A	1	1.4%	-	-
0.50 to <0.75	566	-	-	566	0.5%	8,697	13.1%	N/A	61	10.8%	-	5
0.75 to <2.50	2,479	4	100.0%	2,482	1.4%	33,379	15.7%	N/A	630	25.4%	5	58
2.50 to <10.00	937	1	100.0%	938	4.7%	14,878	17.5%	N/A	552	58.8%	8	40
10.00 to <100.00	2,109	-	100.0%	2,109	43.4%	37,532	27.2%	N/A	2,644	125.4%	253	259
100.00 (Default)	3,713	-	-	3,712	100.0%	46,849	45.4%	N/A	915	24.6%	1,612	1,460
Sub-total	9,844	11	100.0%	9,853	47.8%	141,911	29.3%	N/A	4,803	48.7%	1,878	1,822
				Average PD for non defaulted	*16.2%*							

Qualifying revolving retail exposures	30 June 2018											
PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity (2) yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	64	746	61.5%	523	0.1%	395,404	67.3%	N/A	18	3.5%	-	2
0.15 to <0.25	27	213	84.7%	208	0.2%	53,349	66.0%	N/A	14	6.5%	-	1
0.25 to <0.50	63	197	57.4%	176	0.4%	104,089	73.5%	N/A	25	14.5%	1	1
0.50 to <0.75	53	100	69.1%	123	0.6%	53,422	78.7%	N/A	28	22.7%	1	1
0.75 to <2.50	185	132	54.0%	257	1.4%	86,186	79.3%	N/A	106	41.2%	3	2
2.50 to <10.00	197	56	44.8%	223	5.5%	72,632	78.7%	N/A	233	104.9%	10	3
10.00 to <100.00	60	10	37.0%	64	23.7%	14,116	75.3%	N/A	121	190.7%	11	9
100.00 (Default)	742	-	-	742	100.0%	121,905	88.2%	N/A	85	11.5%	647	647
Sub-total	1,391	1,454	63.4%	2,316	33.5%	901,103	77.6%	N/A	630	27.2%	673	666
				Average PD for non defaulted	*2.1%*							

SME retail exposures PD range	30 June 2018 Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity (2) yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	-	-	-	-	0.0%	-	-	N/A		-	-	-
0.15 to <0.25	-	-	-	-	0.2%	4	46.9%	N/A	-	13.2%	-	-
0.25 to <0.50	-	-	-	-	-	-	-	N/A	-	-	-	-
0.50 to <0.75	9	6	1.3%	9	0.6%	148	46.9%	N/A	3	30.6%	-	-
0.75 to <2.50	184	199	15.4%	169	1.9%	5,331	33.3%	N/A	58	34.0%	1	1
2.50 to <10.00	307	301	8.2%	276	4.5%	10,488	32.9%	N/A	107	38.7%	4	9
10.00 to <100.00	320	65	5.3%	311	34.3%	12,308	43.0%	N/A	224	72.0%	46	79
100.00 (Default)	912	-	-	880	100.0%	26,617	88.3%	N/A	278	31.7%	755	645
Sub-total	1,732	571	10.3%	1,645	60.9%	54,896	64.6%	N/A	670	40.7%	806	734
				Average PD for non defaulted	*16.0%*							

Other non-SME retail exposures PD range	30 June 2018 Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity (2) yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
0.00 to <0.15	-	-	-	-	0.0%	4	75.7%	N/A	-	8.0%	-	-
0.15 to <0.25	-	-	-	-	-	-	-	N/A	-	-	-	-
0.25 to <0.50	87	1	99.3%	88	0.5%	14,235	57.9%	N/A	38	43.5%	-	1
0.50 to <0.75	129	-	-	129	0.6%	7,299	34.5%	N/A	39	29.9%	-	1
0.75 to <2.50	349	1	90.1%	350	1.4%	34,988	37.3%	N/A	159	45.4%	2	10
2.50 to <10.00	166	-	100.1%	166	5.0%	16,804	38.9%	N/A	100	60.4%	3	11
10.00 to <100.00	339	-	-	339	43.7%	45,147	33.6%	N/A	238	70.2%	50	45
100.00 (Default)	646	-	-	646	100.0%	33,733	58.1%	N/A	152	23.5%	375	324
Sub-total	1,716	2	94.4%	1,718	47.0%	152,210	45.4%	N/A	726	42.3%	430	392
				Average PD for non defaulted	*15.2%*							

Credit Risk

Retail exposures - Secured by immovable property SME PD range	Original on-balance-sheet gross exposures € million	Off-balance-sheet exposures pre-CCF € million	Average CCF %	EAD post CRM and post CCF € million	Average PD %	Number of obligors	Average LGD %	Average maturity (2) yrs	RWAs € million	RWA density %	EL € million	Value adjust-ments and provisions € million
	30 June 2018											
0.00 to <0.15	-	-	-	-	-	-	-	N/A	-	-	-	-
0.15 to <0.25	-	-	-	-	-	-	-	N/A	-	-	-	-
0.25 to <0.50	-	-	-	-	-	-	-	N/A	-	-	-	-
0.50 to <0.75	-	-	-	-	-	-	-	N/A	-	-	-	-
0.75 to <2.50	53	32	17.3%	58	1.9%	796	14.8%	N/A	9	15.1%	-	-
2.50 to <10.00	493	44	10.6%	492	4.3%	4,640	14.3%	N/A	82	16.7%	3	31
10.00 to <100.00	1,200	17	7.9%	1,198	38.7%	11,961	19.8%	N/A	387	32.3%	96	197
100.00 (Default)	2,316	-	-	2,287	100.0%	26,711	46.7%	N/A	383	16.7%	1,037	1,050
Sub-total	4,062	93	12.4%	4,035	68.7%	44,108	34.3%	N/A	861	21.3%	1,136	1,278
		Average PD for non defaulted			*27.8%*							
Total all Advanced IRB	19,160	2,166	46.5%	19,978	51.8%	1,294,637	40.5%	10	7,857	39.3%	5,064	5,037
		Average PD for non defaulted			*15.9%*							

Note:
1. PD refers to the PD calibrated TtC and LGD refers to downturn LGD, both used for the calculation of RWAs.
2. Average maturity is presented only in the exposure classes where it is required for the RWAs calculation.
3. In contrast with CoReps where the number of accounts are presented for Retail portfolios, the above tables depict the number of obligors in each asset class and PD band. If an obligor has multiple loans classified in more than one category, then the obligor is reported multiple times.

The main developments in the IRB portfolio, within 2018, were the following:
Foundation IRB

- The corporate portfolio under FIRB shows a net decrease by € 295 million (On balance exposure) mainly due to write-offs within the second half of 2018.
- The risk profile of the non-defaulted corporate portfolio has been slightly improved (weighted average PD from 3.9% in in June 2018 to 3.6 % in December 2018).

Advanced IRB

- The retail portfolio under AIRB shows a net decrease by € 774 million mainly due to write-offs and sales.
- The risk profile of the non-defaulted retail portfolio has been improved across asset classes). Specifically, the Secured by immovable property non-SME PD decreased from 16.2% in June 2018 to 15.6% in December 2018, the Other non-SME from 15.2% to 14.4% and the Retail SME from 23.7% to 21.4% respectively. The weighted average PD of the non-defaulted qualifying revolving portfolio remained stable at 2.1%.

Credit Risk

The table below presents the specialised lending credit exposures (shipping, real estate and project finance) broken down by supervisory risk categories and remaining maturities as at 31 December 2018 and 30 June 2018:

Table 28: EU CR10 – IRB (specialised lending)

		31 December 2018					
		Specialised lending					
Regulatory categories	Remaining maturity	On balance sheet amount € million	Off balance sheet amount € million	Risk weight	Exposure amount € million	RWAs € million	Expected losses € million
Strong	Less than 2.5 years	123	11	50%	132	66	-
	Equal to or more than 2.5 years	585	10	70%	590	413	2
Good	Less than 2.5 years	208	2	70%	210	147	1
	Equal to or more than 2.5 years	631	36	90%	650	584	5
Satisfactory	Less than 2.5 years	40	-	115%	40	46	1
	Equal to or more than 2.5 years	354	3	115%	355	408	10
Weak	Less than 2.5 years	11	-	250%	11	29	1
	Equal to or more than 2.5 years	-	-	250%	-	-	-
Default	Less than 2.5 years	380	1	0%	380	-	190
	Equal to or more than 2.5 years	297	-	0%	297	-	149
Total	**Less than 2.5 years**	**762**	**14**		**773**	**288**	**193**
	Equal to or more than 2.5 years	**1,867**	**49**		**1,892**	**1,405**	**166**

		30 June 2018					
		Specialised lending					
Regulatory categories	Remaining maturity	On balance sheet amount € million	Off balance sheet amount € million	Risk weight	Exposure amount € million	RWAs € million	Expected losses € million
Strong	Less than 2.5 years	69	4	50%	73	36	-
	Equal to or more than 2.5 years	332	2	70%	333	233	1
Good	Less than 2.5 years	204	2	70%	205	144	1
	Equal to or more than 2.5 years	723	35	90%	741	666	6
Satisfactory	Less than 2.5 years	59	-	115%	59	68	2
	Equal to or more than 2.5 years	436	2	115%	437	503	12
Weak	Less than 2.5 years	11	-	250%	11	28	1
	Equal to or more than 2.5 years	-	-	250%	-	-	-
Default	Less than 2.5 years	376	1	0%	377	-	188
	Equal to or more than 2.5 years	328	-	0%	328	-	164
Total	Less than 2.5 years	719	7		725	276	192
	Equal to or more than 2.5 years	1,819	39		1,839	1,402	183

Credit Risk

The risk profile of the non-defaulted specialised lending portfolio has been further improved within the second half of 2018 (EL 1.0% as at 31 December 2018 vis a vis EL of 1.3% as at 30 June 2018). The following table shows the main changes in capital requirements of credit risk exposures under the IRB approach from 30 September 2018 to 31 December 2018:

Table 29: EU CR8 – RWA flow statements of credit risk exposures under the IRB approach

	31 December 2018	
	RWA amounts € million	Capital requirements € million
RWAs as at 30 September 2018	16,492	1,319
Asset size	282	23
Asset quality	6	-
Model updates	41	3
Methodology and policy	-	-
Acquisitions and disposals	-	-
Foreign exchange movements	15	1
Other	3	-
RWAs as at 31 December 2018	**16,839**	**1,346**

Asset size: Under this item the changes in RWAs due to the changes in EAD are reported. These changes can be due to new originations or repayments of the loans.
Asset quality: The changes to the RWAs due to the borrower risk (i.e. rating grade migration) are reported under this item.
Model updates: The changes to the RWAs due to updates in risk parameters following the annual validation process or regulatory reviews.
Methodology and policy: Under this item, the changes in RWAs for defaulted exposures are presented. In line with the positive evolutions in the Greek macro-environment and the recent developments in the legal framework, the Bank has re-assessed the appropriate ELbe estimates by examining the most appropriate macro coefficients that affect ELbe.
Foreign exchange movements: The changes to the RWAs due to the foreign currency translation movements are reported.
Other: Under this item the changes in RWAs due to other factors that are used in the calculation of RWAs are reported. These, for example, include changes in total sales of the corporate borrowers and maturity of exposures.

The increase in RWAs is due to the increase of performing portfolios volumes and in particular loans to Corporate customers.

The following table presents the equity exposures, broken down by risk weights as at 31 December 2018 and 30 June 2018:

Table 30: EU CR10 – IRB (equities)

	31 December 2018					
	Equities under the simple risk-weighted approach					
Categories	On balance sheet amount € million	Off balance sheet amount € million	Risk weight	Exposure amount € million	RWAs € million	Capital requirements € million
Exchange-traded equity exposures	81	-	190%	81	154	12
Private equity exposures	23	-	290%	23	66	5
Other equity exposures	20	-	370%	20	73	6
Total	**124**	**-**		**124**	**293**	**23**

	30 June 2018					
	Equities under the simple risk-weighted approach					
Categories	On balance sheet amount € million	Off balance sheet amount € million	Risk weight	Exposure amount € million	RWAs € million	Capital requirements € million
Exchange-traded equity exposures	35	-	190%	35	67	5
Private equity exposures	27	-	290%	27	77	6
Other equity exposures	18	-	370%	18	66	5
Total	80	-		80	210	16

4.8 Credit risk mitigation

A key component of the Group's business strategy is to reduce risk by utilizing various risk mitigating techniques. The most important risk mitigating means are collaterals' pledges, guarantees and netting arrangements in master agreements for derivatives.

4.8.1 Types of collateral commonly accepted by the Bank

Internal policies include specific instructions for the collateral types that could be accepted:

- Residential real estate (e.g., houses, apartments, vacation homes etc.);
- Commercial real estate (e.g., commercial stores, industrial premises etc.);
- Land (e.g., urban, agricultural, other;
- Receivables (trade debtors) and post dated cheques;
- Financial collaterals, (e.g., cash collateral, listed shares, listed bonds and other specific securities accepted);
- Guarantees and letters of support;
- Insurance contracts; and
- Movable assets (e.g., machinery and equipment, vehicles and vessels.

A specific coverage ratio is pre-requisite upon approval and on ongoing basis for each collateral type, specified in the credit policy manual.

For Treasury exposures (i.e. repos, reverse repos, derivatives, etc.) the Group accepts only cash or liquid bonds as collaterals.

4.8.2 Valuation principles of collateral

For loan products, the valuation principle for collateral is regarded as a conservative approach, taking long term market value and volatility into account when defining the maximum collateral ratio. Valuation and hence eligibility is based on the following principles:

- Market value is assessed; markets must be liquid, quoted prices must be available and the collateral is expected to be liquidated within a reasonable time frame;
- A reduction of the collateral value is considered if the type, location or characteristics (such as deterioration and obsolescence) of the asset indicate uncertainty regarding the sustainability of the market value;
- Forced sale principle; assessment of market value or the collateral value must reflect that realization of collateral in a distressed situation is initiated by the Bank;
- No collateral value is assigned if a pledge is not legally enforceable.

In the context of supervisory guidelines and in order to manage effectively the real estate portfolio that has been accepted as collateral, the Bank has set out rules governing the type of initial valuation and the frequency of revaluation for the assessment of the commercial value of real estate collaterals.

