# Euroclear Holding SA/NV

Consolidated financial statements
at 31 December 2019

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# Directors' report

The directors of Euroclear Holding SA/NV (the 'Company') present their report, together with the audited consolidated financial statements of the Company and its subsidiaries (the 'group'), for the year ended 31 December 2019.

## Group overview and principal activities

The Euroclear group is the world's leading provider of post-trade services. The group provides settlement, safekeeping and servicing of domestic and cross-border securities, with asset classes covered including bonds, equities and investment funds. The Euroclear group includes the International Central Securities Depository (ICSD), Euroclear Bank, based in Brussels, as well as the domestic Central Securities Depositories (CSDs) Euroclear Belgium, Euroclear Finland, Euroclear France, Euroclear Nederland, Euroclear Sweden and Euroclear UK & Ireland. Euroclear Bank, as a single purpose bank, is the only credit institution in the Euroclear group. Euroclear SA/NV provides system development and support services to the other companies of the group.

Euroclear Holding SA/NV, which replaced Euroclear Limited (previously named Euroclear plc) at the end of 2018 as the top holding Company of the group is based in Brussels and owns, directly or indirectly, the entire issued share capital of the above companies.

Euroclear SA/NV, headquartered in Brussels, operates three branches, in Amsterdam, London and Paris. The group's domestic CSDs are headquartered in their local markets. Euroclear Bank, headquartered in Brussels, operates branches in Hong Kong, Krakow and Tokyo.

Euroclear Bank's branch in Krakow, Euroclear Bank (Spółka Akcyjna) - Oddział w Polsce, officially opened in January 2013. By the end of 2019, it had grown to 626 employees who serve Euroclear's global client base. The Krakow branch provides a dual-office arrangement with Euroclear Bank's existing operations in Belgium.

With 145 employees, the Hong Kong Branch of Euroclear Bank SA/NV is an important contributor to client servicing in Asia. Through the Hong Kong office, Euroclear Bank is able to provide clients with a global service offering, despite the time zone difference with its headquarters in Europe.

In 2017 Euroclear Bank opened a foreign branch in Tokyo which was previously a representative office, with 16 employees in 2019, to further enhance the way Euroclear Bank supports its local Asian customers.

Euroclear Bank issued in 2016 and 2018, various intra-group recovery capital instruments for €800 million in total. These instruments aimed at structuring a relevant loss absorption mechanism to restore capital position of the Bank in recovery and resolution scenarios in accordance with the Banking Recovery and Resolution Directive applicable to the Bank. These instruments were fully subscribed by Euroclear Investments SA. €300 million out of the total amount issued were recognised as Category 2 regulatory capital by the National Bank of Belgium, of which €100 million in 2019.

Besides the above Long Term notes issued, Euroclear Bank launched in 2018 a €5 billion Euro Medium Term Note (EMTN) and a €3 billion Certificate of Deposit multi-currency programme to increase its Qualifying Liquidity Sources under the European Central Securities Depositary Regulation. Euroclear Bank had a total amount equivalent to €2.5 billion in issuance in EUR and GBP by the end of 2019 (no change compared to 2018) through its EMTN programme. A Certificate of Deposit program was launched in 2018 and the Bank issued a total amount equivalent to about €2.3 billion in EUR, USD and GBP, of which €1.7 billion were issued in the course of 2019.

Euroclear continued to invest in the expansion of its service offering through innovation and hence provided additional funding to its participation in new business venues in order to support their respective business developments. Such funding amounted in total to about €5 million in the course of 2019.

## Business review

### Euroclear's business model: Delivering commitments to the stakeholders of the group

Euroclear group is the financial industry's trusted provider of post trade services. The group provides settlement, safekeeping and servicing of domestic and cross-border securities for bonds, equities and derivatives to investment funds.

The group includes an International CSD (ICSD) Euroclear Bank as well as six national CSDs: Euroclear Belgium, Euroclear Finland, Euroclear France, Euroclear Nederland, Euroclear Sweden and Euroclear UK & Ireland. ICSDs provide access to international securities, such as Eurobonds, as well as domestic securities, while national CSDs are traditionally associated with their local stock exchange.

The Euroclear business model enables the entities of the group to deliver its corporate commitments to a broad range of stakeholders. The group aims to create long-term value as a trusted cornerstone of the capital markets by providing robust and relevant services as a global and systemic financial market infrastructure.

### The group is dedicated to reducing risk and providing liquidity to make global financial markets safer and more efficient

As an open-architecture financial market infrastructure, the group has created a global network and client franchise by working with market participants across financial markets, including growth economies.

Euroclear is involved at a number of points in the lifecycle of a security trade, predominantly in the final stages of a securities transaction, transferring ownership in the central registry and providing ongoing custody for securities.

Underpinning its role as a market infrastructure is the prudent and structured approach of the group to risk management and strong financial position.

**Euroclear has built its position as a scale provider of post-trade services through the expertise of its people, client engagement and reliable technology**

Through deep knowledge of its specialised sector, Euroclear people engage closely with financial industry experts to develop solutions that meet evolving client needs, such as responding to a changing regulatory environment.

Given the systemically-important nature of its role as financial market infrastructure, Euroclear pays close attention to ensuring that the technology used to develop value-add products and services is robust as well as being effective. In recent years, the group has developed solutions for clients to manage risk and liquidity, including its suite of collateral management solutions.

**Euroclear generates net fee income and interest income, predominantly through the provision of settlement and custody services.**

The group charges clients fees on the volume of transactions processed, as well as fees for value-add services and interest earnings on deposits. Custody fees charged to clients are based on nominal values for fixed income securities, resulting in a very stable annuity-like income. For equities, custody fees are linked to market valuations.

To provide its products and services, Euroclear incurs costs such as network costs and operating costs (salaries, infrastructure, technology etc.). These costs include investments in future opportunities to derive sustainable levels of profitability, return on equity and earnings per share.

**Profits are re-invested into new products and services for clients, creating great careers for Euroclear people; and delivering shareholder returns**

By generating sustainable financial performance, Euroclear continues to invest for the benefit of all its stakeholders. Namely, in products and services that support the financial industry's evolving needs; strong levels of regulatory capital; into training and development opportunities for its people; and, ultimately, in delivering robust returns and long-term sustainable value to group shareholders.

Given Euroclear's role as a systemically important organisation, these investments also contribute to the broader public good by contributing to the efficiency and safety of financial markets.

**Euroclear strategy for evolving capital markets**

The group business strategy builds on Euroclear's position as a systemically important infrastructure, at the centre of the global financial market ecosystem.

In realising this vision, Euroclear is focused on delivering three strategic objectives:

- Strengthening its network in Eurobonds, European securities and fund asset classes;
- Growing its network by expanding internationally and by connecting global collateral pools;
- Reshaping its network by exploring innovative value-add solutions that ensure its long-term relevance to clients.

An open-architecture approach has enabled Euroclear to build an important network of issuers, intermediaries and investors around the world. By bringing together this network, the group aims to facilitate financing in capital markets by reducing risk, increasing process efficiency in post-trade activities, and optimising collateral mobility and access to liquidity.

Delivery of these strategic objectives will help clients safely navigate a rapidly changing operating environment, while contributing to a sustained long-term financial performance. In 2019, Euroclear further built on the record operating metrics and financial performance in 2018, which is testament to the group's strategic progress and attractive customer proposition.

**Strengthening Euroclear core European network**

The group continually invests in providing robust and relevant market infrastructure services for the markets served through its international CSD (Euroclear Bank) and the group's six domestic CSDs.

Euroclear has a long-lasting commitment to Europe, holding 60% of Eurobonds and 50% of European capital market securities. The group also provides significant coverage of the European funds industry, with access to over 1,200 fund administrators and 145,000 funds. The Euroclear core European network generates approximately 75% of the group's business income.

**Embracing regulatory change to drive efficiency and safety**

For over half a century, Euroclear has been relied upon as a trusted and safe provider of financial market services. The global financial crisis of a decade ago triggered new regulatory initiatives, all aimed at safeguarding capital market efficiency and safety. Since then, participants have been embracing a stronger regulatory landscape that has been established in Europe.

Incoming pan-European legislation such as MIFID II, EMIR, the CSD Regulation (CSDR), SRD2, and new banking regulations continue to lead to new industry needs as clients adapt to the new regulatory requirements. Euroclear has made considerable investments to remain at the forefront, adopting those rules that directly affect its business, such as CSDR whilst actively supporting participants as their expectations evolve.

As a single, pan-European rulebook for CSDs, CSDR applies directly to every (I)CSD in the group and adapting to the new regime has entailed significant investment over the past years.

Euroclear was therefore delighted to have been granted licences from the competent authorities for six out of seven operating entities in 2019. Euroclear Bank, the ESES CSDs (Belgium, France and the Netherlands), Euroclear Sweden and Euroclear Finland all received their CSD licences. Such progress places Euroclear amongst the most advanced in Europe and reinforces its role as a provider of a safe and efficient financial market infrastructure.

In addition, Euroclear has continued to prepare for the changes that are expected to come with the United Kingdom's (UK) decision to leave the European Union. In particular, the group has been focused on ensuring continuity for the Irish securities settlement services after Brexit since these are currently provided from London by Euroclear UK & Ireland. Euroclear is well placed to continue its Irish securities settlement services after Brexit, having secured recognition for Euroclear UK & Ireland by the European Securities and Markets Authority (ESMA), until 30 March 2021. By this time, the Irish securities market will have migrated to Euroclear Bank as its Issuer CSD, which will happen regardless of trading and listing arrangements.

**Supporting Europe's ambitions for a single capital market**

Over the past years, European financial markets have been shaped by a sustained low-interest rate environment and the effects of stronger pan-European regulatory regimes, for all participants. These conditions have increased clients' appetite for access to an efficient, robust and harmonised European post-trade network that goes beyond the traditional domestic borders. Furthermore, these clients expect an environment where they can reduce their liquidity and credit costs, via an accessible, common and seamless marketplace.

The European Union has held a longstanding policy ambition for a Capital Markets Union. One of the most important developments in reaching this goal was the setup of the European Central Bank's Target2Securities (T2S) platform in late 2016, which established a single settlement platform for Eurozone securities. As an integrated settlement model for Europe, T2S has aimed to reduce European fragmentation and make securities settlement more efficient.

Euroclear has supported the T2S initiative with the ESES CSDs (domestic CSDs for Belgium, France and Netherlands) joining in 2016 and contributing around 40% of total value of T2S-eligible securities. Euroclear continues to consider how best to further support clients' evolving needs for an efficient European post-trade network, including initiatives to increase interoperability between ESES and Euroclear Bank.

In November, as the first ICSD in the industry, Euroclear Bank announced that it is closely exploring whether to connect to the T2S ecosystem. By providing access to both central and commercial bank money, Euroclear Bank would be the sole global post-trade provider to provide access to central bank money on top of its commercial bank money environment.

Such a move would greatly assist financial institutions in managing their risk, increasing efficiency, while also optimising liquidity. In so doing, this creates a single pool of collateral liquidity across multiple currencies and market jurisdictions and fosters more attractive European capital markets.

**Better connecting European issuers to investors**

Whilst Euroclear continues to focus on providing investor CSD solutions to global financial market participants, the group also seeks to make its issuer CSDs more attractive for local issuers, including in the asset management sector. Issuers are looking to distribute their securities to a broad range of potential investors, and to know and engage more closely with their shareholders.

Corporate governance has a crucial role to play in the entire end-to-end cycle, be it for the issuing entity or the end investor. Both sides of the chain expect high levels of transparency and higher engagement. This can be attained by embracing new regulatory conditions and technology to understand investor viewpoints, e.g. voting trends through electronic voting technology, shareholder analysis, etc.

The group has a particularly strong issuer franchise in Finland and Sweden where it provides a range of services, including helping issuers to manage their general meetings. Euroclear continues to develop these services through new product developments such as electronic voting solutions.

With the ESES markets now connected to T2S, Euroclear has the opportunity to attract new issuers to its CSDs from other European markets, such as Spain and Italy. For example, Euroclear France has been appointed issuer CSD for two Spanish equities listed on Euronext trading venues via its Tech Hub initiative.

In addition, the group is developing new solutions that meet the new requirements of the incoming shareholder rights directive (SRD II). By creating new transparency requirements, SRD II provides issuers with the opportunity to better identify and engage with their shareholder base, and therefore strengthen corporate governance.

**Providing efficient, global access to funds**

Asset managers' objectives as funds promoters are similar to those of corporate issuers in enabling broad and efficient access to their issuances. Euroclear supports their distribution strategies by developing a range of funds-specific post-trade services, known together as Euroclear FundsPlace.

The group platform provides automated order routing, settlement, and asset servicing for fund assets. With its network of over 1,200 fund administrators, Euroclear routed 11.2 million funds orders in 2019, an increase of 2.6% year on year while funds under custody

reached €2.4 trillion at year-end, representing an increase of 20% year-on-year. The group continues to deliver a more flexible service while allowing clients to leverage automation to reduce the cost, risks and complexity associated to processing fund trades.

The funds industry is embarking on a period of significant evolution. New innovative business models are being created to meet the expectations of an increasingly global and technologically savvy customer base and pressures to increase transparency and efficiency throughout the investment chain. Euroclear is supporting the industry to meet these challenges.

For example, Legal & General Investment Management (LGIM) selected Euroclear UK & Ireland's CREST Investment Fund Service to benefit from full automation of settlement for its UK investment funds. The CREST Investment Fund Service delivers end-to-end automation from order placement to settlement and asset servicing. It reduces operational and counterparty risks, improves liquidity management and ensures certainty of settlement. Clients benefit from clear visibility of their settlement obligations and are able to manage cash flows effectively and efficiently.

In Sweden, a number of the country's leading fund management companies, have selected Euroclear Sweden to digitalise fund order flows, and so reduce the cost and risk associated with manual processing of fund administration. This follows on from the decision to add the Danish krone to its Exchange Traded Products service offering. Euroclear Sweden now provides a service for issuance, settlement and payment of Exchange Traded Products in Danish krone, Euro and Swedish krona.
A major trend in the fund management industry in recent years has been the rise of passive management. Euroclear has been at the centre of innovation in the Exchange-Traded Fund (ETF) market by developing the international ETF structure.

With its simplified issuance structure, the international model is attractive to both ETF issuers and global investors. Today, an important part of the European ETF industry is in the international form and major asset managers continue to migrate their ETFs to the structure. In an industry first, Euroclear Bank and Hong Kong Exchanges and Clearing Limited (HKEX) have collaborated to enhance the distribution of European ETFs in Asia. HKEX has become the first stock exchange in Asia to adopt the ICSD ETF settlement model in Euroclear Bank.

**Growing Euroclear network globally**

As an open financial market infrastructure servicing multiple currencies, the group supports the evolving requirements of its clients as they look to benefit from the opportunities created by an interconnected global economy. Euroclear is growing its network globally by supporting financial market participants' increasing requirement to mobilise collateral across borders and time zones, as well as by connecting international markets to Euroclear. Together, these programmes have grown substantially over recent years and now contribute to around 25% of the group's revenues.

**Providing global collateral management solutions**

Through the Collateral Highway, the group supports the financial market's requirement for a neutral, interoperable utility to source, mobilise and segregate collateral. It provides a comprehensive solution for managing collateral, offering clients a complete view of exposures across the full spectrum of their asset classes and enabling collateral optimisation opportunities.

In addition to more traditional collateral management activities (typically repos, securities lending, derivatives and access to central bank liquidity), the range of collateral management solutions of the group includes dedicated services for corporate treasurers, and a specialised equities collateral management service.

By the end of 2019, the average daily collateralised outstanding on the Collateral Highway reached €1.3 trillion, despite challenging market conditions in the securities lending and borrowing market during the period.

The demand for collateral management services is expected to continue to accelerate, driven by the end of quantitative easing and the impact of new global regulations which require clients to post margin across transactions to reduce counterparty and systemic risks. One area of regulatory change is the new regime for initial margin requirements for non-cleared derivatives, and Euroclear has been accompanying clients in their transition since 2016.

During 2018 and 2019, the group continued to assist market participants to successfully on-board clients who transitioned to the new regime. Preparations are underway to support the broader range of clients who will do so in the years ahead. For example, Euroclear launched the Collateral Portfolio Service enabling its custodian clients to offer a triparty collateral management solution to their buy side clients, making triparty a truly portable service offering, agnostic of the settlement and custody location.

Euroclear is now the sole owner of the GlobalCollateral entity, having decided jointly with DTCC to dissolve the joint venture in March 2020. In doing so, the group enhances the efficiency and delivery model of the Collateral Margin Utility product that helps meet the industry's needs to manage collateral movements across borders.

**Euroclearability – making an impact**

Across the globe, growth economies are seeking to attract foreign investors to help fund long-term development needs. At the same time, international investors are seeking opportunities to diversify and increase the profitability of their investments around the world, particularly during a period of historically low yields in Europe and North America. Euroclear works closely to support local economies that wish to connect their domestic capital markets to a global investor base, aiming to bring more efficient capital flows and providing stability to these financial markets.

Last year Euroclear Bank, in cooperation with PwC, published the white paper "Impact of Euroclearability" examining the benefits markets can achieve when they become Euroclearable. These include increased liquidity in domestic sovereign bond markets, directly prompting higher trading volumes and lower bond yields in secondary markets.

Markets that are Euroclearable illustrate a number of features that enable international investors to access domestic bond markets, such as efficient and secure asset ownership, an investor-friendly tax and regulatory environment and other features which enable connectivity between domestic bond markets and international investors.

Controlling for wider factors, PwC finds that Euroclearability is associated with a reduction in sovereign borrowing costs of 28 basis points (bps) in primary bond issues. This is broadly equivalent to the yield differential of one credit rating notch (i.e. the difference between A- and BBB+).

For five countries that have recently obtained Euroclearability, the potential gain from lower borrowing costs is associated with a GDP boost of USD3.8 billion over 10 years. These countries reported a rise in spending on areas that benefit society, such as infrastructure and healthcare.

During 2019, Euroclear worked closely with four emerging markets, China, Egypt, Israel and Saudi Arabia. Signing a Memorandum Of Understanding (MOU) with China Central Depositary & Clearing, the intention is to work towards enhancing cross-border services and eventually establishing an efficient link to support further opening of the Chinese Interbank Bond Market.

At IMF/World Bank spring meetings, the Egyptian Ministry of Finance (MoF) and Euroclear Bank also signed a MOU, looking to create the appropriate market conditions for local currency sovereign debt issuance. The intention is for the market to eventually become Euroclearable, creating a cross-border link to enable international investment in Egyptian domestic debt instruments. Euroclear signed a similar agreement with Saudi Arabia.

Later in 2019, Euroclear became a custodial member of the Tel Aviv Stock Exchange, enabling it to provide settlement and asset services for domestic Israeli securities through its direct account in the CSD (TASECH). The benefits to international investors include a higher level of asset protection, increased market proximity and faster access to securities.

In addition, the group intends to support demand from global issuers and investors to incorporate Environmental, Social and Governance (ESG) factors into their securities profile. Green finance reached record levels in 2019, with issuances of green bonds estimated to reach €250 billion according to the rating agency, Moody's. With sustained investor demand, Euroclear actively supports standardisation of ESG indicators to help issuers prove their credentials and for investors to efficiently screen their investments.

**Reshaping Euroclear network**

The strategy of the group extends to exploring opportunities to support its clients' evolving needs in new areas that reflect its ambitions to increase safety, efficiency and global liquidity optimisation in capital markets. By combining new technology with new business models, Euroclear believes that there are exciting opportunities to reshape its network and deliver long-term sustainable business growth.

**Investing in digitalisation and data**

The group continues to invest in connectivity and communications products that benefit clients' experience and increase efficiency. EasyWayTM is Euroclear's web-based interface that offers clients the ability to have a clear overview of settlement, collateral management and corporate actions activity. With accurate, real-time data at their fingertips, EasyWay helps users work efficiently and make fast, effective decisions to manage operational risks. Euroclear continues to see increasing usage of the EasyWay platform with over 870 active clients on the platform in 2019, up from 250 in 2018.

A further example is Taskize, which was acquired in 2015. Taskize's innovative messaging tool helps back-offices across the Euroclear network to manage and resolve their post-trade activities more efficiently, particularly important in light of CSDR. Client demand for the service has steadily increased, with over 200 active clients in 50 countries reporting high levels of user satisfaction. Taskize is well suited to helping clients meet their incoming CSDR obligations, particularly in reporting and resolving settlement failures, whilst keeping their relationships confidential.

The group continues to consult financial market participants to understand their evolving requirements to ensure that it enhances the end-to-end user experience as it upgrades its own digital capabilities. Indeed, Euroclear is also exploring how certain technologies, such as cloud-based solutions, smart automation and robotics, might help to enhance its own operating efficiency with several pilot projects already proving successful.

Given its role as financial market infrastructure with over €31 trillion of assets under custody, Euroclear today manages a vast amount of financial transaction data. Euroclear is looking to extend its role in bringing greater transparency and liquidity in global capital markets by harnessing this untapped data. By bringing new, valuable and actionable insights to clients, the group commits to support the development of safer, more efficient financial markets.

In the course of 2019, Euroclear was encouraged that its reference data products have been gaining client traction and generating some initial revenues. Preparatory work has also been completed for Euroclear's first cloud-based liquidity data solutions, with commercial phase scheduled for mid-2020.

**Experimenting with technology**

The group continues to take collaborative approach to innovation and in assessing the opportunities that may be captured from new technologies such as distributed ledger technology (also known as Blockchain).

For example, Euroclear has an investment in Liquidshare, a collaboration to develop a blockchain-based infrastructure for European small and medium sized enterprises that is now reaching the pilot stage. In 2019 the group has also worked with the European Investment Bank (EIB), Banco Santander, and EY on an end-to-end Blockchain solution for the issuance and settlement of European Commercial Paper.

### Key business parameters

Net fee and commission income stems mainly from the provision of settlement, asset servicing and other services.

- Settlement related fee and commission income is a function of the number of international and domestic transactions settled in the Euroclear group and is thus impacted by trading activities and investor confidence in the financial markets.
- Asset servicing related fee and commission income is mainly a function of the value of securities held for Euroclear clients in its (I)CSDs. The value of bonds is based on nominal value, whilst for equities, their market value is taken into consideration.
- Other services include global Collateral Highway services. Euroclear's Collateral Highway generates income in relation to the daily value of collateral provision outstanding, which is impacted by the activity in the repo market as well as by other factors such as the ECB's liquidity programmes, including long-term refinancing operations.

Interest income stems principally from Euroclear Bank's clients' cash balances invested partially in short term deposits and in money market short term securities and from the investment of Euroclear Bank's capital and its debt securities issued, together with retained earnings. Interest income is dependent on the evolution of short-term interest rates.

Administrative expenses include staff costs, depreciation and amortisation as well as other operating expenses. Administrative expenses are impacted to a certain level by business volume levels, regulatory, cyber security, business-driven investments and by inflation to a moderate extent.

***Operating highlights***

The Euroclear group delivered again robust business performance in 2019 driven by increased activity levels despite higher regulatory and Cyber Security cost pressures.

The value of securities held for Euroclear clients at the end of 2019 reached €31.4 trillion, representing a 11.3% increase compared to €28.2 trillion in 2018, driven by customer expansion across all entities of the group.

Turnover, or the value of securities transactions settled, increased by 5.9% to €837 trillion in 2019. The number of netted transactions settled in the Euroclear group achieved 239 million in 2019, a 3.9% increase compared to 230 million in 2018.

Euroclear's global Collateral Highway secured a record yearly average of daily outstandings at the end of 2019 of €1.3 billion, up by close to 8% compared to last year. The sustained volumes in the Euroclear's global collateral management infrastructure reflect strong and continuous needs from market participants driven by regulatory requirements.

***Financial performance highlights***

The consolidated results for the year are set out on page 18 of the financial statements.

Business income increased by 6% year on year to €1,145 million as the Group benefited from strong client traction and positive market conditions. Net fee and commission income, which includes liquidity line fees, was €1,103 million in 2019, an increase of more than 7% compared to the previous year.

Net interest income was €307 million, compared to €256 million last year, due to higher average interest rates margins (mainly in USD) coupled with slightly higher cash deposits on average during the year.

Meanwhile, other income reached €25 million in 2019, a decrease of close to 50% compared to 2018, due to lower gains on foreign exchange and financial assets and liabilities held for trading.

Operating income was €1,435 million in 2019, an increase of about 8% compared to 2018.

Administrative expenses increased by 0.7% to €820 million in 2019 as continued investments in the business to modernise technology capabilities, along with product enhancements, regulatory-driven and cyber security initiatives were offset by tight control of operating costs. Indeed cost discipline remains a strong focus, demonstrated by the set-up of an operational excellence team to coordinate delivery of cost savings.

Share of results in the DEGCL joint venture amounted to a €1 million profit in 2019 compared to a loss of €7 million in 2018. The 2019 result of DEGCL is explained by a one-off tax gain for about $7 million (consortium relief) whereby DEGCL's 2017 and 2018 tax losses were transferred to UK affiliated entities of the consortium members, i.e. DTCC and Euroclear.

Operating profit before impairment and taxation reached €616 million in 2019, an increase of 20% compared to 2018 fueled by strong revenue growth and management's continued focus on costs as explained above.

Impairments were recorded in 2019 for €2 million, principally related to intangible and fixed assets.

The effective tax rate reached 29% in 2019, broadly similar to last year (31%) and in line with the level of the Belgian tax rate applicable during the year.

Profit for the year ended 31 December 2019 was €431 million, an increase of 34% compared to a profit of €322 million in 2018.

***Balance sheet review***

Total assets amounted to €27,569 million on 31 December 2019, down by €565 million compared to the previous year. The decrease is mainly driven by lower deposits from central banks, banks and other customers partially offset by additional debt instruments issued on the market in 2019 for a total €-equivalent of €1.7 billion at the level of Euroclear Bank coupled with stronger consolidated shareholder equity.

Loans and deposits totalled €15,618 million and €16,415 million, respectively, on 31 December 2019.

Total shareholders' equity totaled €4,230 million in 2019, up €391 million from the prior year. Such increase is principally driven by the profits of the year coupled with the increase of FVOCI revaluation reserves relating to Euroclear financial instruments held on balance sheet (mainly equity participation in Euronext), partially offset by the interim dividend paid to shareholders in December 2019 for €173 million.

Net asset value per share (total shareholder's equity divided by the year-end number of shares) totaled €1,344 as of 31 December 2019, compared to €1,220 in 2018.

***Key performance indicators***

Business income margin (Business income excluding administrative expenses compared to business income) increased from 25% in 2018 to 28% in 2019 evidenced by the positive operating leverage achieved during the year (i.e. 5%).

Operating margin (operating profit before impairment and taxation compared to operating income) increased from 38% to about 43% in 2019.

Unit cost ratio (administrative expenses compared to the average value of securities held). The adjusted Unit cost ratio reduced slightly from 0.28 basis points (bps) in 2018 to 0.27 bps in 2019, thanks to stable cost base while average value of securities held increased by more than 4% year-on-year).

Return on equity (profit for the year compared to average shareholders' equity) increased from 8.6% to 10.7% in 2019.

Net earnings per share (profit for the year divided by the weighted average number of shares) increased to €136.9 in 2019 compared to €102.3 in 2018 due to higher earnings.

***Employee evolution***

The average number of persons employed by Euroclear during the year was 3,989, stable when compared to 3,984 in 2018.

### Post balance sheet events

The Covid-19 event has significantly influenced the financial markets early 2020. At the end of Q1 2020, the impacts this event may have on Euroclear cannot be fully quantified reliably. As a financial market infrastructure, Euroclear is taking all the necessary measures to deliver its clients with the same level of service and is closely monitoring the situation on the markets. Indeed, Management is closely assessing the potential affects of this situation on Euroclear's future profitability and balance sheet structure, and remains confident that its low risk profile and the resilient nature of its business will preserve its safety and financial robustness.

A practical consequence of the Covid-19 crisis relates to dividend payments. Indeed, in its publication dated 27 March 2020, the ECB recommends significant credit institutions to hold back dividend distributions for the financial year 2019, at least until October 2020. Equally, credit institutions should refrain from executing share buy-back programs aimed at remunerating shareholders until that date.

This recommendation applies on a consolidated level of a significant supervised group as well as on an individual level of a significant supervised entity, if such significant supervised entity is not part of a significant supervised group.

As a result, despite the robustness of the current and projected capital ratios and financial performance of the group, no dividend upstreaming is expected from Euroclear SA/NV to its parent company and upwards before October 2020. This absence of dividend upstreaming in the near term does however not cause any prejudice to the interim dividends that were paid in the course of 2019.

This decision is not expected to have any impact on the Recovery and Resolution instruments issued by certain group entities.

### Dividends

Following the group restructuring, the Board is recommending to shareholders to approve the payment of an ordinary dividend of €55 per share, corresponding to a total amount of €173.1 million at the Annual General Meeting as part of the usual yearly profit allocation process. Such dividend was already paid in December 2019 under the form of an interim distribution and corresponded to the allocation of 2018 results.

### Acquisition of own shares

During the financial year, neither the Company nor any directly controlled subsidiary or person acting in his own name but on behalf of the Company or a directly controlled subsidiary of the Company acquired any shares of the Company.

The number of shares is 3,147,463 at the end of the year 2019.

### Research and development

The Euroclear group has continued investing in research and development. These investments are linked to the performance and resilience of the systems as well as business developments, which are described in more detail in the Strategic Report. The group also continued investing in market research in line with its mission to provide increasingly commoditised market infrastructure services.

### Information on likely future developments in the business of the Company or its subsidiaries

Likely future developments in the business of the Company and its subsidiaries are included in the Annual Review.

### Risk management in Euroclear

***Enterprise Risk management framework and governance***

Euroclear operates within a highly regulated environment and is a systemically important financial market infrastructure. Euroclear aims to maintain its strong reputation in the financial industry for its safety and resilience, and for the quality of its products and post-trade services.

In this context, a comprehensive and effective risk governance framework, underpinned by a sound risk culture, is critical to the overall effectiveness of Euroclear's risk management arrangements. The three years long Risk Transformation Programme that ran from 2017 brought concrete benefits to the organisation in terms of risk awareness and improved risk and control environment. Today, Euroclear operates an overall effective risk management framework that has been redesigned to meet Board, market and regulatory expectations. In 2019, the three lines of defence have focused on further embedding the changes implemented during the transformation programme and on taking additional initiatives to ensure sustainability and continuous improvement of Euroclear's risk management framework.

The ERM framework structures the way Euroclear manages its risks, within the Board's risk appetite, whilst pursuing its strategy and corporate objectives. It also details the roles and responsibilities of the three lines of defense, in line with the Board's expectations and the governance arrangements.

The first line of defence is the primary source of (non-independent) assurance on the adequacy and effectiveness of the control environment to Senior Management and the Board. The first line of defence provides this assurance through, amongst others, regular risk and control self-assessments, operational and financial risk dashboards, positive assurance reports, semi-annual and annual internal control system report.The internal control system reports are complemented by independent Compliance & Ethics and Risk Management (second line of defence) and Internal Audit (third line of defence) opinions. This regular reporting by the three lines of defence provides frequent, effective and comprehensive monitoring of the control environment. Moreover, it, contributes to the effective operation of Euroclear's three lines of defence model whereby the Compliance & Ethics and Risk Management functions play their role as an independent challenger to the first line of defence and where Internal Audit provides comprehensive assurance based on the highest level of independence.