Both the type of immovable property and its specific features, as well as other characteristics of the credit facility (e.g. forborne status, default, etc.), constitute the main criteria for the frequency and type of revaluation.

The valuation of the real estate properties is conducted by Eurobank Property Services (EPS) who has developed internal procedures and applies all acknowledged methods of valuation that ensure impartiality and high quality of services). Eurobank Property Services is regulated by the Royal Institute of Chartered Surveyors (RICS) and employs internal or external qualified appraisers based on predefined criteria (qualifications and expertise).

The valuation or revaluation of real estate properties may be assigned to a different valuation company that is pre-approved by Group Risk for a first or second (where required) assessment of value.

The initial valuation of real estate assets for the purposes of granting a new credit facility or refinancing existing credit facilities, is being conducted in all cases through the property's physical inspection undertaken by the appraisers of Eurobank Property Services (EPS) or any other appraiser approved by the Bank (based on a list of certified appraisers approved by Group Risk), by fully matching legal and technical documentation with the property (cases of forced prenotation are excluded). The valuation will take into account all required regarding technical and legal soundness of the Real Estate property. The valuation must precede the disbursement of the credit.

In cases of forced prenotation, a property physical inspection will be carried out within 30 days of its registration.

Real estate properties revaluations can be carried out as described below:

Through Property Physical Inspection:

In order to conduct a property physical inspection, all supporting should be collected (such as property title, topographical plan, floor plans).

The valuation will be carried out with external and/or internal inspection of the property. The Current Market Value and the Final Market Value will be estimated. In the case of completed properties these two values will be equal, while for cases of unfinished buildings they are different.

If during the inspection it is identified that the property has undergone changes regarding its surface (without changes in the perimeter or changes that do not affect the existing horizontal properties), the property to be assessed after the submission of required/mandatory documents. The revaluation is done by either EPS or another appraiser approved by the Bank, if deemed necessary. All appraisers must be certified.

Without Physical Property Inspection (Desktop):

Revaluation is carried out without physical property inspection (desktop) and is conducted based on certain assumptions. It applies only to finished properties for which there is relevant description on the submitted property title. The revaluation is carried out by an internal engineer of EPS or by another approved appraiser, if deemed necessary.

The following table summarizes the revaluation policy for the Retail lending portfolios.

Immovable Assets (RRE & CRE)				
		Loan Exposure (€)		
		0-299k	**300k-1,000k**	**>1,000k**
EBA Status	**Non Performing (NPE & NPF)**	• Index Annually	• Without property inspection (Desktop) annually, as long as the loan is classified as NP.	• With property inspection Annually
	Performing (PE & PF)	• Index Annually	• Index Annually	• With property inspection Annually
	PE -> NPE (including denounced)	• The annual Index valuation will be in effect	• Desktop valuation is required within two (2) months of reclassification, unless a valuation has taken place during the 6 previous months.	• Property Inspection is required within two (2) months of reclassification, unless a valuation has taken place during the 6 previous months.

The following table summarizes the revaluation policy for the Wholesale lending portfolios.

Immovable Assets (RRE & CRE)			
		Loan Exposure (€)	
		0-1,000k	**>1,000k**
EBA Status	**Performing (PE & PF)**	• Sectors Real Estate / Hotels: ○ With property inspection every 2 years ○ In the in-between years, with PropIndex or Commercial Real Estate Index or desktop in cases where above indices are not applicable). • All the rest sectors: ○ With property inspection every 3 years ○ In the in-between years, with PropIndex or Commercial Real Estate Index (or desktop in cases where above indices are not applicable).	• Sectors Real Estate / Hotels: ○ With property inspection every 2 years ○ In the in-between years Desktop. • All the rest sectors: ○ With property inspection every 3 years ○ In the in-between years Desktop.

<table>
<tr><td></td><td colspan="3">Loan Exposure (€)</td></tr>
<tr><td></td><td colspan="2">0-300k</td><td>>300k</td></tr>
<tr><td>Non Performing (NPE & NPF)</td><td colspan="2">• On an annual basis with PropIndex or Commercial Real Estate Index.
• Special types of immovable assets (e.g. hotels, shopping centers, medical diagnostic centers, hotels etc.) which cannot be revaluated by using the above mentioned indices, where applicable will be revaluated on an annual basis with desktop.</td><td>• With property inspection every 2 years.
• In the in-between years Desktop.</td></tr>
<tr><td></td><td colspan="3">Loan Exposure (€)</td></tr>
<tr><td></td><td>0-299k</td><td>300k-1,000k</td><td>>1,000k</td></tr>
<tr><td>PE -> NPE (including denounced)</td><td>• The annual PropIndex or Commercial Real Estate Evaluation valuation will be in effect. In cases where the indices are not applicable, an updated Desktop valuation is required within two (2) months of reclassification, unless a valuation has taken place during the 6 previous months.</td><td>• An updated Desktop valuation is required within two (2) months of reclassification, unless a valuation has taken place during the 6 previous months.</td><td>• An updated valuation with Property Inspection is required within two (2) months of reclassification, unless a valuation has taken place during the 6 previous months</td></tr>
</table>

The Bank uses two separate indices for the indexation of residential and commercial real estate collaterals respectively.

Residential Real Estate Index (PropIndex):

In 2006, the Bank initiated a project in collaboration with other banks in Greece to develop a real estate property index (PropIndex) for residential properties. The methodology, which was developed by an independent specialised statistical company, has been approved by the BoG and its use enables a dynamic monitoring of residential property values and market trends, on an annual basis.

Commercial Real Estate Index:

For commercial properties (stores, offices) the index that has been developed by Eurobank Property Services is applied. The index is based on internationally accepted methodology and constitutes a tool for the statistical monitoring of possible changes of the values of the commercial properties as well as for the trends in the particular market. This index is updated on an annual basis.

Other collaterals:

To ensure the quality of post-dated cheques accepted as collateral, the Bank has developed a pre-screening system, which takes into account a number of criteria and risk parameters, so as to evaluate their eligibility. Furthermore, the post-dated cheques' valuation is monitored weekly through the use of advanced statistical reports and monthly through detailed information regarding recoverability of cheques, referrals and bounced cheques, per issuer broken down by business unit (corporate and small business banking).

In case of reverse repos, the bonds received as collateral are evaluated on a daily basis by the official valuation system. All these are monitored via credit exposure measurement system that takes into account the specific characteristics of every contract.

4.8.3 Collateral policy and documentation

For loan products, Group instructions emphasize that practices followed are timely and prudent in order to ensure that collateral items are controlled by the Group's entities and that the loan and pledge agreement, as well as the collateral is legally enforceable. Therefore, the Group's entities hold the right to liquidate collateral in the event of the obligor's financial distress and can claim and control cash proceeds from a liquidation process.

The Group uses to a large extent standard loan and pledge agreements, ensuring legal enforceability.

The application of CSA (Credit Support Annex) and GMRA (Global Master Repurchase Agreements) contracts determines the cash that should be paid or received in case of derivatives and repos contracts.

4.8.4 Guarantees and credit derivatives

The guarantees used as credit risk mitigation by the Group are largely issued by central and regional governments in the countries in which it operates. The Public Fund for very small businesses (ETEAN) and similar funds, banks and insurance companies are also important guarantors of credit risk.

The Bank enters into credit derivative transactions with both retail and investment banks. The lowest counterparty rating is A, whereas the average counterparty rating is AA (Standard & Poor's rating scale).

Only eligible providers of guarantees and credit derivatives can be recognised in the Standardised and Foundation IRB approach for credit risk. All central governments, regional governments and institutions are eligible. Guarantees issued by corporate entities can only be taken into account if their rating corresponds to A- (Standard & Poor's rating scale) or better.

The table below shows guarantees received broken down by primary type of guarantee as at 31 December 2018 and 2017:

	2018 **€ million**	2017 € million
Guarantees issued by Central Banks or Central Governments	332	279
Guarantees issued by Banks	67	60
	399	339

The table below shows the impact of the credit derivatives used as mitigation techniques in RWAs as at 31 December 2018 and 30 June 2018.

Table 32: EU CR7 – IRB approach – Effect on the RWAs of credit derivatives used as CRM techniques

	31 December 2018		30 June 2018	
	Pre-credit derivatives RWAs € million	Actual RWAs € million	Pre-credit derivatives RWAs € million	Actual RWAs € million
Exposures under FIRB	-	-	-	-
Central governments and central banks	-	-	-	-
Institutions	-	-	-	-
Total corporates	8,325	8,325	8,509	8,509
Corporates – SMEs	2,318	2,318	2,477	2,477
Corporates – Specialised lending	1,760	1,760	1,678	1,678
Corporates – Other	4,247	4,247	4,354	4,354
Exposures under AIRB				
Central governments and central banks	-	-	-	-
Institutions	-	-	-	-
Corporates – SMEs	108	108	167	167
Corporates – Specialised lending	-	-	-	-
Corporates – Other	-	-	-	-
Retail – Secured by real estate SMEs	460	460	861	861
Retail – Secured by real estate non-SMEs	6,225	6,225	4,804	4,804
Retail – Qualifying revolving	536	536	630	630
Retail – Other SMEs	378	378	670	670
Retail – Other non-SMEs	889	889	726	726
Equity IRB	293	293	210	210
Other non credit obligation assets	18	18	21	21
Total	**17,232**	**17,232**	16,598	16,598

(1) Securitisation positions are not included in the above table.

4.8.5 Netting agreements

To reduce the exposure towards single counterparties, risk mitigation techniques are used. The most common is the use of closeout netting agreements (usually based on standardised ISDA contracts), which allow the bank to net positive and negative replacement values in the event of default of the counterparty.

Furthermore, the Bank also applies margin agreements (CSAs) in case of counterparties. Thus, collateral is paid or received on a daily basis to cover current exposure. In case of repos and reverse repos the Bank applies netting and daily margining using standardised GMRA contracts.

The Bank already implements the framework for clearing transactions through central counterparty (CCP). Additionally, the Bank is in a position to apply the regulatory framework for transactions not cleared through central counterparty.

4.8.6 Concentration risk on collaterals

For credit exposures, the most commonly accepted collaterals for credit risk mitigation purposes are real estate assets. Consumer loans are not collateralised, except for car loans where the Bank retains ownership until full loan repayment. Mortgage loans are fully collateralised with residential real estate properties.

The Bank does not undertake significant market or credit risk on collaterals of Treasury transactions. In case of cash collateral in foreign currency transactions, the Bank manages the respective foreign exchange exposure accordingly.

Furthermore since the Bank uses GMRAs for the risk mitigation of repos and reverse repos, the market risk exposure is minimal. In case of reverse repo transactions the Bank generally accepts high quality government issues as collaterals. The collateral amount on corporate bonds is immaterial.

4.8.7 Analysis of collaterals

The following table shows the volume of unsecured and secured exposures including all collateral, financial guarantees and credit derivatives used as credit risk mitigants and are eligible under the respective regulatory approach as at 31 December 2018 and 30 June 2018.

Table 33: EU CR3 – CRM techniques – Overview

	31 December 2018				
	Exposures unsecured – Carrying amount	**Exposures to be secured**	**Exposures secured by collateral**	**Exposures secured by financial guarantees**	**Exposures secured by credit derivatives**
	€ million	**€ million**	**€ million**	**€ million**	**€ million**
Total loans to banks and customers	16,920	22,051	18,733	377	-
Total debt securities	7,678	-	-	-	-
Total exposures	**24,598**	**22,051**	**18,733**	**377**	**-**
Of which defaulted	1,746	6,417	5,185	126	-

	30 June 2018				
	Exposures unsecured – Carrying amount	Exposures to be secured	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
	€ million	€ million	€ million	€ million	€ million
Total loans to banks and customers	16,570	22,290	18,059	300	-
Total debt securities	6,826	-	-	-	-
Total exposures	23,396	22,290	18,059	300	-
Of which defaulted	2,083	6,627	5,355	128	-

Note:
The value of collaterals and the amount of financial guarantees shown above are the allocated values.
Financial collaterals are presented after regulatory haircuts.
For real estate properties the lower between the market value and the pledged amount is considered.

4.9 Asset Backed Securities

4.9.1 Bank's objectives and role

The Bank has securitised various financial assets. Up to August 2007 the objective of the Bank in each of its securitisation transactions was to convert illiquid receivables to "tradeable" securities, to be placed with investors for long-term funding. Since then the objective of the Bank in each securitization transaction is to convert illiquid receivables to "tradeable" securities that are eligible for financing.

In all the securitisation transactions the Bank acts, among other, as the Originator, the Servicer, the Sponsor, the Cash Manager and the Account Bank. The Bank also provides the issuer with the subordinated reserve loan in order to fund the reserve account up to the initial required amount.

4.9.2 Methodology for risk weightings

For the purchased securities exposures the Bank applies the Ratings Based Approach (RBA) for the risk weighting of asset backed securities. According to this approach the risk weight factor that applies is a function of the rating and seniority of the security.

4.9.3 Accounting policies

As part of its funding activity the Group sponsors the formation of certain securitisation vehicles, i.e. structured entities, the relevant activities of which have been predetermined as part of their initial design by the Group.

The Group securitises various financial assets, which generally results in the transfer of these assets to the structured entities, which, in turn issue debt securities held by investors and the Group's entities. Interests in the securitised financial assets may be retained in the form of subordinated tranches or other residual interests.

The Bank under the current securitisation framework retains substantially all risks and rewards. The securitised loan portfolios are accounted for, according to the same methodology as non-securitised portfolios.

The Group is exposed to variability of returns from these vehicles through the holding of debt securities issued by them or by providing credit enhancements in accordance with the respective contractual terms. In assessing whether it has control, the Group considers whether it manages the substantive decisions that could affect these vehicles' returns. The abovementioned structured entities, which are bankruptcy-remote entities, may acquire assets directly from the Bank.

For more information about asset backed securities refer to Consolidated Financial Statements Note 37.