The Board oversees the effectiveness and independence of the control functions. In particular, it ensures that the Risk Management function provides robust, independent oversight of risk-taking activities to help Euroclear group achieve its goals and deliver its strategy within the Board's risk appetite. The Risk Management function does this by delivering and maintaining a leading Enterprise Risk Management (ERM) framework; providing the Board and Senior Management with high quality, independent risk challenge, advice and guidance; and helping to foster a healthy risk culture throughout the organisation. The control functions including Compliance & Ethics and Risk Management, have been strengthened with increased bandwidth and depth of expertise.

***Risks affecting the group***

All of the entities face *operational* risk (the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events). Euroclear has an operational risk management framework embedded in each entity, which in the context of CSDR licensing was reinforced over the last years. Effective identification, monitoring, management and appropriate reporting are at the centre of the group approach. Being a market infrastructure, the integrity, confidentiality and availability of Euroclear and clients' data and the continuous availability of Euroclear services are very important.

CSDs of the Euroclear group are designated as critical national infrastructure in seven countries. Therefore, as security and resilience are key aspects of the group approach to operational risk. Euroclear maintains and tests comprehensive processes in all entities to ensure the security and continuous availability of business-critical services, including effective management response to incidents and crises. All locations have appropriate security and contingency arrangements for recovery from workplace disruptions; supplemented by three geographically separate data centres to sustain operations in the event of a local and regional- scale disaster. Euroclear also regularly exercises and tests its operational and management response and provide adequate training at all levels of the organisation. In 2019, Euroclear engaged in a holistic step-back on business resilience that led to a dedicated business resilience programme set-up constructed around evidencing, strengthening and extending recovery capabilities to meet increasing market and regulatory expectations. This important investment aims at enhancing the business resilience capabilities of the group by addressing the increasingly complex 'extreme but plausible' scenarios and integrate the perspectives of the Euroclear ecosystem. Investment will continue in the next years to ensure the continued resilience of the group.

Euroclear has continued to invest significantly in its cyber security capabilities including improvements to the cyber security risk culture. This investment in the IT risk and control environment resulted in improved security arrangements in a constantly evolving cyber threat landscape. Further investment will continue in 2020 and beyond to further reduce the residual risks and ensure sustainability.

*Financial* risks are borne mainly by Euroclear Bank in its role as single-purpose settlement bank. The CSDs of the group have an overall low risk appetite. They offer only securities settlement services in central bank money and do not provide credit to clients. They do not engage in operations with counterparties, except for the investment of their own funds.

As a settlement bank, Euroclear Bank faces collateralised intra-day credit exposures on its clients. In addition, it runs credit risk resulting from the intra-day use of a high-quality correspondent network and from short-term deposits, mainly by using reverse repos of clients' end-of-day cash positions in the market with high-quality counterparties. Euroclear Bank is continuously looking at initiatives to reduce the intraday credit provided to its participants. Furthermore operational processes are designed and reassessed on a regular basis to actively monitor and minimise credit risks.

Because *liquidity* is key for the efficient functioning of Euroclear Bank, it has built a robust liquidity management framework to ensure smooth day-to-day operations and maintain a high level of preparedness to cope with unexpected and significant liquidity shocks. In 2019, Euroclear Bank increased the robustness of its liquidity arrangements including enhanced contingency capabilities if needed e.g. increased committed liquidity facilities with a number of respected liquidity providers, established arrangements to cover for unforeseen liquidity shortfalls as per CSD Regulation.

Euroclear Bank has further improved its resilience and reduced the credit and liquidity risks it faces over the last years. This has led to Euroclear Bank's CSDR ancillary banking services licensing on 4 December 2019 by Euroclear's regulator.

Euroclear Bank's assets are very short term by nature and the firm has very limited transformation risk on its balance sheet. This is also driven by the fact that Euroclear Bank does not enter into any trading activity. In 2019, Euroclear Bank has issued EUR equivalent of 1.7 billion (mainly zero coupon certificates with less than one year maturity) leading to a total outstanding debt of €4.8 billion for liquidity purposes. The debt is improving Euroclear Bank's liquidity position by increasing its qualifying liquid resources in the relevant currencies, as per CSDR requirement.

Euroclear Bank remains also with a very low level of *market* risk (interest rate and foreign exchange rate risks only). Market risk arises as a by-product of the investment of Euroclear Bank's capital (interest rate risk) and future earnings (interest rate and foreign exchange rate risks). A hedging strategy is in place to mitigate Euroclear Bank's interest rate risk and foreign exchange risk.

Euroclear also faces *conduct and culture* and *legal and compliance* risks given its position as a leading financial market infrastructure operating in a highly regulated environment. These risks are managed through robust application of Euroclear's compliance risk management framework.

The ability to anticipate and integrate change in an evolving market is essential for the longer term strategy of the group. Therefore, Euroclear has established a framework and dedicated Group Project Management Office to increase the robustness of its project and programme management capabilities.

#### *Compliance*

The compliance risk management framework is designed to adequately identify, monitor, test and report to management on controls relating to laws and regulations. The Compliance & Ethics function also advises on remedial actions to identified compliance risk control gaps and monitors progress made in closing the gaps. In addition, a specific focus is devoted to assess the controls of the group linked to anti-money laundering, economic sanctions taken by authorities around the world. This framework is supported by communication efforts (e-learning, case-based compliance tests, etc.) that help maintain high levels of staff awareness.

#### *Supervision and regulation*

Euroclear Holding SA/NV is a financial holding company under the laws of Belgium and is the ultimate parent entity of the Euroclear Group, Euroclear SA/NV and Euroclear Bank SA/NV are subject to consolidated supervision and oversight by the National Bank of Belgium, which acts as lead regulator of the Euroclear group. In addition, individual CSDs are supervised by their respective local regulator and central bank, which set and monitor, among others, their capital adequacy, liquidity requirements, governance and internal control systems.

#### *Recovery plan*

In line with regulatory rules and guidance, a Recovery, Restructuring and Wind-down (RRW) plan is in place for each CSD of the group and as the holding company of the (I)CSDs, Euroclear SA/NV also has in place a Recovery and Restructuring (RR) plan. This plan is reviewed and approved by the Board of Directors, upon recommendation of the Risk Committee on a yearly basis. The aim of the plan is to demonstrate Euroclear SA/NV's ability to recover from a series of extreme but plausible stresses that could threaten its viability, such that it can, to the extent possible, ensure the continuous provision of critical services to the CSDs. To this end, the Euroclear SA/NV RR plan identifies and analyses a number of recovery and restructuring options that could be employed in order to restore its capital base, liquidity position or profitability, over a short-to-medium timeframe.

Detailed information on the risks faced by Euroclear, as well as its risk management strategies, policies and processes can be found in Euroclear's yearly Pillar 3 report on www.euroclear.com as well as in Note IV to the consolidated financial statements.

### Non-financial information

#### *Euroclear Responsibility*

Euroclear takes its responsibility for helping to create a more just and equitable world seriously. The group Corporate Responsibility programme is run in full alignment with the group business strategy and is divided into four streams. For more details on each of these streams, please refer to the sustainability report on Euroclear.com/Our responsibility, prepared in accordance with the Global Reporting Initiative Standards (Core). The 2019 report is scheduled to be published in May 2020.

***Workplace***

Being a 'Great place to work' is one of Euroclear's corporate objectives. People are the premier asset of the group and in 2019, Euroclear introduced a new approach to measuring employee engagement by launching 'Your Voice'. This is a targeted survey for all employees, hosted by a third party provider, which will be repeated throughout the year. This new approach allows employees to provide detailed feedback on a range of topics, giving the group an in-depth view of the level of employee engagement. In 2019, 84% of colleagues took part in the survey. The overall score for the first survey was 6.6 out of a possible score of 10. As a result, Euroclear has identified five key priorities to work on in 2020.

**Diversity & Inclusion**

The group puts great emphasis on diversity in the workplace, convinced that a workforce with a range of skills, backgrounds, ages and outlook is vital to business success.

While the group has a good 50/50 male/female balance in general, in 2019, Euroclear focused on encouraging more women into middle/senior management roles, especially in traditionally male dominated areas like IT. In 2019, the group recruited 27 women into senior IT positions. In 2019, Euroclear also ran a bootcamp to brainstorm on how to improve the working environment for colleagues with disabilities and limitations and some of these initiatives will be taken forward in 2020.

**Training & development**

Training and development is a key part of our People strategy. In 2019, Euroclear launched the 'Euroclear Academy' to support staff through all stages of their career, so they can develop their skills and talents in line with the changing environment, particularly in the area of digital knowledge. Last year 400 employees made use of this resource.

**Well-being**

Euroclear provides its employees with the opportunity to work flexibly and to work from home, when appropriate, thus encouraging a good balance between work and private life. The group continued to run mindfulness courses in 2019. The group also offers a range of sporting and social activities for its employees to take part in and in 2019, Euroclear once more hosted the very successful Vitality Day, encouraging staff to develop healthy habits.

The approach of the group to employee relations ensures that all mandatory social relations bodies and committees – and related negotiations – are organized and conducted in a timely manner and take place in each of the group entities as well as on a pan-European level, thereby complying with the Information and Consultation processes on recurrent topics and special projects.

***Marketplace***

There are four pillars to Euroclear's Marketplace strategy:

- Sustainable finance
- Know and trust your suppliers
- Risk-aware culture
- Staff awareness

**Sustainable finance**

In the past year, the group has observed a number of gaps in the sustainable finance market space, such as mistrust of data, fear of "green washing", lack of liquidity, the need for transparency, among others. Euroclear is exploring ways to leverage its global ecosystem and trusted infrastructure to help bridge some of those gaps, bring sustainable finance to the mainstream and further support the UN Sustainable Development Goals (SDGs).

**Know and trust your suppliers**

Strengthening relationship with suppliers, in 2019 Euroclear published its Supplier Code of Business Conduct on the group's website, which outlines the behaviors that it expects from its suppliers. Euroclear also continues to monitor its suppliers through the ESG-related questions in the Supplier questionnaire. Euroclear's modern slavery and human trafficking statement is published annually on the group's website.

**Risk-aware culture**

Euroclear has reinforced its operational risk management framework in the context of CSDR licensing over the last years. Effective identification, monitoring, management and appropriate reporting are at the centre of its approach. Being a market infrastructure, the integrity, confidentiality and availability of clients' data and the continuous availability of group services remain very important.

A group-wide ethical and compliance framework is operated to adequately identify, monitor and manage legal and compliance risks. The areas monitored include amongst others, fraud, market abuse, sanctions and money laundering, and also consider the impacts arising from upcoming regulation. Furthermore, the group's Business Code of Conduct acts as a reference point for expected conduct and behaviours when working for Euroclear.

The group recognises that risk is at the heart of all activities, as a systemic risk manager and Euroclear's ability to manage such risks underpins the important position the group has in the global financial markets. In 2019, Euroclear selected ServiceNow as its chosen integrated risk management system, which is designed to help the group embed an integrated, holistic approach to risk management across the entire Euroclear group on one platform. The initial roll-out is foreseen for EUI in early 2020.

**Staff awareness**

All staff and contractors follow a series of training sessions on topics such as bribery, fraud, anti-competitive behaviour, anti- money laundering and counter-terrorism financing, conflicts of interest, modern slavery, physical and logical access and other potential malicious behaviour. In 2019, all staff took part in the mandatory biennial Compliance and Ethics test with a 98% pass rate.

***Environment***

The main impact on the environment is caused by business travel and energy consumption. The group has four main pillars in its Environment strategy:

- Emissions
- Resource use
- Supply chain
- Compliance

Euroclear has been carbon neutral to PAS2060 standards for eight years. The group is committed to Science-Based emissions reduction Targets (SBT) and plan to review its SBT in 2020 in line with a 1.5 degree rise in temperature, rather than two degrees.
In 2019, the group further reduced its carbon emissions.

In 2019, the group launched its Euroclear Environment charter, where staff can sign up to Gold, Silver or Bronze commitments. This charter encourages staff to take actions, such as using public transport instead of cars to come to work and reducing single use plastic, which will help to protect the environment

***Community***

In 2019, Euroclear saw the cross-location projects that the group sponsored as part of its 50th anniversary celebrations come to fruition. Euroclear is pleased to say that the 20 projects are all underway and already providing vital support to those who are most in need. The group also strengthened its partnership with its corporate charity, Build Africa, who have now merged with UK-based charity Street Child, meaning that Euroclear can expand its impact even further in 2020.

In 2019, the group focused on building up its corporate volunteering offer and will launch the new programme across the group gradually over 2020.

## Corporate governance

***Introduction***

Euroclear group believes that sound corporate governance is key for a trusted financial market infrastructure to protect the interests of all of its stakeholders. Euroclear group has put in place governance procedures and practices throughout the group which promote accountability and transparency of decision-making and which seek to ensure that all stakeholder interests are duly considered and safeguarded. These procedures are underpinned by a strong focus on ethical behaviour and positive working culture. Euroclear believes that these elements together enable us to make better business decisions that ensure continued success.

***Governance structure of the Euroclear Group***

Euroclear Holding SA/NV has become the ultimate holding company of the Euroclear group in replacement of Euroclear Plc. Euroclear SA/NV remains the Belgian parent company of the international and national central securities depositories of the Euroclear group. It also owns the group's shared securities processing platforms and delivers support services to the other companies in the group. Euroclear SA/NV is a wholly owned subsidiary of Euroclear Investments S.A., which itself is wholly owned by Euroclear Holding SA/NV through Euroclear AG. Euroclear Holding SA/NV is a financial holding company under the Belgian Banking Act.

Governance of the Euroclear group is divided between the Boards of Euroclear Holding SA/NV and Euroclear SA/NV. There is a clearly defined division of roles and responsibilities between the two boards.

The Board of Euroclear Holding focuses on shareholders matters, determination of the group's long term strategic objectives and monitoring of the performance of the group as a whole. The Board of Euroclear SA/NV is in charge of the oversight of the subsidiaries' performance, operational matters, systems and controls management, risk and compliance management, strategic plan determination and provision of services to the group companies.

Within this framework, each operating entity has created a board which sets its own strategic and operational objectives, which must be consistent with those set by the parent company. The boards fulfil their leadership role by ensuring adequate meeting time is devoted to strategic, business, internal control and risk reviews. The boards rely on the work and advice of their committees to prepare discussions and decisions on several key topics. This structure allows detailed or complex matters to be afforded the adequate time and expert input.

***Composition and activities of the Board and Board Committees of Euroclear Holding SA/NV in 2019***

At the end of 2019, the Euroclear Holding SA/NV Board was composed of 12 directors, 9 of whom were senior executives proposed by firms which are shareholders. The Chairman (Mr. Marc Antoine Autheman) and 2 other directors are independent non-executive directors. The Group CEO is a permanent attendee to the Euroclear Holding Board.

During 2019, in addition to dealing with recurring matters as detailed in its Terms of Reference, the Board of Euroclear Holding SA/NV undertook a thorough review of liquidity options, with the goal of fostering an orderly transition of the Euroclear shareholders' base. In December 2019, the Board has completed the study phase of this review.

In the course of 2019, the Board also reviewed and agreed to register the following share transactions between non-related shareholders:

- 4 Feb 21,406 shares from Barclays Unquoted Investments Limited to **London Stock Exchange (C) Limited**
- 4 Feb 8,750 shares from Mizuho Trust & Banking Co Ltd to **London Stock Exchange (C) Limited**
- 4 Feb 41,250 shares from Mizuho Bank, Ltd to **London Stock Exchange (C) Limited**
- 4 Feb 6,030 shares from DB UK Holdings Limited to **London Stock Exchange (C) Limited**
- 4 Feb 73,210 shares from Deutsche Bank AG to **London Stock Exchange (C) Limited**
- 4 Feb 4,070 shares from Deutsche Bank AG – London branch to **London Stock Exchange (C) Limited**
- 4 Dec 1,809 shares from Speirs & Jeffrey Limited to **Rathbone Investment Management Limited**
- 4 Dec 18,090 shares from Equiniti (Luxembourg) S.a.r.l. to **SFPI**
- 30 Dec 4,375 shares from Shinsei Bank Limited to **Bank Julius Baer & Co. Ltd**

The directors of Euroclear Holding who have held office during 2019 to the date of this report are listed on page 17.

### *Board advisory committees*

#### Individual and collective Committee member skills

All members of the Euroclear Holding SA/NV Audit and Nominations, Remuneration and Governance Committees are non-executive directors of Euroclear Holding SA/NV. The committees have the correct knowledge base and skills among their members and each member has the adequate personal attributes in order for the committee to fulfil its role efficiently.

#### Audit Committee (AC)

The AC is an advisory committee established to assist the Board of Euroclear Holding SA/NV in fulfilling its financial reporting, audit, and compliance and ethics oversight responsibilities. The AC is comprised of at least three non-executive directors of Euroclear Holding SA/NV. All members of the AC collectively have in-depth knowledge of the financial markets and services and they have an understanding of the Company's business, accounting and audit matters. At least one member is competent in accounting and/or audit matters.

#### Nominations, Remuneration and Governance Committee (NRGC)

The NRGC is an advisory committee established to assist and advise the Board of Euroclear Holding SA/NV in all matters in relation to the nomination an suitability assessment of Board and Board Committee members, Board and Committee Composition and, more generally, all corporate governance matters, as well as on the remuneration policy. It met twice in 2019 to advise the Board on the new governance and Board composition which was eventually approved by the AGM of May 2019. The NGC is comprised of at least three non-executive directors of Euroclear Holding SA/NV.

### *Composition and activities of the Board and Board Committees of Euroclear SA/NV in 2019*

At the end of 2019, the Euroclear SA/NV Board was composed of 15 non-executive directors, six of whom were independent according to article 526ter of the Belgian Companies Code, as well as of three executive directors. As from 1 January 2020 eight Board members qualify as independent. Euroclear SA/NV therefore implemented its planned governance reform by reducing the size of its Board whilst increasing the number of independent non-executive Directors.

The Board assisted by its regular, as well as ad hoc, Committees, spent a significant amount of time analysing and discussing the respective features of potential options to improve the liquidity of shares in Euroclear Holding SA/NV, in the light of both its regulatory obligations and the agreed governance framework with Euroclear Holding SA/NV. Over the year, the Board of Euroclear SA/NV also closely monitored the license application process by the various Euroclear CSDs, the elaboration of a global IT transformation plan based on the agile approach with focus on cyber and business resilience aspects and the progressive implementation of the multi-year business plan both in terms of achievement of key financial targets and delivery of the agreed commercial strategy across its business lines.

### *Board advisory committees*

#### Individual and collective Committee member skills

All members of the Euroclear SA/NV Audit and Compliance Committee, Risk Committee, Nominations and Governance Committee and Remuneration Committee are non-executive directors of Euroclear SA/NV and at least one member of the Audit and Compliance Committee, Risk Committee, Nominations and Governance Committee and Remuneration Committee is independent within the meaning of Article 526ter of the Belgian Companies Code. The chair of each Board Committee is an independent director. The committees have the correct knowledge base and skills among their members and each member has the adequate personal attributes in order for the committee to fulfil its role efficiently.

#### Audit and Compliance Committee (ACC)

The ACC is an advisory committee established to assist the Board of Euroclear SA/NV in fulfilling its financial reporting, audit, and compliance and ethics oversight responsibilities. The ACC is comprised of at least three non-executive directors of Euroclear SA/NV. All members of the ACC collectively have in-depth knowledge of the financial markets and services and they have an understanding of the Company's business, accounting and audit matters. At least one member is competent in accounting and/or audit matters.

The ACC continued to monitor the internal control, financial and compliance framework. The ACC welcomed the appointment of a new Chief Audit Executive with whom the Committee worked to fine-tune the audit plan and organisation of the audit function at group level. In the financial area, the ACC initiated a review of the capitalisation and impairment process of intangibles aiming at capturing and reflecting changes in a more structured and timely manner. It further devoted special attention to the control objectives of the ISAE 3402 reporting.

Finally, the ACC supported the introduction of a new policy framework aiming simultaneously at streamlining the process of adopting policies across entities and embedding the group reserved matters approach, introduced in 2018, through the roll-out of group wide minimum standards. Various dedicated compliance policies were recommended to the Board for approval. Staffing and tooling of the compliance department were regularly discussed with a view to strengthen further the group's anti-money laundering and sanction capabilities.

### Risk Committee (RC)

The RC is comprised of at least three non-executive directors of Euroclear SA/NV. The RC is composed in such a way to assist and advise the Board of Directors of Euroclear SA/NV in its oversight of the Group's risk management governance structure, risk tolerance, appetite and strategy and key risks as well as the processes for monitoring and mitigating such risks. The members individually have the skills and experience to be able to understand Euroclear SA/NV's business and oversee such risk strategy, risk tolerance, risk capacity and risk profile of the company.
This year, particular attention was given to cyber as a separate risk category with close monitoring of the risk reduction plan for the most critical threats and the introduction of enhanced dashboard reporting. In addition, the Risk Committee constructively challenged the progress of the broader multi-year Security for Securities program through various dedicated work-shops and detailed presentations by the Chief Information Officer and his team. Under the Committee's guidance Euroclear also started a multidisciplinary business resilience group program to ensure a holistic approach including both the business and IT. The Risk Committee further approved an improved process for determining the Material Risk Takers' sound risk behaviour.

The ACC and the RC continued joint work on supervising the methodological enhancement of both Euroclear SA/NV and consolidated capital (ICAAP), liquidity (ILAAP), Recovery (RRW) planning and yearly Internal Control Statement. They discussed the outcome of the first resolution plan adopted by the National Bank of Belgium. They closely followed up as well on the implementation of the Swift CSP compliance program.

### Nominations and Governance Committee (NGC)

The NGC is comprised of at least three non-executive directors of Euroclear SA/NV. The NGC is composed in such a way to be able to properly and independently assist and advise the Board of Directors of Euroclear SA/NV on all matters in relation to the nomination of Board and Management Committee members, Head of Internal Control Functions, Board and Committee composition, succession planning as well as corporate governance matters, as they apply to both Euroclear SA/NV and the Group. The Committee members possess individual and collective appropriate knowledge, skills, expertise and professional experience regarding governance and selection process, suitability and control practices.

The NGC led the work on further articulating the decision-making process and information flows between Euroclear SA/NV and Euroclear Holding SA/NV Boards in compliance with their respective regulatory status. The Committee also analysed the impact of the new Belgian Companies Code on the governance of both Euroclear SA/NV and Euroclear Holding SA/NV and recommended for the Boards' approval various amendments to its Articles of Associations and key corporate governance documentation to come into force as from 1 January 2020. This to align fully with the mandatory provisions of the new Code. The NGC also deepened and strengthened its work on internal senior management succession planning.

### Remuneration Committee (RemCo)

The RemCo is comprised of at least three non-executive directors of the Company. The RemCo is composed in such a way so as to properly and independently assist and advise the Board of Directors of Euroclear SA/NV in defining a global compensation policy for the Group, ensuring that the members of the Management Committee, identified staff and the non-executive Board members are compensated as per the principles described in the Euroclear compensation policy and overseeing management's implementation of the compensation policy. The RemCo members collectively have the knowledge, expertise and experience concerning remuneration policies and practices, risk management and control activities, namely with regard to the mechanism for aligning the remuneration structure to the Company's risk and capital profiles. The RemCo members also collectively have an understanding of Euroclear's business and have competence relevant to the sector in which the Euroclear operates.

During 2019, the RemCo reviewed various components of Euroclear's remuneration strategy aiming at promoting a performance driven culture within the boundaries of sound and prudent risk management and matching long term shareholders' expectations as well as aligning with latest market practices for the reward mix of its senior management. Key principles were adopted by the Board of Directors of Euroclear SA/NV and will be implemented further into 2020. The RemCo also began work to refine further the setting of Management and Corporate Objectives and how they could be measured effectively.

Further information on the Euroclear governance bodies can be found on www.euroclear.com.

### Group Management

The Management Committee of Euroclear SA/NV is entrusted with the general management within the strategic framework defined by the Board and exercises its consolidated regulatory oversight duties towards the group companies.

The Management Committee comprises five members: Chief Executive Officer, Chief Business Officer, Chief Financial Officer, Chief Risk Officer, and Chief Information Officer.

### Publicity of external mandates

Details of the reportable directorship mandates and managerial functions exercised in companies outside the Euroclear group by the members of the Board of Euroclear Holding SA/NV, Euroclear SA/NV and the management of Euroclear SA/NV are available on the website www.euroclear.com.

## Non-audit services

The amount of fees charged to Euroclear Holding SA/NV and its subsidiaries for non-statutory audit services amounted to €887,000, the largest part of it relating to the ISAE 3402 report. Further details of fees for audit and non-audit services are provided in Note IX of the financial statements.

### Group responsibility

Please refer to the current sustainability report for an overview of Euroclear's mission and values, its commitment to Euroclear's people and corporate responsibility. This report is reviewed on an annual basis and reports on four Corporate Responsibility streams in accordance with Core GRI standards. It is updated and made available on the website www.euroclear.com as from May 2019.

On behalf of the Board

Marc Antoine Autheman
Chairman of the Board
31 March 2020

# Board and Committees – composition

as at 31 December 2019

| Members | Board | Audit Committee | Nominations, Remuneration & Governance Committee |
|---|---|---|---|
| **Marc Antoine Autheman (Chairman)**<br>Independent | ● | | ● |
| **Nils-Fredrik Nyblaeus (Deputy Chairman)**<br>Independent | ● | | ●<br>(Chair) |
| **David Abitbol**<br>Société Générale | ● | | |
| **Anthony Attia**<br>Euronext NV | ● | | |
| **Andre Cronje**<br>HSBC | ● | ● | |
| **Bert De Graeve**<br>Independent | ● | | |
| **Xiaomei Fan**<br>Kuri Atyak Investment Ltd. | ● | | |
| **Mark S. Garvin**<br>JP Morgan Overseas Capital LLC | ● | | ● |
| **Christophe Hémon**<br>LSEG | ● | | |
| **Sophie Javary**<br>BNP Paribas | ● | | |
| **François Marion**<br>Sicovam Holding | ● | ●<br>(Chair) | ● |
| **Hester Serafini**<br>Intercontinental Exchange Holding, Inc. | ● | ● | |

# Consolidated income statement

For the year ended 31 December 2019

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| Interest income | VI | 440,801 | 353,072 |
| Interest expense | VI | (133,918) | (97,347) |
| **Net interest income** | | **306,883** | **255,725** |
| Fee and commission income | VII | 1,617,636 | 1,528,895 |
| Fee and commission expense | VII | (513,890) | (500,512) |
| **Net fee and commission income** | | **1,103,746** | **1,028,383** |
| **Net interest and fee income** | | **1,410,629** | **1,284,108** |
| Dividend income | | 8,840 | 9,885 |
| Net gains/(losses) on debt instruments at FVOCI | | 10 | - |
| Net gains/(losses) on non-trading financial assets mandatorily at FVPL | | - | 2,804 |
| Net gains/(losses) on financial assets and liabilities held for trading | VIII | 22,552 | 29,041 |
| Net gains/(losses) on foreign exchange | | (13,373) | 1,268 |
| Other operating income | | 6,799 | 8,051 |
| **Operating income** | | **1,435,457** | **1,335,157** |
| Administrative expenses | IX | (820,092) | (815,935) |
| Share of the profit/(loss) of investments accounted for using equity method | I | 708 | (6,822) |
| **Operating profit/(loss) before impairment and taxation** | | **616,073** | **512,400** |
| Impairment | X | (2,130) | (29,221) |
| **Operating profit/(loss) before taxation** | | **613,943** | **483,179** |
| Taxation | XI, XII | (183,175) | (161,105) |
| **Profit/(loss) for the year** | | **430,768** | **322,074** |

For the list of companies in the group, see Note I.

The accompanying Notes form an integral part of these financial statements.

# Consolidated statement of comprehensive income

For the year ended 31 December 2019

| | | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|---|
| (€'000) | **Notes** | **Gross** | **Tax** | **Net** | **Gross** | **Tax** | **Net** |
| **Changes in other comprehensive income** | | | | | | | |
| Adjustment on adoption of IFRS 9 | II | - | - | - | (184,621) | (38) | (184,659) |
| Debt instruments measured at FVOCI | XIII, XXIV | 29,818 | (7,394) | 22,424 | 3,384 | (992) | 2,392 |
| Cash flow hedges | XV, XXIV | (5,655) | 1,539 | (4,116) | 2,674 | (791) | 1,883 |
| Foreign currency translation reserve | XXIV | 5,329 | - | 5,329 | (9,833) | - | (9,833) |
| Recyclable subsequently to profit/(loss) | | 29,492 | (5,855) | 23,637 | (188,396) | (1,821) | (190,217) |
| Adjustment on adoption of IFRS 9 | II | - | - | - | 182,289 | - | 182,289 |
| Equity instruments designated at FVOCI | XIII, XXIV | 132,741 | (1,941) | 130,800 | (13,450) | 346 | (13,104) |
| Defined benefit plans | XXII | (27,183) | 6,565 | (20,618) | (14,802) | 2,372 | (12,430) |
| Not recyclable subsequently to profit/(loss) | | 105,558 | 4,624 | 110,182 | 154,037 | 2,718 | 156,755 |
| **Other comprehensive income for the year** | | **135,050** | **(1,231)** | **133,819** | **(34,359)** | **897** | **(33,462)** |
| Adjustment on adoption of IFRS 9 | II | - | - | - | 3,007 | (90) | 2,917 |
| **Derecognised equity instruments designated at FVOCI** | | **(944)** | **-** | **(944)** | **(370)** | **-** | **(370)** |
| **Profit/(loss) for the year** | | **613,943** | **(183,175)** | **430,768** | **483,179** | **(161,105)** | **322,074** |
| **Total comprehensive income for the year** | | **748,049** | **(184,406)** | **563,643** | **451,457** | **(160,298)** | **291,159** |

The accompanying Notes form an integral part of these financial statements.

# Consolidated statement of changes in equity

For the year ended 31 December 2019

| (€'000) | Notes | Called up share capital | Share premium account | Capital redemption reserve | Other reserves | Retained earnings | Total equity |
|---|---|---|---|---|---|---|---|
| **At 1 January 2019** | | **3,147** | **943,441** | **-** | **260,117** | **2,632,373** | **3,839,078** |
| Changes in other comprehensive income | | | | | | | |
| - Debt instruments measured at FVOCI | XXIV | - | - | - | 22,424 | - | 22,424 |
| - Equity instruments designated at FVOCI | XXIV | - | - | - | 130,800 | (944) | 129,856 |
| - Cash flow hedges | XV, XXIV | - | - | - | (4,116) | - | (4,116) |
| - Foreign currency translation reserve | XXIV | - | - | - | 5,329 | - | 5,329 |
| - Defined benefit plans | XXII | - | - | - | - | (20,618) | (20,618) |
| Transfer to legal reserve | XXIV | - | - | - | 111 | (111) | - |
| Profit for the year | | - | - | - | - | 430,768 | 430,768 |
| Dividends paid | XXV | - | - | - | - | (173,110) | (173,110) |
| **At 31 December 2019** | | **3,147** | **943,441** | **-** | **414,665** | **2,868,358** | **4,229,611** |

| | | Called up share capital | Share premium account | Capital redemption reserve | Other reserves | Retained earnings | Total equity |
|---|---|---|---|---|---|---|---|
| **At 31 December 2017** | | **3,147** | **143,223** | **684** | **1,079,646** | **2,443,969** | **3,670,669** |
| Adjustment on adoption of IFRS 9 (net of tax) | II | - | - | - | (2,370) | 2,917 | 547 |
| **At 1 January 2018** | | **3,147** | **143,223** | **684** | **1,077,276** | **2,446,886** | **3,671,216** |
| Changes in other comprehensive income | | | | | | | |
| - Debt instruments measured at FVOCI | XXIV | - | - | - | 2,392 | - | 2,392 |
| - Equity instruments designated at FVOCI | XXIV | - | - | - | (13,104) | (370) | (13,474) |
| - Cash flow hedges | XV, XXIV | - | - | - | 1,883 | - | 1,883 |
| - Foreign currency translation reserve | XXIV | - | - | - | (9,833) | - | (9,833) |
| - Defined benefit plans | XXII | - | - | - | - | (12,430) | (12,430) |
| Transfer to legal reserve | XXIV | - | - | - | 1,720 | (1,720) | - |
| Transfer to retained earnings | | - | 800,217 | (684) | (800,217) | 684 | - |
| Profit for the year | | - | - | - | - | 322,074 | 322,074 |
| Dividends paid | XXV | - | - | - | - | (122,751) | (122,751) |
| **At 31 December 2018** | | **3,147** | **943,441** | **-** | **260,117** | **2,632,373** | **3,839,078** |

The accompanying Notes form an integral part of these financial statements.

# Consolidated statement of financial position

As at 31 December 2019

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| **Assets** | | | |
| Cash and balances with central banks | IV | 1,883,153 | 4,536,101 |
| Loans and advances at amortised cost | IV | 13,734,855 | 14,540,012 |
| Financial assets at FVOCI | XIII | 10,311,059 | 7,433,905 |
| Non-trading financial assets mandatorily at FVPL | | 15,836 | 12,505 |
| Financial assets held for trading | XIV | 10,624 | 14,475 |
| Derivatives used for hedging | XV | 1,726 | 3,293 |
| Current income tax assets | | 20,695 | 8,629 |
| Deferred income tax assets | XII | 110,483 | 126,563 |
| Other assets | XVI | 109,487 | 183,061 |
| Pre-payments and accrued income | | 153,273 | 153,400 |
| Pension asset | XXII | 589 | 523 |
| Property, plant and equipment | XVII | 191,782 | 107,447 |
| Goodwill and intangible assets | XVIII | 1,001,920 | 991,828 |
| Investments in subsidiaries and joint ventures | I | 23,106 | 22,302 |
| **Total assets** | | **27,568,588** | **28,134,044** |
| **Liabilities** | | | |
| Deposits from central banks | IV | 825,939 | 539,598 |
| Deposits from banks and customers | IV | 15,588,804 | 17,944,330 |
| Debt securities issued and funds borrowed | XX | 6,107,058 | 4,956,396 |
| Financial liabilities held for trading | XIV | 8,832 | 20,316 |
| Derivatives used for hedging | XV | 4,654 | 566 |
| Lease liabilities | | 95,124 | - |
| Other liabilities | XIX | 270,692 | 418,515 |
| Accruals and deferred income | | 234,123 | 228,298 |
| Current income tax liabilities | | 7,765 | 5,006 |
| Deferred income tax liabilities | XII | 3,335 | 3,382 |
| Provisions for liabilities and charges | XXI | 13,487 | 17,796 |
| Pension deficit | XXII | 179,164 | 160,763 |
| **Total liabilities** | | **23,338,977** | **24,294,966** |
| **Shareholders' equity** | | | |
| Called up share capital | XXIII | 3,147 | 3,147 |
| Share premium account | | 943,441 | 943,441 |
| Other reserves | XXIV | 414,665 | 260,117 |
| Retained earnings | | 2,868,358 | 2,632,373 |
| **Total shareholders' equity** | | **4,229,611** | **3,839,078** |
| **Total liabilities and shareholders' equity** | | **27,568,588** | **28,134,044** |

The accompanying Notes form an integral part of these financial statements.

These financial statements were authorised for issue by the Board of Directors on 31 March 2020 and signed on its behalf by

**Marc Antoine Autheman, Chairman of the Board**

# Consolidated statement of cash flows

For the year ended 31 December 2019

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| **Profit/(loss) before taxation** | | **613,943** | **483,179** |
| Adjustments for: | | | |
| - Depreciation and amortisation | XVII, XVIII | 69,973 | 48,091 |
| - Impairment | X | 2,130 | 29,221 |
| - Provisions for liabilities and charges | IX | (2,964) | (1,070) |
| - Dividends received | | (8,840) | (9,885) |
| - (Gains)/losses on disposal of property, plant and equipment | | (2) | (1,425) |
| - Share of the (profit)/loss of investments accounted for using equity method | I | 2,179 | 6,822 |
| - Interest on loans and advances (including central banks) | VI | (333,962) | (276,343) |
| - Interest on deposits and short term funds borrowed | VI | (24,408) | (14,595) |
| - Interest on financing activities | VI | 67,453 | 22,155 |
| - Interest on leases | XXVII | 751 | - |
| Other non-cash movements | | 88,813 | 8,240 |
| of which effect of exchange rate changes | | 85,769 | 482 |
| - Interest received on loans and advances (including central banks) | | 338,345 | 270,707 |
| - Interest received/(paid) on deposits and short term funds borrowed | | 24,329 | 13,563 |
| **Cash flows from operating profit/loss before changes in operating assets/liabilities** | | **837,730** | **578,660** |
| Net increase/(decrease) in deposits and short term funds borrowed | | (3,038,881) | 1,939,664 |
| Net (increase)/decrease in loans and advances (including central banks) | IV | 245,603 | (262,630) |
| Net (increase)/decrease in other assets | | 73,003 | (17,828) |
| Net increase/(decrease) in other liabilities | | (147,823) | 78,521 |
| **Net cash inflow/(outflow) from operating activities** | | **(2,030,368)** | **2,316,387** |
| Tax paid | | (175,022) | (253,051) |
| **Net cash from operating activities** | | **(2,205,390)** | **2,063,336** |
| **Cash flows from investing activities** | | | |
| Proceed of disposal of subsidiaries | I | - | (13,824) |
| Purchase of financial instruments at FVOCI | XIII | (20,252,032) | (17,832,173) |
| Redemption and disposals of financial instruments at FVOCI | XIII | 17,517,131 | 15,770,626 |
| Purchase of property, plant and equipment | XVII | (14,667) | (39,671) |
| Purchase of intangible assets | XVIII | (39,965) | (37,438) |
| Sale of property, plant and equipment | | 2 | 1,775 |
| Dividends received | | 8,840 | 9,885 |
| Loans/(reimbursement of loans) to related party | XXVIII | (5,600) | (2,122) |
| **Net cash from/(used in) investing activities** | | **(2,786,291)** | **(2,142,942)** |
| **Cash flows from financing activities** | | | |
| Reimbursment of financing activities | XX | (3,767,786) | - |
| Proceeds from financing activities | XX | 5,504,906 | 3,699,010 |
| Interest paid on financing activities | | (29,827) | (6,750) |
| Equity dividends paid | XXV | (173,110) | (122,751) |
| Payment of lease liabilities | XXVII | (19,452) | - |
| **Net cash from/(used in) financing activities** | | **1,514,731** | **3,569,509** |
| **Net increase/(decrease) in cash and cash equivalents** | | **(3,476,950)** | **3,489,903** |
| Cash and cash equivalents at beginning of year | | 17,392,255 | 13,686,271 |
| Effects of exchange rate changes on cash and cash equivalents | | 239,357 | 216,081 |
| **Cash and cash equivalents at end of year** | | **14,154,662** | **17,392,255** |
| Cash and cash equivalents at end of year comprise: | | | |
| **Cash and balances with central banks** | IV | 1,883,153 | 4,536,101 |
| **Loans and advances** | IV | 13,734,855 | 14,540,012 |
| Excluding loans and advances with intitial maturity above three months | | (1,463,346) | (1,683,858) |
| **Cash and cash equivalents at end of year** | | **14,154,662** | **17,392,255** |

**Reconciliation of liabilities arising from financing activities**

| (€'000) | Notes | 2018 | Cash flows | Non-cash changes | 2019 |
|---|---|---|---|---|---|
| Long term senior debts | | **1,300,637** | (21,750) | 22,831 | **1,301,718** |
| Medium term notes | | **2,511,073** | 37,137 | 9,777 | **2,557,987** |
| Certificates of deposits | | **497,437** | 1,691,906 | 35,005 | **2,224,348** |
| **Total debt securities issued and funds borrowed** | XX | **4,309,147** | **1,707,293** | **67,613** | **6,084,053** |
| Lease liabilities | | **-** | (19,452) | 114,576 | **95,124** |
| **Total liabilities arising from financing activities** | | **4,309,147** | **1,687,841** | **182,189** | **6,179,177** |

| (€'000) | Notes | 2017 | Cash flows | Non-cash changes | 2018 |
|---|---|---|---|---|---|
| Long term senior debts | | **594,895** | 687,198 | 18,544 | **1,300,637** |
| Medium term notes | | **-** | 2,508,251 | 2,822 | **2,511,073** |
| Certificates of deposits | | **-** | 496,811 | 626 | **497,437** |
| **Total debt securities issued and funds borrowed** | XX | **594,895** | **3,692,260** | **21,992** | **4,309,147** |
| **Total liabilities arising from financing activities** | | **594,895** | **3,692,260** | **21,992** | **594,895** |

# Notes to the consolidated financial statements
# I. Interests in other entities

### I.1. General information

Euroclear Holding SA/NV (the Company) and its subsidiaries (together, the group) arrange for the provision of settlement and related services, including banking services in the case of Euroclear Bank, for domestic and international securities transactions, covering bonds, equities, investment funds and derivatives.

Euroclear Holding SA/NV is incorporated and domiciled in Belgium. The address of its registered office is:

Euroclear Holding SA/NV
1 Boulevard du Roi Albert II
1210 Brussels
Belgium

Copies of the Euroclear Holding SA/NV consolidated financial statements can be obtained at the same address or checked on www.euroclear.com

The internal reorganisation that took place during 2018 resulted in the top holding company of the Euroclear Group being now located in the European Union (in preparation for post Brexit).

To achieve its objectives, the group has implemented a scheme of arrangement by way of a transfer scheme to insert a new Belgian-incorporated top holding company. In accordance with the Scheme, the shares in Euroclear plc have been transferred from the previous shareholders of the former top holding company of the group (i.e. Euroclear plc) to the new top holding company (i.e. the Company) in consideration for the Company having issued new shares in the Company to those former shareholders of Euroclear plc in proportion to their holding of Euroclear plc shares (on a one-for-one basis). The end result of the Scheme was that pursuant to the contribution by way of transfer of the shares in Euroclear plc to the Company, instead of holding shares in Euroclear plc, the former shareholders of Euroclear plc now hold shares in the Company in the same proportions as their past holdings in Euroclear plc, and Euroclear plc became a wholly-owned subsidiary of the Company.

Additional steps were implemented before year end 2018 to further reorganise the Euroclear group, including (i) the contribution by the Company, subject to the agreement of Euroclear AG, of 100% of the shares in Euroclear plc to its subsidiary incorporated under the laws of Switzerland, Euroclear AG, in exchange for new shares in Euroclear AG pursuant to a capital increase of Euroclear AG, (ii) the re-registration of Euroclear plc as Euroclear Limited, (iii) capital reductions of Euroclear Limited and (iv) the distribution in specie by Euroclear Limited, subject to the agreement of Euroclear AG, of 100% of the shares in Euroclear Investments SA to Euroclear AG.

The reorganisation had no economic impact at consolidated level. The group policy is indeed to retain all assets and liabilities of the parties involved in business combinations of entities under common control at their book value (see consolidation section in note II).

## I.2. Subsidiaries

At 31 December 2019, the Company's subsidiaries are as follows:

| | Country of incorporation | Nature of business | Proportions of voting rights and ordinary shares held |
|---|---|---|---|
| **Consolidated subsidiaries** | | | |
| Caisse interprofessionelle de dépôts et de virements de titres SA[1] | Belgium | Central Securities Depository for Belgium | 100% |
| Calar Belgium SA/NV[2] | Belgium | Property Investment | 100% |
| EMX Company Limited[1] | United Kingdom | Dormant | 100% |
| Euroclear AG | Switzerland | Investment holding | 100% |
| Euroclear Bank SA/NV[1] | Belgium | Banking, securities settlement and custody services | 100% |
| Euroclear Finland Oy[1] | Finland | Central Securities Depository for Finland | 100% |
| Euroclear France SA[1] | France | Central Securities Depository for France | 100% |
| Euroclear Information Solutions Limited[1] | United Kingdom | Dormant | 100% |
| Euroclear Investments SA[3] | Luxembourg | Investment holding | 100% |
| Euroclear Properties France SAS[2] | France | Property Investment | 100% |
| Euroclear Re SA[2] | Luxembourg | Reinsurance | 100% |
| Euroclear SA/NV[2] | Belgium | (I)CSD holding company, ownership of share processing platforms and delivery of shared non-operational services | 100% |
| Euroclear Sweden AB[1] | Sweden | Central Securities Depository for Sweden | 100% |
| Euroclear UK & Ireland Limited[1] | United Kingdom | Central Securities Depository for the United Kingdom and Ireland, and Investment-fund order routing | 100% |
| Nederlands Centraal Instituut voor Giraal Effectenverkeer BV (Necigef)[1] | The Netherlands | Central Securities Depository for the Netherlands | 100% |
| Number of wholly owned subsidiaries | | | 15 |
| Number of non-wholly owned subsidiary | | | 0 |
| **Total subsidiaries** | | | 15 |

[1] Held through Euroclear SA/NV
[2] Held through Euroclear Investments SA
[3] Held through Euroclear AG

| | Country of incorporation | Nature of business | Proportions of voting rights and ordinary shares held |
|---|---|---|---|
| **Non-consolidated subsidiaries** | | | |
| **Nominees** | | | |
| CIN(Belgium) Limited[1] | United Kingdom | Nominee company | 100% |
| CREST Client Tax Nominee(No.1) Limited[1] | United Kingdom | Nominee company | 100% |
| CREST USD Nominee Limited[2] | United Kingdom | Nominee company | 100% |
| CREST Depository Limited[2] | United Kingdom | Nominee company | 100% |
| CREST International Nominees Limited[1] | United Kingdom | Nominee company | 100% |
| CREST Stamp Nominee(No.1) Limited[2] | United Kingdom | Nominee company | 100% |
| CREST Stamp Nominee(No.2) Limited[2] | United Kingdom | Nominee company | 100% |
| CRESTCo Limited[2] | United Kingdom | Nominee company | 100% |
| EC Nominees Limited[3] | United Kingdom | Nominee company | 100% |
| ENL Nominee Limited[5] | United Kingdom | Nominee company | 100% |
| EOC Equity Limited[3] | United Kingdom | Nominee company | 100% |
| Euroclear Nominees Limited[3] | United Kingdom | Nominee company | 100% |
| Euroclear Treasury Nominee Limited[3] | United Kingdom | Nominee company | 100% |
| Fundsettle EOC Nominees Limited[3] | United Kingdom | Nominee company | 100% |
| Trinity Nominees Limited[2] | United Kingdom | Nominee company | 100% |
| **Non material subsidiaries** | | | |
| Quantessence Limited[4] | United Kingdom | Proprietary services | 65% |
| Taskize Limited[4] | United Kingdom | Proprietary services | 78% |

[1] Held through CREST Depository Limited
[2] Held through Euroclear UK & Ireland Limited
[3] Held through Euroclear Bank SA/NV
[4] Held through Euroclear SA/NV
[5] Held through Nederlands Centraal Instituut voor Giraal Effectenverkeer BV (Necigef)

Euroclear Information Solutions Limited is a UK-based financial services company that was developing pre-trade financial solutions for illiquid fixed income instruments, but is expected to be dissolved in 2020. In July 2018, the company injected USD 10,001,000 into Algomi Ltd in exchange of 309,341 shares representing a 5.38% ownership. Later in 2018, the decision was taken to write off the Algomi participation due to the uncertainty of cash flow projections. The aggregate amount of Euroclear Information Solutions Limited assets as at the end of 2019 was €5,794,000 (2018: €7,794,000). In light of the immateriality of the net asset value of the company (< 1% of total group's equity) as of end of 2019, the company was not presented as discontinued operations in the financial statements.

Euroclear SA/NV owns a stake of 65% (€4,156,000) in Quantessence Limited, a UK-based start-up company that is developing innovative fund services. The participation in Quantessence Limited is recognised at its acquisition value in the statement of financial position. The aggregate amount of Quantessence capital and reserves was GBP 1,255,000 as at the end of 2019 (2018: GBP 2,735,000), made of capital and share premium of GBP 3,625,000 (2018: GBP 3,625,000) and accumulated losses of GBP 2,370,000 (2018: GBP 890,000).

Euroclear SA/NV owns a stake of 78.05% in Taskize Limited. Taskize Limited is a start-up company founded to develop and bring to market Taskize Connect, a collaboration software designed to resolve issues in global banking operations within and between firms. The participation in Taskize is recognised at a net book value of €9,937,000 in the statement of financial position. The aggregate amount of Taskize capital and reserves was GBP 2,043,000 as at the end of 2019 (2018: GBP 3,274,000), made of capital and share premium of GBP 7,703,000 (2018: GBP 7,703,000) and accumulated losses of GBP 5,660,000 (2018: GBP 4,429,000).

Taskize Limited and Quantessence Limited have not been consolidated since they collectively represent less than 1% of the group consolidated equity, total assets and profit after tax and are therefore not considered as being material.

Euroclear Market Solutions Limited and Euroclear Limited have been dissolved in 2019.

### I.3. Joint venture

The Depository Trust & Clearing Corporation (DTCC) and Euroclear created a 50/50 joint venture in September 2014 focusing on collateral processing. The company, DTCC-Euroclear Global Collateral Ltd (DEGCL), is domiciled in the United Kingdom.

The joint venture provides an open industry infrastructure solution for clients as they manage their collateral margin needs, including a Margin Transit Utility (MTU) providing straight-through processing to the settlement of margin obligations, and a Collateral Management Utility (CMU) offering optimised collateral mobility and allocation at a global level.

In January 2020, Euroclear and DTCC signed an agreement confirming the dissolution of the Joint Venture in 2020. The MTU business will transfer to DTCC and the 50% share of DEGCL owned by DTCC will transfer to Euroclear SA/NV.

The joint arrangement between DTCC and Euroclear SA/NV still qualified as joint venture as at year end.

The company financial statements are prepared in accordance with International Financial Reporting Standards. DTCC-Euroclear Global Collateral Ltd is not a listed company and there is no quoted market price available for its shares.

| (€'000) | 2019 | 2018 |
|---|---|---|
| **Summarised statement of financial position** | | |
| **Current assets** | | |
| Cash and cash equivalents | 8,751 | 17,345 |
| Trade and other receivables | 5,838 | 1,128 |
| **Non-current assets** | | |
| Property, plant and equipment | 510 | - |
| **Total assets** | **15,099** | **18,473** |
| **Current liabilities** | | |
| Lease liability | 83 | - |
| Trade and other payables | 2,326 | 2,057 |
| **Non-current liabilities** | | |
| Lease liability | 431 | - |
| **Total liabilities** | **2,841** | **2,057** |

| (€'000) | 2019 | 2018 |
|---|---|---|
| **Summarised statement of comprehensive income** | | |
| **Operating profit/(loss) before taxation** | **(10,174)** | **(13,644)** |
| Taxation | 5,816 | - |
| **Profit/(loss) for the year** | **(4,358)** | **(13,644)** |
| **Total comprehensive income** | **(4,358)** | **(13,644)** |

50% of the above comprehensive income are recognised in the group's consolidated statement of comprehensive income.

DEGCL 2017 and 2018 tax losses were transferred to affiliated entities through consortium relief. Euroclear will pay a compensation to DEGCL amounting to 80% of the tax benefit (GBP 5 million) resulting from the application of the consortium. DTCC has also claimed its stake of the 2017-2018 DEGCL tax losses but without compensating DEGCL.

| (€'000) | 2019 | 2018 |
|---|---|---|
| **Reconciliation of summarised financial information** | | |
| Opening net assets 1 January | 16,416 | 10,803 |
| Capital injection | - | 19,200 |
| Profit/(loss) for the year | (4,358) | (13,644) |
| Adjustment on adoption of IFRS 9 | - | (3) |
| Effect of exchange rate changes | 200 | 60 |
| **Closing net assets** | **12,258** | **16,416** |
| Interest in joint venture at 50% | 6,129 | 8,208 |
| Tax relief adjustment (fully allocated to Euroclear) | 2,882 | - |
| **Carrying value** | **9,011** | **8,208** |

# II. Accounting policies

**II.1.Basis of preparation**

These financial statements have been prepared in accordance with International Financial Reporting Standards as adopted by the European Union (IFRSs as adopted by the EU) and IFRIC Interpretations applicable to companies reporting under IFRS.

The consolidated financial statements have been prepared under the historical cost convention, as modified by the revaluation of certain financial instruments and are prepared on a going concern basis.

The preparation of financial statements in conformity with IFRSs requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the company's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements are disclosed in Note III.

**II.1.1. Adoption of interpretation, new standards and amendments to standards effective on 1 January 2019**

- IFRS 16 Leases
- Amendments to IFRS 9: Prepayment Features with Negative Compensation
- IFRIC 23 Uncertainty over Income Tax Treatments.
- Amendments to IAS 28 Long-term Interests in Associates and Joint Ventures
- Annual Improvements to IFRS Standards 2015 - 2017 Cycle
- Amendments to IAS 19 Plan Amendment, Curtailment or Settlement

The group has elected to adopt the new IFRS 16 rules from 1 January 2019, using the modified retrospective approach. Under this approach, 2018 comparatives were not restated. The reclassifications and the adjustments arising from the new leasing rules are therefore recognised in the opening balance sheet on 1 January 2019.

The group had no leases classified as finance leases. The new standard applies thus exclusively to leased buildings, the car pool and DP equipment previously classified as operating leases. Right-of use assets have been measured at the amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to that lease recognised in the balance sheet as at 31 December 2018 (no impact on previously recognised retained earnings).

In applying IFRS 16 for the first time, the group has used the following practical expedients permitted by the standard:
- relying on previous assessments on whether leases are onerous as an alternative to performing an impairment review,
- accounting for operating leases with a remaining lease term of less than 12 months as at 1 January 2019 as short-term leases.

The impact of the adoption of IFRS 16 on 1 January 2019 is the recognition of right of use assets and lease liabilities amounting to €105.6 million. More information can be found in the disclosure note XVII Property, plant and equipment and XXVII Operating lease commitments.

The application of above new IFRIC and amendments to standards had no impact on the group’s financial statements.

Section II.2 Summary of significant accounting policies describes more in detail the new IFRS 16 rules.

Details on the transition to IFRS 9 (effective from 1 January 2018) and its key impacts can be found in the 2018 financial statements.

**II.1.2. Standards, amended standards and interpretations endorsed by the EU, but not yet effective in 2019**

The following amendments to standards will become effective on 1 January 2020.
- Amendment to IFRS 3 Business Combinations
- Amendments to IAS 1 and IAS 8: Definition of Material

These amendments are not expected to affect the future periods.

**II.2. Summary of significant accounting policies**

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. Except for the changes related to the adoption of IFRS 16, these policies have been consistently applied to all the years presented.

**II.2.1. Consolidation**

Subsidiaries are all entities over which the group has control. The group controls an entity when the group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the group. They are deconsolidated from the date that control ceases.

A group entity controls an investee if and only if the investor has all the following:
- power over the investee;
- exposure, or rights, to variable returns from its involvement with the investee; and
- the ability to use its power over the investee to affect the amount of the investor’s returns.

In accordance with IFRS 3, the cost of an acquisition is measured as the fair value of the assets given, equity instruments issued and liabilities incurred or assumed at the date of exchange. Costs directly attributable to the acquisition are expensed. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date, irrespective of the extent of any minority interest.

The excess of the cost of acquisition over the fair value of the group's share of the identifiable net assets is recognised as goodwill. If the cost of acquisition is less than the fair value of the group's share of the net assets of the subsidiary acquired, the difference is recognised directly in the income statement.

Inter-company transactions, balances and unrealised gains on transactions between group companies are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of impairment of the asset transferred. Where permitted under local legislation, the accounting policies of subsidiaries have been changed to ensure consistency with the policies of the group.

Business combinations involving entities under common control were specifically excluded from the scope of IFRS 3 Business combinations. The group therefore applies the guidance provided by IAS 8 Accounting policies, changes in accounting estimates and errors, which requires management to consider the requirements and guidance in other international standards and interpretations dealing with similar issues. Management therefore applies the UK GAAP requirements of Financial Reporting Standard (FRS) 102 *The Financial Reporting Standard applicable in the UK and Republic of Ireland.* The standard allows the assets and liabilities of the parties involved in business combinations of entities under common control to be retained at their book value.

A joint arrangement is an arrangement of which two or more parties have joint control. A joint arrangement has the following characteristics:
- the parties are bound by a contractual arrangement;
- the contractual arrangement gives two or more of those parties joint control of the arrangement.
A joint arrangement is either a joint operation or a joint venture.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement. Joint ventures are accounted for using the equity method of accounting. Under the equity method, the investment is initially recognised at cost and the carrying amount is subsequently increased or decreased to recognise the group's share of the net result of the joint venture after the acquisition. The group's share of the joint venture's profit or loss is recognised in its income statement. The group's interest in a joint venture or associate is carried in the statement of financial position at its share in the net assets of the joint venture, less any impairment loss. The accounting policies of the joint venture are changed where necessary to ensure consistency with the policies adopted by the group.

### II.2.2. Segment reporting

An operating segment is a component of an entity that engages in business activities from which it may earn revenues and incur expenses.

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as the Euroclear SA/NV Management Committee.

### II.2.3. Foreign currency translation

#### II.2.3.1. Functional and presentation currency
Items included in the financial statements of each of the group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The consolidated financial statements are presented in euro, which is the company's functional and presentation currency.

#### II.2.3.2. Transactions and balances
Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the income statement, except when deferred in equity as qualifying cash flow hedges and qualifying net investment hedges. Translation differences on non-monetary items measured at fair value through profit or loss are reported as part of the fair value gain or loss. Non-monetary items that are measured in terms of historical cost in a foreign currency are not translated. Translation differences on other non-monetary items are included in the profit or loss account.

#### II.2.3.3. Group companies
The results and financial position of all the group's entities that have a functional currency different from the presentation currency are translated into the presentation currency as follows:
- assets and liabilities for each balance sheet presented are translated at the closing exchange rate at the balance sheet date;
- income and expenses for each income statement are translated at average exchange rates for the year; and
- the resulting exchange differences are recognised in the foreign currency translation reserve.

On consolidation, exchange differences arising from the translation of the net investment in foreign entities, and of borrowings and other currency instruments designated as hedges of such investments, are taken to other comprehensive income, in the foreign currency translation reserve and the hedge of net investments in foreign operations reserve. When a foreign operation is sold, such exchange differences are recognised in the income statement as part of the gain or loss on the sale.

None of the group companies have used the currency of a hyperinflationary economy as its functional currency.

Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at the closing exchange rate.

**II.2.4. Revenue recognition**

#### II.2.4.1 Interest income and expense

Interest income and expense are recognised in the income statement using the effective interest rate method. This is a method of calculating the amortised cost of a financial asset or liability and of allocating the interest income or interest expense over the relevant accounting years.

The effective interest rate is the rate that exactly discounts the estimated cash payments or receipts over the expected life of the instrument to the net carrying amount of the financial asset or liability.

When calculating the effective interest rate for financial assets other than purchased or originated credit impaired assets, the group estimates future cash flows considering all contractual terms of the financial instrument, but not expected credit losses. For purchased or originated credit impaired financial assets, a credit-adjusted effective interest rate is calculated using estimated future cash flows including expected credit losses.

The calculation of the effective interest rate includes transaction costs and fees and points paid or received that are an integral part of the effective interest rate. Transaction costs include incremental costs that are directly attributable to the acquisition or issue of a financial asset or financial liability.

The amortised cost of a financial asset or liability is the amount at which the financial asset or liability is measured on initial recognition minus the principal repayments, plus or minus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount and, for financial assets, adjusted for any expected credit losses allowance.

The gross carrying amount of a financial asset is the amortised cost of a financial asset before adjusting for any expected credit loss allowance.

Interest income and expense presented in the income statement include:

- interest of financial assets and liabilities presented at amortised cost,
- interest on debt instruments measured at FVOCI,
- interest on non SPPI-compliant loans classified as non trading financial assets mandatorily at FVPL.

Group loans to, and deposits from, banks and customers are principally related to Euroclear Bank clients' cash accounts operated in connection with their securities settlement activity, with balances generally changing on a daily basis. Time deposits and the re-deposits of surplus funds rarely have maturities of more than three months.

#### II.2.4.2. Fee and commission income and expense

Fee and commission income and expense which respectively represent a return and cost for services rendered (such as safekeeping, settlement and custody) are recognised in the income statement point in time when the related service is performed and resulting the performance obligation is met.

Settlement and Clearing includes the settlement service, but also the securities and borrowing service and other collateral management services directly linked to settlement business. Settlement fees are charged at an average fee rate multiplied by the number of settled transactions during the month. Fees are aggregated by market and instrument type. Fees are calculated applying a sliding scale tariff to the number of instructions. Fee and commission income and expense, which represent a return for credit risk borne or which are in the nature of interest (securities borrowing), are recognised in the income statement over the period of the loan, or on a systematic basis over the expected life of the transaction to which they relate, net of rebates granted.

The safekeeping service ensures that a record of title to the customer’s securities is maintained on the books of a higher-tier entity, and that the number of securities owned by the customer as recorded in the custodian books can always be delivered to the customer’s order. Safekeeping fees are computed on the monthly average depot value of securities held in custody.

Other fee and commission income mainly relates to communication fees, custody operations, the recovery of out-of-pocket expenses incurred on behalf of clients, issuer services fees earned by Euroclear Finland and Euroclear Sweden, and revenue earned by Euroclear UK & Ireland for collecting Stamp Duty Reserve Tax on behalf of Her Majesty’s Revenue & Customs in the United Kingdom and Stamp Duty on behalf of the Irish Revenue Commissioners. The fees are monthly charged, at an average fee rate multiplied by the number of transactions.