4.9.4 Securitised exposures

The following table presents the risk weights of the purchased securitised exposures of the Group, based on the IRB approach, as at 31 December 2018 and 30 June 2018:

(€ million)

	31 December 2018																
	Exposure values (by RW bands)					Exposure values (by RW bands)				RWA (by regulatoty approach)				Capital charge after the cap			
Total exposures	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Traditional securitisation	105	9	2	-	-	117	-	-	-	18	-	-	-	1	-	-	-
Of which securitisation	105	9	2	-	-	117	-	-	-	18	-	-	-	1	-	-	-
Of which retail underlying	103	9	2	-	-	115	-	-	-	18	-	-	-	1	-	-	-
Of which wholesale	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Of which re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(€ million)

	30 June 2018																
	Exposure values (by RW bands)					Exposure values (by RW bands)				RWA (by regulatoty approach)				Capital charge after the cap			
Total exposures	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to 1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Traditional securitisation	113	13	2	-	-	128	-	-	-	21	-	-	-	2	-	-	-
Of which securitisation	113	13	2	-	-	128	-	-	-	21	-	-	-	2	-	-	-
Of which retail underlying	110	13	2	-	-	125	-	-	-	21	-	-	-	2	-	-	-
Of which wholesale	3	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
Of which re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

For securitization exposures the Group uses one or more of the following external rating agencies: Moody's, Standard & Poor's and Fitch (refer to par. 4.6).

5. Market Risk

5.1 Definition and policies

5.1.1 Risk strategy

Objectives for market and counterparty risk control and supervision

Risk is at the core of the Eurobank's business. The objectives for the Bank's market and counterparty risk control and supervision are to:

- protect the Bank against unforeseen market and counterparty related losses and contribute to earnings stability through the independent identification, assessment and understanding of the market risks inherent in the business;
- align the Bank organisational structure and management processes with regulatory requirements and international best practices;
- set minimum standards for controlling market and counterparty risks;
- develop transparent, objective and consistent market and counterparty risk information as the basis for sound decision-making;
- establish a structure that will allow the Bank to link business strategy and operations with the objectives for risk control and supervision;
- safeguard adherence to the Group's Risk Appetite limits.

The Bank is developing processes to measure performance on a risk-adjusted basis and allocate capital accordingly with the objectives to maximise earnings potential.

Risk Definitions

Sources of market and counterparty risks

Market risk is the risk of potential financial loss due to an adverse change in market variables. As noted elsewhere in the document, the Bank is exposed to five types of market risk:

- Interest-rate risk;
- Equity price risk;
- Foreign exchange risk;
- Commodities price risk; and
- Implied Volatilities of the above.

Counterparty risk is the risk of potential financial loss stemming from a counterparty's inability to meet his financial obligations in the context of a market instrument. It includes:

- Issuer risk for debt securities traded in the financial markets;
- Counterparty credit risk for derivatives (interbank and corporate);
- Counterparty credit risk for interbank activities (placings, repos, etc).

Effects of market and counterparty Risks

The Bank is potentially exposed to market risks through all of its assets, liabilities and off-balance sheet positions, in both Treasury and all other portfolios.

Changes in market variables can affect the ERB financial condition in three ways:

- the earnings effect - the impact of changes in market rates on cash flow;
- the economic value, or net worth, of ERB, which is equal to the present value of all of its expected net future cash flows discounted to their present value to reflect market rates. Changes in market variables will impact the economic value of ERB assets, liabilities and off-balance sheet positions and therefore its economic value;

- the Potential Future Exposure (PFE) effect – the impact of changes in market risk variables to counterparty exposure and subsequent increase of counterparty credit risk faced by the Bank.

The purpose of the Bank's market risk control and supervision structure is to control and monitor the effect of market risks on earnings, economic value and potential exposure.

Similarly, the Bank is potentially exposed to counterparty risks through all of its assets and off-balance sheet positions, in both Treasury and all other portfolios. Counterparty credit-worthiness affects the economic value, or net worth, of ERB, which is equal to the present value of all of its expected net future cash flows discounted to their present value to reflect market rates.

5.1.2 Market and Counterparty Risk Governance Structure

Board Risk Committee (BRC)

The Board Risk Committee (BRC) of Eurobank Ergasias S.A. and its subsidiaries (the Group) is a committee of the Board of Directors (BoD) and its purpose is to assist the BoD in discharging its oversight responsibility relating Credit, Market and Operational Risks.

In the context of market and counterparty Risks, the BRC:

- Ensures that the Group has a well-defined market and counterparty Risk strategy and risk appetite in line with its business/restructuring plan and that the risk appetite in question is articulated in a set of qualitative and quantitative statements, limits and an appropriate measurement methodology;
- Ensures that the Group has developed an appropriate market and counterparty Risk management framework which is embedded in the decision making process (e.g. new products introduction, risk adjusted pricing, risk adjusted performance measures and capital allocation) throughout the organization and its subsidiaries;
- Reviews relevant policies and procedures;
- Ensures that the Group has the appropriate modeling tools, data sources and sufficient and competent staff needed to identify, assess, monitor and mitigate risks;
- Reviews on a regular basis the adequacy of relevant measures and controls;
- Reviews and assesses, through regular reporting by the Group Market and Counterparty Risk Sector (GMCRS), the Bank's and Group's risk profile and effectiveness of its risk management policies;
- Monitor Business Units' implementation of and compliance with Group market and counterparty Risk Policies and Procedures;
- Ensures that appropriate stress tests are performed, at least on an annual basis, in relation to all major Group risks;
- Provides a point of escalation in case of relevant limit breaches.

Group Chief Risk Officer (GCRO)

In the context of market risks, the GCRO oversees the implementation of the market risk policies and approves and signs off:

- Sources and assumptions underlying the valuation of all securities and derivatives;
- Credit Valuation Adjustment (CVA) calculation methodologies;
- Assumptions underlying the VaR calculation implementation.

Group Market and Counterparty Risk Sector (GMCRS)

GMCRS is an independent unit of the Bank under the Group Chief Risk Officer. In the context of market and counterparty risks, the GMCRS performs two key functions within the Group:

- The sole, independent valuation of all derivatives and debt securities held in Eurobank Ergasias S.A. and its subsidiary Banks;
- The identification, measurement and reporting of all market and counterparty risks within the Group.

The pricing and risk measurement methodologies of GMCRS are approved by the CRO and are audited by internal and external auditors on a regular basis.

In the context of market and counterparty risks, the Bank's GMCRS is responsible for:
- Maintaining market and counterparty Risk policies (including policies for the management and monitoring of the Interest Rate Risk in the Banking Book) and procedures appropriate to the chosen business and risk profile;
- Identifying and assessing all market and counterparty Risks on the ERB Group balance sheet;
- Monitoring Global Markets and other key Business Unit activities from a market risk perspective;
- Evaluating all Treasury securities and derivatives;
- Ensuring compliance with regulatory requirements as they relate to market and counterparty risk;
- Calculating Capital Adequacy requirements for market and counterparty risk (following the approval of the internal model from BoG in July 2005) and conducting regular reporting to the SSM;
- Ensuring compliance with the risk limits and appetite set by the Management;
- Monitoring and reporting the limit utilization to the Management and the BRC. This includes escalation of limit breaches or significant market risk issues;
- Reviewing new products (Loans, Deposits and investment products) from a market and counterparty risk perspective;
- Expanding market and counterparty risk infrastructure and processes to conform to international best practices;
- Reviewing market and counterparty risk policies on an annual basis.

Country Risk Committees (CRCs)

Country Risk Committees are risk committees held individually for each of our subsidiary banks in Bulgaria, Serbia and Cyprus. Participation includes both local bank and Head Office representation, including the GCRO; the committees are chaired by senior staff of the Head Office Risk Management Division.

In the context of market risks, the committees examine limit utilizations and grant approvals for limit modifications in the Interest Rate Gap and FX notional equivalent measures.

Global Markets Credit Committee (GMCC)

The Global Markets Credit Committee, jointly held by Group Risk and Global Markets, is the body responsible for the review of the Group's debt securities positions.

The Committee examines all debt securities, regardless of issuer, held in any Business Unit within the ERB Group (including both the Global Markets and Treasury General Division and the International Subsidiaries) and proceeds to decide on the following matters:

- To retain or discard corporate debt securities rated below investment grade;
- To place debt securities on watch list, classified by currency of denomination, country, ownership, tenor, degree of liquidity, sector, issuer, issuer type (Corporate or State), rating or any combination chosen. Criteria for this action may include, but are not limited to, sudden or significant economic, political, structural force major changes or increasing price volatility and credit rating changes.

5.1.3 Risk Measurement and Reporting

Market and counterparty risk measurement

This section defines the scope of the risk measurement system, in terms of positions and risk factors and sets out the standards by which market and counterparty risks are measured.

Scope of risk measurement system

All positions within the Group that are exposed to market and counterparty risks must be included within the risk measurement system. The scope of the application encompasses all units of the Group with significant market risk exposure. This includes, but is not limited to:

- ERB Athens and its subsidiaries (Leasing, ERB Factoring, etc.);
- Associated SPVs;
- All banking businesses of our international operations;
- ERB securities.

Regarding market risk, the risk measurement system measures risk in the valuation of all Group's positions (securities, derivatives, core banking items) regardless of accounting treatment (FVTPL, FVOCI, AC) arising from exposure to the following market risk factors:

- FX rates;
- interest rates - including credit spreads;
- equity prices;
- commodity prices;
- market implied volatilities of the above.

Regarding counterparty risk, the risk measurement system compares notional amounts for each counterparty classification with the established limits and aggregation rules.

Risk measures

The Bank

- uses risk measures that enable them to monitor compliance with limits agreed at Group level;
- assesses the validity of assumptions used and exactness of the underlying methodologies in terms of the usefulness of the resulting risk measures for risk control and ultimately performance measurement;
- documents the methodologies and assumptions used.

The Bank has in place a number of market and counterparty risk measures, to ensure that it is protected in both "normal" and "stressed" market conditions. These measures are monitored by GMCRS.

It should be noted that several key risk measures have been amended by Official Sector directives, namely:

- the "Restructuring Governance and Commercial Practices Amendment Commitment" as approved by the European Commission on 26/11/2015 (hereafter: The "Eurobank Commitments"; and
- the "Decision pursuant to Article 16(2) (e) and (k) and Recommendation pursuant to Article 4(3) of Council Regulation (EU) No 1024/2013" (hereafter: the "SSM Regulation").

If the application of the directives results in a stricter limit structure, the directives' limit replaces any previous internal limit. It is understood that when the directives expire, new limits will be set up internally according to the conditions prevailing at the time.

Following is a list of applicable risk measures, monitored by GMCRS. The list of applicable risk measures, is as follows:

- Value at Risk (VaR);
- Interest rate gap;
- Net Interest Income (NII) sensitivity;
- Foreign Exchange equivalent positions;
- Potential Future Exposure;
- Exposure to the Greek Sovereign State;
- Total Country exposure;
- Exposure to Financial Institutions;
- Exposure to non-financial corporates (international) and RMBSs;
- Exposure to non-financial corporates (domestic).

Market and counterparty risk reporting

GMCRS reports to a variety of recipients, including:

- Group Management
    - Board of Directors
    - BRC
    - EXBO
    - G-ALCO
    - GCRO
- Business Units
- Regulators (BoG / SSM)

5.2 Internal model - Value at Risk (VaR) model & Credit Risk (IRC)

Since 2005 the Bank is validated by the Competent Authorities to employ the internal model method (IMM) in the calculation of regulatory capital for the trading positions of its activities in Greece. As a general rule, the trading book definition for regulatory purposes follows the respective positions' accounting treatment – i.e. the booking of a position with a Fair Value through P&L (FVPL) accounting treatment automatically signifies that the position is included in the trading book. It should be noted that all FX exposure, whether it resides in the Bank's trading or banking book, or is associated with the Bank's participations in its international subsidiaries (structural FX position), is also treated under the internal model framework.

The validation extends to the following risk types:

- General market risk (i.e. the risk associated with the movements of FX rates, interest rates, equity indices and implied volatilities);
- Specific market risk (i.e. the risk associated with the movements of credit spreads & individual equities); and
- Credit migration and default event risk; the capital associated with this type of risk in the trading book is called "Incremental Risk Charge" (IRC).

The key metric monitored by the Bank's internal models of market risk is that of Value at Risk (VaR). VaR is a statistical risk measure of the maximum loss that the Bank may, under normal market conditions, incur over a certain period of time with a certain confidence level. For example, a 99% 1 day VaR of € 1 million means that there is a 99% probability that the Bank will not lose more than € 1 million within the next day.

VaR calculation is carried out via Monte Carlo simulation, centered around the Bank's core risk engine (MSCI Risk Manager). On a daily basis, through an, automated and closely monitored process, the risk engine retrieves both the Bank's positions and the relevant market data. Volatilities and correlations are estimated from historical data time series, using an Exponentially Weighted Moving Average (EWMA) methodology. The key parameters of the EWMA (i.e. the length of observation period and the value of the decay constant λ) are specified by the user. The Monte Carlo run produces simulated scenarios of market parameters with the desired statistical properties. For each scenario, each position is fully repriced, enabling the simulation to cover all types of nonlinear and option risks. The pricing model diversifies general and specific risk and each separate risk type is being estimated on a standalone basis; however, the total VaR figure equals their diversified aggregate. As described above, the internal model covers the following risk types:

- Interest rate risk: the risk of losses because of changes in interest rates;
- Foreign exchange risk: the risk of losses on foreign currency positions because of changes in exchange rates;
- Equity risk: the risk of losses because of changes in equity prices, equity indices and mutual funds;
- Commodity risk: the risk of losses because of changes in commodity prices;
- Volatility risk: the risk of losses on option positions because of changes in implied volatility levels;
- Inflation risk: the risk of losses of inflation linked positions because of changes in the break-even inflation levels.

The Bank employs internal models both for regulatory reporting and capital requirement calculation and for internal monitoring and management reporting of market risks. The principles underlying the two applications are similar; however, differences in the implementation exist, as shown by the summary table below:

Internal Model implementation for regulatory purposes:

Scope:	Greece, Trading book & FX
Metric monitored:	Value at Risk (VaR)
Confidence level:	99%
Holding period:	10 days (scaled up by the squared root of 10 from 1 day primary VaR calculation)
Methodology:	Monte Carlo
Observation parameters:	1 year, unweighted observations
Number of scenarios:	5000

Internal Model implementation for Management reporting purposes:

Scope:	Group, Trading book, Amortised Cost FX & loans and deposits
Metric monitored:	Value at Risk (VaR)
Confidence level:	99%
Holding period:	10 days (scaled up by the squared root of 10 at the risk factor level)
Methodology:	Monte Carlo
Observation parameters:	6 months, EWMA parameter $\lambda = 0.94$
Number of scenarios:	2000

Since VaR constitutes an integral part of the Group's market risk control regime, VaR limits have been established for all (trading and non-trading portfolio) operations and actual exposure is reviewed daily by management.