#### II.2.4.3. Dividends

Dividends on equity instruments are recognised in the income statement when the group's right to receive payment is established.

#### II.2.4.4. Gains and losses on disposals

Gains and losses on disposals of property, plant and equipment, determined by comparing proceeds with the carrying amount, are included in the income statement in other operating income and administrative expenses respectively.

**II.2.5. Financial assets**

#### II.2.5.1. Classification and measurement

On initial recognition, a financial asset is classified as measured at amortised cost, Fair Value through Other Comprehensive Income (‘FVOCI’) or Fair value through profit and loss (‘FVPL’). The classification results from a two-step approach: The “characteristics” test will check whether the cash flows can be considered as Solely Payments of Principal and Interest (‘SPPI’), and the business model for managing the asset.

Regular way purchases and sales of financial assets are accounted for at settlement date.

A financial asset is classified and measured at amortised cost if it is not designated as FVPL, and if it meets both of the following conditions: it is held for collection of contractual cash flows (Held to Collect) and its contractual terms give rise to cash flows that represent solely payments of principal and interest ('SPPI'). A financial asset classified and measured at amortised cost is recognised in the balance sheet on settlement date at fair value plus any directly related transaction costs. It is subsequently measured at amortised cost using the effective interest method less any loss allowances.

A financial asset is classified and measured at Fair value through other comprehensive income (FVOCI) if it is not designated as FVPL, and if it meets both of the following conditions: it is held for collection of contractual cash flows and for selling the assets, and its cash flows represent solely payments of principal and interest. A financial asset classified and measured at Fair value through other comprehensive income (FVOCI) is recognised in the balance sheet on settlement date at fair value less any directly related transaction costs. Gains or losses arising from changes in the fair value are recognised directly in equity, until the asset is either sold or matures, at which time the cumulative gain or loss previously recognised in equity is released to the income statement. Interest revenues are recognised using the effective yield method less any loss allowances.

The group may irrevocably elect to designate an equity instrument at FVOCI, if it not held for trading. This election is made on an investment by investment basis. In this case, dividends that qualify as a return on investment are recognised in profit and loss, but gains and losses are not recycled to profit and loss on derecognition and no impairment is recognised. The revaluation gains/losses accumulated in other comprehensive income are transferred to distributable reserves in case of sale of the investment.

All other financial assets are measured at FVPL. These assets are initially recognised and subsequently measured at fair value. The movements in fair value are recognised in the income statement.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When available, the group measures the fair value of an instrument as the published price at the balance sheet date. In the case of investments with no listed market price, a valuation technique that maximise the relevant use of observable inputs (e.g. discounted cash flows and market multiples) is applied.

#### II.2.5.2. Business model assessment

A business model refers to how the group manages its financial assets in order to generate cash flows. It is determined on a level that reflects how financial assets are managed to achieve a particular business objective.
The group's objective can be:
- solely to collect the contractual cash flows from the assets ('Held to Collect');
- to collect both the contractual cash flows and cash flows arising from the sale of assets ('Held to Collect and Sell');
- neither of above (e.g. financial assets are held for trading purposes), and then the financial assets are classified as part of 'other' business model.

Factors considered by the group in determining the business model for a group of assets include objectives for the portfolios, how the asset's performance and risks are evaluated, managed and reported to management, and past experience.

#### II.2.5.3. Assessment whether contractual cash flows are solely payment of principal and interest ('SPPI')

The group assesses whether the contractual cash flows are consistent with a basic lending arrangement i.e. interest includes only consideration for the time value of money, credit risk, other basic lending risks and a profit margin that is consistent with a basic lending arrangement. This assessment is done on an instrument-by-instrument basis. Where the contractual terms introduce exposure to risk or volatility that are inconsistent with a basic lending arrangement (e.g. write off feature), the related financial asset is classified and measured at fair value through profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

#### II.2.5.4. Reclassifications

Financial assets are not reclassified subsequent to their initial recognition, except in the period after the group changes its business model for managing financial assets.

### II.2.6. Financial liabilities

Financial liabilities are classified and subsequently measured at amortised cost except for derivatives (see section 2.7.).

Borrowings and debt securities issued are recognised initially at fair value, being the issue proceeds (fair value of consideration received) net of transaction costs incurred. They are subsequently stated at amortised cost; any difference between proceeds net of transaction costs and the redemption value is recognised in the income statement over the period of the borrowings or issues using the effective interest rate method.

Financial liabilities are derecognised when they are extinguished (when the obligation specified in the contract is discharged, cancelled or expires).

### II.2.7. Derivative financial instruments and hedge accounting

The group applies the IFRS 9 hedge accounting requirements in full as issued by the IASB.

All derivative financial instruments are recognised, and subsequently re-measured at fair value. Derivative fair values are determined from quoted prices in active markets where available. Where there is no active market for an instrument, fair value is derived from prices for the derivative's components using appropriate pricing or valuation models.

Gains and losses arising from changes in fair value of a derivative are recognised as they arise in profit and loss, unless the derivative is part of a qualifying cash flow hedge.

At the inception of the hedge relationship, the group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the group documents whether the hedging instrument is effective in offsetting changes in fair values or cash flows of the hedged item attributable to the hedged risk, which is when the hedging relationships meet all of the following hedge effectiveness requirements:
- there is an economic relationship between the hedged item and the hedging instrument;
- the effect of credit risk does not dominate the value changes that result from that economic relationship; and
- the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the group actually hedges and the quantity of the hedging instrument that the entity actually uses to hedge that quantity of hedged item.

Under IFRS 9, if a hedging relationship ceases to meet the hedge effectiveness requirement relating to the hedge ratio but the risk management objective for that designated hedging relationship remains the same, the group adjusts the hedge ratio of the hedging relationship (i.e. rebalances the hedge) so that it meets the qualifying criteria again. The ineffective portion of the gain or loss on the hedging instrument is recognised immediately in the profit and loss account.

The group designates the full change in the fair value of a forward contract (i.e. including the forward elements).

The group may enter into three types of hedges: hedges of changes in the fair value of a recognised asset or liability or firm commitment (fair value hedges), hedges of the variability in cash flows from a recognised asset or liability or a forecast transaction (cash flow hedges), and hedges of the net investment in a foreign entity (net investment hedges). The group currently designates certain derivatives as hedging instruments in respect of foreign currency risk in cash flow hedges.

#### II.2.7.a. Fair value hedges

Changes in the fair value of derivatives that are designated and which qualify as fair value hedges are recorded in the profit and loss account, together with any changes in the fair value of the hedged asset or liability attributable to the hedged risk.

#### II.2.7.b. Cash flow hedges

In the case of a cash flow hedge, the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge should be recognised directly in other comprehensive income and released to profit and loss when the hedged item (for instance the forecasted transaction) affects profit and loss.

#### II.2.7.c. Net investment hedges

A hedge of a net investment in a foreign operation is accounted for similarly to cash flow hedges. The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge is recognised directly in other comprehensive income and released to profit and loss when the foreign operation is partially disposed or sold.

### II.2.8. Impairment of financial assets

The group recognises loss allowances on financial assets measured at amortised cost, on debt instruments at fair value through other comprehensive income, lease receivables, loan commitments and financial guarantees. No impairment loss is recognised on equity instruments.

The expected credit loss (ECL) is estimated as the difference between all contractual cash flows that are due to the group in accordance with the contract and all the cash flows that the group expects to receive, discounted at the original effective interest rate

IFRS 9 requires the recognition of 12 month expected credit losses if credit risk has not significantly increased since initial recognition (stage 1), and lifetime expected credit losses for financial instruments for which the credit risk has increased significantly since initial recognition (stage 2) or which are credit impaired (stage 3). Lifetime ECL represents the expected credit losses that will result from all possible default events over the expected life of a financial instrument. In contrast, 12 month ECL represents the portion of lifetime ECL that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss if there is a default) and the exposure at default. Expected credit losses on financial assets are individually assessed (except for trade receivables with no significant financing component).

The impairment requirements are complex and require management judgements, estimates and assumptions that are detailed in section III Critical accounting estimates and judgements.

A financial asset is credit impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred. Evidence that a financial asset is credit-impaired includes observable data about the following events:
- significant financial difficulty of the issuer or the borrower;
- a breach of contract, such as a default or past due event;
- it is becoming probable that the borrower will enter bankruptcy or other financial reorganisation; or
- the disappearance of an active market for that financial asset because of financial difficulties.

For trade receivables with no significant financing component, a simplified approach requiring the recognition of lifetime ECLs at all times applies. The expected credit losses on these assets are collectively assessed and estimated using a provision matrix based on

the group's historical credit loss experience and macro-economic factors. If no significant statistical relationship is observed between impairment losses and macro-economic factors, macro-economic factors are not considered. Expected credit losses are based on the age of the receivables. If all or part of a client's receivable is confirmed as being irrecoverable, the value of that receivable will be reduced accordingly.

The group writes off financial assets including trade receivables, in whole or in part, when it has exhausted all practical recovery efforts and has concluded there is no reasonable expectation of recovery, e.g. when the counterparty has been placed under liquidation or has entered into bankruptcy proceedings.

The aggregate of provisions made (less amounts released and recoveries of bad debts previously written off) is charged against operating profit in the profit and loss account.

### II.2.9. Purchase and resale agreements

Securities purchased under agreements to resell ('reverse repos') are recorded as loans and advances to other banks or customers, as appropriate. The difference between the sale and repurchase price is treated as interest and accrued over the life of the agreements using the effective interest method.

### II.2.10. Goodwill and intangible assets

#### II.2.10.a. Goodwill

Goodwill represents the excess of the cost of an acquisition over the fair value of the group's share of the identifiable net tangible and intangible assets of an acquired entity at the date of acquisition. Goodwill is carried at cost less accumulated impairment losses and tested for impairment annually or more frequently where events or changes in circumstances indicate that it might be impaired. For the purpose of impairment testing, goodwill is allocated to cash-generating units, the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. If impairment is identified, the carrying value of goodwill is written down to its net recoverable amount. Impairment losses are immediately recognised in profit and loss and are not subsequently reversed.

#### II.2.10.b. Computer software

Computer software licences are capitalised on the basis of the costs incurred to acquire and bring to use the specific software.

Costs associated with the development phase of computer software being developed by, and for use of, the group are capitalised only when the following can be demonstrated:

- technical feasibility;
- intention to complete;
- ability to use or sell the asset;
- generation of probable future economic benefits;
- availability of technical, financial and other resources; and
- reliable measurement of attributable expenditure.

Borrowing costs that are directly attributable to the acquisition or development of software are considered as part of the cost of the software.

The cost of computer software is amortised using the straight-line method over its estimated useful life, normally estimated to be between three and five years.

Impairment tests are performed annually or more frequently if events or circumstances indicate that the asset might be impaired.

Costs associated with maintaining or upgrading computer software programmes are recognised as an expense as incurred.

#### II.2.10.c. Other intangible assets

At the time of a business combination, part of the cost might be attributed to one or more intangible assets when these are separable or arise from contractual or other legal rights (such as contractual customer relationships), provided a fair value can be measured reliably.

For each asset, the expected useful life is also assessed. Where this is a finite period, the cost of the asset will be amortised using the straight-line method over that period. The estimated useful life is assessed to be indefinite when, following an analysis of all the relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows. In such circumstances, the cost will not be amortised.

After initial recognition, the amortisation period and amortisation method for assets with a finite life are reviewed at least at each financial year-end, and changed when necessary.

For assets with an indefinite life, impairment tests are performed annually or more frequently if events or circumstances indicate that the asset might be impaired.

### II.2.11. Property, plant and equipment

Property, plant and equipment are stated at cost less accumulated depreciation. Where an item of property, plant and equipment comprises major components having different useful lives, these components are accounted for separately.

Borrowing costs that are directly attributable to the acquisition of an asset are considered as part of the cost of the asset.

Subsequent costs are included in the asset's carrying amount or are recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the group and the cost can be measured reliably. All other costs are charged to the income statement during the financial year in which they are incurred.

Depreciation on property, plant and equipment is determined using the straight-line method to allocate the depreciable amount (difference between the cost and the residual value) over its estimated useful life.

The estimated useful life of property, plant and equipment is as follows:

- buildings (including enhancements): 20 to 40 years;
- leasehold improvements: shorter of economic life and period of lease;
- furniture and fixtures: seven years; and
- IT equipment (data processing and communications): between two and five years.

Land is not depreciated.

### II.2.12. Leases

#### II.2.12.1. Accounting policies applied from 1 January 2019

Leases where the group is a lessee are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the group. Assets and liabilities arising from a lease are initially measured on a present value basis.

Lease liabilities include the net present value of the following lease payments:

- fixed payments, less any lease incentives receivable;
- variable lease payments that depend on an index or a rate;
- amounts expected to be payable by the lessee under residual value guarantees;
- the exercise price of a purchase option if the group is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease if the lease term reflects the lessee exercising the option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be readily determined, which is generally the case for leases in the group, the lessee’s incremental borrowing rate is used, being the rate that the individual lessee would have to pay to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment with similar terms, security and conditions.

Lease payments are allocated between principal and finance cost.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- end of lease obligations.

Right-of-use assets are depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset’s useful life.

Payments associated with short-term leases of property, plant and equipment and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT equipment and small items of office furniture.

Leases of vehicles are recognised as a right-of-use asset and a corresponding liability, and associated payments are recognised on a straight-line basis as an expense in profit or loss.

Lease income from operating leases where the group is a lessor is recognised in income on a straightline basis over the lease term. The respective leased assets are included in the balance sheet based on their nature.

#### II.2.12.2. Accounting policies applied prior to 1 January 2019

Contracts to lease assets are classified as finance leases where they transfer substantially all the risks and rewards of ownership of the asset to the customer. Contracts not deemed to be finance leases are treated as operating leases.

Assets acquired under finance leases are included within fixed assets at the fair value of the leased asset or, if lower, the present value of the minimum lease payments, and depreciated over their economic useful lives taking into account anticipated residual values.

Operating lease income and charges are adjusted where relevant by lease incentives and are recognised on a straight-line basis over the life of the lease.

When an operating lease is terminated before the lease period has expired, any payment required to be made to the lessor, or received from the lessee by way of penalty, is recognised as an expense or income in the period in which termination takes place.

### II.2.13. Cash and cash equivalents

For the purposes of the statement of cash flows, cash and cash equivalents comprise balances with an original maturity of not more than three months, including cash and non-restricted balances with central banks, and loans and advances to banks and other customers.

### II.2.14. Provisions

Provisions are recognised where:
- there is a present obligation arising from a past event;
- there is a probable outflow of resources; and
- the outflow can be estimated reliably.

Provisions are recognised in respect of onerous contracts where the unavoidable costs of the future obligations under the contract exceed the economic benefits expected to be received.

Contingent liabilities are possible obligations whose existence depends on the outcome of one or more uncertain future events not wholly under the control of the group. For those present obligations where the outflows of resources are uncertain, or in the rare cases where these outflows cannot be measured reliably, this will give rise to a contingent liability. Contingent liabilities are not recognised in the financial statements but are disclosed, unless they are remote.

### II.2.15. Employee benefits

#### II.2.15.a. Pension obligations

The group operates a number of post-retirement benefit schemes for its employees, including both defined contribution and defined benefit pension plans.

A defined contribution plan is a pension plan under which the group pays fixed contributions into a separate entity and has no legal or constructive obligation to pay further contributions.

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan.

The liability recognised in the balance sheet in respect of defined benefit plans is the present value of the defined benefit obligation at the balance sheet date less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating to the terms of the related pension liability.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are recognised in equity in the period in which they occur.

Past service costs are recognised immediately in the profit and loss account.

The costs of defined contribution plans are charged to the income statement in the year in which they fall due.

#### II.2.15.b. Other post-retirement benefits

Some group companies provide post-retirement healthcare benefits to their retirees. The expected costs of these benefits are accrued over the period of employment using an accounting methodology similar to that for defined benefit pension plans. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity. These obligations are valued annually by independent qualified actuaries.

### II.2.16. Current and deferred income taxes

Current tax payable on profits, based on the applicable tax law in each jurisdiction, is recognised as an expense in the year in which profits arise.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted in each relevant country by the balance sheet date and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

The principal temporary differences arise from:
- depreciation of tangible fixed assets and amortisation of intangible assets;
- revaluation of certain financial assets and liabilities, including derivative contracts;
- provisions for pensions and other post-retirement benefits;
- tax losses carried forward; and
- in relation to acquisitions, the difference between the fair values of the net assets acquired and their tax base.

Temporary differences on the initial recognition of assets and liabilities other than those acquired in a business combination are not recognised unless the transaction affects accounting or taxable profit.

Deferred tax assets, including those related to income tax losses available for carry forward, are recognised when it is probable that future taxable profit will be available against which the temporary differences can be used.

Deferred income tax is provided on temporary differences arising from investments in subsidiaries and associates, except where:
- the timing of the reversal of the temporary difference is controlled by the group; and
- it is probable that the difference will not reverse in the foreseeable future.

Current tax assets and liabilities are offset when they arise in the same entity and where there is both a legal right of offset and the intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

Deferred tax related to a transaction or event which is charged or credited directly to equity (e.g. fair value re-measurement of available-for-sale investments and cash flow hedges) is also credited or charged directly to equity and is subsequently recognised in the income statement together with the deferred gain or loss.

Deferred tax assets and liabilities are not discounted.

#### II.2.17. Dividends

Dividends on ordinary shares are recognised in equity and as a liability in the year in which they are approved by the Company's shareholders.

Dividends for the year that are declared after the balance sheet date are not recognised as a liability and are instead disclosed as subsequent events.

## III. Critical accounting estimates and judgements

The Euroclear group makes estimates and assumptions that affect the reported amounts of assets and liabilities. These estimates are considered to be important to understand the group's financial condition, since they require management to make complex and subjective judgements, some of which may relate to matters that are inherently uncertain. Estimates and judgements are continually evaluated and based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

#### III.1. Impairment of goodwill and contractual customers' relationships with an indefinite useful life

The group tests goodwill and contractual customers' relationships for impairment annually (during the fourth quarter), irrespective of whether there is an indication of impairment. Furthermore, the group remains alert for indicators of impairment throughout the year and conducts a high-level impairment review at each quarter end.

Such impairment reviews are deemed to detect:
- overpayment;
- under-performance compared with expectations; and
- significant changes with an adverse effect on the acquired business. Such changes can stem from, for example, new business parameters (e.g. volatility of stock markets, changes in the volume of securities safekept on behalf of customers, ...) or from changes in market data used to determine the cost of capital of the acquired businesses.

An impairment loss is recognised whenever the recoverable amount of the goodwill is less than its carrying amount (book value). The recoverable amount of an asset is the higher of its net selling price and its value in use, both based on present value calculations.
- Net selling price is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable willing parties, less the cost of disposal.
- Value in use is the amount obtainable from the use of an asset until the end of its useful life and from its subsequent disposal. Value in use is calculated as the present value of estimated future cash flows. The value in use calculation may take into account not only the post-acquisition performance of the acquired entity itself, but also the changes in cash flows in other entities in the group that are positively or negatively affected by the acquisition.

No impairment charge was deemed necessary at the end of 2018 and 2019. See Note XVIII.

Contractual customers' relationships with an indefinite useful life relate to the acquisition of Euroclear Belgium.

#### III.2. Impairment of other intangible assets

The group tests internally developed software for impairment annually (during the fourth quarter), irrespective of whether there is an indication of impairment. Furthermore, the group remains alert for indicators of impairment throughout the year and conducts a high-level impairment review at mid-year.

In assessing whether there is any indication that an asset is impaired, the group considers significant adverse changes that have taken place or are expected in the near future in the extent to which, or in the way that, an asset is used or expected to be used. This includes the asset becoming idle, plans to discontinue or restructure the operation to which the asset belongs, or the asset's disposal.

Indications of impairment exist if:
- there are plans to discontinue the development;
- Inefficiencies are noted (i.e. costs higher than expected);
- there is material delay in the delivery of the project;
- there is an adverse event in the market;
- technology becomes obsolete;

- resources needed are not available anymore;
- under-performance is noted compared with expectations;
- economic performance is lower than expected.

Euroclear recorded an impairment of €28 million in 2018, principally related to the costs that were capitalised in the context of the Finnish IT platform rebuild following doubts on the future use of some of the developed components. A small part of this impairment charge was related to the Swedish infrastructure as a result of technological changes coupled with evolving client expectations.

**III.3. Provisions**

A provision is a liability of uncertain timing or amount. At each reporting year, the necessity to record or adjust provisions is considered based on the latest information available.

Onerous lease provisions can result from a decision to vacate premises leased by the group and when the space is expected to remain empty or to be sub-let at terms and/or conditions below those in the Euroclear lease. The provision represents the lower of the cost to breach the contract and the cost of fulfilling it, taking into account the expected benefits that might be received under a sub-lease, providing the entity is actively seeking to sub-let the property.

The onerous contract provision represents the best estimate of the unavoidable costs of the obligations under the contract over the economic benefits expected to be received under it.

Human resources-related provisions are recognised when a decision has been made, a formal plan exists and the main features are known by those affected. The provision represents the best estimate of the full cost of implementing the plan.

Provisions for dilapidation, or end-of-lease obligations, are recorded when the group is contractually bound to incur such costs and a reliable estimate can be made.

Provisions for litigation are recorded if and when there are strong indications that costs will be incurred to settle any possible legal cases concerned and a reliable estimate can be made.

**III.4. Defined benefit plans**

The present value of the defined benefit plan obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions. Any changes in these assumptions will impact the carrying amount of the obligations.

The assumptions used in determining the net cost/(income) for the plans include the discount rate at the end of each year. This is the interest rate that should be used to determine the present value of estimated future cash outflows expected to be required to settle the plan obligations. In determining the appropriate discount rate, the group considers the interest rates of high-quality corporate bonds (or mortgage backed bonds in Sweden) that are denominated in the currency in which the benefits will be paid and that have terms to maturity approximating the terms of the related plan liability.

Other key assumptions for plan obligations are based in part on current market conditions.

The major assumptions used are shown in Note XXII.

**III.5. Deferred tax assets**

Deferred tax assets are recognised to reflect the future tax benefit from unused tax losses or tax credits and other temporary differences. If there is a concern about the relevant entities' capacity to utilise the tax assets within a reasonable (10-year) period, the assets are impaired, even when there remains a possibility to benefit longer term if sufficient taxable profits arise. The 10-year period is considered reasonable in view of the activities of the Euroclear group entities and the sector in which they operate.

**III.6. Fair valuation of FVOCI equity investments**

The group has recourse to adequate valuation techniques (e.g. discounted cash flows, market multiples) to estimate the value of non-quoted equity investments at FVOCI, as explained in note IV.

**III.7. Impairment of financial assets**

The impairment requirements require management judgements, estimates and assumptions, including:

- Determining a significant increase in credit risk since initial recognition

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition, the group compares the risk of a default occurring on the financial instrument as at the reporting date with the risk of a default occurring on the financial instrument as at the date of initial recognition. In making this assessment, the group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

IFRS 9 requires the recognition of 12 month expected credit losses (the portion of lifetime expected credit losses from default events that are expected within 12 months of the reporting date) if credit risk has not significantly increased since initial recognition (stage 1), and lifetime expected credit losses for financial instruments for which the credit risk has increased significantly since initial recognition (stage 2) or which are credit impaired (stage 3).

The following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:
- a significant deterioration in the financial instrument's external or internal credit rating;
- a significant deterioration in external market indicators of credit risk for a particular financial instrument, e.g. a significant increase in the credit default swap prices for the debtor, existing or forecast adverse changes in business, financial or economic conditions.

Irrespective of the outcome of the above assessment, the group presumes that the credit risk on a financial asset has increased significantly since initial recognition when contractual payments are more than 30 days past due, unless the group has reasonable and supportable information that demonstrates otherwise.

Despite the afore going, the group assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is determined to have low credit risk at the reporting date. The group considers a financial asset to have low credit risk when it has an internal or external credit rating of 'investment grade' as per globally understood definition. For all exposures considered as low risk and classified in Stage 1, Credit Management will verify that the exemption is relevant through management judgment. In case it considers that the exposure should still be classified in Stage 2, even if it is eligible to the low risk exemption, credit will override the stage.

- Forward-looking information

Euroclear is mainly exposed to highly-rated financial institutions. Credit losses are not sensitive to small variations of macro-economic conditions. The ECL model has been calibrated to reflect the low likelihood but potentially high severity of its credit losses. A close monitoring of key market indicators is done to evaluate the possibility of facing stress situations similar to the one experienced during the 2008 financial crisis. Expected credit losses are the unbiased probability-weighted credit losses determined by evaluating a range of possible outcomes and considering future economic conditions. Three scenarios (base, upturn and downturn) are modelled to ensure an unbiased representative sample of the complete distribution when determining the expected loss.

- Definition of default

IFRS 9 does not give explicit definition of default, but clearly states that it must be consistent with the one used for internal credit risk management purposes, with the rebuttable presumption that 90 days past due is a default criterion. This definition must be used when assessing whether the credit risk on a financial instrument has increased significantly. Euroclear uses the default definition as stated in the Financial Risk Policy Handbook and used for regulatory capital purposes, to ensure consistency with Basel Committee guidelines.

- Expected life

In order to assess the lifetime of the instrument and on which time horizon probability of default (PD) must be calculated, a maturity assessment is required. The maturity is the maximum contractual period over the entity is exposed to risk, that should take into account the ability to demand repayment and the possible extensions. When determining the period over which an entity is expected to be exposed to credit risk, Euroclear uses historical information and experience, and notably the period over which the entity was exposed on similar financial instruments. Euroclear mainly holds non committed open-ended lines, for which no maximum contractual period has been defined. For those, an expected lifetime has been defined based on historical data. For others, the period of exposure has been set to the contractual maturity.

- Discounting

Expected credit losses are discounted at the effective interest rate determined at initial recognition or an approximation thereof.

- Calculation methodology

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss if there is a default) and the exposure at default. The assessment of the probability of default and loss given default is based on historical data adjusted by forward-looking information. As for the exposure at default, for financial assets, this is represented by the assets' gross carrying amount at the reporting date. For loan commitments and financial guarantee contracts, the exposure includes the amount drawn down as at the reporting date, together with any additional amounts expected to be drawn down in the future by default date determined based on historical averages, and other relevant forward-looking information.

The regulatory Basel Committee of Banking Supervisors (BCBS) ECL calculations are leveraged and adjusted for IFRS 9. While BCBS requires 12 month through the economic cycle losses, IFRS 9 requires 12 months or lifetime point-in-time losses based on conditions at the reporting date and multiple forecasts of the future economic conditions over the expected lives. IFRS 9 also requires discounting to the reporting date at the original effective interest rate rather than using the cost of capital to the date of default.

- Simplified approach for trade receivables

For trade receivables, the expected credit losses are assessed per entity on a collective basis and estimates of loss rates are based on the loss experience observed by each of the (I)CSDs (historical rates adjusted for forward-looking information) depending on the ageing analysis of receivables.

# IV. Risk management and the financial risk management environment

## IV.1. Managing business in a risk-controlled environment

### IV.1.1. The Enterprise Risk Management framework

Euroclear operates within a highly regulated environment and is a systemically important financial market infrastructure. Therefore, it aims to maintain its strong reputation in the financial industry for its safety and resilience, and for the quality of its products and post-trade services.

In this context, a comprehensive and effective risk governance framework, underpinned by a sound risk culture, is critical to the overall effectiveness of Euroclear's risk management arrangements. Euroclear operates an overall effective Enterprise Risk Management (ERM) framework that has been designed to meet Board, market and regulatory expectations. The ERM framework structures the way Euroclear identifies, assesses and manages its risks, within the Board's risk appetite, whilst pursuing its strategy and corporate objectives. It also details the roles and responsibilities of the three lines of defence, in line with the Board's expectations and the governance arrangements.

The ERM framework is supported by a number of board approved policies and policy handbooks, which take into account applicable regulatory and market standards. Policies are reviewed and updated on a regular basis.

### IV.1.2. The three lines of defence

Euroclear operates a three lines of defence model that facilitates the effective functioning of our ERM framework. Each line plays a distinct role providing Senior Management and the Board with confidence that we are likely to achieve our key goals through the effective management of risks.

The first line of defence is the primary source of (non-independent) assurance on the adequacy and effectiveness of the control environment to Senior Management and the Board. The first line of defence provides this assurance through - amongst others- regular risk and control self-assessments, operational and financial risk dashboards, positive assurance reports, a semi-annual and annual internal control system report. First line management owns the risks linked to all the activities it undertakes and ensures that the desired risk culture, expressed by the Board, is embedded in the different business units.

The second line of defence includes Compliance & Ethics (C&E) and Risk Management, but also other functions such as Legal and Finance that are primarily 1st line functions, yet also fulfil specific 2nd line roles in line with their remit.

Compliance & Ethics is responsible for providing comfort to Senior Management and to the Board that compliance risks resulting from Euroclear's activities and services are adequately managed, in line with the Board risk appetite. C&E monitors Euroclear's compliance with all relevant legal and regulatory requirements and standards emanating from relevant competent authorities and required for maintaining our licence to operate. C&E supports, advises, challenges and oversees the first line of defence in its management of ethical conduct, compliance and fraud risks and supports awareness campaigns on compliance and ethical issues. In addition, a specific focus is devoted to assess our controls linked to anti-money laundering and economic sanctions taken by authorities around the world.

Risk Management provides robust, independent oversight of risk-taking activities to help Euroclear achieve its goals and deliver its strategy within the Board-approved risk appetite. The Risk Management function undertakes this task by delivering and maintaining a leading Enterprise Risk Management (ERM) framework; providing the Board and Senior Management with high quality, independent risk challenge, advice and guidance; and helping foster a healthy risk culture throughout the organisation.

Internal Audit provides the Board comprehensive assurance based on the highest level of independence on governance, risk management and internal controls to add value and to support Euroclear in achieving its objectives. In performing its work, Internal Audit assesses whether the ERM framework is adequately designed and operating effectively and assesses whether risks are appropriately identified and fairly stated. Internal Audit's scope is unrestricted.

### IV.1.3. Risk appetite framework & control environment

Euroclear's risk appetite is set by the Board and represents the maximum amount of risk the Board is willing to accept to achieve its objectives, including preservation of the long term strength of the company and of the trust of all key stakeholders. Euroclear articulates and monitors its risk appetite by way of metrics based on the criticality of strategic objectives and the associated key risk sources, thereby providing Senior Management and the Board with a view on our risk profile versus appetite.

Euroclear's risk appetite aims at:

- developing and maintaining efficient post-trade services which are resilient, reliable and secure;
- supporting the development of sound and stable capital markets; and
- serving the public good by supporting the efficiency of markets and actively enabling the reduction of systemic risk wherever possible.

Euroclear uses the below risk categories to facilitate risk identification and analysis:

| Strategic & Business Risk | Strategic Risk to the company's existence and ability to deliver its strategy arising from, for instance, drastic changes in our competitive environment; inappropriate strategic decisions or lack of decisions taken; inappropriate implementation of strategy; lack of a fit for purpose technology, IT |
|---|---|

| | |
|---|---|
| | infrastructure and software; inappropriate talent management.<br>Business Risk is the risk that the company is not achieving its aimed, predicted financial results or the risk to its solvency or ability to meet capital requirements, for instance due to unexpected decrease in profitability; improper business decisions; lack of responsiveness towards changes impacting our business objectives. |
| Pension Risk | Risk that Euroclear has an underfunded defined benefits pension scheme exposure. |
| Change & Project risk | Change Risk is the risk of failure with respect to the change management process including the tools and techniques to manage the people side of change to achieve the required business outcome.<br>Project Risk is defined as an uncertain event or condition that, if it occurs, has a negative effect on a project's objectives (including scope, budget and time to market). |
| Operational Risk | Operational Risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. This includes amongst others custody risk, fraud and cyber, business disruption, system failures, outsourcing and model risk. |
| Legal & Compliance Risk | Legal & Compliance Risk is the risk of financial loss or reputational damage arising from failure to comply with legal and regulatory requirements and material contractual obligations necessary to maintain our license to operate or protect the Group's rights and interests. |
| Conduct & Culture Risk | Risks arising from the company's corporate and risk culture, governance arrangements, conduct and dealings with stakeholders and shareholders, and our corporate responsibility as an international financial market infrastructure. Stakeholders include clients, participant, suppliers, regulators, competitors and other counterparts. |
| Credit Risk | Risk to Euroclear's earnings or capital arising from Euroclear's obligors failure to perform, due to inability or unwillingness, on its financial obligations to Euroclear on time and in full. |
| Liquidity Risk | Risk that Euroclear, although solvent, is unable to meet its contractual or contingent obligations or that it does not have the appropriate amount, tenor and composition of funding and liquidity to support its assets. |
| Market Risk | Risk of losses in (on or off balance sheet) positions arising from adverse movements in market prices. Market risk arises from possible changes in foreign exchange rates, interest rates, equity or commodity prices. |
| Systemic Risk | Risk of disruption to financial services organisations that has the potential to have serious consequences for the financial system and/or the real economy. Systemic risk events can originate in, propagate through, or remain outside of Euroclear. |

**Risk monitoring**
Euroclear monitors the ongoing effectiveness of the risk and control framework to ensure that risk taking is appropriate and remains within the defined risk appetite. Risks are identified and managed as part of the day-to-day business activities and controls are designed in line with the risks they aim to mitigate. All these controls are the foundation of the Euroclear's Internal Control System (ICS).

An annual, externally-audited ISAE3402 report is produced for each Euroclear's CSD (Central Securities Depository) providing assurance on the effectiveness of the relevant internal control environments.

**Risk reporting**

Business management reports the outcome of its risk and control self-assessment via Positive Assurance Reports (PAR) maintained at the level of group entities and divisions. The PAR process supports a yearly review of the inherent risk level by category of risk and a bi yearly update of the residual risk level, based on the assessment of the controls' design and operational effectiveness. The conclusions from the PARs are used as input to the bi annual Internal Control System (ICS) report for management and Board, reflecting material risks and control issues. The ICS reports are complemented by independent Compliance & Ethics, Risk Management (second line of defence) and Internal Audit (third line of defence) opinions. This regular reporting by the three lines of defence provides frequent, effective and comprehensive monitoring of the risk and control environment.

First line assurance to management and Board is also provided by operational and financial risk dashboards that report on key risk indicators linked to the risk appetite.

Risk Management reports the conclusions of its continuous risk monitoring activities via a quarterly Corporate Risk Report (CRR) submitted to Euroclear SA/NV Board and to the Boards of each CSD. The CRR reports outline the Group and the entities' key risks and their current risk profiles. In addition, Risk Management continuously monitors ICS risks and control issues and the overall effectiveness of the ERM framework.

Finally, the third line of defence, Internal Audit assesses the ERM framework and reports to the board of directors on the adequacy and effectiveness of the framework and the ICS. These reports are shared with Senior Management and the Boards.

**IV.2. Operational risk management**

All Euroclear entities are inherently exposed to operational risk in their daily activities. Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems, or stemming from external events, leading to the actual outcome of a process to differ from the intended outcome. Moreover, it can affect the smooth provisioning of services.

Euroclear identified the following categories of operational risk:

- Execution, delivery & Process management,
- Internal Fraud;
- External Fraud & Cyber;
- Business disruption;
- Custody risk;
- Clients, products & Business practices;
- Supplier and Outsourcing risk
- Employment practices & Workplace safety;
- Damage to or loss of physical assets;
- Model risk

Euroclear uses Key Risk Indicators, Key Performance Indicators and regular risk and control self-assessments to monitor operational risk effectively. Risk Management has also established an incident management framework to ensure that all incident are consistently and timely tracked, escalated and followed up, regardless from their type (operational, compliance, IT).

Euroclear (anonymously) shares its internal loss data with the Operational Riskdata Exchange Association (ORX) in order to access their database of high quality operational risk loss data. Euroclear uses this data for its capital modelling and to understand and manage operational risk adequately.

<u>Information Security & Business Resilience</u>

CSDs of the Euroclear group are designated as critical national infrastructure in seven countries. Therefore security and resilience are key components of the group approach to operational risk, which are fully integrated in our ERM framework and aligned with recognised international standards.

Euroclear maintains and tests comprehensive processes in all entities to ensure the security and continuous availability of business-critical services, including effective management response to incidents and crises. All locations have appropriate security and contingency arrangements for recovery from workplace disruptions; supplemented by three geographically separate data centres to sustain operations in the event of a local and regional- scale disaster. Euroclear also regularly exercises and tests its operational and management response and provides adequate training at all levels of the organisation.

In 2019, Euroclear engaged in a holistic step-back on business resilience that led to a dedicated business resilience programme set-up constructed around evidencing, strengthening and extending recovery capabilities to meet increasing market and regulatory expectations. This important investment aims at enhancing our business resilience capabilities by addressing the increasingly complex 'extreme but plausible' scenarios and integrating the perspectives of our ecosystem. Investments will continue in the next years to ensure our continued resilience.

Euroclear has continued to invest significantly in its cyber security capabilities including improvements to the cyber security risk culture. This investment in the IT risk and control environment resulted in improved security arrangements in a constantly evolving cyber threat landscape. Further investment will continue in 2020 and beyond to further reduce the residual risks and ensure sustainability.

### IV.3. Euroclear group financial risk management

Financial risks are borne mainly by Euroclear Bank in its role as single-purpose settlement bank. The CSDs of the group have an overall low risk appetite. They offer only securities settlement services in central bank money and do not provide credit to clients. They do not engage in operations with counterparties, except for the investment of their own funds.

#### IV.3.1. Credit risk

In accordance with Euroclear risk management policy, credit risk is defined as the risk to Euroclear's earnings or capital arising from Euroclear's obligors failure to perform, due to inability or unwillingness, on its financial obligations to Euroclear on time and in full. In the scope of its activities, Euroclear's obligors are defined as (borrowing) participants, cash correspondents and settlement banks, treasury counterparts and issuers of securities in the investment and treasury securities portfolio.

**Euroclear Bank's** credit risk framework sets limits based on Euroclear Bank's credit risk appetite, and addresses among others the size and conditions of credit facilities for borrowing participants and market facilities to support treasury activity, concentrations and collateral quality. Furthermore operational processes are designed and reassessed on a regular basis to actively monitor and minimise credit risks.

Credit risk is mainly taken on borrowing participants and on other counterparts when performing the day-to-day balance sheet management, in particular re-depositing or investing participant's long cash balances, the proceeds of own debt issuances or capital. To date Euroclear Bank (where the majority of credit risk in the group is concentrated) has not experienced any credit losses, not even during periods of market turmoil. This is largely due to the very short duration (mostly intraday) and predominantly secured nature of its credit exposures.

All credit granted to borrowing participants is uncommitted and must be secured by proprietary collateral, for which strict collateralisation rules apply. Unsecured exposure on borrowing participants is only permitted when allowed under CSDR[1] (e.g. exempted entities as per Article 23(2) of Regulation (EU) 390/2017).

Euroclear Bank also has treasury exposures resulting from depositing and investing clients' end-of-day cash positions and its own capital and liquidity. Treasury exposures are usually placed in the market with high-quality counterparties for a short duration, preferably by using reverse repurchase agreements (reverse repos) or invested in very high-quality securities with relatively short-term maturities. Unsecured treasury credit exposure is allowed but kept limited.

**Euroclear CSDs** have no direct cash relationship with their clients as their transactions settle in central bank money. Consequently, they cannot extend loans or credit facilities to their clients, nor do these CSDs have banking licenses. Euroclear CSDs can potentially face a certain level of credit risk arising from the non-payment of fees by their clients, albeit for limited amounts considering both the frequency of the billing and their relatively broad customer base. Therefore, each CSD of the group is required by its home regulator to hold enough liquidity to cover such risks.

The Euroclear CSDs and Euroclear SA/NV are also exposed to credit risk related to the reinvestment of their cash surplus with their bank counterparties. Since 2018, some Euroclear CSDs as well as Euroclear SA/NV also reinvest in a dedicated common investment fund and a longer term investment portfolio. Credit risk is however mitigated through a strict investment policy limiting among others the allowed counterparties, type of instruments, currencies and maturity.

**Euroclear Investments SA**, as intermediary group holding entity, mainly provides financial assistance to Euroclear group entities. The company has no direct business relationship with third party clients. In this context, Euroclear Investments SA faces credit risk which arises mainly from the non-payment of interests and principal on the various funding arrangements with its subsidiaries.

The company is also exposed to credit risk related to the reinvestment of its cash with its bank counterparties. In addition, in 2018, the company also reinvested a part of its available cash in dedicated common investment funds. Credit risk arising from such investments is however mitigated through a strict and conservative investment policy in line with the group risk and credit rating profiles.

##### IV.3.1.a. Credit exposure

Intraday credit exposure arises when Euroclear Bank delivers assets before receiving the appropriate counter value from the other counterparties and when Euroclear Bank extends short-term credit to its clients to facilitate the settlement of securities transactions on a Delivery-Versus-Payment (DVP) basis. Generally, the duration varies with the sources of exposure and funding. Only in unforeseen circumstances (primarily as the result of settlement failures or delayed credits) part of the operating exposure can become an end-of-day overdraft retained in the books of Euroclear Bank until the next day. Sanctioning rates act as an effective deterrent to discourage participant's intraday credit exposures to translate into overnight credit exposures. Other credit exposures that can go beyond the short-term (intraday and overnight) are related to Treasury activity, Securities Lending and Borrowing (SLB) and General Collateral Access (GCA) activity.

[1] Regulation EU 909/2014 on settlement and central securities depositories.

The table below represents the maximum exposure to credit risk which is the carrying amount as reported in the financial statements (therefore measured on an end-of-day basis), without taking into account any collateral held or other credit enhancement attached.

| (€'000) | Notes | 2019 Total exposure | 2019 Of which secured: | 2018 Total exposure | 2018 Of which secured: |
|---|---|---|---|---|---|
| At 31 December | | | | | |
| **Financial assets** | | | | | |
| - Cash and balances with central banks | | 1,883,153 | 319 | 4,536,101 | 275 |
| - Loans and advances at amortised cost | | 13,734,855 | 10,619,131 | 14,540,012 | 10,432,727 |
| - Financial assets at FVOCI | XIII | 10,311,059 | - | 7,433,905 | - |
| - Non-trading financial assets mandatorily at FVPL | | 15,836 | - | 12,505 | - |
| - Financial assets held for trading | XIV | 10,624 | - | 14,475 | - |
| - Derivatives used for hedging | XV | 1,726 | - | 3,293 | - |
| **Total financial assets** | | **25,957,253** | **10,619,450** | **26,540,291** | **10,433,002** |
| Loan commitments | XXVI | 3,928 | - | 4,030 | - |
| Financial guarantees | XXVI | 7,190,637 | 5,902,902 | 26,448,880 | 26,448,880 |
| **Total** | | **33,151,818** | **16,522,352** | **52,993,201** | **36,881,882** |

Following changes in the Supplementary Terms of the GCA programme, Euroclear Bank is now providing a net guarantee (see note XXVI), resulting in a lower exposure on Financial Guarantee compared to 2018.

The credit quality of Euroclear's credit exposures can be assessed by reference to the internal rating system adopted by the group[2] or ratings assigned by the three major rating agencies (Standard & Poor's, Moody's and Fitch ratings). In the tables below, the internal rating Eaa' sums up the ratings 'Eaa-', 'Eaa' and 'Eaa+' of Euroclear Bank's internal ratings scale. The internal rating 'Ea' sums up the ratings 'Ea-', 'Ea' and 'Ea+' of the internal ratings scale.

The table below presents an analysis of the loans and advances at amortised cost (incl. cash and balances with central banks) using the group's internal ratings. The internal ratings are those of Euroclear's borrowers at legal entity level.

| (€'000) | 2019 | 2018 |
|---|---|---|
| At 31 December | | |
| **Loans and advances at amortised cost (incl. cash and balances with central banks)** | | |
| Eaaa | 1,881,771 | 4,534,773 |
| Eaa | 6,162,780 | 7,996,030 |
| Ea | 6,859,015 | 5,576,256 |
| Ebbb+ and Ebbb | 521,076 | 745,458 |
| Ebbb- and below | 194,035 | 223,839 |
| **Total gross carrying amount** | **15,618,677** | **19,076,355** |
| **Expected credit loss allowance** | (669) | (242) |
| **Carrying amount** | **15,618,008** | **19,076,113** |

Euroclear's borrowing participants and other counterparts are mainly of high credit quality, for which limited credit loss allowances are recorded under IFRS 9.

2 Euroclear Bank's internal rating scale and definitions are in accordance with the Long-term Issuer Default Rating (LT IDR) scale of the three major rating agencies. For further details, please refer to Euroclear's Pillar 3 disclosure section 'Internal rating Model'.

The table below presents an analysis of the FVOCI debt instruments, using the second best approach on LT IDR ratings assigned by the three major rating agencies.

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| At 31 December | | | |
| **Debt instruments at FVOCI** | | | |
| AAA | | 1,822,529 | 1,657,196 |
| AA+ | | 3,356,423 | 2,333,032 |
| AA | | 3,290,731 | 1,894,947 |
| AA- | | 587,663 | 771,328 |
| A+ to A- | | 59,205 | - |
| BBB+ | | 16,996 | 19,530 |
| BBB | | 14,236 | 22,699 |
| BBB- | | 5,572 | - |
| **Carrying amount** | XIII | **9,153,355** | **6,698,733** |
| **Including expected credit loss allowance** | | (283) | (255) |

Euroclear Bank's FVOCI debt instruments mainly consist of high credit quality short-term investments, which are considered as Stage 1 assets under IFRS 9. The Euroclear CSD's FVOCI debt instruments consist of above investment grade credit quality longer term investments, which are considered as Stage 1 assets under IFRS9

The table below presents an analysis of the loan commitments and financial guarantees using the group's internal ratings. The internal ratings are those of the Euroclear's clients or counterparties for which loan commitments and financial guarantees are given.

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| At 31 December | | | |
| **Loan commitments and financial guarantees** | | | |
| Eaaa | | 367,090 | 4,187,389 |
| Eaa | | 1,203,217 | 3,114,947 |
| Ea | | 4,467,106 | 14,064,372 |
| Ebbb+ and Ebbb | | 1,039,420 | 4,822,180 |
| Ebbb- and below | | 117,732 | 264,021 |
| **Carrying amount** | XXVI | **7,194,565** | **26,452,910** |
| **Including expected credit loss allowance** | | (8) | (6) |

#### IV.3.1.b. Credit risk mitigation

Different recourses (e.g. collateral, guarantees or letter of credit) are used to cover any credit exposure that Euroclear Bank may incur due to default following a credit event e.g. a bankruptcy, sanctions, etc. of participants, treasury counterparties and Clearstream Banking Luxembourg.

As clients have both an aggregated credit facility and credit facilities by currency, clients can use the collateral pledged and held in Euroclear Bank to guarantee all the obligations they have with Euroclear Bank, irrespective of the nature of the exposure and the original currency. For repo activity with treasury counterparties, Euroclear Bank signs Global Master Repurchase Agreements (GMRAs), which allow for close-out netting of positions in case of a counterparty default. If the post-liquidation value of collateral does not cover the defaulted credit exposure, Euroclear Bank may end up with a residual credit exposure. The potential residual credit exposure that Euroclear Bank faces after consideration of all credit mitigations, and protective measures in place is however monitored on a daily basis.

In accordance with Articles 10-11 of Regulation (EU) 390/2017, strict collateralisation rules apply concerning the quality and quantity of securities used as collateral for overdrafts, guarantees issued to securities lenders in the context of the SLB and GCA programmes, and reverse repos. Euroclear Bank uses a four category collateral classification system. The internal rating as well as credit, market and liquidity indicators are used to determine the category allocation. Any collateral that cannot be categorised in one of the four categories, is not accepted as collateral to secure credit exposure. Frequent monitoring shows that more than 99% of the collateral pledged in the Euroclear System has investment grade quality.

In order to accurately determine the value of the collateral it takes, Euroclear Bank has developed a dynamic internal collateral valuation model taking into account market, credit, country and liquidity risks. Haircuts are computed at least once a day for each security, reflecting the latest market risk factors and conditions. The collateral valuation model is back-tested (daily) and stress tested (yearly). The results show that the collateral valuation model has provided continually adequate valuations, even during periods of high volatility for the markets.

The credit exposure of the interoperable link (i.e. the Bridge) with Clearstream Banking Luxembourg (CBL) is annually secured by means of a letter of credit issued by a consortium of creditworthy financial institutions in Euroclear Bank's favour. In accordance with Article 16(k) of Regulation (EU) 390/2017, no credit institution has committed to a share of the total outstanding letter of credit above 10%. The guarantee amounted to USD 3 billion at end-2019. Additionally, Euroclear Bank has a right to off-set as a final settlement that extinguishes the mutual debts owed between the parties in exchange for a new net amount. In line with CSDR requirements, the CBL Bridge risk management principles and processes do not allow for unsecured credit exposure over the Bridge.

#### IV.3.1.c. Concentration risk

Euroclear's role as a provider of post trade services to global capital markets means its exposures are highly concentrated on the financial sector. Concentration limits are however set to ensure that the group does not take excessive exposures on a limited number of clients or counterparties. Furthermore limits and thresholds are set per collateral asset type, individual issuers, country (including geographic region), economic sector, type/activity of the issuer, rating, settlement currency, etc.

*Exposure concentration*: European regulation (Article 395 of Regulation (EU) 575/2013) imposes risk concentration limits that have to be respected for each applicable exposure. The Large Exposure Limit is the maximum amount that Euroclear Bank can lend to a single participant's family or group of connected clients. Euroclear Bank should never have an end of day exposure on one single participant's family larger than 25% of its eligible capital, after taking into account the effect of the credit risk mitigation in accordance with Articles 399 to 403 of Regulation (EU) 575/2013. Additionally limits to manage concentration risk arising from exposures to shadow banking entities (defined as under Article 395(2) of Regulation (EU) 575/2013 and that are not excluded undertakings as defined in EBA guidelines (EBA/GL/2015/20) are in place, both at individual family and aggregated level. To anticipate exposure concentration and to allow actions to be taken, exposure monitoring against determined thresholds and limits is performed ex-ante, intraday and ex-post. Depending on the exposure this is done at legal entity, family, at EB aggregated level and/or individual currency level.

*Collateral concentration*: Collateral concentration thresholds and limits, which apply to the aggregate exposure on entity and/or family level, are set in line with Euroclear Bank's risk appetite to ensure Euroclear Bank's ability to liquidate securities pledged as collateral is not impaired. A minimum amount of collateral needs to fulfil the requirements set out in Article 10 or of Regulation (EU) 390/2017, to ensure it can be monetised same-day in case of default. To anticipate collateral concentration and to allow actions to be taken, collateral monitoring against determined thresholds and limits is performed ex-ante, intraday and ex-post.

The table below shows the geographical concentration of financial assets and liabilities.

| (€'000) | European Union | Europe - Other | Americas | Asia | Rest of the world | Total |
|---|---|---|---|---|---|---|
| At 31 December 2019 | | | | | | |
| **Total financial assets** | 21,923,643 | 709,888 | 2,019,381 | 1,097,433 | 206,908 | 25,957,253 |
| **Total financial liabilities** | 12,744,081 | 1,168,304 | 1,521,395 | 6,717,190 | 479,441 | 22,630,411 |
| At 31 December 2018 | | | | | | |
| **Total financial assets** | 22,859,982 | 701,631 | 1,607,511 | 1,180,798 | 190,369 | 26,540,291 |
| **Total financial liabilities** | 12,813,259 | 1,432,168 | 2,407,965 | 6,100,557 | 707,257 | 23,461,206 |

The geographical regions are those in which Euroclear's clients or counterparties are located. Cash is classified under the country of the issuing central bank.

### IV.3.2. Liquidity risk

Liquidity risk is the risk that Euroclear, although solvent, is unable to meet its contractual or contingent obligations or that it does not have the appropriate amount, tenor and composition of funding and liquidity to support its assets.

#### IV.3.2.a. Liquidity risk at Euroclear Bank

Euroclear Bank provides liquidity to offer efficient settlement and custody services. It ensures timely cross-border settlement with domestic markets, supports new issues and custody activities, and enables clients to transfer sales and income proceeds in a timely manner. Euroclear Bank's liquidity risk is largely intraday and transactional.

Euroclear Bank's overnight settlement process, enabling clients to settle transactions in a wide range of currencies within a single timeframe, efficiently recycles and minimises liquidity needs, as clients only have to fund the resulting net debit position.

Euroclear Bank may end up with residual cash positions at the end of the day. On a daily basis, Euroclear Bank is typically long cash, which it invests mostly on a very short-term basis to match the volatility of clients' settlement and money transfer activities.

**IV.3.2.a.1. Liquidity risk appetite**

Euroclear Bank's liquidity risk appetite is very low, given the criticality of intraday liquidity for the efficient delivery of its settlement and custody services. Euroclear Bank has therefore adopted a strong risk management framework to anticipate, monitor and manage the intraday liquidity flows to ensure the quality of its services. Liquidity risk is further mitigated by Euroclear Bank's strict client admission policy and the continuous monitoring of its clients, and by the fact that credit is secured and short-term.

**IV.3.2.a.2. Funding**
Euroclear Bank's settlement system allows for an efficient recycling of liquidity. Although Euroclear Bank settles transactions amounting to over €2,000 billion each day (2019 average), it only extends less than 3% of the settled transactions in secured intraday credit to its clients (thanks to netted back-to-back transactions and to an efficient securities lending and borrowing programme). Since Euroclear Bank's daily payment receipts typically match its payment obligations, additional liquidity is only needed to smoothen or accelerate the payment process and to ensure the timely execution of time critical payments throughout the day.

To support its daily payment activity, Euroclear Bank relies on a large network of highly rated cash correspondents and has a reserve account with Central Bank of Belgium and has a direct access to TARGET2 system for euro payments. In order to raise liquidity, Euroclear Bank can also use its investment book, funded by equity and retained earnings. The investment book must be invested with the objective of capital and liquidity preservation, meaning in euro-denominated sovereign, supranational or agency debt instruments rated AA- or above and ESCB-eligible. Euroclear Bank can also raise liquidity through securities in which had been invested the debt issued during the year as part of the funding strategy[3]. Furthermore, Euroclear Bank has a broad access to the inter-bank market and has contingency liquidity sources in place for the major currencies.

Euroclear Bank issued end June 2018 under a Belgian law registered note format, various intra-group recovery capital instruments for €600 million in total on top of the €200 million contingent loan arranged in 2016 which was simultaneously converted into a registered note format and aimed at structuring a relevant loss absorption mechanism to restore capital position of the Bank in recovery and resolution scenarios in accordance with the Banking Recovery and Resolution Directive applicable to the company.

The recovery capital instruments issued by Euroclear Bank were fully subscribed by Euroclear Investments SA after its debt issuance transactions realised in 2018 for €700 million in total. Indeed, Euroclear Investments SA issued in April 2018, a €300 million of unsecured and unsubordinated 12-year fixed rate senior note and a €400 million subordinated resettable 30-years fixed rate hybrid note callable at the option of the issuer after 10 years. These notes are listed on the Irish Stock Exchange.

€200 million out of the total amount issued by the Bank, were recognised in 2018 as category 2 regulatory capital by the National Bank of Belgium. An additional €100 million was recognised in March 2019 as category 2 regulatory capital.

In addition, Euroclear SA/NV issued mid October 2018, under a Belgian law registered note format, an intra-group recovery capital instrument for €100 million that aimed at structuring a relevant loss absorption mechanism to restore capital position of Euroclear SA/NV in recovery and resolution scenarios in accordance with the Banking Recovery and Resolution Directive applicable to the Company. Such instrument was recognised in December 2019 as category 2 regulatory capital.

Besides the above Long Term notes issuances, Euroclear Bank launched a €5 billion Euro Medium Term Note (EMTN) and a €20 billion Certificate of Deposits multi-currency programs to increase its Qualifying Liquidity Sources under the European Central Securities Depositary Regulation. Out of its EMTN program, Euroclear Bank issued a total outstanding amount equivalent to €2.5 billion in EUR and GBP at the end of 2019. Out of its Certificate of Deposits program, the Bank has a total outstanding amount of €2.3 in EUR, USD and GBP.

**IV.3.2.a.3. Liquidity stress testing**
Euroclear Bank regularly performs idiosyncratic and market-wide liquidity stress tests to assess potential liquidity strains and to ensure adequate access to sufficient liquidity sources to fund any shortfalls.

Examples of liquidity stress tests are:
- default of the top two clients (at family level) and the knock on effects;
- operational issue affecting a cash correspondent;
- default of another market infrastructure; and
- unusual behaviour of participant's deposits.

In addition, Euroclear Bank has to comply with regulatory liquidity stress tests such as:
- The Liquidity Coverage Ratio (LCR), aiming to monitor that credit institutions hold sufficient liquid assets to withstand the excess of liquidity outflows over inflows that are expected to accumulate over a 30-day stressed period.
- The Net Stable Funding Ratio (NSFR), that is defined as the amount of available stable funding (Liabilities) relative to the amount of required stable funding (Assets).
- The "Cover 1" and "Cover 2": On a daily basis, Euroclear Bank runs two intraday liquidity stress tests to assess if it has sufficient liquidity resources to withstand the default, at group level, of one participant (Cover 1 as per CPMI-IOSCO) and of 2 participants (Cover 2 as per CSDR) to which Euroclear bank has the largest liquidity exposure. These stress test results are approved monthly by the Credit and Assets and Liabilities Committee (CALCO).

For LCR and NSFR, Euroclear complies with regulatory requirements and has set higher targets as part of its risk appetite framework.

**IV.3.2.a.4. Liquidity contingency plan**
Euroclear Bank maintains an appropriate liquidity contingency plan to ensure the business continuity of its core settlement and custody services. The plan documents the relevant operational procedures and ensures access to (contingency) liquidity in the event of an operational or financial crisis. On top of its own capital and access to regular market funding, Euroclear Bank has negotiated committed liquidity lines and can call upon a total of €1.7 billion syndicated back-stop facility, a total of €0.9 billion bilateral standby facility and approximatively €14 billion committed forex swap facilities. The contingency plan and the availability of contingency liquidity are regularly tested (including stress testing). Finally, to cover its short-term liquidity needs resulting from the default of a client, Euroclear Bank has agreements in place allowing Euroclear Bank to appropriate the client pledged collateral (immediate transfer of ownership). In

[3] Details on the debt securities issued and funds borrowed can be found in note XX.

order to generate liquidity, this appropriated collateral is then re-used with liquidity providers or pledged with the NBB, pending full liquidation.

#### IV.3.2.b. Liquidity risks in Euroclear SA/NV, the CSDs and Euroclear Investments SA

Investments of cash belonging to Euroclear SA/NV, the CSDs and Euroclear Investments SA aim at minimising liquidity risk for these entities:

- stable cash positions linked to regulatory liquidity requirements, for entities where such requirements apply, should be invested on a rollover basis; and
- surplus cash investments, which includes the working cash needs of these entities, should always be cash flow driven, which means that the amount and period of the investments should take into account the evolution of working cash needs and capital expenditure.

For CSDs and Euroclear SA/NV's regulatory liquidity obligations, the types of investments to be used are limited to cash, overnight or term deposits, or High-Quality Liquid Assets (HQLA) - level 1 plain vanilla debt securities issued or guaranteed by (i) a government; (ii) a central bank; (iii) EU 909/2014 a multilateral development bank as listed under Article 117 of Regulation (EU) No 575/2013 of the European Parliament and of the Council; (iv) the European Financial Stability Facility or the European Stability Mechanism in accordance with the provisions of the applicable regulatory framework of each entity.

Treasury investments cannot exceed three years for cash, overnight or term deposits. Maturity limits for securities are set at three years when representing investments of the regulatory own funds of Euroclear SA/NV and group (I)CSDs or, where applicable, up to eight years when representing investment of their respective additional recovery capital so to mitigate properly market risks.

For Euroclear Investments SA and Euroclear SA/NV, available surplus cash (i.e. cash in excess of regulatory liquidity obligations) can also be invested in plain vanilla corporate fixed income securities with maturities up to five years and not exceeding three years on average following strict and conservative investment policy principles in line with the group risk and credit rating profiles.

For the group CSDs and Euroclear SA/NV, liquidity stress testing is performed to ensure, where applicable, compliance with local regulatory liquidity obligations as well as adequate funding.