Since 31.12.2011 the Bank has additionally implemented the Stressed VaR (SvaR) and Incremental Risk Charge (IRC) using the internal model as requested by Basel 2.5 framework.

Stressed VaR (SVaR) is calculated under the same assumptions as VaR (same positions / portfolios, same pricing functions, same methodology, same number of MC scenarios (5,000), same decay factor for the volatility estimate) with the only difference being the time window ("stressed period") that is used to provide the relevant volatilities. The stressed period is defined as the period for which the total VaR of the portfolio is being maximised; it should be noted that this does not mean that the stressed period also maximizes each separate risk type. The stressed period is currently re-estimated on a quarterly basis, but in case of material changes in the portfolio's composition, the calculation might be performed on an ad hoc basis.

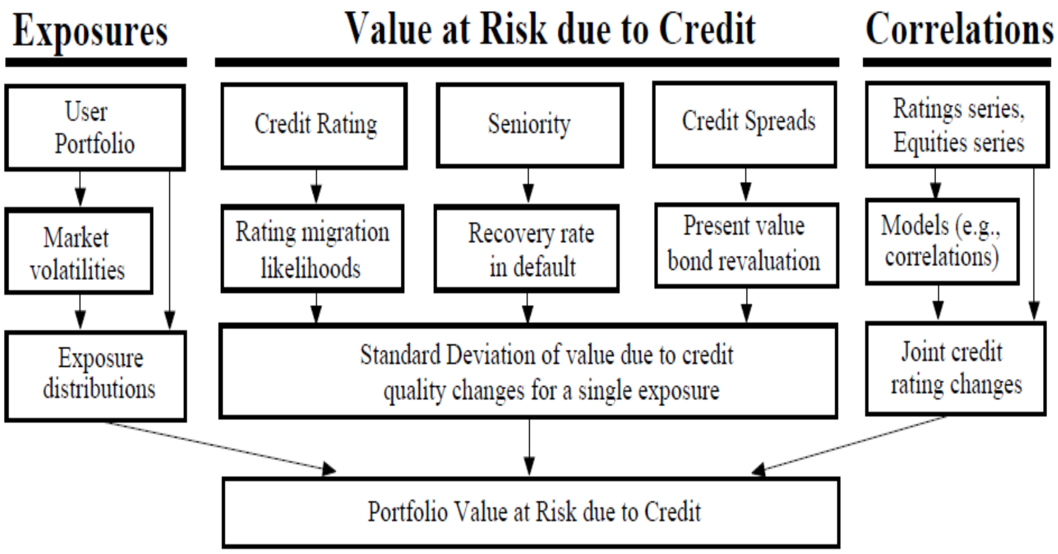
The Bank's exposure to implied volatilities is immaterial. Furthermore, the bank does not carry any proprietary positions on commodities.

IRC is computed on all fixed income positions in Bank's trading activities in Greece including CDS and bond futures. It estimates the default & migration risk of the trading book portfolio, using Monte Carlo simulation, to a 99.9% confidence level over a one year holding period. The model was approved by BoG on 31.12.2011.

For the calculation of IRC the Bank uses the CreditMetrics methodology. CreditMetrics is a methodology for assessing portfolio risk due to changes in market value caused by changes in obligor credit quality (rating migrations) or default. The methodology provides the framework for the calculation of expected losses and of unexpected losses (the economic capital) which is the capital charge for credit risk in the trading book (or the incremental risk charge, IRC). CreditMetrics assesses risk within the full context of a portfolio. It addresses the correlation between default and migration events across obligors. This allows to directly calculating the diversification benefits and the effect of over-concentrations across the portfolio.

CreditMetrics looks to a horizon which is user defined and constructs a distribution of the portfolio values which are based on a user defined number of simulated credit outcomes (rating migrations and defaults). Each credit quality migration is weighted by its likelihood (which is derived from a transition matrix). Each outcome has an estimate of change in value (given by either credit spreads in case of migrations or assumptions which are based on historical studies for the recovery rates in case of default).

The framework can be summarised in the diagram below:



The modelling approach is based on a transition matrix based model.

Transition matrices are downloaded into Credit Metrics automatically and consist of the matrices as provided by Moody's, S&P & Fitch.

The Gaussian copula distribution is used as the model for the estimation of correlations between the obligors.

The Bank applies a 1 year Liquidity Horizon for IRC calculations.
This decision is based on the following criteria:

- the trading book portfolio remains limited on size during all the years after the approval of the IRC model;
- the trading book portfolio remains concentrated on GGBs and Greek corporates, without significant changes in its composition through the year.

The Bank applies a validation procedure for the IRC.

The following list represents the main tasks of the established validation process for the IRC model:
A1) confirmation that the appropriate set of input market data is used;
A2) confirmation that the input market data are correct, relevant and up to date;
A3) confirmation that unrated obligors are handled correctly;
A4) confirmation that the set of position data is correct and reconciled with other sources;
A5) confirmation that the set of assumptions is reasonable and it is based on supportive analysis;
A6) confirmation that the results are reasonable and can be approximated or be explained through reasonability tests;
A7) confirmation of the PD assumptions;
A8) confirmation of the RR assumptions;
A9) review and confirmation of the approach that is used for risks not in the IRC model;
A10) review of the results of the sensitivity analysis on critical variables (PD, RR, R2, correlation).

The following two tables summarise the components of the capital requirement, under the IMM approach applied by the Bank.

Table 35: EU MR2-A – Market risk under the IMA

	31 December 2018		30 June 2018	
	RWAs	Capital requirements	RWAs	Capital requirements
	€ million	€ million	€ million	€ million
VaR (higher of values a and b)				
Previous day's VaR (Article 365(1) of the CRR (VaRt-1))	24	2	43	3
Average of the daily VaR (Article 365(1)) of the CRR on each of the preceding 60 business days (VaRavg) x multiplication factor (mc) in accordance with Article 366 of the CRR	147	12	179	14
SVaR (higher of values a and b)	-	-	-	-
Latest SVaR (Article 365(2) of the CRR (SVaRt-1))	108	9	123	10
Average of the SVaR (Article 365(2) of the CRR) during the preceding 60 business days (SVaRavg) x multiplication factor (ms) (Article 366 of the CRR)	385	31	408	33
Incremental Risk Charge -IRC (higher of values a and b)	-	-	-	-
Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR	124	10	114	9
Average of the IRC number over the preceding 12 weeks	123	10	99	8
Comprehensive risk measure (higher of values a, b and	-	-	-	-
Most recent risk number for the correlation trading portfolio (Article 377 of the CRR)	-	-	-	-
Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	-	-	-	-
8% of the own funds requirement in the standardised approach on the most recent risk number for the correlation trading portfolio (Article 338(4) of the CRR)	-	-	-	-
Other	-	-	-	-
Total	**658**	**53**	701	56

Table 36: EU MR2-B – RWA flow statements of market risk exposures under the IMA from 30 September 2018 to 31 December 2018.

	31 December 2018						
	VaR € million	Stressed VaR € million	IRC € million	Comprehensive risk measure € million	Other € million	Total RWAs € million	Total capital requirements € million
RWAs at 1 October 2018	204	375	115	-	-	694	56
Regulatory adjustment	-	-	-	-	-	-	-
RWAs at the previous quarter-end (end of the day)	204	375	115	-	-	694	56
Movement in risk levels	(55)	10	9	-	-	(36)	(3)
Model updates/changes	-	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign exchange movements	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
RWAs at the end of the reporting period (end of the day)	149	385	124	-	-	658	53
Regulatory adjustment							
RWAs at 31 December 2018	**149**	**385**	**124**	**-**	**-**	**658**	**53**

The table below shows the values resulting from the different types of internal models approved to use for computing the regulatory capital charge as at 31 December 2018 and 30 June 2018.

Table 37: EU MR3 – IMA values for trading portfolios

	31 December 2018 € million	30 June 2018 € million
VaR (10 day 99%)		
Maximum value	5	4
Average value	3	3
Minimum value	2	2
Period end	2	3
SVaR (10 day 99%)		
Maximum value	12	14
Average value	10	11
Minimum value	8	9
Period end	9	10
IRC (99.9%)		
Maximum value	15	10
Average value	10	8
Minimum value	8	5
Period end	10	9
Comprehensive risk capital charge (99.9%)		
Maximum value	-	-
Average value	-	-
Minimum value	-	-
Period end	-	-

5.2.1 Stress testing

VaR models are designed to measure market risk under normal market environment. It is assumed that any changes in the risk factors follow a normal distribution. Given that the VaR approach does not cover extreme market conditions, the Group has been applying stress tests, to simulate the effect of many standard deviation movements of risk factors and the breakdown of historical correlations.

The main types of stress tests performed are subjective stress tests, where the portfolios are exposed to scenarios for risk factors that are deemed particularly relevant (depreciation of foreign currencies, yield curves parallel shifts, long term steepening, long term flattening, 10σ upward shift, credit spread increase, equities prices reduction and implied volatilities adverse moves).

Stress tests that are applied to the IRC modelling parameters consist of:

- Sensitivity on the percentage on systematic factor
- Sensitivity on pair-wise obligor correlation
- Sensitivity on PDs
- Sensitivity on LGDs

5.2.2 Back testing

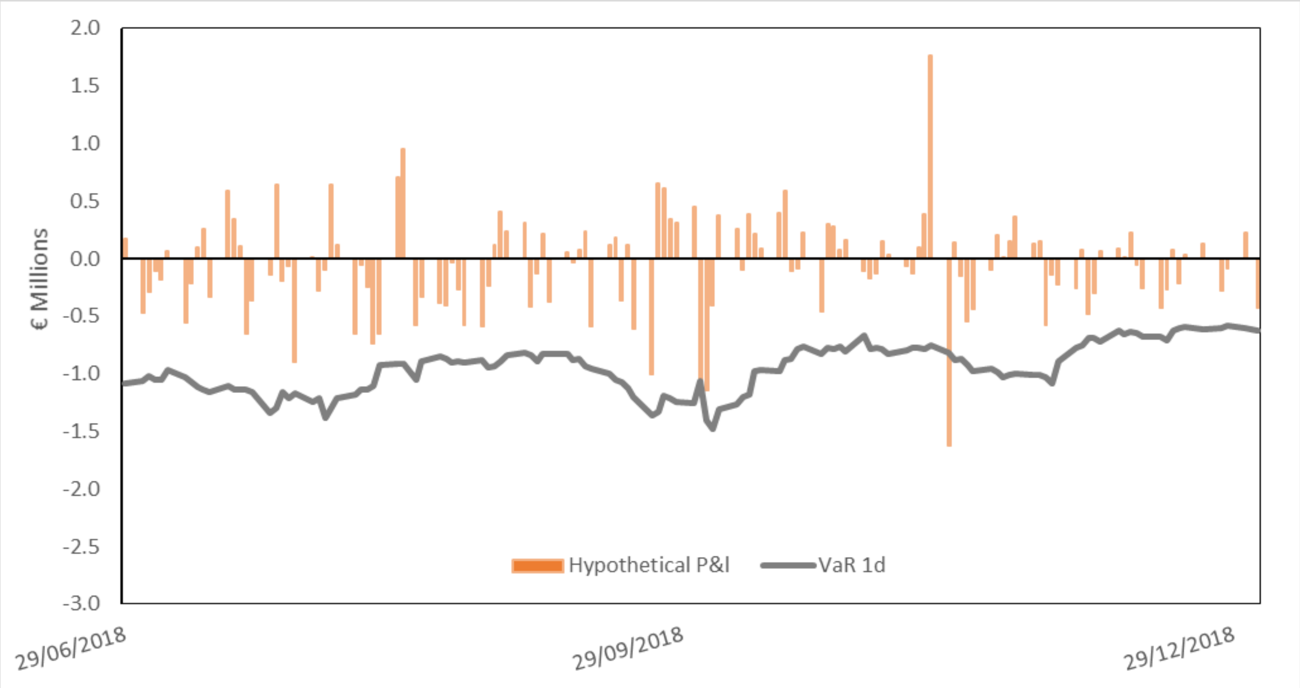
The Bank employs back testing controls in order to test the calibration and predictive capabilities of its internal risk assessment model. Back testing is applied through comparison of daily VaR readings, estimated at a 99% confidence level, to the portfolio's value changes. Two types of Back testing are being defined. In the first one, the Hypothetical, the portfolio changes are produced within the risk engine under the same assumptions as VaR and SVaR, i.e. the same positions, the same pricing functions and the same Market Data. In the second type, the Actual, the portfolio changes are calculated by the front office system of the Bank, using the same pricing functions and pricing quotes and Market Data that are used in the Bank's official accounting entries.

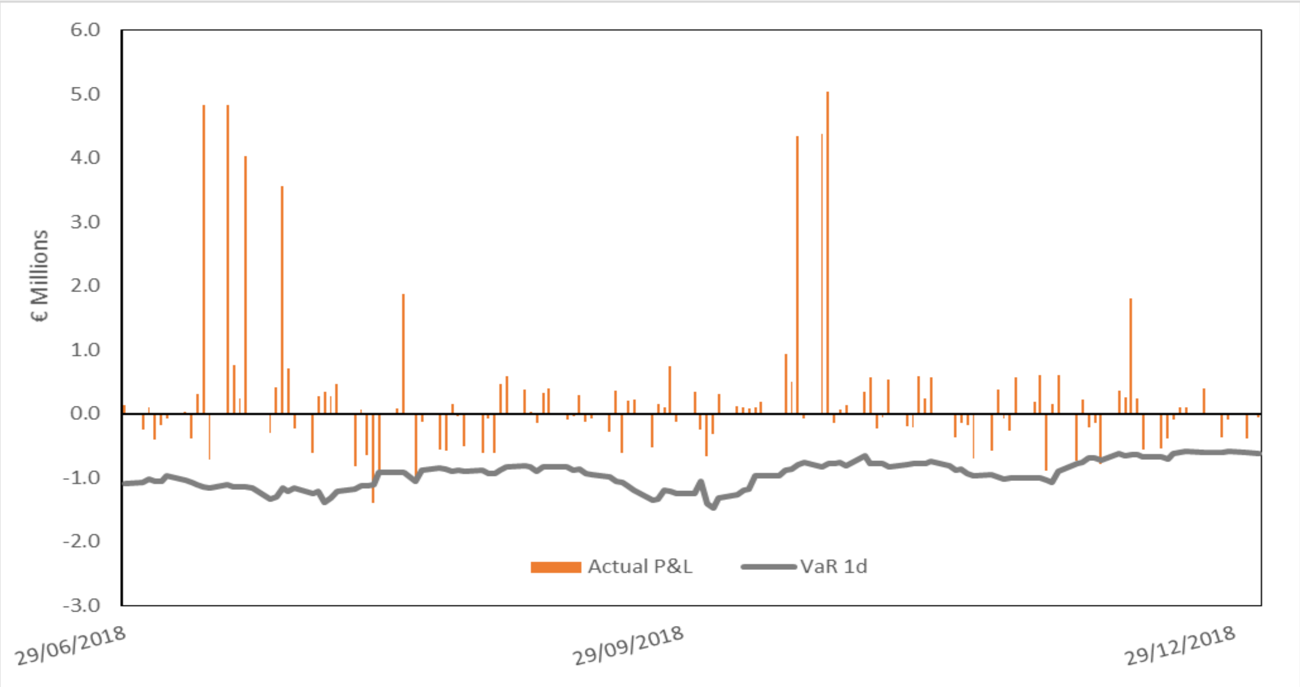
Back testing for H2 2018 has revealed, as shown in the graphs below, two (2) exceptions out of a total of 128 working days, when comparing the VaR forecast to the Hypothetical P&L and three (3) when comparing the VaR forecast to the Actual P&L. Totally as of 2018, back testing has revealed three (3) exceptions out of 250 working days, when comparing the VaR forecast to the Hypothetical P&L and four (4) exceptions out of 250 working days when comparing to the Actual P&L. According to the regulatory framework, this number of exceptions results to a multiplier equal to 3 (green zone) for capital adequacy calculations for market risk.

These exceptions (H2 2018) are analysed as follows:

- The exception of 2nd of October is attributed to the movements of Eur Swap rates (Hypothetical P&L);
- The exceptions of 9th and 10th of August are attributed to the movement of EUR/TRY FX rate (Actual P&L);
- The exception of 11th of November is attributed to the movement of EUR/RSD FX rate (Hypothetical P&L);
- The exception of 7th of December is attributed to the movement of EUR/USD FX rate (Actual P&L).

Table 38: EU MR4 – Comparison of VaR estimates with gains/losses





5.3 Standardised approach for market risk

The Bank uses the Standardised approach for the measurement of market risk exposure and capital requirements of its subsidiaries in Greece and in International operations. The following table summarizes the capital requirements for market risk per risk factor, based on the Standardised approach, as at 31 December 2018 and 30 June 2018.

Table 39: EU MR1 – Market risk under the standardised approach

	31 December 2018		30 June 2018	
	RWAs	**Capital requirements**	RWAs	Capital requirements
	€ million	**€ million**	€ million	€ million
Outright products				
Interest rate risk (general and specific)	2	-	2	-
Equity risk (general and specific)	7	1	8	1
Foreign exchange risk	188	15	50	4
Commodity risk	-	-	-	-
Options				
Simplified approach	-	-	-	-
Delta-plus method	-	-	-	-
Scenario approach	-	-	-	-
Securitisation (specific risk)	-	-	-	-
Total	**197**	**16**	60	5

5.4 Equity exposures not included in the trading book

The Group may make an irrevocable election to designate an equity instrument at fair value through other comprehensive income (FVOCI). This designation, if elected, is made at initial recognition and on an instrument by instrument basis. Gains and losses on these instruments, including when de-recognized, are recorded in other comprehensive income (OCI) and are not subsequently reclassified to the income statement. Dividends received are recorded in the income statement.

Equity instruments measured at fair value through profit or loss (FVTPL) are initially recorded at fair value and any unrealized gains or losses arising due to changes in fair value are included in the income statement.

The Bank has classified equity securities from available-for-sale under IAS 39 at FVTPL under IFRS 9.

The following table presents equity holdings of non trading book portfolio and included in regulatory exposures as at 31 December 2018 and 2017:

	2018	2017
	€ million	€ million
Held for:		
Strategic investments	17	15
Equity investments for capital appreciation	83	94
Total	**100**	109
Listed	20	24
Non-listed	39	29
Other (MF & other type of funds)	41	56
Total	**100**	109

5.5 Interest rate risk not included in the trading book

The Bank calculates and monitors the interest rate risk of the banking book for the Bank's operations in Greece, Luxembourg and Cyprus on a daily basis, using the internal VaR model. For the International operations (Bulgaria, Serbia) the Group applies sensitivity analysis and is preparing to implement the VaR methodology.

The system takes into account all assets, liabilities and off balance sheet items, which are sensitive to interest rates. The interest rate exposure is calculated using the contractual maturity dates or the next repricing dates in case of floating rate instruments. This is also applied to lending instruments, where no prepayment adjustments are made since this type of risk is immaterial. The major part of non-maturity accounts has a short term repricing structure and therefore treated accordingly.

Between 2018 and 2017 the average interest rate VaR for a 99% confidence level and a holding period of 1 day for Greece, Cyprus and Luxembourg, has doubled to € 35 million due to the summer increase in credit spreads volatility mainly caused by the movement of Italian spreads:

	2018 € million	2017 € million
Interest rate VaR of the banking book[1]	35	17
Total interest rate VaR (trading and banking book[1])	35	17

[1] *Interest rate volatility applied to all portfolios. Credit spread volatility applied to Trading and Available-for-sale positions*

Furthermore, the Bank calculates sensitivity on interest rates applying 100 bps parallel shifts on interest rates. The following table presents sensitivity analysis by currency for the Bank as at 31 December 2018 and 2017:

2018	**TOTAL € million**	**EUR € million**	**CHF € million**	**JPY € million**	**PLN € million**	**RON € million**	**TRY € million**	**USD € million**	**OTHERS € million**
Interest rate risk (banking book):	**(43)**	(33)	(6)	-	-	-	-	(4)	-
+100 bps parallel shift		-	-	-	-	-	-	-	-
Interest rate risk (trading and banking book):	**(57)**	(42)	(6)	-	-	-	-	(9)	-
+100 bps parallel shift		-	-	-	-	-	-	-	-

2017	TOTAL € million	EUR € million	CHF € million	JPY € million	PLN € million	RON € million	TRY € million	USD € million	OTHERS € million
Interest rate risk (banking book):	(49)	(46)	(3)	-	-	-	-	-	-
+100 bps parallel shift		-	-	-	-	-	-	-	-
Interest rate risk (trading and banking book):	(76)	(67)	(3)	-	-	-	-	(6)	-
+100 bps parallel shift		-	-	-	-	-	-	-	-

Market Risk

The following table presents the sensitivity analysis for interest rate sensitive position of the banking book in the major International subsidiaries (Bulgaria, Serbia) as at 31 December 2018 and 2017, by applying a 100bps upward parallel shifts:

	31 December 2018		
	Sensitivity trading book € million	Sensitivity banking book € million	Total sensitivity € million
Romania	-	-	-
Bulgaria	-	(6)	(5)
Serbia	5	-	5

	31 December 2017		
	Sensitivity trading book € million	Sensitivity banking book € million	Total sensitivity € million
Romania	-	(11)	(11)
Bulgaria	(1)	-	(1)
Serbia	4	(2)	2

6. Counterparty risk

6.1 Definition, Governance and Policies

Counterparty risk is the risk that a counterparty in an off balance sheet transaction (i.e. derivative transaction) defaults prior to maturity and the Bank has a claim over the counterparty (the market value of the contract is positive for the Bank). The governance and the policies for the counterparty risk are described in one section (section 5.1) that provides details for the governance and policies that the Bank applies together for the market and the counterparty risk.

6.2 Mitigation of counterparty risk

To reduce the exposure towards single counterparties, risk mitigation techniques are used. The most common is the use of closeout netting agreements (usually based on standardised ISDA contracts), which allow the bank to net positive and negative replacement values in the event of default of the counterparty.

Furthermore, the Bank also applies margin agreements (CSAs) in case of counterparties. Thus, collateral is paid or received on a daily basis to cover current exposure. In case of repos and reverse repos the Bank applies netting and daily margining using standardised GMRA contracts.

6.3 Counterparty risk monitoring

The current exposure for counterparty risk at 31 December 2018 and 2017 is presented in the table below:

	31 December 2018				
	Current exposure before netting	Current exposure after netting	Netting effect	Collateral received / (paid)	Total exposure after netting and margin collateral
	€ million	€ million	€ million	€ million	€ million
Contracts under ISDA and CSA (derivatives)	1,777	1,252	525	96	50
Contracts under GMRA (repos and reverse repos)	1,609	1,608	1	15	1,594
Other contracts (derivatives and repos outside ISDA and CSA, GMRA)	67	67	-	-	67
Total	**3,453**	**2,927**	**526**	**111**	**1,711**

	31 December 2017				
	Current exposure before netting	Current exposure after netting	Netting effect	Collateral received / (paid)	Total exposure after netting and margin collateral
	€ million	€ million	€ million	€ million	€ million
Contracts under ISDA and CSA (derivatives)	1,887	1,288	599	(132)	216
Contracts under GMRA (repos and reverse repos)	1,536	1,536	-	(32)	1,568
Other contracts (derivatives and repos outside ISDA and CSA, GMRA)	78	78	-	-	78
Total	3,501	2,902	599	(164)	1,862

Notes:
1. Netting and collateral posting is applied per counterparty only for contracts under ISDA, CSA or GMRA.
2. Repo and reverse repos with central banks (Bank of Greece, European Central Bank, etc.) are excluded.
3. In case of exposure calculation on transactions under GMRA, haircuts are taken into account and increase the exposure.

4. In case of exposure calculation on transactions under CSA threshold & independent amounts are taken into account and increase the exposure.
5. In the "Collateral received / (paid)" column we include Greek Treasury bills received as collateral through the CSA signed with Public Debt Management Agency (PDMA).

6.4 Wrong way risk

The Bank prevents the initiation of derivative transactions in cases that the value of the underlying instrument is highly correlated with the credit quality of the counterparty.

6.5 Implications under rating downgrade

The Bank's financial collateral agreements (CSAs covering derivative transactions) with other banks contain in some cases rating triggers. For these agreements, the minimum exposure level (threshold amount) for further posting of collateral will be lowered in case of a downgrading. Given the Bank's current rating, the additional effect is immaterial.

6.6 Credit derivatives

As of 31 December 2018 the Group held a number of positions on credit default swaps (bought protection € 604 million Notional). This protection is bought mainly against exposure to financial institutions and against credit indices. The sold protection (€ 197 million Notional) is mainly against credit indices. As of 31 December 2018 the Group held only bought protection on € 458 million Notional Credit Default Swap positions.

The Bank does not have any brokerage activity in this market. Furthermore, the Bank does not hedge its loan portfolio with CDSs as this market in Greece is not developed.

Table 45: EU CCR6 – Credit derivatives exposures

	31 December 2018		
	Credit derivative hedges		
	Protection bought € million	Protection sold € million	Other credit derivatives € million
Notionals			
Single-name credit default swaps	376	-	-
Index credit default swaps	228	197	-
Total return swaps	-	-	-
Credit options	-	-	-
Other credit derivatives	-	-	-
Total notionals	**604**	**197**	**-**
Fair values			
Positive fair value (asset)	-	4	-
Negative fair value (liability)	7	-	-

	30 June 2018		
	Credit derivative hedges		
	Protection bought € million	Protection sold € million	Other credit derivatives € million
Notionals			
Single-name credit default swaps	412	-	-
Index credit default swaps	228	177	-
Total return swaps	-	-	-
Credit options	-	-	-
Other credit derivatives	-	-	-
Total notionals	640	177	-
Fair values			
Positive fair value (asset)	-	4	-
Negative fair value (liability)	7	-	-

6.7 Counterparty risk based on the calculation methodology employed

The following table shows the exposure to counterparty risk based on the calculation methodology employed as at 31 December 2018 and 30 June 2018.

Table 46: EU CCR1 – Analysis of CCR exposure by approach

	31 December 2018						
	Notional € million	Replacement cost/current market value € million	Potential future credit € million	EEPE € million	Multiplier € million	EAD post CRM € million	RWAs € million
Mark to market		1,404	255			1,489	110
Original exposure							
Standardised approach							
IMM (for derivatives and SFTs)							
Of which securities financing transactions							
Of which derivatives and long settlement transactions							
Of which from contractual cross- product netting							
Financial collateral simple method (for SFTs)							
Financial collateral comprehensive method (for SFTs)						2,468	387
VaR for SFTs							
Total		**1,404**	**255**			**3,957**	**497**

	30 June 2018						
	Notional € million	Replacement cost/current market value € million	Potential future credit exposure € million	EEPE € million	Multiplier € million	EAD post CRM € million	RWAs € million
Mark to market		1,236	214			1,372	137
Original exposure							
Standardised approach							
IMM (for derivatives and SFTs)							
Of which securities financing transactions							
Of which derivatives and long settlement transactions							
Of which from contractual cross- product netting							
Financial collateral simple method (for SFTs)							
Financial collateral comprehensive method (for SFTs)						2,595	354
VaR for SFTs							
Total		1,236	214			3,967	491

6.8 CVA capital charge

The following table shows the CVA capital charge which is calculated through the standardised approach as at 31 December 2018 and 30 June 2018.

Table 47: EU CCR2 – CVA capital charge

	31 December 2018		30 June 2018	
	Exposure value € million	**RWAs € million**	Exposure value € million	RWAs € million
Total portfolios subject to the advanced method	-	-	-	-
(i) VaR component (including the 3× multiplier)	-	-	-	-
(ii) SVaR component (including the 3× multiplier)	-	-	-	-
All portfolios subject to the standardised method	126	77	181	142
Based on the original exposure method	-	-	-	-
Total subject to the CVA capital charge	**126**	**77**	181	142

6.9 Exposures to CCPs

The following table shows the exposures to CCPs and the corresponding RWAs as at 31 December 2018 and 30 June 2018.