#### IV.3.2.c. Overview of financial liabilities by remaining maturity

The table below shows the consolidated financial liabilities analysed by remaining contractual maturity at the balance sheet date. The amounts disclosed in the table are the contractual undiscounted cash flows at spot rate and the book value of the derivatives.

| (€'000) | Repayable on demand or within one we ek | Other amounts maturing within 3 months | Maturity between 3 and 6 months | Maturity between 6 months and 1 year | Maturity within 1 to 5 years | Maturity after 5 years | Undiscounted contractual cash flows - Total | Book value |
|---|---|---|---|---|---|---|---|---|
| At 31 December 2019 | | | | | | | | |
| **Financial liabilities** | | | | | | | | |
| - Deposits from central banks | 825,939 | - | - | - | - | - | **825,939** | **825,939** |
| - Deposits from banks and customers | 15,436,360 | 142,030 | 10,472 | - | - | - | **15,588,862** | **15,588,804** |
| - Debt securities issued and funds borrowed | 54,607 | 1,823,913 | 415,520 | 640,272 | 2,028,942 | 1,587,849 | **6,551,103** | **6,107,058** |
| - Financial liabilities held for trading | 7,871 | 961 | - | - | - | - | **8,832** | **8,832** |
| - Derivatives used for hedging | - | 1,163 | 1,163 | 2,328 | - | - | **4,654** | **4,654** |
| - Obligations locatives | - | 6,205 | 4,713 | 8,963 | 51,092 | 24,151 | **95,124** | **95,124** |
| **Total financial liabilities** | **16,324,777** | **1,974,272** | **431,868** | **651,563** | **2,080,034** | **1,612,000** | **23,074,514** | **22,630,411** |

| (€'000) | Repayable on demand or within one we ek | Other amounts maturing within 3 months | Maturity between 3 and 6 months | Maturity between 6 months and 1 year | Maturity between 1 and 5 years | Maturity after 5 years | Undiscounted contractual cash flows - Total | Book value |
|---|---|---|---|---|---|---|---|---|
| At 31 December 2018 | | | | | | | | |
| **Financial liabilities** | | | | | | | | |
| - Deposits from central banks | 531,770 | 7,828 | - | - | - | - | **539,598** | **539,598** |
| - Deposits from banks and customers | 17,834,616 | 99,224 | 10,490 | - | - | - | **17,944,330** | **17,944,330** |
| - Debt securities issued and funds borrowed | 354,035 | 790,660 | 15,000 | 370,835 | 2,234,048 | 1,784,458 | **5,549,036** | **4,956,396** |
| - Financial liabilities held for trading | 19,099 | 1,217 | - | - | - | - | **20,316** | **20,316** |
| - Derivatives used for hedging | - | 141 | 141 | 284 | - | - | **566** | **566** |
| **Total financial liabilities** | **18,739,520** | **899,070** | **25,631** | **371,119** | **2,234,048** | **1,784,458** | **24,053,846** | **23,461,206** |

The deposits from banks and customers include an amount of 5,573,227,000 €-equivalent at 31 December 2019 (2018: 4,497,491,000 €-equivalent) of deposits blocked following applicable international sanctions measures. Furthermore, as of 31 December 2019, assets in safe custody also include securities for a market value of 11,270,994,000 €-equivalent blocked pursuant to these same sanctions (2018: 9,801,173,000 €-equivalent).

### IV.3.2.d. Fair value of financial instruments

The group measures fair values using the following fair value hierarchy, which reflects the significance of the inputs used in making the measurements:

- **Level 1**: Inputs that are quoted market price in active markets for the same instruments. A market is regarded as active if quoted prices are readily and regularly available (exchange, dealer, broker, pricing service or regulatory agency) and if these prices represent actual and regularly occurring market transactions on an arm's length basis.

- **Level 2**: The fair value of these instruments is determined by using quoted prices included within level 1 that are observable either directly (i.e. as prices) or indirectly (i.e. derived from prices). This category includes instruments valued using: quoted prices in active markets for similar instruments, quoted prices for similar instruments in markets that are less active, or other valuation techniques. The valuation techniques maximise the use of observable market data where it is available. If all significant inputs that are required to fair value an instrument are observable, the instrument is included in level 2.

- **Level 3**: If one or more of the significant inputs is not based on observable market data, the instrument is included in level 3. Specific valuation techniques used to value financial instruments include:
  - quoted market prices or dealer quotes for similar instruments;
  - the present value of the estimated future cash flows based on observable yield curves, for the fair value of interest rate swaps;
  - the forward exchange rates at the balance sheet date, with the resulting value discounted back to present value, for the fair value of forward foreign exchange contracts;
  - other techniques, such as discounted cash flow analysis, used to determine the fair value of remaining financial instruments.

#### IV.3.2.d.1 Financial instruments measured at fair value

The table below show the three-level hierarchy of the financial instruments measured at fair value.

| (€'000) | Notes | Level 1 | Level 2 | Level 3 | Total |
|---|---|---|---|---|---|
| At 31 December 2019 | | | | | |
| **Financial assets** | | | | | |
| **Financial assets at FVOCI** | XIII | | | | |
| - Equity instruments | | 406,840 | 736,888 | 13,976 | **1,157,704** |
| - Debt instruments | | 9,153,355 | - | - | **9,153,355** |
| **Non-trading financial assets mandotorily at FVPL** | XIII | | | | |
| - Debt instruments | | - | - | 10,142 | **10,142** |
| - Loans | | - | - | 5,694 | **5,694** |
| **Financial assets held for trading** | XIV | | | | |
| - Forward foreign exchange | | - | 10,624 | - | **10,624** |
| **Derivatives used for hedging** | XV | | | | |
| - Forward foreign exchange | | - | 1,726 | - | **1,726** |
| **Total financial assets** | | **9,560,195** | **749,238** | **29,812** | **10,339,245** |
| **Financial liabilities** | | | | | |
| **Financial liabilities held for trading** | XIV | | | | |
| - Forward foreign exchange | | - | 8,832 | - | **8,832** |
| **Derivatives used for hedging** | XV | | | | |
| - Forward foreign exchange | | - | 4,654 | - | **4,654** |
| **Total financial liabilities** | | **-** | **13,486** | **-** | **13,486** |

Financial instruments classified in level 3 relate to minority long-term participating interests of Euroclear Bank (SWIFT and Monte Titoli), Euroclear SA/NV (Acadiasoft, Liquidshare, B-Hive and DSB Limited) and Euroclear Information Solutions Limited (Algomi).

| (€'000) | Notes | Level 1 | Level 2 | Level 3 | Total |
|---|---|---|---|---|---|
| At 31 December 2018 | | | | | |
| **Financial assets** | | | | | |
| **Financial assets at FVOCI** | XIII | | | | |
| - Equity instruments | | 281,680 | 439,448 | 14,044 | **735,172** |
| - Debt instruments | | 6,698,733 | - | - | **6,698,733** |
| **Non-trading financial assets mandotorily at FVPL** | XIII | | | | |
| - Debt instruments | | - | - | 10,142 | **10,142** |
| - Loans | | - | - | 2,363 | **2,363** |
| **Financial assets held for trading** | XIV | | | | |
| - Forward foreign exchange | | - | 14,475 | - | **14,475** |
| **Derivatives used for hedging** | XV | | | | |
| - Forward foreign exchange | | - | 3,293 | - | **3,293** |
| **Total financial assets** | | **6,980,413** | **457,216** | **26,549** | **7,464,178** |
| **Financial liabilities** | | | | | |
| **Financial liabilities held for trading** | XIV | | | | |
| - Forward foreign exchange | | - | 20,316 | - | **20,316** |
| **Derivatives used for hedging** | XV | | | | |
| - Forward foreign exchange | | - | 566 | - | **566** |
| **Total financial liabilities** | | **-** | **20,882** | **-** | **20,882** |

The table below shows the reconciliation of the level 3 fair value measurements.

| (€'000) | Notes | At 31 December 2018 | Adjusment on adoption of IFRS 9 | At 1 January 2019 | (Disposals)/ acquisitions | Fair value adjustment released in profit or loss | Fair value adjustment recognised in equity | Accrued Interest | At 31 December 2019 |
|---|---|---|---|---|---|---|---|---|---|
| **Financial assets** | | | | | | | | | |
| **Financial assets at FVOCI** | XIII | | | | | | | | |
| - Equity shares | | 14,044 | - | 14,044 | (167) | - | 99 | - | **13,976** |
| **Non-trading financial assets mandotorily at FVPL** | | | | | | | | | |
| - Debt instruments | | 10,142 | - | 10,142 | - | - | - | - | **10,142** |
| - Loans | | 2,363 | - | 2,363 | 3,176 | - | - | 155 | **5,694** |
| **Total financial assets** | | **26,549** | **-** | **26,549** | **3,009** | **-** | **99** | **155** | **29,812** |

| (€'000) | Notes | At 31 December 2017 | Adjusment on adoption of IFRS 9 | At 1 January 2018 | (Disposals)/ acquisitions | Fair value adjustment released in profit or loss | Fair value adjustment recognised in equity | Accrued Interest | At 31 December 2018 |
|---|---|---|---|---|---|---|---|---|---|
| **Financial assets** | | | | | | | | | |
| **Financial assets at FVOCI** | XIII | | | | | | | | |
| - Equity shares | | 15,702 | (7,786) | 7,916 | 9,453 | - | (3,325) | - | **14,044** |
| **Non-trading financial assets mandotorily at FVPL** | | | | | | | | | |
| - Debt instruments | | - | 7,786 | 7,786 | (225) | 2,581 | - | - | 10,142 |
| - Loans | | - | - | - | 2,348 | - | - | 15 | 2,363 |
| **Total financial assets** | | **15,702** | **-** | 15,702 | **11,576** | 2,581 | **(3,325)** | 15 | **26,549** |

### IV.3.2.d.2 Financial instruments not measured at fair value

The table below show the three-level hierarchy of the financial instruments not measured at fair value.

| (€'000) | Level 1 | Level 2 | Level 3 | Total | Carrying amount |
|---|---|---|---|---|---|
| At 31 December 2019 | | | | | |
| **Financial assets** | | | | | |
| - Cash and balances with central banks | 1,882,833 | 320 | - | 1,883,153 | 1,883,153 |
| - Loans and advances at amortised cost | 2,912,052 | 10,822,803 | - | 13,734,855 | 13,734,855 |
| **Total financial assets** | **4,794,885** | **10,823,123** | **-** | **15,618,008** | **15,618,008** |
| **Financial liabilities** | | | | | |
| - Deposits from central banks | 825,939 | - | - | 825,939 | 825,939 |
| - Deposits from banks and customers | 15,445,266 | 143,538 | - | 15,588,804 | 15,588,804 |
| - Debt securities issued and funds borrowed | 6,089,408 | 23,006 | - | 6,112,414 | 6,107,058 |
| - Lease liabilities | - | 95,124 | - | 95,124 | 95,124 |
| **Total financial liabilities** | **22,360,613** | **261,668** | **-** | **22,622,281** | **22,616,925** |

| (€'000) | Level 1 | Level 2 | Level 3 | Total | Carrying amount |
|---|---|---|---|---|---|
| At 31 December 2018 | | | | | |
| **Financial assets** | | | | | |
| - Cash and balances with central banks | 4,535,857 | 244 | - | 4,536,101 | 4,536,101 |
| - Loans and advancesat amortised cost | 4,102,127 | 10,437,885 | - | 14,540,012 | 14,540,012 |
| **Total financial assets** | **-** | **19,076,113** | **-** | **19,076,113** | **19,076,113** |
| **Financial liabilities** | | | | | |
| - Deposits from central banks | 539,598 | - | - | 539,598 | 539,598 |
| - Deposits from banks and customers | 17,834,616 | 109,714 | - | 17,944,330 | 17,944,330 |
| - Debt securities issued and funds borrowed | 4,299,707 | 647,249 | - | 4,946,956 | 4,956,396 |
| **Total financial liabilities** | **4,299,707** | **19,131,177** | **-** | **23,430,884** | **23,440,324** |

Loans and advances include reverse repos and long balances deposited with financial institutions other than central banks, and to a lesser extent overdrafts and fixed term advances to clients. Loans and advances at amortised cost and deposits are short-term (less than 12 months), hence their carrying amount is a reasonable approximation of their fair value.

### IV.3.3. Market risk

Market risk is the risk of losses in (on or off balance-sheet) positions arising from adverse movements in market prices. Market risk arises from possible changes in foreign exchange rates, interest rates, equity or commodity prices.

#### IV.3.3.a. Market risk at Euroclear Bank

The majority of market risk in the group is concentrated at Euroclear Bank. As part of the Financial Risk Policy Handbook, an adequate risk framework has been put in place to measure, monitor and control the interest rate and foreign exchange risk supported by Euroclear Bank.

**Market risk appetite**: Euroclear Bank has a low risk appetite for Market Risk. By policy, Euroclear Bank's core equity (shareholders' equity plus retained earnings) is invested in debt instruments rated AA- or higher. The maturity of these assets is limited to five years and the average duration is currently below one year. Euroclear Bank does not engage in any activity that is not considered as part of its normal business or a consequence of its clients' activity, and as such will not engage in trading (even if, under IFRS, certain transactions in derivatives do not qualify as hedges and are therefore recognised under trading activities). The activities and instruments in which Euroclear Bank can engage must be in line with its low-risk profile. Euroclear Bank is not significantly exposed to equity risk or commodity risk. A prudent investment strategy is applied in order to preserve the core equity of Euroclear Bank. In particular, the assets of the investment book can only be invested in highly rated and liquid debt instruments (with the exception of intra-company loans) and an appropriate hedging strategy may be applied so as to protect future earnings against adverse market conditions.

**Market risk measurement**: The market risk relative to the management of the FVOCI portfolio is measured using a Value-at-Risk (VaR) methodology. The VaR for a portfolio is the maximum loss over a determined time horizon at a given confidence level (99%). The VaR model assumes a holding period, until positions can be closed, of one day. The market parameters are derived from the volatility and correlation observed from historical daily changes. The VaR models are back tested on an annual basis or in case of material changes .

Euroclear Bank has developed two VaR models for the foreign exchange (FX) and interest rate (IR).

- The FX-VaR model measures the 1-day maximum loss with a confidence of 99% arising from the end of day exposures of different currencies. The FX-VaR is shown on an aggregated basis.

- The IR-VaR model calibrates the daily VaR figures for the aggregate portfolio as well as for different portfolios. The IR-VaR figures are segregated in the following books: Tier1 capital book (all securities purchased by Euroclear Bank with its capital); long term borrowings and investments (Euroclear Bank's senior non preferred loans, including the contingent convertibles, and the subordinated liabilities as well as the proceeds of their investments); short and medium term issuances book (assets, liabilities and commitments resulting from the investments of the certificates of deposits and medium term notes). The VaR figures are:

| (€'000) | 2019 average | 2019 min | 2019 max | 2018 average | 2018 min | 2018 max |
|---|---|---|---|---|---|---|
| Aggregate - IR | 3,728 | 1,017 | 7,375 | 1,315 | 636 | 4,609 |
| Aggregate - FX | 82 | 2 | 1,574 | 47 | 1 | 1,820 |

**Market risk mitigation (hedging)**: Euroclear Bank has engaged in a series of market derivatives in order to hedge the forex risk exposure resulting from future income streams, with the aim of ensuring that the financial results are not adversely affected by market evolutions ('predictability of future revenues'). Such transactions are classified as cash flow hedges.

The Foreign Exchange Manageable Amount owned by Finance Division forecasts the future income by currency, based on the plan figures. The outcome of this exercise is used by Treasury Department to carry out the Foreign Exchange hedging activity.

#### IV.3.3.b. Market risk at Euroclear SA/NV, the CSDs and Euroclear Investments SA

Interest rate risk exists only to a limited extent in Euroclear SA/NV, the CSDs and Euroclear Investments SA. Indeed, the CSDs do not operate commercial cash accounts but invest their cash positions in accordance with regulatory liquidity requirements. The cash positions are reinvested in four ways:

- Straight overnight or Term Deposits with a maturity of maximum 3 years;
- Regulatory cash is invested in a Common Investment Fund (CIF) and mandates with a maturity of maximum 3 years;
- Excess of cash is invested in a CIF with a maturity of maximum 5 years;
- A loan for recovery purposes (in line with the Minimum Requirement Eligible liabilities - MREL) from Euroclear Investments SA is invested in a CIF with a maturity of maximum 9 years.

Foreign exchange risk is not significant in Euroclear SA/NV, the CSDs and Euroclear Investments SA. To avoid the potential foreign exchange risk that could arise from the investment of their surplus cash, these investments can only be made in their local currency, meaning in EUR for entities whose functional currency is EUR, in GBP for the entities located in the United Kingdom, and in SEK for the Swedish entity. The main source of foreign exchange risk stems from the potential change in net asset values of Euroclear SA/NV's non-euro shareholdings (for example, Euroclear UK & Ireland and Euroclear Sweden).

Starting in April 2018, Euroclear launched its Euroclear Treasury Funds and Treasury Investment mandates in France and UK to manage regulatory and excess treasury positions of the group (excluding Euroclear Bank). It aimed at better mitigating risks (credit, market and liquidity) arising from treasury investments in EUR and GBP for Euroclear SA/NV, the CSDs and Euroclear Investments SA, including capital erosion risks generated currently by the current EUR short term interest rate environment.

The Euroclear Treasury Fund and Mandate structures (recorded as equity instruments designated at FVOCI) rely on two common investment funds domiciled in Belgium and Luxembourg and two Investment mandates in France and UK where assets under management are totalling approximatively €946 million as of end 2019 for Euroclear SA/NV, the CSDs and Euroclear Investments SA.

Such structures enable eligible Euroclear entities to invest their regulatory cash and to some extent their surplus cash positions under strict rules such as to invest into EUR and GBP government or supra national ECB eligible securities with rating, maturities, duration, relevant VaR and concentration limitations. They also enable group subsidiaries to invest their respective excess cash positions to allow for optimised treasury returns and risk mitigation on cash in excess of regulatory obligations. Applicable investment rules also include i.a.: rating, maturity, average duration, VaR (and concentration limitations).

For Euroclear Investments SA and Euroclear SA/NV in particular, market risks on treasury investments into the CIFs are further mitigated by allowing the usage of listed EUR Fixed income futures to limit the duration of the related treasury portfolios.

The group's equity risk principally relates to its long term participating interest in Euronext held by Euroclear SA/NV (classified as level 1).

### IV.3.3.c. Interest rate risk

Euroclear Bank typically has net long cash positions and its earnings therefore are sensitive to future changes in interest rates. Interest Rate Risk in the Banking Book (IRRBB) measures the impact on equity value (EVE[4]) and future profitability (NIE[5]). IRRBB is run for EB stand-alone and ESA consolidated. The base case and six stressed scenarios are run for both legal entities. It identifies the interest rate sensitive elements on- and off- balance sheet and also interest rate sensitive income/expense which influences the profit and loss statement.

The table below shows the IRRBB at the level of Euroclear Holding SA/NV. Assets and liabilities held in the Banking Book[6] are predominantly denominated in euro, and they are expressed at market value for the purpose of this disclosure. The economic value of the Banking Book is computed by discounting the future cash flows for assets and liabilities present in this book.

The sensitivity of the economic value of the Banking Book to interest rate shocks is presented in the first column of the table below.

| (€'000) | Economic value of banking book | Income sensitivity: Interest result Effective 2019 | Income sensitivity: Interest result Expected 2020 |
|---|---|---|---|
| **Interest scenario's** | | | |
| Parallel increase in interest rates with 200 basis points | 2,406,206 | | 445,863 |
| No movement | 2,347,012 | 306,883 | 163,084 |
| Parallel decrease in interest rates with 200 basis points | 2,268,728 | | 35,708 |

| (€'000) | Economic value of banking book | Income sensitivity: Interest result Effective 2018 | Income sensitivity: Interest result Expected 2019 |
|---|---|---|---|
| **Interest scenario's** | | | |
| Parallel increase in interest rates with 200 basis points | 2,153,183 | | 455,823 |
| No movement | 2,048,221 | 255,725 | 201,427 |
| Parallel decrease in interest rates with 200 basis points | 1,920,112 | | 85,784 |

[4] A new IRRBB EVE (Economic Value of Equity) approach was developed in the course of 2019 to accommodate the updated NBB reporting standards and is currently ongoing validation. We believe that the outcome of validation exercise will not have material impact on the figures presented above.
[5] Net Interest Earnings
[6] Banking book contains assets and liabilities which are not held for trading intentions or for hedging of the instrument within the trading book. This book includes the Bank's on-balance sheet interest bearing assets and liabilities, including off-balance sheet positions with a fixed interest.

The tables below reflect the interest rate risk profile of assets and liabilities at 31 December, based on the earlier of maturity date and interest rate resetting date. Amounts are gross, net of any impairment loss.

| (€'000) | Repayable on demand or within one week | Other amounts maturing within 3 months | Maturity between 3 and 6 months | Maturity between 6 months and 1 year | Maturity between 1 and 5 years | Maturity after 5 years | Non-interest bearing | Total |
|---|---|---|---|---|---|---|---|---|
| At 31 December 2019 | | | | | | | | |
| **Assets** | | | | | | | | |
| - Cash and balances with central banks | 1,882,928 | - | - | - | - | - | 225 | 1,883,153 |
| - Loans and advances at amortised cost | 10,886,366 | 2,798,266 | 1,637 | 3,544 | 25,260 | - | 19,782 | 13,734,855 |
| - Financial assets at FVOCI | 294,293 | 4,518,187 | 385,466 | 1,158,714 | 2,126,446 | 640,012 | 1,187,941 | 10,311,059 |
| - Non-trading financial assets mandatorily at FVPL | - | - | - | 940 | 4,584 | - | 10,312 | 15,836 |
| - Financial assets held for trading | - | - | - | - | - | - | 10,624 | 10,624 |
| - Derivatives used for hedging | - | 432 | 432 | 863 | - | - | - | 1,726 |
| - Other assets | - | - | - | - | - | - | 1,611,335 | 1,611,335 |
| **Total assets** | **13,063,587** | **7,316,885** | **387,535** | **1,164,061** | **2,156,290** | **640,012** | **2,840,219** | **27,568,588** |
| **Liabilities** | | | | | | | | |
| - Deposits from central banks | 825,935 | - | - | - | - | - | 4 | 825,939 |
| - Deposits from banks and customers | 15,436,142 | 141,653 | 10,500 | - | - | - | 509 | 15,588,804 |
| - Debt securities issued and funds borrowed | 462,710 | 1,554,646 | 256,961 | 622,845 | 1,904,834 | 1,290,245 | 14,817 | 6,107,058 |
| - Financial liabilities held for trading | - | - | - | - | - | - | 8,832 | 8,832 |
| - Derivatives used for hedging | - | 1,163 | 1,163 | 2,328 | - | - | - | 4,654 |
| - Lease liabilities | - | 6,205 | 4,713 | 8,963 | 51,092 | 24,151 | - | 95,124 |
| - Other liabilities | - | - | - | - | - | - | 708,566 | 708,566 |
| **Shareholders' equity** | - | - | - | - | - | - | 4,229,611 | 4,229,611 |
| **Total liabilities and shareholders' equity** | **16,724,787** | **1,703,667** | **273,337** | **634,136** | **1,955,926** | **1,314,396** | **4,962,339** | **27,568,588** |
| **Total interest sensitivity gap** | (3,661,200) | 5,613,218 | 114,198 | 529,925 | 200,364 | (674,384) | (2,122,120) | - |
| **Cumulative gap** | **(3,661,200)** | **1,952,018** | **2,066,215** | **2,596,140** | **2,796,504** | **2,122,120** | **-** | **-** |

| (€'000) | Repayable on demand or within one week | Other amounts maturing within 3 months | Maturity between 3 and 6 months | Maturity between 6 months and 1 year | Maturity between 1 and 5 years | Maturity after 5 years | Non-interest bearing | Total |
|---|---|---|---|---|---|---|---|---|
| At 31 December 2018 | | | | | | | | |
| **Assets** | | | | | | | | |
| - Cash and balances with central banks | 4,535,930 | - | - | - | - | - | 171 | 4,536,101 |
| - Loans and advances | 11,313,495 | 1,820,106 | 1,337,339 | 3,352 | 41,679 | - | 24,041 | 14,540,012 |
| - Financial assets at FVOCI | - | 3,472,034 | 904,683 | 146,824 | 1,824,929 | 758,920 | 326,515 | 7,433,905 |
| - Non-trading financial assets mandatorily at FVPL | - | - | - | - | 2,348 | - | 10,157 | 12,505 |
| - Financial assets held for trading | - | - | - | - | - | - | 14,475 | 14,475 |
| - Derivatives used for hedging | - | 823 | 823 | 1,647 | - | - | - | 3,293 |
| - Other assets | - | - | - | - | - | - | 1,593,753 | 1,593,753 |
| **Total assets** | **15,849,425** | **5,292,963** | **2,242,845** | **151,823** | **1,868,956** | **758,920** | **1,969,112** | **28,134,044** |
| **Liabilities** | | | | | | | | |
| - Deposits from central banks | 531,768 | 7,825 | - | - | - | - | 5 | 539,598 |
| - Deposits from banks and customers | 17,834,340 | 98,947 | 10,500 | - | - | - | 543 | 17,944,330 |
| - Debt securities issued and funds borrowed | 353,457 | 790,589 | - | 363,208 | 2,145,328 | 1,289,284 | 14,530 | 4,956,396 |
| - Financial liabilities held for trading | - | - | - | - | - | - | 20,316 | 20,316 |
| - Derivatives used for hedging | - | 141 | 141 | 284 | - | - | - | 566 |
| - Other liabilities | - | - | - | - | - | - | 833,760 | 833,760 |
| **Shareholders' equity** | - | - | - | - | - | - | 3,839,078 | 3,839,078 |
| **Total liabilities and shareholders' equity** | **18,719,565** | **897,502** | **10,641** | **363,492** | **2,145,328** | **1,289,284** | **4,708,232** | **28,134,044** |
| **Total interest sensitivity gap** | (2,870,140) | 4,395,461 | 2,232,204 | (211,670) | (276,372) | (530,364) | (2,739,120) | - |
| **Cumulative gap** | **(2,870,140)** | **1,525,321** | **3,757,526** | **3,545,856** | **3,269,484** | **2,739,120** | **-** | **-** |

### IV.3.3.d. Foreign exchange risk

The group's entities have the euro as their functional currency, with the exception of subsidiaries and a joint venture located in the United Kingdom or Sweden.

Sensitivity to foreign exchange risk is monitored through a VaR model. Given Euroclear's low market risk appetite as an FMI and the focus on the preservation of its capital, it does not engage in trading activities. As a consequence, tight market risk limits are set and controlled via strict hedging and investment policies and daily monitoring. Hence, on a daily basis, the risk undertaken throughout the business is evaluated versus these limits.

The group's structural currency exposures (foreign exchange translation risk) were as follows:

| (€'000) | Net investments in non-euro operations | Currency hedges other than borrowings | Remaining structural currency exposures |
|---|---|---|---|
| **Functional currency of the operation involved** | | | |
| At 31 December 2019 | | | |
| - US dollar | 6,129 | - | 6,129 |
| - Pound sterling | 177,441 | - | 177,441 |
| - Swedish krona | 60,793 | - | 60,793 |
| At 31 December 2018 | | | |
| - US dollar | 8,208 | - | 8,208 |
| - Pound sterling | 128,510 | - | 128,510 |
| - Swedish krona | 61,712 | - | 61,712 |

The table below summarises the group's exposure to foreign currency exchange rate risk. Included in the table are the group's assets and liabilities at carrying amounts, categorised by currency.

| Concentration of assets and liabilities per currency<br>(€'000) | Euro | US Dollar | Japanese Yen | Pound Sterling | Other | Total |
|---|---|---|---|---|---|---|
| At 31 December 2019 | | | | | | |
| **Total assets** | **12,059,232** | **10,884,135** | **424,278** | **2,401,181** | **1,799,762** | **27,568,588** |
| **Total liabilities and shareholders' equity** | **11,984,065** | **10,007,556** | **959,210** | **2,664,321** | **1,953,436** | **27,568,588** |
| **Net balance sheet position** | **75,167** | **876,579** | **(534,932)** | **(263,140)** | **(153,674)** | **-** |

The net non-euro balance sheet positions mainly reflect the net assets of subsidiaries and branches located in the United Kingdom and Sweden, and other transactional positions, being almost fully offset by currency swaps.

| Concentration of assets and liabilities per currency<br>(€'000) | Euro | US Dollar | Singapore Dollar | Pound Sterling | Other | Total |
|---|---|---|---|---|---|---|
| At 31 December 2018 | | | | | | |
| **Total assets** | **14,093,032** | **9,104,302** | **456,217** | **1,832,460** | **2,648,033** | **28,134,044** |
| **Total liabilities and shareholders' equity** | **12,062,153** | **9,987,330** | **1,229,609** | **2,350,536** | **2,504,416** | **28,134,044** |
| **Net balance sheet position** | **2,030,879** | **(883,028)** | **(773,392)** | **(518,076)** | **143,617** | **-** |

## IV.4. Capital management

### IV.4.a. Capital measurement and allocation

The internal view on Euroclear Bank's capital needs is based on economic capital models, which estimate the amount of capital that Euroclear needs to have in order to protect itself from unexpected losses resulting from the risks it faces in its various activities. This view is complemented by stress scenarios. The capital models run in a 99.98% confidence level, cover operational, credit, market, business and pension risks. This conservative approach to capital, combined with Euroclear's strong risk management and effective controls, has helped Euroclear Bank retain high credit ratings in times of market stress. Euroclear Bank is assigned a AA+ credit rating by Fitch Ratings and a AA credit rating by Standard & Poor's (S&P).

The National Bank of Belgium (NBB) is the main supervisor of Euroclear Bank, the lead regulator for Euroclear SA/NV and, for consolidated capital adequacy purposes only, Euroclear Holding SA/NV. In addition, individual Euroclear CSDs are regulated by their own local supervisors, which set and monitor compliance with their capital adequacy and liquidity requirements. All Euroclear CSDs and Euroclear Bank are subject to the capital requirements stipulated under CSDR.

The Capital Requirement Regulation (CRR) requires Euroclear Bank, Euroclear SA consolidated and Euroclear Holding SA/NV consolidated entities, to maintain at all times:

- a ratio of total capital to risk-weighted assets that cannot fall under a threshold of 8%;
- a ratio of Tier 1 capital to risk-weighted assets that must exceed a threshold of 6%;
- a ratio of common equity Tier1 capital (CET1) exceeding 4.5%; and
- a capital conservation buffer of 2.5% in common equity (not applicable to Euroclear Holding SA/NV) (1.875% in 2018).

Euroclear Bank and Euroclear SA/NV, together with seven other banks or banking groups in Belgium, were identified in 2015 by the NBB as domestic systemically important banks (referred to in EU legislation as “other systemically important institutions”, or O-SIIs) under Belgian banking law and CRD IV. Subsequently, the NBB applies a common equity Tier 1 capital ratio surcharge of 0.75% to Euroclear Bank standalone and Euroclear SA consolidated.

Euroclear intends to maintain a CET1 ratio and total capital ratio in line with the SREP requirements on a continuous basis, in accordance with the supervisory review of its capital adequacy at statutory and consolidated levels

Euroclear determines risk-weighted assets for credit, operational and market risks.

For credit risk, Euroclear uses the Foundation Internal Ratings Based Approach (FIRBA). Risk-weighted assets take into consideration balance sheet assets and off-balance sheet exposures that may give rise to credit risk, as calculated for both Euroclear Bank and the group on a consolidated basis. Collateral and other eligible guarantees are taken into account appropriately.

With respect to operational risk, Euroclear uses the Advanced Measurement Approach (AMA) for the calculation of Pillar 1 capital requirements. Euroclear uses a hybrid approach at all consolidated levels above Euroclear Bank, by combining the AMA for Euroclear Bank and Euroclear SA/NV with a Standardised or Basic Indicator Approach for the other group’s entities.

As Euroclear Bank is a limited purpose bank and does not have a trading book, the market risk that Euroclear Bank incurs is very limited. For market risk, Euroclear uses the Standardised Approach to cover the Foreign Exchange risk.

In addition to the capital ratios, Euroclear complies with the leverage ratio. Current requirement is 3%. Euroclear’s current levels of the leverage ratio are already well above this regulatory requirement and are disclosed in the Pillar 3 publication.

The table below sets out the Euroclear Holding SA/NV group’s Tier 1 and total capital, which both comfortably exceed the regulatory requirements. As reported in the table, none of the debt securities issued by Euroclear Investments SA have been recognised as regulatory capital in the computation of the group consolidated capital ratios.