Table 48: EU CCR8 – Exposures to CCPs

	31 December 2018		30 June 2018	
	EAD post CRM	**RWAs**	EAD post CRM	RWAs
	€ million	**€ million**	€ million	€ million
Exposures to QCCPs (total)	**64**	**1**	48	1
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	64	1	48	1
(i) OTC derivatives	64	1	48	1
(ii) Exchange-traded derivatives	-	-	-	-
(iii) SFTs	-	-	-	-
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	-		-	
Non-segregated initial margin	-	-	-	-
Prefunded default fund contributions	-	-	-	-
Alternative calculation of own funds requirements for exposures		-		-
Exposures to non-QCCPs (total)	-	-	-	-
Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	-	-	-	-
(i) OTC derivatives	-	-	-	-
(ii) Exchange-traded derivatives	-	-	-	-
(iii) SFTs	-	-	-	-
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	-		-	
Non-segregated initial margin	-	-	-	-
Prefunded default fund contributions	-	-	-	-
Unfunded default fund contributions	-	-	-	-

6.10 Standardised approach – CCR exposures by regulatory portfolio and risk

The following table shows the CCR exposures by regulatory portfolio and risk as at 31 December 2018 and 30 June 2018.

Table 49: EU CCR3 – Standardised approach – CCR exposures by regulatory portfolio and risk

	31 December 2018												
	Risk weight											**Total**	**Of which unrated**
Exposure classes	**0%**	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**	**€ million**	**€ million**
Central governments or central banks	1,896	-	-	-	-	-	-	-	-	-	-	1,896	-
Regional government or local authorities	-	-	-	-	-	-	-	-	-	-	-	-	-
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-
Multilateral development banks	2	-	-	-	-	-	-	-	-	-	-	2	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	64	-	-	1,927	41	-	-	-	-	-	2,032	12
Corporates	-	-	-	-	-	-	-	-	10	-	-	10	8
Retail	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
Other items	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**1,898**	**64**	**-**	**-**	**1,927**	**41**	**-**	**-**	**10**	**-**	**-**	**3,940**	**20**

	30 June 2018												
	Risk weight											Total	unrated
Exposure classes	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others	€ million	€ million
Central governments or central banks	1,971	-	-	-	-	-	-	-	-	-	-	1,971	-
Regional government or local authorities	-	-	-	-	-	-	-	-	-	-	-	-	-
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-
Multilateral development banks	19	-	-	-	-	-	-	-	-	-	-	19	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	48	-	-	1,885	-	-	-	-	3	-	1,936	-
Corporates	-	-	-	-	-	-	-	-	4	-	-	4	2
Retail	-	-	-	-	-	-	-	2	-	-	-	2	4
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	2
Other items	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1,990	48	-	-	1,885	-	-	2	4	3	-	3,932	8

6.11 IRB approach – CCR exposures by portfolio and PD scale

The following table shows the CCR exposures by portfolio and PD scale as at 31 December 2018 and 30 June 2018.

Table 50: EU CCR4 – IRB approach – CCR exposures by portfolio and PD scale

		31 December 2018						
	PD scale	EAD post CRM € million	Average PD %	Number of Obligors	Average LGD %	Average maturity yrs	RWAs € million	RWA density %
IRB Foundation Exposures to Corporates	0.00 to <0.15	2	0.0%	7	45.0%	3	-	18.8%
	0.15 to <0.25	1	0.2%	12	45.0%	3	-	40.1%
	0.25 to <0.50	-	0.0%	-	45.0%	3	-	0.0%
	0.50 to <0.75	3	0.7%	12	45.0%	3	2	83.3%
	0.75 to <2.50	2	1.9%	30	45.0%	3	7	117.6%
	0.75 to <2.50	4	4.2%	20	45.0%	3	5	149.3%
	10.00 to <100.00	1	22.8%	12	45.0%	3	1	241.2%
	100.00 (Default)	1	100.0%	2	45.0%	3	-	0.0%
	Subtotal	**14**	**2.8%**	**95**	**45.0%**	**3**	**15**	**105.0%**
	Total all Foundation IRB	**14**	**2.8%**	**95**	**45.0%**	**3**	**15**	**105.0%**

		30 June 2018						
	PD scale	EAD post CRM € million	Average PD %	Number of Obligors	Average LGD %	Average maturity yrs	RWAs € million	RWA density %
IRB Foundation Exposures to Corporates	0.00 to <0.15	1	0.1%	8	45.0%	3	-	31.4%
	0.15 to <0.25	4	0.2%	18	45.0%	3	2	47.1%
	0.25 to <0.50	-	0.0%	-	45.0%	3	-	0.0%
	0.50 to <0.75	15	0.5%	15	45.0%	3	12	76.5%
	0.75 to <2.50	17	2.2%	42	45.0%	3	21	124.5%
	0.75 to <2.50	45	4.2%	33	45.0%	3	68	150.0%
	10.00 to <100.00	1	21.2%	6	45.0%	3	1	252.9%
	100.00 (Default)	1	100.0%	3	45.0%	3	-	0.0%
	Subtotal	84	3.0%	125	45.0%	3	104	125.1%
	Total all Foundation IRB	84	3.0%	125	45.0%	3	104	125.1%

6.12 RWA flow statements of CCR exposures under IMM

Table EU CCR7 – RWA flow statements of CCR exposures under the IMM is not included as the Bank does not use an internal model for the calculation of the RWAs of CCR exposures.

6.13 Impact of netting and collateral held on exposure values

The following table shows the Impact of netting and collateral held on exposure values as at 31 December 2018 and 30 June 2018.

Table 51: EU CCR5-A – Impact of netting and collateral held on exposure values

	31 December 2018				
	Gross positive fair value or net carrying amount € million	Netting benefits € million	Netted current credit exposure € million	Collateral held € million	Net credit exposure € million
Derivatives	1,845	525	1,319	96	117
SFTs	1,609	1	1,608	15	1,594
Cross-product netting	-	-	-	-	-
Total	**3,454**	**526**	**2,927**	**111**	**1,711**

	30 June 2018				
	Gross positive fair value or net carrying amount € million	Netting benefits € million	Netted current credit exposure € million	Collateral held € million	Net credit exposure € million
Derivatives	1,857	618	1,239	(229)	351
SFTs	1,765	-	1,764	10	1,755
Cross-product netting	-	-	-	-	-
Total	3,622	618	3,003	(219)	2,106

6.14 Composition of collateral for exposures to CCR

The following table shows the Composition of collateral for exposures to CCR, at 31 December 2018 and 30 June 2018.

Table 52: EU CCR5-B – Composition of collateral for exposures to CCR

	31 December 2018					
	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted
	Segregated € million	Unsegregated € million	Segregated € million	Unsegregated € million	€ million	€ million
Cash-domestic currency	-	25	-	1,524	12	4
Cash-other currencies	-	-	-	66	7	-
Domestic sovereign debt	-	1,199	-	-	-	-
Other sovereign debt	-	-	-	-	-	-
Government agency debt	-	-	-	-	-	-
Corporate bonds	-	-	-	-	-	-
Equity securities	-	-	-	-	-	-
Other collateral	-	-	-	-	-	-
Total	**-**	**1,224**	**-**	**1,590**	**19**	**4**

	30 June 2018					
	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral
	Segregated € million	Unsegregated € million	Segregated € million	Unsegregated € million	€ million	€ million
Cash-domestic currency	-	8	-	1,133	24	3
Cash-other currencies	-	-	-	118	-	13
Domestic sovereign debt	-	1,199	-	-	-	-
Other sovereign debt	-	-	-	-	-	-
Government agency debt	-	-	-	-	-	-
Corporate bonds	-	-	-	-	-	-
Equity securities	-	-	-	-	-	-
Other collateral	-	-	-	-	-	-
Total	-	1,207	-	1,251	24	16

7. Operational Risk

7.1 Governance

Operational risk is embedded in every business activity undertaken by the Group. The primary goal of operational risk management is to ensure the integrity of the Group's operations and its reputation by mitigating its impact. However, by nature, it cannot be fully eliminated. To best manage operational risk, the Group has established a formal Operational Risk Management Framework to define its approach to identifying, assessing, managing, monitoring and reporting operational risk.

Governance responsibility for operational risk management stems from the Board of Directors (BoD) through the Executive Board and Senior Management to the Heads and staff of every business unit. The BoD establishes the mechanisms by which the Group manages operational risk by setting the tone and expectations from the top and delegating authority. The Board Risk Committee (BRC) and the Audit Committee (AC) monitor the operational risk level and profile of the Group including the level of operational losses, their frequency and severity.

The Group Chief Risk Officer is responsible for the operational risk related initiative and ensures implementation of the Operational Risk Management Framework. The Group Chief Risk Officer has the overall responsibility and oversight of the Operational Risk Units in the countries that the Bank operates. The Operational Risk Committee is a management committee that assesses the operational risks arising from the activities of the Group, ensures that each business entity has appropriate policies and procedures for the control of its operational risk and that prompt corrective action is taken whenever a high risk area is identified.

Group Operational Risk Sector (GORS) is responsible for establishing and maintaining the Group's Operational Risk Management Framework and for operational risk oversight. An Operational Risk Unit operates in every subsidiary of the Group, being responsible for implementing the Group's operational risk framework. GORS is responsible for:

- Defining the methodology for the identification, assessment and reporting of operational risk;
- Implementing regulatory requirements and Group guidelines;
- Monitoring the operational risk level and profile and reporting thereon to the BRC; and
- Defining and rolling out the methodology for the calculation of the regulatory capital charge for operational risk.

The Heads of each business and functional unit (risk owners) have the primary responsibility for the day-to-day management of operational risk arising in their units and for the adherence to relevant controls. To this end, every business unit:

- Identifies, evaluates and monitors its operational risks and implements risk mitigation controls and techniques;
- Assesses control efficiency;
- Reports all relevant issues; and
- Has access to and uses the common methods and tools introduced by the GORS, in order to facilitate the identification, evaluation and monitoring of operational risk.

An OpRisk Partner is assigned in each business unit and is responsible for coordinating the internal operational risk management efforts of the business unit while acting as a liaison to the local Operational Risk Unit. Certain business units have established a dedicated Anti-Fraud Unit or Function, according to the fraud risk to which their operations are exposed. Their main objective is to continuously identify fraud risks and to undertake all appropriate actions in addressing and mitigating those risks in a timely manner.

7.2 Operational risk management framework

The Group Operational Risk Framework is built on four elements:

- Principles
- Governance and Organization
- Processes
- Infrastructure

Operational Risk

The operational risk management framework and related policies are designed to:
- To align Bank's organization and processes with best international banking practices;
- Introduce risk identification quantification and monitoring processes such as risk and control self-assessment, key risk indicators, historic risk events collection and scenario analysis;
- Establish a common definition and consistent approach for operational risk to enable common identification and aggregation of operational risk across the Bank;
- Establish a proactive operational risk management culture across our business, linking business operations with the objectives of risk control;
- Establish comprehensive and integrated operational risk reporting;
- Adhere to the Group guidelines and meet local regulatory requirements and practices relating to operational risk of the jurisdictions in which Eurobank operates;
- Achieve a competitive advantage in terms of operational risk management through risk-based decision making; and
- Leverage international knowledge and good practices on operational risk management.

Operational risk processes consist of risk identification, assessment (including measurement and valuation), control management, risk mitigation, risk reporting and performance improvement. These processes are supported by and implemented with the operational risk tools/methods, which are the following:

- **Risk & Control Self-Assessment (RCSA)**
  RCSA is a team-based technique aiming to identify, assess and ultimately mitigate operational risk. Its outcome is a portfolio of operational risks per business unit, summarised into operational risk profiles. Business units assess operational risks, evaluate the effectiveness of controls in place, assess whether identified risks are within business risk appetite tolerance levels and establish specific action plans to mitigate the assessed exposure.
- **Key Risk Indicators (KRIs)**
  KRIs are metrics based on historical data and are relevant to specific and measurable activities indicating operational risk exposures. KRIs are quantifiable and expressed as an amount, a percentage or a ratio, assigned to specific operational risks and linked with tolerance.
- **Operational Risk Events**
  Operational Risk Events are identified and reported with the purpose of populating the internal operational risk events database. Operational risk events are classified according to their owner, cause, risk category, impact, business function and business line.
- **Operational Risk Scenarios**
  Operational Risk Scenario analysis assesses the exposure to a range of significant operational risks through the examination of extreme or catastrophic yet plausible future events. Scenarios take into account the current and projected business, economic, social and geo-political environment.
- **Operational Risk Reporting**
  Operational risk reports are produced for internal and regulatory purposes.
- **Operational Risk Management and Mitigation**
  The primary strategy utilised by the Group to control its exposure to operational risk is the maintenance of an effective control environment. In addition, the Group implements specific risk mitigation activities for key operational risks, including fraud, outsourcing, cyber risk and business disruption risks. Finally, risk transfer mechanisms are in place in the form of the Group's insurance policies, bought through the London Market, covering its operations.
- **Operational Risk Culture**
  Operational Risk Culture encompasses employee risk awareness as well as the attitude and behavior of employees to the taking of appropriate risk and the adherence to controls. A strong Operational Risk Culture underpins all operational risk management activity. The Group continuously seeks to improve its Operational Risk Culture.
- **Fraud Risk Management**
  Fraud risk management constitutes a major commitment of the Group to mitigate fraud risk and reduce fraud losses. The Group strategy for combating fraud is based on three main directions:
  1) Organizational Initiatives to strategically focus in the fight against fraud and improve coordination;
  2) Staff Related Initiatives to raise awareness and to create an anti-fraud culture through training; and

3) Fraud Prevention and Detection Environment Initiatives to strategically enhance the Group's control environment against fraud.

7.3 Operational risk capital requirements calculation

As required by Basel III for the use of the Standardised Approach, the Group's business activities have been divided into eight business lines and the annualised gross operating income for 2016, 2017 and 2018 is calculated for each business line. The required business line beta factors are then applied to the relevant business line gross operating income, to establish the required regulatory capital per business line; with these numbers summed together to establish the overall Pillar 1 regulatory capital requirements for operational risk.

8. Asset Encumbrance

8.1 Information on importance of encumbrance

The Bank uses the following main types of encumbrance:

i) secured funding through Eurosystem (ECB's Main Refinancing Operations (MRO)/Targeted Long Term Refinancing Operations (TLTRO) and ELA), for this funding the Bank mainly uses as collateral: own issued retained Covered Bonds, eligible loans and other eligible debt securities;
ii) secured funding with interbank counterparties backed with retained own covered bonds, GGBs, Greek Corporate & foreign sovereign bonds and own securitisations (the senior tranches);
iii) covered bonds issuance backed with mortgage loans, sold to international and domestic investors; and

securitisations issuance backed with loans sold to international and domestic investors.) During 2018 the Group's secured funding from Eurosystem sources (ECB's MRO/TLTRO & ELA) decreased by € 7.9 bn, from € 10.0 bn in December 2017 to € 2.1 bn in December 2018 of which € 0.5 bn funding from ELA, (31 December 2017: € 7.9 bn).

The main reasons for this decrease are: the deposits inflows along with the increased market repos on GGBs and other foreign sovereign bonds a € 1.38 billion securitization issue sold to international and domestic investors and the assets deleveraging (mainly due to the sale of portfolio of GTBs and EFSF bonds of the Bank).

The encumbrance of assets and the encumbrance of assets received by the group as collateral is a centralised function and it is implemented by Eurobank, Greece.

The level of secured funding (repos with foreign counterparties) in subsidiaries is immaterial.

As of end of year 2018 the over-collateralization (cash value over market value) in case of secured funding through repos, ECB and ELA was 22%, 29% and 35% respectively.

For the interbank secured funding (repos), the Bank uses the standard terms of the GMRA (Global Master Repurchase Agreement). According to this contract, the exposure between the Bank and its counterparty is calculated on a daily basis and collateral is posted to or received by the counterparty so that the exposure remains almost zero.

8.2 Assets

	31 December 2018			
	Carrying amount of encumbered assets € million	Fair value of encumbered assets € million	Carrying amount of unencumbered assets € million	Fair value of unencumbered assets € million
Equity instruments	-	-	121	121
Debt securities	4,184	3,635	3,510	3,506
Other assets	10,634		39,536	

	30 June 2018			
	Carrying amount of encumbered assets € million	Fair value of encumbered assets € million	Carrying amount of unencumbered assets € million	Fair value of unencumbered assets € million
Equity instruments	-	-	127	127
Debt securities	3,617	3,124	3,245	3,241
Other assets	14,519		35,281	

8.3 Collateral received

	31 December 2018		30 June 2018	
	Fair value of encumbered collateral received or own debt securities issued € million	Fair value of collateral received or own debt securities issued available for encumbrance € million	Fair value of encumbered collateral received or own debt securities issued € million	Fair value of collateral received or own debt securities issued available for encumbrance € million
Equity instruments	-	-	-	-
Debt securities	1,334	144	1,199	-
Other collateral received	-	-	-	-
Own debt securities issued other than own covered bonds or ABSs	-	-	-	-

8.4 Encumbered assets/collateral received and associated liabilities

	31 December 2018		30 June 2018	
	Matching liabilities, contingent liabilities or securities lent € million	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered € million	Matching liabilities, contingent liabilities or securities lent € million	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered € million
Carrying amount of selected financial liabilities	10,058	15,783	11,637	19,083

9. Leverage Ratio

The new regulatory framework has introduced the leverage ratio as a non-risk based measure which is intended to restrict the build-up of excessive leverage from on and off balance sheet items in the banking sector.

The leverage ratio is defined as Tier 1 capital divided by the total exposure measure.

The bank submits to the regulatory authorities the leverage ratio on quarterly basis and monitors the level and the factors that affect the ratio.

The level of the leverage ratio with reference date 31.12.2018 on consolidated basis was at 9.17% (30.09.2018: 9.34%), according to the transitional definition of Tier 1 capital, significantly over the 3% minimum threshold applied by the competent authorities.

In the table below, the detailed disclosures on the Group's leverage ratio are presented with reference date 31 December 2018 and 30 September 2018:

Summary reconciliation of accountng assets and leverage ratio exposures

	31 December 2018 € million	30 September 2018 € million
Total assets as per published financial statements	58,013	57,255
Adjustment for entities which are consolidated for accountng puroses but are outside the scope of regulatory consolidation	-	-
Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting frameworkbut excluded from the leverage ratio exposure measure to article 429(11)of Regulation (EU)NO 575/2013	-	-
Adjustments for derivative financial instruments	(320)	(283)
Adjustments for securities financing transactions	1,889	2,158
Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	1,505	1,426
(Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (7) of Regulation (EU) No 575/2013)	-	-
(Adjustment for exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (14) of Regulation (EU) No 575/2013)	-	-
Other adjustments	(820)	(688)
Total leverage ratio exposure	**60,267**	59,868

Leverage Ratio

Leverage ratio common disclosure

	31 December 2018	30 September 2018 [1]
	CRR leverage ratio exposures	CRR leverage ratio exposures
	€ million	€ million
On - balance sheet exposures (excluding derivatives and SFT's)		
On-balance sheet items (excluding derivatives and SFT's, but including collateral)	55,798	55,150
Asset amounts deducted in determining Tier I capital	(483)	(443)
Total on-balance sheet exposures (excluding derivatives and SFT's)	**55,315**	54,707
Derivative exposures		
Replacement cost associated with derivatives transactions	1,248	1,122
Add-on amounts for PPE associated with derivatives transactions	310	303
Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	-	-
(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	-	-
(Exempted CCP leg of client-cleared trade exposures)	-	-
Adjusted effective notional amount of written credit derivatives	-	-
(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	-	-
Total derivative exposures	**1,558**	1,425
Securities financing transaction exposures		
Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	-	-
(Netted amounts of cash payables and cash receivables of gross SFT assets)	-	-
Counterparty credit risk exposure for SFT assets	1,889	2,314
Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 429b (4) and 222 of Regulation (EU) No 575/2013	-	-
Agent transaction exposures	-	-
(Exempted CCP leg of client-cleared SFT exposure)	-	-
Total securities financing transaction exposures	**1,889**	2,314
Off-balance sheet exposures		
Off-balance sheet exposures of gross notional amount	4,510	4,303
Adjustments for conversion to credit equivalent amounts[1]	(3,005)	(2,876)
Total off-balance sheet exposures	**1,505**	1,426
Exempted exposures in accordance with CRR Article 429 (7) and (14) (on and off balance		
(Exemption of intragroup exposures (solo basis) in accordance with Article 429(7) of Regulation (EU) No 575/2013 (on and off balance sheet))	-	-
(Exposures exempted in accordance with Article 429 (14) of Regulation (EU) No 575/2013 (on and off balance sheet))	-	-
Capital and Total Exposures		
Tier I capital	5,526	5,594
Total leverage ratio exposures	60,267	59,873
Leverage Ratio		
Leverage Ratio	**9.17%**	9.34%
Choise on transitional arrangements and amount of derecognised fiduciary items	-	-
Choice on transitional arrangements for the definition of capital measure	**Transitional**	Transitional
Amounts of derecognised fiduciary items in accordance with the Article 429(11) of Regulation (EU) NO 575/2013		

(1) Total off-balance sheet items exposures presented in accordance with Article 111 (1) of Regulation (EU) No 575/2013 (standardised approach).
(2) Including interim profits (1/7/2018-30/9/2018) € 45 million.

Split-up on balance sheet exposures (excluding derivatives and SFT's)

	31 December 2018 CRR leverage ratio exposures € million	30 September 2018 CRR leverage ratio exposures € million
Total on-balance sheet exposures (excluding derivatives and SFT'S) of which:	55,798	55,150
Trading book exposures	-	-
Banking book exposures of which:	55,798	55,150
Covered bonds	162	154
Exposures treated as sovereigns	14,043	13,952
Exposures to regional goverments,MOB, international organisations and PSE NOT treates as sovereigns	-	-
Institutions	2,516	2,361
Secured by mortgages of immovable properties	11,133	11,183
Retail exposures	4,840	4,794
Corporate	12,308	11,812
Exposure in default	8,099	8,485
Other exposures (eg equity, securitisations and other non-credit obligation assets)	2,696	2,410

10. Liquidity Risk

The Group is exposed to events on a daily basis which affect the level of its available cash resources due to deposits withdrawals, maturity of medium or long term notes and maturity of secured or unsecured funding (interbank repos and money market takings), loan draw-downs and forfeiture of guarantees. Furthermore, margin calls on secured funding transactions (with ECB and the market) and on risk mitigation contracts (CSAs, GMRAs) result in liquidity exposure. The Group maintains cash resources to meet all of these needs. The Board Risk Committee (BRC) sets liquidity limits to ensure that sufficient funds are available to meet such contingencies.

Past experience shows that liquidity requirements to support calls under guarantees and standby letters of credit are considerably less than the amount of the commitment. This is also the case with credit commitments where the outstanding contractual amount to extend credit does not necessarily represent future cash requirements, as many of these commitments will expire or terminate without being funded.

The matching and controlled mismatching of the maturities and interest rates of assets and liabilities is fundamental to the management of the Group. It is unusual for banks to be completely matched, as transacted business is often of uncertain term and of different types. An unmatched position potentially enhances profitability, but also increases the risk of losses.

The maturities of assets and liabilities and the ability to replace, at an acceptable cost, interest bearing liabilities as they mature, are important factors in assessing the liquidity of the Group.

Liquidity Risk Management Framework

The Group’s Liquidity Risk Management Policy defines the following supervisory and control structure:

(a) BRC's role is to approve all strategic liquidity risk management decisions and monitor the quantitative and qualitative aspects of liquidity risk;
(b) Group Assets and Liabilities Committee has the mandate to form and implement the liquidity policies and guidelines in conformity with Group's risk appetite and to review at least monthly the overall liquidity position of the Group;
(c) Group Treasury is responsible for the implementation of the Group's liquidity strategy, the daily management of the Group’s liquidity and for the preparation and monitoring of the Group’s liquidity budget;
(d) Global Market and Counterparty Risk Sector is responsible for measuring, monitoring and reporting the liquidity of the Group.

The Bank as per ECB, EBA & BoG directives applies risk management policies, processes and controls regarding, Asset Encumbrance / Liquidity Buffers and Collateral Management, Contingency Funding Plan (CFP), Intraday Liquidity Risk Management and Liquidity Stress Tests. These policies, processes and controls along with the liquidity governance are described in the ILAAP (Internal Liquidity Adequacy Assessment Process).

These policies, processes and controls are applicable in the specific Greek macro-economic environment, Banks’ business model and market conditions on wholesale funding.

Liquidity Buffer

The Group holds a diversified portfolio of cash and high liquid assets to support payment obligations and contingent deposit withdrawals in a stressed market environment. The Group's assets held for managing liquidity risk comprise:
(a) Cash and balances with central banks;
(b) Eligible bonds and other financial assets for collateral purposes;
(c) Interbank placings maturing within one month.

The unutilised assets, containing highly liquid and central banks eligible assets, provide a contingent liquidity reserve of € 12.4 bn as at 31 December 2018 (2017: € 7.7 bn). In addition the Group holds other types of highly liquid assets, as defined by the regulator, amounting to € 1.9 bn (cash value) (2017: € 2.2 bn). It should be noted that the major part of ECB’s available collateral of € 2.6 bn (cash value) (2017: €2.8 bn) is held by Group's subsidiaries for which temporary local regulatory restrictions are applied and currently limit the level of its transferability between group entities.

The credibility of the Greek banking system was further improved following the positive developments in the macroeconomic environment during 2018, improving the liquidity conditions of the Greek banks accordingly. In this context, deposits inflows along with the increased market repos an € 1.2 bn inflow due to the issuance and sale to international investors of two own securitisations, constituted the key factors for the significant decrease of the Bank's dependency from the Eurosystem by € 7.9 bn to € 2.1 bn at the end of December 2018 of which € 0.5 bn funding from ELA, (31 December 2017 € 10.0bn, of which € 7.9 bn from ELA).

More specifically, the main cash flows for the FY 2018 period are presented below:

- Increase in deposits + € 5.2 bn;
- Inflow due to the sale of two new own securitisations (+€ 1.2 bn);
- Inflow due to the increase of market repos (+€ 2.5 bn);

Other items - € 1 bn (mainly flows attributable to PPI (Pre Provision Income), loans and other assets leveraging and other items.

- **LCR calculations**

LCR is not an appropriate metric for liquidity risk for banks that are experiencing a system wide crisis for an extended period, as is the case for Greek Banks.