### IV.4.b. Regulatory capital position

| (€'000) | 2019 | 2018 |
|---|---|---|
| **Risk-weighted assets**[1] | **7,744,250** | **7,368,131** |
| **Capital requirement** | **619,540** | **589,451** |
| - Credit risk | 236,243 | 209,745 |
| - Market risk | 27,288 | 28,699 |
| - Operational risk | 356,009 | 351,007 |
| **Capital base**[2] | **3,106,091** | **2,800,984** |
| - Tier 1 | 3,104,959 | 2,800,984 |
| - Tier 2 | 1,132 | - |
| **Solvency ratio** | | |
| - Tier 1 | 40.1% | 38.0% |
| - Total | 40.1% | 38.0% |

[1] Risk-weighted assets represent the total capital requirement multiplied by a factor of 12.5. This means that the risk-weighted assets do not only relate to credit and market risk, but also comprise the gross-up of the capital requirements related to operational risks. For Euroclear, the latter are the main source of capital consumption.
[2] Capital base is highly comparable to the shareholders’ equity presented in the Statement of financial positions. Differences are due to deductions required by CRD IV regulation, mainly goodwill and intangible assets, current year proposed dividend, limits on investments in financial sector entities, cash-flow hedging reserve, prudent valuation and provision shortfall for expected losses.

## V. Segment analysis

The Euroclear SA/NV Management Committee receives internal reports for Euroclear Bank, Euroclear SA/NV, Euroclear UK & Ireland, the ESES CSDs as well as Euroclear Sweden and Euroclear Finland.

The reportable business segments are as follows:
- Euroclear Bank (including its Hong Kong, Polish and Japanese branches) is an International Central Securities Depository (ICSD);
- Euroclear SA/NV (including its branches in Amsterdam, London and Paris) is the provider of software development and non-operational support services to the (I)CSDs;
- Euroclear UK & Ireland is the Central Securities Depository (CSD) subsidiary located in the United Kingdom. This entity also runs an investment fund order routing business;
- the ESES segment includes the group's CSDs located in Belgium, France and the Netherlands;
- Euroclear Sweden (CSD in Sweden); and
- Euroclear Finland (CSD in Finland).

Information reported within 'Other' relates to the parent companies, Euroclear AG, Euroclear Re SA, Euroclear Market Solutions Limited (liquidated in 2019) and two property companies whose buildings are leased almost entirely to Euroclear SA/NV. None of these qualified as a reportable segment in 2019 or 2018.

The risks and returns associated with Euroclear Bank's ICSD services do not vary geographically and, accordingly, is considered as one geographical segment. The activities of all other segments are within Europe.

No single client generated 10% or more of the group's revenues.

Transactions between the companies are on normal commercial terms and conditions. Recharges of software development costs and support services are based on formal agreements between the entities concerned.

Segment assets and liabilities comprise all third-party assets and liabilities.

| | | 2019 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (€'000) | Notes | Euroclear Bank | Euroclear SA/NV | Euroclear UK & Ireland | ESES CSDs | Euroclear Sweden | Euroclear Finland | Other | Eliminations | Group |
| Net interest income | VI | 307,819 | (5,309) | 1,122 | (459) | (367) | (126) | 3,938 | 265 | 306,883 |
| Net fee and commission income | VII | 704,100 | (5) | 116,310 | 181,361 | 56,404 | 45,597 | 13 | (34) | 1,103,746 |
| Intra-group recharges | | 971 | 559,064 | 24 | 124 | 195 | 247 | 84 | (560,709) | - |
| Other income | | 12,017 | 429,818 | (305) | 607 | (234) | (99) | 228,975 | (645,951) | 24,828 |
| Operating income | | 1,024,907 | 983,568 | 117,151 | 181,633 | 55,998 | 45,619 | 233,010 | (1,206,429) | 1,435,457 |
| Staff costs | IX | (121,220) | (254,236) | (13,870) | (20,735) | (12,754) | (10,055) | (982) | - | (433,852) |
| Other direct costs | IX | (22,166) | (231,573) | (16,048) | (6,545) | (14,022) | (16,650) | (12,444) | 3,181 | (316,267) |
| Depreciation and amortisation | XVII, XVIII | (5,914) | (60,582) | (85) | (11) | (1,372) | (7,914) | (3,363) | 9,268 | (69,973) |
| Royalty fees | | (5,517) | - | (439) | (637) | (201) | (149) | - | 6,943 | - |
| Group non-operational and administrative support services | | (382,877) | (618) | (63,859) | (93,299) | (11,502) | (6,772) | (1,766) | 560,693 | - |
| Share of result in joint venture | | - | 708 | - | - | - | - | - | - | 708 |
| Operating profit/(loss) before impairment and taxation | | 487,213 | 437,267 | 22,850 | 60,406 | 16,147 | 4,079 | 214,455 | (626,344) | 616,073 |
| Impairment | X | (629) | (1,085) | (103) | (177) | (155) | (3) | 22 | - | (2,130) |
| Operating profit/(loss) before taxation | | 486,584 | 436,182 | 22,747 | 60,229 | 15,992 | 4,076 | 214,477 | (626,344) | 613,943 |
| Taxation | XI | (148,319) | (6,185) | (3,123) | (18,543) | (3,554) | (820) | (2,631) | - | (183,175) |
| **Profit/(loss) for the year** | | **338,265** | **429,997** | **19,624** | **41,686** | **12,438** | **3,256** | **211,846** | **(626,344)** | **430,768** |
| External revenues | | 1,629,551 | 11,780 | 128,053 | 191,837 | 58,002 | 41,139 | 1,849 | - | 2,062,211 |
| Revenues from other segments | | 15,059 | 977,485 | 1,234 | 28,907 | 715 | 4,736 | 74,138 | (1,102,274) | - |
| **Total revenues** | | **1,644,610** | **989,265** | **129,287** | **220,744** | **58,717** | **45,875** | **75,987** | **(1,102,274)** | **2,062,211** |
| Segment assets | | 24,384,859 | 1,960,413 | 162,676 | 287,085 | 270,724 | 132,276 | 370,555 | - | 27,568,588 |
| of which non-current assets | | 2,691,909 | 1,256,857 | 56,691 | 105,868 | 171,685 | 74,338 | 213,553 | - | 4,570,901 |
| Segment liabilities | | 21,587,452 | 309,296 | 16,707 | 41,982 | 62,970 | 8,744 | 1,311,826 | - | 23,338,977 |

| (€'000) | Notes | 2018 Euroclear Bank | Euroclear SA/NV | Euroclear UK & Ireland | ESES CSDs | Euroclear Sweden | Euroclear Finland | Other | Eliminations | Group |
|---|---|---|---|---|---|---|---|---|---|---|
| Net interest income | VI | 260,536 | (2,637) | 751 | 166 | (300) | (43) | (2,748) | - | 255,725 |
| Net fee and commission income | VII | 648,446 | (43) | 111,944 | 172,498 | 51,437 | 43,985 | 145 | (29) | 1,028,383 |
| Intra-group recharges | | 1,293 | 530,500 | 141 | 142 | 198 | 689 | 77 | (533,040) | - |
| Other income | | 34,881 | 157,741 | (97) | (161) | 332 | 158 | 148,094 | (289,899) | 51,049 |
| Operating income | | 945,156 | 685,561 | 112,739 | 172,645 | 51,667 | 44,789 | 145,568 | (822,968) | 1,335,157 |
| Staff costs | IX | (125,132) | (256,087) | (11,645) | (18,843) | (10,609) | (10,758) | (1,074) | - | (434,148) |
| Other direct costs | IX | (31,178) | (248,137) | (16,394) | (6,392) | (17,106) | (13,030) | (13,421) | 11,962 | (333,696) |
| Depreciation and amortisation | XVII, XVIII | (1,364) | (36,559) | (70) | (13) | (178) | (6,697) | (3,210) | - | (48,091) |
| Royalty fees | | (4,778) | - | (425) | (618) | (181) | (136) | - | 6,138 | - |
| Group non-operational and administrative support services | | (356,982) | (1,052) | (62,899) | (89,860) | (10,726) | (7,638) | (3,883) | 533,040 | - |
| Share of result in joint venture | | - | (6,822) | - | - | - | - | - | - | (6,822) |
| Operating profit/(loss) before impairment and taxation | | 425,722 | 136,904 | 21,306 | 56,919 | 12,867 | 6,530 | 123,980 | (271,828) | 512,400 |
| Impairment | X | 448 | (1,233) | (261) | (273) | (3,828) | (24,193) | 119 | - | (29,221) |
| Operating profit/(loss) before taxation | | 426,170 | 135,671 | 21,045 | 56,646 | 9,039 | (17,663) | 124,099 | (271,828) | 483,179 |
| Taxation | XI | (127,426) | (2,849) | (3,845) | (18,957) | (2,095) | 3,538 | (9,471) | - | (161,105) |
| **Profit/(loss) for the year** | | **298,744** | **132,822** | **17,200** | **37,689** | **6,944** | **(14,125)** | **114,628** | **(271,828)** | **322,074** |
| External revenues | | 1,508,621 | 15,061 | 123,764 | 178,287 | 53,306 | 40,027 | 1,348 | - | 1,920,414 |
| Revenues from other segments | | 16,793 | 673,588 | 1,085 | 26,135 | 584 | 4,984 | 164,063 | (887,232) | - |
| **Total revenues** | | **1,525,414** | **688,649** | **124,849** | **204,422** | **53,890** | **45,011** | **165,411** | **(887,232)** | **1,920,414** |
| Segment assets | | 25,427,086 | 1,571,840 | 135,957 | 278,014 | 255,468 | 128,689 | 336,990 | - | 28,134,044 |
| of which non-current assets | | 2,061,410 | 1,125,782 | 61,847 | 131,612 | 163,641 | 79,814 | 252,434 | - | 3,876,540 |
| Segment liabilities | | 22,668,221 | 233,277 | 9,178 | 34,293 | 33,237 | 8,326 | 1,308,434 | - | 24,294,966 |

The €626,344,000 remaining in the Eliminations column relates to dividends received from companies within the group (2018: €271,828,000).

## VI. Net interest income

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| **Interest income on financial instruments** | | | |
| - Cash and balances with central banks | | 405 | 336 |
| - Loans and advances at amortised cost | | 353,459 | 293,909 |
| - Debt instruments measured at FVOCI | | 40,535 | 13,264 |
| - Non-trading financial assets mandatorily at FVPL | | 140 | 20 |
| - Negative interest on financial liabilities | | 46,203 | 45,534 |
| **Interest income on defined benefit plans** | XXII | 59 | 9 |
| **Total interest income** | | **440,801** | **353,072** |
| **Interest expense on financial instruments** | | | |
| - Deposits from central banks | | (344) | (172) |
| - Deposits from banks and customers | | (10,657) | (9,157) |
| - Debt securities issued and funds borrowed | | (78,266) | (43,765) |
| - Negative interest on financial assets at FVOCI | | (21,379) | (24,067) |
| - Negative interest on financial assets at amortised cost | | (19,902) | (17,902) |
| **Interest expense on lease liabilities** | | (751) | - |
| **Interest expense on defined benefit plans** | XXII | (2,619) | (2,284) |
| **Total interest expense** | | **(133,918)** | **(97,347)** |
| **Net interest income** | | **306,883** | **255,725** |

## VII. Net fee and commission income

| (€'000) | 2019 | 2018 |
|---|---|---|
| **Fee and commission income** | | |
| Clearing and settlement | 490,295 | 466,529 |
| Safekeeping | 755,469 | 715,278 |
| Other | 371,872 | 347,088 |
| **Total fee and commission income** | **1,617,636** | **1,528,895** |
| **Fee and commission expense** | | |
| Clearing and settlement | (106,190) | (102,849) |
| Safekeeping | (229,039) | (217,627) |
| Other | (178,661) | (180,036) |
| **Total fee and commission expense** | **(513,890)** | **(500,512)** |
| **Net fee and commission income** | **1,103,746** | **1,028,383** |

Other fee and commission income principally include communication fees (€153 million), custody servicing fees (€38 million), issuer and securities services (€33 million) and the recovery of out of pocket expenses.

## VIII. Net gains/(losses) on financial assets and liabilities held for trading

| (€'000) | 2019 | 2018 |
|---|---|---|
| Foreign exchange derivatives | 22,552 | 29,041 |
| **Total** | **22,552** | **29,041** |

Treasury swaps are derivatives that are not designated as hedging instruments. The net gains on foreign exchange trading mainly relate to treasury swaps initiated by Euroclear Bank in order to convert balances in non-core currencies into euro or US dollars for re-investment purposes. Under IFRS, these results may not be included within net interest income.

## IX. Administrative expenses

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| Staff costs | | | |
| - Wages and salaries | | 320,105 | 311,166 |
| - Social security costs | | 72,472 | 64,694 |
| - Defined benefit plans | XXII | 11,331 | 25,589 |
| - Defined contribution plans | | 6,237 | 6,486 |
| - Other staff costs | | 23,707 | 26,213 |
| Auditors' remuneration | | 2,421 | 3,660 |
| Consultants fees | | 196,764 | 202,175 |
| Occupancy | | 21,615 | 37,408 |
| Maintenance and repairs | | 44,091 | 46,786 |
| Travel and training | | 13,359 | 15,556 |
| Communications | | 7,626 | 7,945 |
| Other rent and non capitalised expenses | | 13,847 | 11,803 |
| Other taxes | | 20,361 | 16,569 |
| Depreciation and amortisation | XVII, XVIII | 69,973 | 48,091 |
| Other administrative expenses | | 31,263 | 25,369 |
| Provisions for liabilities and charges | XXI | (2,964) | (1,070) |
| Capitalised expenses | | (32,116) | (32,505) |
| **Total** | | **820,092** | **815,935** |

The average number of persons employed by the group during the year was 3,989 (2018: 3,984).

The auditors' remuneration for Euroclear SA/NV and its subsidiary undertakings was as follows:

| (€'000) | 2019 | 2018 |
|---|---|---|
| Fees payable to the Company's auditor for the audit of the Company's annual accounts | 143 | 100 |
| Fees payable to the Company's auditor and its associates for other services: | | |
| - The audit of the Company's subsidiaries, pursuant to legislation | 1,391 | 1,451 |
| - Other attest and assurance services | 847 | 1,003 |
| - Other services | 40 | 1,106 |
| Fees included in the consolidated financial statements | 2,421 | 3,660 |
| Fees in respect of the audit of investments accounted for using the equity method | 56 | 55 |
| **Total** | **2,477** | **3,715** |

The fees for the audit of the company's subsidiaries include a remuneration of €10,000 (2018: €29,000) to Revico Grant Thornton Oy, external auditors of Euroclear Finland in 2018.

Euroclear ensures that the independence of the external auditor is preserved through a specific policy adopted by the Board and agreed by the auditor. This policy adheres to the highest standards of independence. The engagement of the external auditor for non-core services is subject to specific controls, monitored by the Board's Audit Committee.

# X. Impairment

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| **Impairment charges** | | | |
| Property, plant and equipment | XVII | 510 | - |
| Goodwill and intangible assets | XVIII | 599 | 27,563 |
| Financial assets | | 455 | (532) |
| Other assets | | 566 | 2,190 |
| **Total** | | **2,130** | **29,221** |

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| **Other assets impaired** | | | |
| At 1 January | | 1,781 | 2,662 |
| Adjustment on adoption of IFRS 9 | II | - | (1,604) |
| Charge to the income statement | | 566 | 2,190 |
| Amounts used | | (42) | (1,445) |
| Exchange differences | | 5 | (22) |
| **At 31 December** | | **2,310** | **1,781** |

The decision was taken in 2018 to impair part of the infrastructure rebuild project in Finland (€24,100,000) and the remaining portion of the infrastructure rebuild project in Sweden (see note XVIII).

For other assets, impairment mainly relates to the lifetime expected credit loss computed on fees receivable from clients in several group's (I)CSD subsidiaries.

The movements of expected credit losses on financial assets during the year are as follows:

| (€'000) | Cash and balances with central banks | Loans and advances at amortised cost | Debt instruments at FVOCI | Loan commitments & financial guarantees | Total |
|---|---|---|---|---|---|
| At 1 January 2019 | 1 | 241 | 255 | 6 | 503 |
| Financial instruments originated/acquired during the period | 3 | 666 | 113 | 8 | 790 |
| Financial instruments derecognised during the period | (1) | (241) | (59) | (6) | (307) |
| Change due to change in credit risk | - | - | (26) | - | (26) |
| **At 31 December 2019** | **3** | **666** | **283** | **8** | **960** |

For details on the expected credit loss (ECL) per internal rating, please refer to note IV.

The rates used by the group entities to determine the expected credit losses for trade receivables (simplified method) are as follows:

| **Expected loss rate** | **2019** | **2018** |
|---|---|---|
| Current | 0.01% | 0.01% |
| Less than 30 days | 0.50% | 0.50% |
| 30 to 60 days | 1.00% | 1.00% |
| 60 to 90 days | 5.00% | 5.00% |
| 90 to 360 days | 15%-30% | 15%-30% |
| Over 360 days | 20%-90% | 20%-90% |

# XI.Taxation

| (€'000) | 2019 | 2018 |
|---|---|---|
| Current income tax expense | 171,480 | 164,503 |
| Adjustments to tax charge in respect of previous years | (3,200) | 8,650 |
| | **168,280** | **173,153** |
| Deferred tax charge/(income) relating to the origination and reversal of temporary differences | 15,337 | (12,774) |
| Deferred tax charge/(income) resulting from change in tax rate | (442) | 726 |
| **Tax expense for the year** | **183,175** | **161,105** |

Further information on deferred tax is presented in Note XII.

The tax on the group's profit before tax differs from the theoretical amount that would arise from using the standard rate as follows:

| (€'000) | 2019 | 2018 |
|---|---|---|
| **Operating profit/(loss) before tax** | **613,943** | **483,179** |
| At standard rate of tax(1) | 181,604 | 142,924 |
| Effects of: | | |
| - Notional interest on capital | (97) | (65) |
| - Expenses not deductible for tax purposes | 16,340 | 9,095 |
| - Net tax effect of intercompany dividend elimination and dividend received | (2,438) | (2,407) |
| - Impairment of subsidiaries | (877) | (287) |
| - Share of net tax (profit)/loss of investments accounted for using equity method | (209) | 2,018 |
| - Income not subject to tax | (58) | (159) |
| - Different rates in the companies in the group | (7,448) | 610 |
| - Change of tax rate on deferred taxation | (442) | 726 |
| - Adjustments to tax charge in respect of previous period | (3,200) | 8,650 |
| **Tax expense for the year** | **183,175** | **161,105** |

(1) A rate of 29.58% (2018: 29.58%) has been used as the standard rate.

The current income tax asset of €20,695,000 at 31 December 2019 (2018: €8,629,000) represents the total of amounts recoverable from the tax authorities relating to over-payments of income tax pre-payments, prior year adjustments and R&D tax credit.

The net tax effect linked to the intercompany dividends eliminated for consolidation purposes have been considered separately in order to adequately reflect the impact of this item of reconciliation on the tax expense.

The expenses not deductible for tax purposes include the other tax effects of consolidation adjustments not subject to deferred tax. The net movement comprises also the effect of changes in facts and circumstances that affect the judgement and estimates of the acceptability of certain tax treatments.

The net movement in the share of net tax (profit)/loss of investments accounted for using equity method is mainly driven by the recognition of consortium tax relief between group entities fully consolidated and entity consolidated by using equity method.

The year-to-year variation of the effect of the different rates applicable to the companies within the group is explained by a combination of factors: decrease of the above group’s effective tax rate and changes in the taxable basis of certain sizeable entities.

The Belgian tax rate in Belgium will go down from 29,58% to 25% as from 2020. Therefore, deferred taxes on temporary differences have been recalculated based both on the new tax rates and the timing of their expected reversals.

# XII. Deferred taxation

The details of deferred taxation are as follows:

| (€'000) | Total | Maturity on or before 31 December 2020 | Maturity after 31 December 2020 |
|---|---|---|---|
| At 31 December 2019 | | | |
| **Assets** | | | |
| Defined benefit plans | 44,215 | - | 44,215 |
| Financial assets at FVOCI | (8,730) | (7,566) | (1,164) |
| Financial assets (ECL) | 161 | 161 | - |
| Cash flow hedging reserve | 732 | 732 | - |
| Financial assets/(liabilities) held for trading | 27 | 27 | - |
| Software development | 37 | 37 | - |
| Property, plant and equipment | 2,051 | 25 | 2,026 |
| Tax loss carried forward | 66,811 | 6,837 | 59,974 |
| Other temporary differences | 5,179 | 3,083 | 2,096 |
| **Total** | **110,483** | **3,336** | **107,147** |
| **Liabilities** | | | |
| Financial assets at FVOCI | 430 | - | 430 |
| Financial assets (ECL) | (7) | (7) | - |
| Insurance reserve of Euroclear Re SA | 2,912 | - | 2,912 |
| **Total** | **3,335** | **(7)** | **3,342** |

| (€'000) | Total | Maturity on or before 31 December 2019 | Maturity after 31 December 2019 |
|---|---|---|---|
| At 31 December 2018 | | | |
| **Assets** | | | |
| Defined benefit plans | 37,085 | - | 37,085 |
| Financial assets at FVOCI | 181 | - | 181 |
| Financial assets (ECL) | 70 | 70 | - |
| Cash flow hedging reserve | (807) | (807) | - |
| Software development | 62 | 8 | 54 |
| Property, plant and equipment | 2,273 | 45 | 2,228 |
| Tax loss carried forward | 69,314 | 6,615 | 62,699 |
| Other temporary differences | 18,385 | 15,748 | 2,637 |
| **Total** | **126,563** | **21,679** | **104,884** |
| **Liabilities** | | | |
| Defined benefit plans | (2,596) | - | (2,596) |
| Other temporary differences | 3,054 | 987 | 2,067 |
| Insurance reserve of Euroclear Re SA | 2,924 | - | 2,924 |
| **Total** | **3,382** | **987** | **2,395** |

Deferred taxes are classified as assets or liabilities depending on the total net deferred tax asset or liability across all types of deferred tax at year-end for each entity. At 31 December 2018, Euroclear Sweden had a net deferred tax liability.

Deferred taxation for tax losses carried forward mainly relates to Euroclear SA/NV.

Analysis of the movements of the net deferred tax asset and liability balances is as follows:

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| **At 1 January** | | **123,181** | **110,282** |
| Adjustment on adoption of IFRS 9 | II | - | (120) |
| Income statement | | (14,895) | 12,048 |
| Deferred tax relating to items (charged) or credited to equity | | | |
| - Defined benefit plans | XXII | 6,565 | 2,372 |
| - Financial assets at FVOCI | | (9,335) | (645) |
| - Cash flow hedging reserve | XXIV | 1,539 | (791) |
| Exchange differences | | 93 | 35 |
| **At 31 December** | | **107,148** | **123,181** |

The deferred tax income/(charge) in the income statement comprises the following temporary differences:

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| Defined benefit plans | XXII | (1,998) | 2,586 |
| Impairment of financial assets | | 92 | (158) |
| Software development | | (28) | (9) |
| Property, plant and equipment | | (255) | (121) |
| Tax losses carried forward | | (2,501) | (2,569) |
| Insurance reserve | | 12 | 34 |
| Other temporary differences | | (10,217) | 12,285 |
| **Total** | | **(14,895)** | **12,048** |

There were no unrecognised deferred taxes as of year end.

## XIII. Financial assets at FVOCI

| (€'000) | 2019 | 2018 |
|---|---|---|
| At 31 December | | |
| **Financial assets at FVOCI** | | |
| Equity shares | | |
| - Listed | 406,840 | 281,680 |
| - Unlisted but fair value determinable | 13,977 | 14,044 |
| Equity funds | 736,887 | 439,448 |
| Listed debt instruments | 9,153,355 | 6,698,733 |
| **Total** | **10,311,059** | **7,433,905** |

All debt securities have fixed coupons.

For unlisted securities, the valuation is based on the prices at which the securities could probably be sold to willing and knowledgeable parties. These prices are determined using generally accepted valuation techniques, including discounted cash flow models and relevant market multiples.

The maturity profile of the financial assets at FVOCI can be found in Note IV.

The movement in financial assets at FVOCI can be summarised as follows:

| (€'000) | Notes | Equity shares | Fund units | Debt instruments | Total |
|---|---|---|---|---|---|
| **At 1 January 2019** | | **295,724** | **439,448** | **6,698,733** | **7,433,905** |
| Additions | | 1,033 | 688,585 | 19,562,414 | 20,252,032 |
| Redemptions and disposals | | (1,200) | (398,626) | (17,117,295) | (17,517,121) |
| FVOCI revaluation reserve | | | | | |
| - (Gains)/losses on redeemed or sold financial assets | | 1,200 | (258) | (10) | 932 |
| - Gains/(losses) on held financial assets | | 124,060 | 7,739 | 29,828 | 161,627 |
| Amortisation of discounts and (premiums) | | - | - | (16,950) | (16,950) |
| Net change in accrued interest | | - | - | (6,550) | (6,550) |
| Expected credit loss allowance | | - | - | (28) | (28) |
| Exchange difference | | - | - | 3,213 | 3,213 |
| **At 31 December 2019** | | **420,817** | **736,887** | **9,153,355** | **10,311,059** |

| (€'000) | | Equity shares | Fund units | Debt instruments | Total |
|---|---|---|---|---|---|
| **A 31 December 2017** | | **305,838** | **-** | **5,057,435** | **5,363,273** |
| **Adjustment on adoption of IFRS 9** | | | | | |
| - reclassification to non-trading financial assets mandatorily at FVPL | II | (7,786) | - | - | (7,786) |
| **At 1 January 2018** | | **298,052** | **-** | **5,057,435** | **5,355,487** |
| Additions | | 9,453 | 681,675 | 17,141,045 | 17,832,173 |
| Redemptions and disposals | | - | (240,558) | (15,530,068) | (15,770,626) |
| FVOCI revaluation reserve | | | | | |
| - (Gains)/losses on redeemed or sold financial assets | | - | - | 1,900 | 1,900 |
| - Gains/(losses) on held financial assets | | (11,781) | (1,669) | 1,484 | (11,966) |
| Amortisation of discounts and (premiums) | | - | - | (32,673) | (32,673) |
| Net change in accrued interest | | - | - | 18,122 | 18,122 |
| Expected credit loss allowance | | - | - | (126) | (126) |
| Exchange difference | | - | - | 41,614 | 41,614 |
| **At 31 December 2018** | | **295,724** | **439,448** | **6,698,733** | **7,433,905** |

# XIV. Financial instruments held for trading

## XIV.1. Fair value and notional amounts

The fair value and notional amounts of the group's trading derivatives were as follows:

| (€'000) | Notional amount | Fair value | |
|---|---|---|---|
| | | Assets | Liabilities |
| At 31 December 2019 | | | |
| Foreign exchange derivatives | | | |
| - Forward foreign exchange | 3,598,633 | 10,624 | 8,832 |
| **Total** | **3,598,633** | **10,624** | **8,832** |
| At 31 December 2018 | | | |
| Foreign exchange derivatives | | | |
| - Forward foreign exchange | 4,147,907 | 14,475 | 20,316 |
| **Total** | **4,147,907** | **14,475** | **20,316** |

The notional amount related to forward foreign exchange contracts at 31 December 2019 and 31 December 2018 principally reflect to outstanding currency swaps.

In certain circumstances, currency forward exchange contracts are used by certain companies of the Euroclear group to hedge the fair value of some specific liabilities expressed in foreign currencies. These transactions do however not qualify for hedge accounting.

# XV. Derivatives used for hedging

## XV.1. Cash flow hedges

Euroclear Bank uses the euro as functional currency and is exposed to foreign exchange exposure (changes in the relevant spot exchange rate) that could adversely influence fee and interest income streams.

The group applies hedge accounting for these highly probable forecasted revenue streams influenced by changes in foreign exchange rates for certain currencies. The policy foresees to hedge a minimum 75% threshold of the total operating profit exposures in foreign currencies.

Euroclear Bank enters into currency forward foreign exchange contracts whereby it sells the relevant currencies on a future date at a predetermined price. One contract is done per month, per currency and per nature of exposures (fees and interests) to offset the net currency stream (usually an income) of the same month. These contracts are done, since December 2018, on a rolling 12 month basis (or 3-month basis for less liquid currencies). Such transactions are classified as cash flow hedges.

Hedge effectiveness is assessed based on the critical terms of the contracts. The economic relationship is verified at inception of the deal confirming that the characteristics of the hedging instrument are aligned to those of the hedged item (forward contract with the same maturity and currency as expected revenues, notional of the derivatives matching the hedged positions). The hedged items create an exposure to buy euros and sell foreign currencies at the payment date. The forward contract to sell euros for forex currencies on the payment date creates an offset for these two transactions. Values will thus generally move in the opposite direction.

The hedge ratio is determined by comparing the notional of the derivative with the quantity of hedged items. The following sources of ineffectiveness are identified and monitored:

- Change in timing and / or level of the incoming flows of any of the two items constituting the hedged item. To mitigate this risk, Euroclear Bank ensures that no material changes are observed in the timing and/or level of the incoming flows of the hedged item.
- Change in the credit risk of Euroclear Bank or the counterparty of the forward contract. The credit risk of both the counterparties and Euroclear Bank is monitored for adverse changes by Treasury. As all contracts must be entered with counterparties with a credit rating of A or higher, the credit risk is minimal and does not dominated the value change.
- Impact of foreign currency basis spreads (materialised through the forward points included in the hedging relationship). The hedging horizon is adapted to limit the impact of currency basis spread (3-month or 12-month basis, depending on the interest rate level associated to the hedged currency).

As 31 December 2019, Euroclear Bank monthly secures an average of €-equivalent 22,090,000 currency stream (2018: €-equivalent 34,874,000).

The fair value and notional amounts of the group's derivatives used for cash flow hedges were as follows:

| (€'000) | Notional amount | Fair value | |
|---|---|---|---|
| | | Assets | Liabilities |
| At 31 December 2019 | | | |
| Foreign exchange derivatives | | | |
| - Forward foreign exchange | 271,915 | 1,726 | 4,654 |
| **Total** | **271,915** | **1,726** | **4,654** |
| At 31 December 2018 | | | |
| Foreign exchange derivatives | | | |
| - Forward foreign exchange | 418,849 | 3,293 | 566 |
| **Total** | **418,849** | **3,293** | **566** |

During the year, some infectiveness arose from cash flow hedging as a result of lower probable USD incoming interest cash flows expected to occur. The inefficient part of the hedging transactions was ceased and €3,942,000 unrealised losses were anticipatively recognised into profit or loss.

The amounts recognised in the cash flow hedging reserve at year-end will be gradually released to the income statement (net gains/losses on foreign exchange) in the following year, when the related cash flows materialise.