Appendix 1: Transitional Own Funds disclosure

		31 December 2018 Current period € million	31 December 2018 Full impact € million
Common Equity Tier 1 (CET1) Capital: instruments and reserves			
1	Capital instruments and the related share premium accounts	8,711	8,711
2	Retained earnings	(11,569)	(11,569)
3	Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	7,847	7,847
	Public sector capital injections grandfathered until 1 January 2018	-	-
5	Minority interests (amount allowed in consolidated CET1)	-	-
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	**4,989**	**4,989**
Common Equity Tier 1 (CET1) capital: regulatory adjustments			
8	Intangible assets (net of related tax liability) (negative amount)	(183)	(183)
9	Part of interim or year-end profit not eligible	-	-
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38 (3) are met) (negative amount)	(63)	(63)
11	Fair value reserves related to gains or losses on cash flow hedges	37	37
12	Negative amounts resulting from the calculation of expected loss amounts	(63)	(1)
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	-	-
16	Direct and indirect holdings by an institution of own CET1 instruments (negative amount)	-	-
20	Adjustments due to IFRS 9 transitional arrangements	1,003	-
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability where the conditions in art. 38 (3) are met) (negative amount)	(202)	(445)
22	Amount exceeding the 15% threshold (negative amount)	-	-
23	of which: direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities	-	-
24	Value adjustments due to the requirements for prudent valuation	(9)	(9)
25	of which: deferred tax assets arising from temporary differences	-	-
25a	Losses for the current financial year (negative amount)	-	-
25b	Foreseeable tax charges relating to CET1 items (negative amount)	-	-
26b	Amount to be deducted from or added to Common Equity Tier 1 capital with regard to additional filters and deductions required pre CRR	-	
	Of which: difference from revaluation reserves of fixed assets	-	
27	Qualifying AT1 deductions that exceed the AT1 capital of the institution (negative amount)	-	
28	**Total regulatory adjustments to Common equity Tier 1 (CET1)**	**520**	**(664)**
29	**Common Equity Tier 1 (CET1) capital**	**5,509**	**4,325**
Additional Tier 1 (AT1) capital: instruments			
33	Amount of qualifying items referred to in Article 484 (4) and the related share premium accounts subject to phase out from AT1	17	-
36	**Additional Tier 1 (AT1) capital instruments before regulatory adjustments**	**17**	**-**
Additional Tier 1 (AT1) capital: regulatory adjustments			
41a	Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	-	-
	Of which: goodwill and intangible assets (net of related tax liability)	-	-
	Of which: shortfall of provision to expected losses	-	-
43	**Total regulatory adjustments to Additional Tier 1 (AT1) capital**	**-**	**-**
44	**Additional Tier 1 (AT1) capital**	**17**	**-**
45	**Tier 1 capital (T1 = CET1 + AT1)**	**5,526**	**4,325**

Appendix 1: Transitional own funds disclosure

		31 December 2018 Current period € million	31 December 2018 Full impact € million
Tier 2 (T2) capital: instruments and provisions			
46	Capital instruments and the related share premium accounts	950	950
47	Amount of qualifying items referred to in Article 484 (5) and the related share premium accounts subject to phase out from T2	-	-
50	Credit risk adjustments	25	104
51	**Tier 2 (T2) capital before regulatory adjustments**	**975**	**1,054**
Tier 2 (T2) capital: regulatory adjustments			
56a	Residual amounts deducted from Tier 2 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	-	-
	Of which shortfall of provision to expected losses	-	-
56c	Amount to be deducted from or added to Tier 2 capital with regard to additional filters and deductions required pre-CRR	-	-
	Of which: difference from revaluation reserves of fixed assets	-	-
57	**Total regulatory adjustments to Tier 2 (T2) capital**	**-**	**-**
58	**Tier 2 (T2) capital**	**975**	**1,054**
59	**Total Capital (TC = T1 + T2)**	**6,501**	**5,379**
60	**Total risk weighted assets**	**38,849**	**38,354**
Capital ratios and buffers			
61	Common Equity Tier 1	**14.2%**	11.3%
62	Tier 1	**14.2%**	11.3%
63	Total capital	**16.7%**	14.0%
68	Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)	**8.7%**	**6.0%**
Amounts below the thresholds for deduction (before risk weighting)			
72	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	46	46
73	Direct and indirect holdings by the institution of 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)	89	89
75	Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability where the conditions in 38 (3) are met)	571	477
Applicable caps on the inclusion of provisions on Tier 2			
76	Credit risk adjustments included in T2 in respect of exposures subject to standardized approach (prior to the application of the cap)	-	-
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	219	219
78	Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	25	104
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	104	104
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2013 and 1 Jan 2022)			
80	Current cap on CET1 instruments subject to phase out arrangements	-	-
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	-	-
82	Current cap on AT1 instruments subject to phase out arrangements	40%	-
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	17	-
84	Current cap on T2 instruments subject to phase out arrangements	40%	
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	-	

Appendix 2: Capital instruments' main features disclosure

			SERIES A
1	Issuer	**Eurobank Ergasias S.A.**	**ERB Hellas Funding LTD**
2	Unique identifier	GRS323003012	DE000A0DZVJ6
3	Governing law(s) of the instrument	Greek	The Preferred Securities will be governed by, and construed in accordance with Jersey law. The Guarantee will be governed by, and construed in accordance with, English law, save that the provisions concerning the ranking of the Guarantee and the rights upon liquidation, each as described above, will be governed by, and construed in accordance with, Greek law.
	Regulatory treatment		
4	Transitional CRR rules	Common Equity Tier 1	Additional Tier 1
5	Post- transitional CRR rules	Common Equity Tier 1	Ineligible
6	Eligible at solo/(sub-) consolidated/solo & (sub-) consolidated	Solo & Consolidated	Solo & Consolidated
7	Instrument type (types to be specified by each jurisdiction)	Ordinary shares	Additional Tier 1
8	Amount recognised in regulatory capital as at 31 December 2018	€ 655.8 million	€ 1 million
9	Nominal amount of instrument	€ 0.30 per ordinary share (at date) / € 655.8 million	€ 1,604,000
9a	Issue price	-	100%
9b	Redemption price	-	100%
10	Accounting classification	Shareholders Equity	Equity
11	Original date of issuance	Various	18 March 2005
12	Perpetual or dated	Perpetual	Perpetual
13	Original maturity date	-	No maturity
14	Issuer call subject to prior supervisory approval	NA	Yes
15	Optional call date, contingent call dates and redemption amount	NA	First call date 18 March 2010 at 100%
16	Subsequent call dates, if applicable	NA	Annually
	Coupon / dividends	NA	
17	Fixed or floating dividend/coupon	NA	Fixed to floating
18	Coupon rate and any related index	NA	6,75% to 03/07 ; thereafter 10yr €csm +12,5bp. Max coupon = 8%
19	Existence of a dividend stopper	NA	No
20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	Partially discretionary	Partially discretionary . Dividend Pusher (Compulsory Payments for each Series)
20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	Partially discretionary	Mandatory
21	Existence of step up or other incentive to redeem	No	No
22	Noncumulative or cumulative	Non cumulative	Non cumulative
23	Convertible or non-convertible	Non convertible	Non convertible
24	If convertible, conversion trigger(s)	NA	N/A
25	If convertible, fully or partially	NA	N/A
26	If convertible, conversion rate	NA	N/A
27	If convertible, mandatory or optional conversion	NA	N/A
28	If convertible, specify instrument type convertible into	NA	N/A
29	If convertible, specify issuer of instrument it converts into	NA	N/A
30	Write-down features	No	No
31	If write-down, write-down trigger(s)	NA	N/A
32	If write-down, full or partial	NA	N/A
33	If write-down, permanent or temporary	NA	N/A
34	If temporary write-down, description of write-up mechanism	NA	N/A
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Additional Tier I	Lower Tier II
36	Non-compliant transitioned features	No	Yes
37	If yes, specify non-compliant features	N/A	Upon the occurance of a trigger event, the principal amount can not be written down
	Terms and Conditions	https://www.eurobank.gr/-/media/eurobank/omilos/poioi-eimaste/etairiki-diakubernisi/katastatiko/katastatiko-en.pdf?la=en	

Appendix 2: Capital instruments' main features disclosure

		SERIES B	SERIES C
1	Issuer	**ERB Hellas Funding LTD**	**ERB Hellas Funding LTD**
2	Unique identifier	XS0232848399	XS0234821345
3	Governing law(s) of the instrument	The Preferred Securities will be governed by, and construed in accordance with Jersey law. The Guarantee will be governed by, and construed in accordance with, English law, save that the provisions concerning the ranking of the Guarantee and the rights upon liquidation, each as described above, will be governed by, and construed in accordance with, Greek law.	The Preferred Securities will be governed by, and construed in accordance with Jersey law. The Guarantee will be governed by, and construed in accordance with, English law, save that the provisions concerning the ranking of the Guarantee and the rights upon liquidation, each as described above, will be governed by, and construed in accordance with, Greek law.
	Regulatory treatment		
4	Transitional CRR rules	Additional Tier 1	Additional Tier 1
2	Post- transitional CRR rules	Ineligible	Ineligible
6	Eligible at solo/(sub-) consolidated/solo & (sub-) consolidated	Solo & Consolidated	Solo & Consolidated
7	Instrument type (types to be specified by each jurisdiction)	Additional Tier 1	Additional Tier 1
8	Amount recognised in regulatory capital as at 31 December 2018	€ 2 million	€ 11 million
9	Nominal amount of instrument	€ 3,704,000	€ 18,346,000
9a	Issue price	100%	100%
9b	Redemption price	100%	100%
10	Accounting classification	Equity	Equity
11	Original date of issuance	2 November 2005	9 November 2005
12	Perpetual or dated	Perpetual	Perpetual
13	Original maturity date	No maturity	No maturity
14	Issuer call subject to prior supervisory approval	Yes	Yes
15	Optional call date, contingent call dates and redemption amount	First call date 2 November 2015 at 100%	First call date 9 January 2011 at 100%
16	Subsequent call dates, if applicable	Quarterly	Quarterly
	Coupon / dividends		
17	Fixed or floating dividend/coupon	Fixed to floating	Fixed
18	Coupon rate and any related index	4,565% until 02 November 2015 , then 3mE + 222bps	6%
19	Existence of a dividend stopper	No	No
20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	Partially discretionary . Dividend Pusher (Compulsory Payments for each Series)	Partially discretionary . Dividend Pusher (Compulsory Payments for each Series)
20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	Mandatory	Mandatory
21	Existence of step up or other incentive to redeem	No	No
22	Noncumulative or cumulative	Non cumulative	Non cumulative
23	Convertible or non-convertible	Non convertible	Non convertible
24	If convertible, conversion trigger(s)	N/A	N/A
25	If convertible, fully or partially	N/A	N/A
26	If convertible, conversion rate	N/A	N/A
27	If convertible, mandatory or optional conversion	N/A	N/A
28	If convertible, specify instrument type convertible into	N/A	N/A
29	If convertible, specify issuer of instrument it converts into	N/A	N/A
30	Write-down features	No	No
31	If write-down, write-down trigger(s)	N/A	N/A
32	If write-down, full or partial	N/A	N/A
33	If write-down, permanent or temporary	N/A	N/A
34	If temporary write-down, description of write-up mechanism	N/A	N/A
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Lower Tier II	Lower Tier II
36	Non-compliant transitioned features	Yes	Yes
37	If yes, specify non-compliant features	Upon the occurance of a trigger event, the principal amount can not be written down	Upon the occurance of a trigger event, the principal amount can not be written down

Appendix 2: Capital instruments' main features disclosure

		SERIES D	
1	Issuer	**ERB Hellas Funding LTD**	**EUROBANK ERGASIAS S.A.**
2	Unique identifier	XS0440371903	ISIN Code: XS1752439411
3	Governing law(s) of the instrument	Instruments Jersey law. The Guarantee English law. Ranking of guarantee and the rights upon liquidation Greek law	English law, with the exception of Condition 3B *(Status-Subordinated Instruments)* and Condition 22 *(Bank Holders' Agent)* which are governed by the laws of the Hellenic Republic and Regulation No.575/2013 (CRR) and Condition 23 (Acknowledgement of Statutory Loss Absorption Powers).
	Regulatory treatment		
4	Transitional CRR rules	Additional Tier 1	Tier2
2	Post- transitional CRR rules	Ineligible	Tier2
6	Eligible at solo/(sub-) consolidated/solo & (sub-) consolidated	Solo & Consolidated	Solo and Consolidated
7	Instrument type (types to be specified by each jurisdiction)	Additional Tier 1	Tier 2 Subordinated Capital Instrument (Art.63 of the CRR)
8	Amount recognised in regulatory capital as at 31 December 2018	€ 12 million	N/A - The instruments were Issued in January 2018
9	Nominal amount of instrument	€ 19,500,000	950,000,000
9a	Issue price	100%	100%
9b	Redemption price	100%	Redemption at par (100 per cent of nominal amount) together with interest accrued up to (but excluding) the date of redemption
10	Accounting classification	Equity	Liability - amortised cost
11	Original date of issuance	29 July 2009	17 January 2018
12	Perpetual or dated	Perpetual	Dated
13	Original maturity date	No maturity	17 January 2028
14	Issuer call subject to prior supervisory approval	Yes	Yes
15	Optional call date, contingent call dates and redemption amount	First Call date 29 October 2014 at 100%	First date of call: 17 January 2023. The instruments have also a Tax and Capital Disqualification Event call (Art.78(4) of CRR).In both cases, the instruments may be redeemed in whole but not in part. Redemption at par together with interest accrued.
16	Subsequent call dates, if applicable	Annually	Optional subsequent call dates: Any day after 17 January 2023.Tax and Capital Disqualification Event call : at any time
	Coupon / dividends		
17	Fixed or floating dividend/coupon	Fixed	Fixed
18	Coupon rate and any related index	8.25%	6.41%
19	Existence of a dividend stopper	No	No
20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	Partially discretionary . Dividend Pusher (Compulsory Payments for each Series)	Mandatory
20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	Mandatory	Mandatory
21	Existence of step up or other incentive to redeem	No	No
22	Noncumulative or cumulative	Non cumulative	Noncumulative
23	Convertible or non-convertible	Convertible	Non-convertible
24	If convertible, conversion trigger(s)	A "Holders' Conversion Trigger Event" shall be deemed to have occurred if the Bank has paid any dividend or other distribution(s) on its ordinary share capital other than any such payment of dividend or other distribution(s) the whole of which is mandatorily required to be paid by mandatory operation of Greek law from time to time.	N/A
25	If convertible, fully or partially	Always Fully	N/A
26	If convertible, conversion rate	Exchange Ratio" shall be determined by the Calculation Agent by reference to the following formula: (i) Liquidation Preference / (Exchange Discount Factor * VWAP) or, if lower, (ii) Liquidation Preference / Ordinary Share Nominal Value.	N/A
27	If convertible, mandatory or optional conversion	At the option of both holder and issuer	N/A
28	If convertible, specify instrument type convertible into	Common Equity	N/A
29	If convertible, specify issuer of instrument it converts into	Eurobank Ergasias S.A. Ordinary Shares	N/A
30	Write-down features	No	Yes
31	If write-down, write-down trigger(s)	N/A	Statutory & Condition 23 (Acknowledgement of Statutory Loss Absorption Powers) , Bank of Greece
32	If write-down, full or partial	N/A	Fully or partially
33	If write-down, permanent or temporary	N/A	Permanent
34	If temporary write-down, description of write-up mechanism	N/A	N/A
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Lower Tier II	Immediately subordinate to the claims of Senior Creditors (as defined in Condition 3B)
36	Non-compliant transitioned features	Yes	No
37	If yes, specify non-compliant features	Upon the occurance of a trigger event, the principal amount can not be written down	N/A
	Terms and Conditions		https://www.eurobank.gr/-/media/eurobank/omilos/enimerosi-ependuton/enimerosi-metoxon-eurobank/pistotikoi-titloi/programma-euro-medium-term-note/enimerotiko-deltio12-1-18.pdf