The movements in the cash flow hedging reserve can be detailed as follows:

| (€'000) | Notes | Gross amount | Deferred tax | Net amount |
|---|---|---|---|---|
| At 1 January 2019 | | **2,727** | **(807)** | **1,920** |
| Change of fair value directly recognised in other comprehensive income | | 8,794 | (2,735) | 6,059 |
| Amount released from other comprehensive income to profit or loss | | | | |
| - Amount reclassified to profit and loss because hedged future cash flows are no longer expected to incur | | (3,943) | 1,166 | (2,777) |
| - Amount reclassified to profit and loss because hedged item has affected profit or loss | | (10,506) | 3,108 | (7,398) |
| Total change to cash flow hedging reserve | XXIV | **(5,655)** | **1,539** | **(4,116)** |
| **At 31 December 2019** | | **(2,928)** | **732** | **(2,196)** |
| At 1 January 2018 | | **53** | **(16)** | **37** |
| Change of fair value directly recognised in other comprehensive income | | 5,753 | (1,702) | 4,051 |
| Amount released from other comprehensive income to profit or loss | | | | |
| - Amount reclassified to profit and loss because hedged future cash flows are no longer expected to incur | | - | - | - |
| - Amount reclassified to profit and loss because hedged item has affected profit or loss | | (3,079) | 911 | (2,168) |
| Total change to cash flow hedging reserve | XXIV | **2,674** | **(791)** | **1,883** |
| **At 31 December 2018** | | **2,727** | **(807)** | **1,920** |

### XV.2. Hedges of net investments in foreign operations

The group has hedged, until July 2011, part of the currency translation risk of net investments in foreign operations (EMXCo, Euroclear UK & Ireland, the UK branch of Euroclear SA/NV and Euroclear Sweden).

The balance of the hedge of net investments in foreign operations reserve can be detailed as follows:

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| At 1 January and 31 December | XXIV | (18,238) | (18,238) |

## XVI. Other assets

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| Items in process of collection | | 31,118 | 89,833 |
| Other taxation and social security | | 22,084 | 22,278 |
| Other assets (after impairment) | | 56,285 | 70,950 |
| **At 31 December** | | **109,487** | **183,061** |

Items in the process of collection principally relate to coupon and redemption proceeds for participants of Euroclear Bank.

# XVII. Property, plant and equipment

| (€'000) | Notes | Land and buildings | Leasehold improvements | Furniture and fixtures | IT equipment | Vehicles and other equipment | Total | of which Right-of-use assets: Land and buildings | Vehicles and other equipment | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cost** | | | | | | | | | | |
| **At 31 December 2018** | | **109,761** | **55,505** | **14,081** | **154,767** | **599** | **334,713** | **-** | **-** | **-** |
| Adjustment on adoption of IFRS 16 | | 96,786 | - | - | - | 8,810 | 105,596 | 96,786 | 8,810 | 105,596 |
| **At 1 January 2019** | | **206,547** | **55,505** | **14,081** | **154,767** | **9,409** | **440,309** | **96,786** | **8,810** | **105,596** |
| Additions | | 10,662 | 2,294 | 974 | 9,568 | 439 | 23,937 | 8,860 | 410 | 9,270 |
| Capitalisation of dilapidation provisions | XXI | - | 29 | - | - | - | 29 | - | - | - |
| Transfers | | - | 139 | 447 | (548) | - | 38 | - | - | - |
| Sales and disposals | | (2,606) | (3,758) | (173) | (5,630) | (149) | (12,316) | (2,232) | (148) | (2,380) |
| Exchange differences | | 582 | 377 | 75 | 229 | 2 | 1,265 | 582 | - | 582 |
| **At 31 December 2019** | | **215,185** | **54,586** | **15,404** | **158,386** | **9,701** | **453,262** | **103,997** | **9,072** | **113,069** |
| **Accumulated depreciation** | | | | | | | | | | |
| **At 1 January 2019** | | **(71,417)** | **(42,555)** | **(9,984)** | **(103,159)** | **(151)** | **(227,266)** | **-** | **-** | **-** |
| Depreciation charge | | (20,886) | (3,276) | (1,534) | (17,203) | (19) | (42,918) | (17,701) | - | (17,701) |
| Impairment | | (510) | - | - | - | - | (510) | (510) | - | (510) |
| Transfers | | - | (49) | (369) | 411 | - | (7) | - | - | - |
| Sales and disposals | | 258 | 3,756 | 170 | 5,575 | - | 9,759 | - | - | - |
| Exchange differences | | (82) | (208) | (44) | (209) | 6 | (538) | (82) | - | (82) |
| **At 31 December 2019** | | **(92,637)** | **(42,332)** | **(11,761)** | **(114,585)** | **(164)** | **(261,480)** | **(18,293)** | **-** | **(18,293)** |
| **Net book value at 31 December 2019** | | **122,548** | **12,254** | **3,643** | **43,801** | **9,537** | **191,782** | **85,704** | **9,072** | **94,777** |

| (€'000) | Notes | Land and buildings | Leasehold improvements | Furniture and fixtures | IT equipment | Vehicles and other equipment | Total | of which Right-of-use assets Land and buildings | Vehicles and other equipment | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cost** | | | | | | | | | | |
| **At 1 January 2018** | | **108,697** | **56,173** | **13,458** | **127,283** | **595** | **306,206** | **-** | **-** | **-** |
| Additions | | 2,069 | 742 | 992 | 35,859 | 9 | 39,671 | - | - | - |
| Transfer and disposals | | (1,005) | (1,417) | (286) | (8,362) | (6) | (11,076) | - | - | - |
| Exchange differences | | - | 7 | (83) | (13) | 1 | (88) | - | - | - |
| **At 31 December 2018** | | **109,761** | **55,505** | **14,081** | **154,767** | **599** | **334,713** | **-** | **-** | **-** |
| **Accumulated depreciation** | | | | | | | | | | |
| **At 1 January 2018** | | **(69,010)** | **(40,856)** | **(8,940)** | **(93,753)** | **(133)** | **(212,692)** | **-** | **-** | **-** |
| Depreciation charge | | (3,128) | (3,677) | (1,418) | (17,291) | (23) | (25,537) | - | - | - |
| Transfer and disposals | | 721 | 1,980 | 302 | 7,861 | 6 | 10,870 | - | - | - |
| Exchange differences | | - | (2) | 72 | 24 | (1) | 93 | - | - | - |
| **At 31 December 2018** | | **(71,417)** | **(42,555)** | **(9,984)** | **(103,159)** | **(151)** | **(227,266)** | **-** | **-** | **-** |
| **Net book value at 31 December 2018** | | **38,344** | **12,950** | **4,097** | **51,608** | **448** | **107,447** | **-** | **-** | **-** |

The figures above include cost of property, plant and equipment under construction for an amount of €263,000 (2018: €4,544,000).

# XVIII. Goodwill and intangible assets

| (€'000) | Internally developed software | Purchased software | Know-how | Goodwill | Contractual customer relationship | Unpatented technology | Total |
|---|---|---|---|---|---|---|---|
| **Cost** | | | | | | | |
| At 1 January 2019 | 113,472 | 93,136 | 45,868 | 1,401,746 | 21,965 | 59,725 | 1,735,912 |
| Additions | 20,594 | 19,371 | - | - | - | - | 39,965 |
| Transfers | (17,564) | 17,526 | - | - | - | - | (38) |
| Sales and disposals | - | (27,519) | - | - | - | - | (27,519) |
| Exchange differences | (75) | 12 | (21) | (2,394) | - | - | (2,478) |
| **At 31 December 2019** | **116,427** | **102,526** | **45,847** | **1,399,352** | **21,965** | **59,725** | **1,745,842** |
| **Accumulated amortisation and impairment** | | | | | | | |
| At 1 January 2019 | (40,184) | (59,650) | (45,868) | (538,657) | - | (59,725) | (744,084) |
| Amortisation charges | (14,739) | (12,316) | - | - | - | - | (27,055) |
| Impairment | - | (599) | - | - | - | - | (599) |
| Transfers | 2,582 | (2,576) | - | - | - | - | 6 |
| Sales and disposals | 70 | 27,449 | - | - | - | - | 27,519 |
| Exchange differences | 10 | (6) | 21 | 266 | - | - | 291 |
| **At 31 December 2019** | **(52,261)** | **(47,698)** | **(45,847)** | **(538,391)** | **-** | **(59,725)** | **(743,922)** |
| **Net book value at 31 December 2019** | **64,166** | **54,828** | **-** | **860,961** | **21,965** | **-** | **1,001,920** |

| (€'000) | Internally developed software | Purchased software | Know-how | Goodwill | Contractual customer relationship | Unpatented technology | Total |
|---|---|---|---|---|---|---|---|
| **Cost** | | | | | | | |
| At 1 January 2018 | 101,886 | 90,805 | 45,916 | 1,409,134 | 21,965 | 59,725 | 1,729,431 |
| Additions | 22,381 | 15,057 | - | - | - | - | 37,438 |
| Transfer and disposals | (10,562) | (12,675) | - | - | - | - | (23,237) |
| Exchange differences | (233) | (51) | (48) | (7,388) | - | - | (7,720) |
| **At 31 December 2018** | **113,472** | **93,136** | **45,868** | **1,401,746** | **21,965** | **59,725** | **1,735,912** |
| **Accumulated amortisation and impairment** | | | | | | | |
| At 1 January 2018 | (15,418) | (57,043) | (45,916) | (539,262) | - | (59,725) | (717,364) |
| Amortisation charges | (13,933) | (8,620) | - | - | - | - | (22,553) |
| Impairment | (27,563) | - | - | - | - | - | (27,563) |
| Transfer and disposals | 16,727 | 5,956 | - | - | - | - | 22,683 |
| Exchange differences | 3 | 57 | 48 | 605 | - | - | 713 |
| **At 31 December 2018** | **(40,184)** | **(59,650)** | **(45,868)** | **(538,657)** | **-** | **(59,725)** | **(744,084)** |
| **Net book value at 31 December 2018** | **73,288** | **33,486** | **-** | **863,089** | **21,965** | **-** | **991,828** |

Some functionalities of the infrastructure rebuild project in Finland and Sweden were de-scoped in the course of 2018 (see note X).

Goodwill and the contractual customer relationship relate to the acquisition of EMXCo, Euroclear Belgium, Euroclear Finland, Euroclear France, Euroclear Nederland, Euroclear Sweden and Euroclear UK & Ireland.

The unpatented technology related to the infrastructure of Euroclear Finland and Euroclear Sweden, which was fully amortised by mid-2012.

### XVIII.1. Determination of the cash-generating units

Goodwill impairment reviews are based on the cash-generating units (CGUs) for the group's three relevant operating segments: the ESES CSDs (Euroclear Belgium, Euroclear France, Euroclear Nederland), Euroclear UK & Ireland (Euroclear UK & Ireland and EMX Company Ltd, which was integrated into Euroclear UK & Ireland in 2010), Euroclear Finland and Euroclear Sweden.

Except for Euroclear Sweden, goodwill and contractual customer relationship are expressed and tested for impairment purposes in euros. At the time of the acquisition of Euroclear UK & Ireland, the related goodwill was considered as a non-monetary asset of the

acquirer and therefore expressed in euros. At the time of migration to IFRS, which considers goodwill to be a monetary asset of the acquired entity, Euroclear decided not to restate prior years' business combinations.

### XVIII.2. Basis on which recoverable amounts have been determined

The recoverable amounts are based on the 'value in use' using the discounted cash flow methodology for each segment. The 2019 valuation of all the entities concerned is based on a five-year free cash flow forecast with projections for periods beyond this assuming a perpetual annuity ranging between 1.8% and 2% depending on the concerned entity.

The net book values of the goodwill, and Euroclear Belgium's contractual customer relationships, are set out in the table below:

| (€'000) | 2019 | 2018 |
|---|---|---|
| Euroclear UK & Ireland | 204,148 | 203,347 |
| ESES | 484,626 | 484,626 |
| Euroclear Finland | 37,689 | 37,689 |
| Euroclear Sweden | 156,462 | 159,391 |
| | 882,925 | 885,053 |

These are intangible assets considered to have indefinite useful lives.

### XVIII.3. Key assumptions related to discount factors

The appropriate discount rates are determined by applying the Capital Asset Pricing Model (CAPM). The discount rates and perpetual growth rates used for each CGU in the 2019 and 2018 impairment reviews were as follows:

| | 2019 | | 2018 | |
|---|---|---|---|---|
| | Discount rate | Perpetual growth rate | Discount rate | Perpetual growth rate |
| Euroclear UK & Ireland | 6.30% | 1.80% | 6.10% | 1.80% |
| ESES | 6.30% | 1.80% | 6.00% | 1.80% |
| Euroclear Finland | 6.00% | 1.80% | 5.63% | 1.80% |
| Euroclear Sweden | 5.70% | 2.00% | 5.38% | 2.00% |

### XVIII.4. The 2019 impairment review

The key assumptions for the valuation exercise are based on both external sources of information and on internal expectations (assets held in custody, transaction volumes, interest rates, etc.). Forecasts are taken from Board approved plans which translate into resilient profitability trends throughout 2020 and over the next four years. For all operating segments, their valuation indicated that the current values of goodwill and related intangibles are fair and justified.

The Board concluded that in 2019, there is no goodwill impairment risk arising from the review.

As far as sensitivity analysis is concerned, neither an increase of the discount rate by 1% nor a decrease of the business drivers by 5% would have resulted in an impairment in one of the CGUs (all other factors being equal), except for EUI where a sensitivity on business drivers could lead to a small impairment considered as immaterial.

The changes in the parameters used for the sensitivity analysis set out above are based on management's estimates of what level of change is reasonably possible. For example, the choice of a 5% decrease for business volumes is justified by the highest yearly negative deviation observed between forecasts and actuals over the past four years while the increase of the discount rate is justified by the highest yearly variance over the past four years.

# XIX. Other liabilities

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| Funds to be assigned | | 183,964 | 350,098 |
| Taxation and social security | | 16,014 | 19,267 |
| Creditors | | 58,859 | 42,737 |
| Other | | 11,855 | 6,413 |
| **At 31 December** | | **270,692** | **418,515** |

'Funds to be assigned' principally represents funds received and other items in the process of reconciliation.

# XX. Debt securities issued and funds borrowed

| (€'000) | Maturity date | 2019 | 2018 |
|---|---|---|---|
| **At 31 December** | | | |
| Certificates of Deposits issued in GBP | 2019 | - | 440,903 |
| Certificates of Deposits issued in USD | 2019 | - | 56,534 |
| Certificates of Deposits issued in EUR | 2020 | 220,069 | - |
| Certificates of Deposits issued in GBP | 2020 | 763,130 | - |
| Certificates of Deposits issued in USD | 2020 | 1,241,149 | - |
| **Total certificate of deposits** | | **2,224,348** | **497,437** |
| Medium Term Notes issued in GBP | 2019 | - | 364,085 |
| Medium Term Notes issued in EUR | 2020 | 999,531 | 650,804 |
| Medium Term Notes issued in EUR | 2021 | 500,166 | 501,267 |
| Medium Term Notes issued in EUR | 2022 | 497,759 | 496,788 |
| Medium Term Notes issued in EUR | 2023 | 150,080 | 498,130 |
| Medium Term Notes issued in GBP | 2024 | 410,451 | - |
| **Total medium term notes** | | **2,557,987** | **2,511,074** |
| EUR 600,000,000 10 year Fixed rate senior debt | 2026 | 596,082 | 595,483 |
| EUR 300,000,000 12 year Fixed rate senior debt | 2030 | 301,034 | 300,847 |
| EUR 400,000,000 30 year Fixed rate Corporate Hybrid Debt | 2048 | 404,601 | 404,306 |
| **Total long term debt issued** | | **1,301,717** | **1,300,636** |
| **Total debt securities issued** | | **6,084,052** | **4,309,147** |
| Overdrafts | | 4,868 | 3,531 |
| Overnight borrowings | | 18,138 | 295,490 |
| Fixed term borrowings | | - | 55,004 |
| Repos | | - | 293,224 |
| **Total funds borrowed** | | **23,006** | **647,249** |
| **Total debt securities issued and funds borrowed** | | **6,107,058** | **4,956,396** |

On 7 December 2016, Euroclear Investments SA issued a senior, unsecured and unsubordinated Eurobond on the Euronext Amsterdam stock exchange for an amount up to €600,000,000 (10 year maturity - fixed coupon).

In April 2018, Euroclear Investments also issued a €300,000,000 of unsecured and unsubordinated 12-year fixed rate senior note and a €400,000,000 of subordinated resettable 30-years fixed rate hybrid note callable at the option of the issuer after 10 years. These notes were listed on the Irish Stock Exchange.

The 2016 issuance was deemed to enhance the group funding flexibility, while the proceeds of the dual tranche issuance realised in 2018 were downstreamed by Euroclear Investments to Euroclear Bank for €600,000,000 and to Euroclear SA/NV for €100,000,000 in order to structure relevant loss absorption mechanisms to restore the capital position of these group entities in recovery and resolution scenarios in accordance with the Banking Recovery and Resolution Directive.

Euroclear Bank also successfully launched in 2018 Medium Term Notes and Certificates of Deposits programs.

## XXI. Provisions for liabilities and charges

| (€'000) | Notes | Onerous contracts | HR-related | Dilapidation | Litigation | Commitments and guarantees given | Other provisions | Total |
|---|---|---|---|---|---|---|---|---|
| **At 1 January 2019** | | **1,187** | **78** | **3,571** | **3,277** | **6** | **9,677** | **17,796** |
| Capitalisation of dilapidation provision | XVII | - | - | 29 | - | - | - | **29** |
| Additions | | - | 6,093 | - | - | 8 | 4,896 | **10,997** |
| Unused amounts reversed during the period | | - | - | - | (1,203) | (6) | (12,752) | **(13,961)** |
| Amounts used | | (613) | (82) | - | (817) | - | (32) | **(1,544)** |
| Exchange differences | | - | 4 | 82 | - | - | 84 | **170** |
| **At 31 December 2019** | | **574** | **6,093** | **3,682** | **1,257** | **8** | **1,873** | **13,487** |

The outstanding provision for onerous contract relates to an onerous lease for unoccupied floors in the building leased in Poland. The provision will be used over the next year.

Provisions for dilapidation costs are recorded to reflect end-of-lease obligations in several countries.

The additions, followed up by reductions in 'other provisions' mainly relate to provisions that reflected the uncertainty as to the recovery of taxes other than income taxes. Part of these amounts have been recovered in 2019 and Euroclear has now sufficient comfort as to the recovery of the outstanding receivable.

The current portion of the provisions for liabilities and charges is estimated at €9,340,000 (2018: €5,550,000).

## XXII. Defined benefit plans

The group operates various post-employment schemes, including defined benefit (DB) and defined contribution (DC) pension plans, and post-employment medical plans.

The group has several DB pension plans covering employees in Belgium, France, Japan, the Netherlands and Sweden under broadly similar regulatory frameworks. The plans exclusively provide retirement and death benefits to the eligible participants. All of the DB pension plans are final or average salary pension plans, which provide benefits to members in the form of a lump sum payment or a guaranteed level of pension payable for life. The level of benefits provided generally depends on members' length of service and their salary in the final years leading up to retirement. The plans face broadly similar risks, as described below. The majority of benefit payments are from the administered funds; however, there are also a limited number of unfunded plans where the company meets the benefit payment obligation as it falls due (Japan). Plan assets are governed by local regulations and practice in each country, as is the nature of the relationship between the group and the pension funds Board of Directors. Responsibility for governance of the plans – including investment decisions and contribution schedules – lies jointly with the sponsoring companies and the Board of Directors. The Board of Directors must be composed of representatives of the company and plan participants in accordance with the plan's regulations.

The group also operates a number of post-employment medical benefit schemes, in Belgium and France. These plans are unfunded. The method of accounting, significant assumptions and the frequency of valuations are similar to those used for DB pension schemes with the addition of actuarial assumptions relating to the long-term increase in healthcare costs.

Finally, the group operates certain DC schemes in Belgium which present particular features usually associated with DB plans. These plans indeed foresee a legally guaranteed rate of return. As a result of the persisting low interest rate environment, this legally guaranteed return may not be matched by the return provided by the insurance companies. This means that the financial market risk related to these plans is partially borne by the employer, who therefore might face a net liability. The latter does however not materially impact the group's net DB liability as the insurance company has continued so far to guarantee the legal minimum guaranteed interest rate.

A Belgian DC scheme opened on 1 January 2019. All employees joining on or after 1 January 2019 are affiliated to this new plan, while all other employees made the choice between staying in the existing DB plan, which turned from an annuity into a lump sum plan as of 1 January 2019, or joining to the new DC plan. The DC scheme presents features of a DB plan because of the Belgian legal guaranteed return of currently 1.75%. The DC plan is a regular pension plan, with premiums paid by the employer. The premium is a fixed percentage per bracket of the base salary. Neither the DC plan nor the DB lump sum plan affect the benefits accrued for past service, which continue to be revalued with salary increases (so called dynamic management). The end date for both plans is age 67. Both plans are managed by the Euroclear Pension Fund OFP.

About 45% of all employees stayed in the DB plan while 55% transferred to the DC plan.

A full actuarial valuation of the plans, under IFRS, was made by independent qualified professional actuaries as of 31 December 2019 and showed a deficit of €179,164,000 (2018: €160,763,000) offset by a pension surplus of €589,000 (2018: €523,000) (70% in Belgium, 17% in France, 6% in Sweden, 6% in NL, 1% in Japan). The valuation covered all the DB plans and DC plans with DB-like features.

The pension charge recognised in profit and loss in 2019 amounts to €13,891,000 (2018: €27,864,000). The contribution, reflecting employer's contributions for funded plans and benefit disbursements for unfunded plans, amounted to €22,844,000 (2018: €15,562,000).

The decision has been taken in October 2019 to transfer the obligations for death-in-service benefits in Belgium to a new insured plan accounted for as a short-term employee benefit plan. The impact of the transfer is a past service gain of €18,536,000 recorded in profit and loss.

The major assumptions used by the actuaries in their valuations were:

| | 2019 | 2018 |
|---|---|---|
| Discount rate | 1.03% | 1.74% |
| Expected inflation rate | 1.82% | 1.89% |
| Future salary increases | 3.26% | 3.33% |
| Expected medical cost trend rate | 3.05% | 3.10% |

The above percentages are weighted averages of the assumptions used for the individual plans.

Assumptions regarding future mortality experience are set based on advice and published statistics in each territory (MR/FR table with an age set back of three years in Belgium for retirement benefits, TGHF 05 table in France, AG Prognosetafel 2018 with 2016 experienced mortality in the Netherlands, EPF 2014 rates in Japan and PRI 2011 in Sweden).

The amounts recognised in the balance sheet are as follows:

| (€'000) | 2019 | 2018 |
|---|---|---|
| Present value of funded obligations | (477,576) | (417,728) |
| Fair value of plan assets | 372,285 | 317,536 |
| | (105,291) | (100,192) |
| Present value of unfunded obligations (principally made of medical plans) | (73,284) | (59,839) |
| Irrecoverable surplus | - | (209) |
| **Net pension deficit** | **(178,575)** | **(160,240)** |

The value of assets in all plans was:

| | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| (€'000) | Quoted | Unquoted | Total | Quoted | Unquoted | Total |
| Equity instruments | | | | | | |
| - European equities | 51,394 | - | 51,394 | 43,910 | - | 43,910 |
| - Global equities | 106,227 | - | 106,227 | 88,269 | - | 88,269 |
| - Emerging markets equities | 3,587 | - | 3,587 | 3,000 | - | 3,000 |
| - European real estate equities | 12,618 | - | 12,618 | 10,744 | - | 10,744 |
| Debt instruments | | | | | | |
| - EMU government bonds | 62,112 | - | 62,112 | 52,024 | - | 52,024 |
| - EMU corporate bonds | 55,763 | - | 55,763 | 48,901 | - | 48,901 |
| - Euro inflation-linked bonds | 25,235 | - | 25,235 | 21,489 | - | 21,489 |
| Property | 2,772 | - | 2,772 | 2,713 | - | 2,713 |
| Cash and cash equivalents | 59 | - | 59 | - | - | - |
| Qualifying insurance policies | - | 858 | 858 | - | 870 | 870 |
| Other | 51,660 | - | 51,660 | 45,616 | - | 45,616 |
| **Total market value of assets** | **371,427** | **858** | **372,285** | **316,666** | **870** | **317,536** |

The assets of the funded plans are held separately from those of the group. The group ensures that the investment positions are managed within an asset-liability matching (ALM) framework that has been developed to achieve long-term investments that are in line with the obligations under the pension schemes. Within this framework, the group's ALM objective is to match assets to the pension obligations by investing in long-term fixed interest securities with maturities that match the benefit payments as they fall due and in the appropriate currency. The company actively monitors how the duration and the expected yield of the investments are matching the expected cash outflows arising from the pension obligations. A large proportion of assets consists of equities and bonds, although the group also invests in property, cash and holds some insurance assets. The group believes that equities offer the best returns over the long term with an acceptable level of risk.

The changes in the net deficit are as follows:

| (€'000) | Notes | Medical plans: Present value of obligations | Medical plans: Fair value of plan assets | Medical plans: Total | Pension plans: Present value of obligations | Pension plans: Fair value of plan assets | Pension plans: Total | Pension plans: Asset Ceiling | All plans: Net pension deficit |
|---|---|---|---|---|---|---|---|---|---|
| **At 1 January 2019** | | **57,573** | **-** | **57,573** | **419,994** | **(317,536)** | **102,458** | **209** | **160,240** |
| Current service cost | IX | 2,654 | - | 2,654 | 27,213 | - | 27,213 | - | 29,867 |
| Past service cost | IX | - | - | - | (18,536) | - | (18,536) | - | (18,536) |
| Net interest expense/(income) | VI | 974 | - | 974 | 7,257 | (5,676) | 1,581 | 5 | 2,560 |
| **Income statement** | | **3,628** | **-** | **3,628** | **15,934** | **(5,676)** | **10,258** | **5** | **13,891** |
| **Remeasurements** | | | | | | | | | |
| Return on plan assets (excluding interest) | | - | - | - | - | (36,525) | (36,525) | - | (36,525) |
| Experience (gains)/losses | | (1,159) | - | (1,159) | (3,905) | 0 | (3,905) | - | (5,064) |
| (Gains)/losses due to change in demographic assumptions | | - | - | - | 8,842 | - | 8,842 | - | 8,842 |
| (Gains)/losses due to change in financial assumptions | | 11,163 | - | 11,163 | 48,981 | - | 48,981 | - | 60,144 |
| Changes in asset ceiling | | - | - | - | - | - | - | (214) | (214) |
| **Statement of other comprehensive income** | | **10,004** | **-** | **10,004** | **53,918** | **(36,525)** | **17,393** | **(214)** | **27,183** |
| Employer's contributions | | - | (451) | (451) | - | (22,393) | (22,393) | - | (22,844) |
| Exchange differences | | - | - | - | (305) | 410 | 105 | - | 105 |
| Benefit payments | | (451) | 451 | - | (9,435) | 9,435 | - | - | - |
| **At 31 December 2019** | | **70,754** | **-** | **70,754** | **480,106** | **(372,285)** | **107,821** | **-** | **178,575** |

| (€'000) | Notes | Medical plans: Present value of obligations | Medical plans: Fair value of plan assets | Medical plans: Total | Pension plans: Present value of obligations | Pension plans: Fair value of plan assets | Pension plans: Total | Pension plans: Asset Ceiling | All plans: Net pension deficit |
|---|---|---|---|---|---|---|---|---|---|
| **At 1 January 2018** | | **56,088** | **-** | **56,088** | **394,612** | **(318,006)** | **76,606** | **586** | **133,280** |
| Current service cost | IX | 2,494 | - | 2,494 | 23,095 | - | 23,095 | - | 25,589 |
| Net interest expense/(income) | VI | 950 | - | 950 | 6,896 | (5,586) | 1,310 | 15 | 2,275 |
| **Income statement** | | **3,444** | **-** | **3,444** | **29,991** | **(5,586)** | **24,405** | **15** | **27,864** |
| **Remeasurements** | | | | | | | | | |
| Return on plan assets (excluding interest) | | - | - | - | - | 10,394 | 10,394 | - | 10,394 |
| Experience (gains)/losses | | (2,448) | - | (2,448) | 2,149 | - | 2,149 | - | (299) |
| (Gains)/losses due to change in demographic assumptions | | - | - | - | (651) | - | (651) | - | (651) |
| (Gains)/losses due to change in financial assumptions | | 907 | - | 907 | 4,843 | - | 4,843 | - | 5,750 |
| Changes in asset ceiling | | - | - | - | - | - | - | (392) | (392) |
| **Statement of other comprehensive income** | | **(1,541)** | **-** | **(1,541)** | **6,341** | **10,394** | **16,735** | **(392)** | **14,802** |
| Employer's contributions | | - | (418) | (418) | - | (15,144) | (15,144) | - | (15,562) |
| Exchange differences | | - | - | - | (1,112) | 968 | (144) | - | (144) |
| Benefit payments | | (418) | 418 | - | (9,838) | 9,838 | - | - | - |
| **At 31 December 2018** | | **57,573** | **-** | **57,573** | **419,994** | **(317,536)** | **102,458** | **209** | **160,240** |

The weighted average duration of the defined benefit obligations is 18.7 years (2018: 16.9 years).

Funding levels are monitored on an annual basis and contributions are made to comply with minimum requirements as determined by local regulations and, if applicable, internal funding policy. The group considers that the contribution rates set at the last valuation date are sufficient to eliminate the deficit over the agreed period.

Expected contributions to post-employment benefit plans for the year ending 31 December 2020 are €11,944,000.

The cumulative actuarial loss recognised in other comprehensive income as at 31 December 2019 was €123,749,000 (2018: €96,567,000).

The sensitivity of the defined benefit obligations to a 1% movement in the weighted principal assumptions is:

| | Increase in assumption | Decrease in assumption |
|---|---|---|
| Discount rate | (17.0%) | 18.7% |
| Salary increase rate | 13.1% | (13.1%) |
| Inflation rate | 9.2% | (9.2%) |
| Medical trend rate | 4.0% | (2.9%) |

The above sensitivity analysis is based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligations to significant actuarial assumptions, the same method (present value of the defined benefit obligation calculated with the projected unit credit method at the end of the reporting period) has been applied as when calculating the pension liability recognised within the statement of financial position. As the majority of the liabilities are not affected by the life expectancy risk (because of lump sum payments), no life expectancy sensitivity is considered.

Through its defined benefit pension plans and post-employment medical plans, the group is exposed to a number of risks, the most significant of which are detailed below:

- asset volatility: the risk is kept under control thanks to proper risk management procedures and strategic asset allocation driven by the financial characteristics of the plans, in particular the plans liabilities and the risk tolerance of the Board and the group. The plan liabilities are calculated using a discount rate set with reference to corporate bond yields; if plan assets underperform this yield, this will create a deficit. Belgian plans hold 60% of equities, which are expected to outperform corporate bonds in the long-term while providing volatility and risk in the short-term. The group believes that due to the long-term nature of the plan liabilities and the strength of the supporting group, a level of continuing equity investment is an appropriate element of the group's long term strategy to manage the plans efficiently. See above for more details on the group's asset-liability matching strategy.
- changes in bond yields: a decrease in corporate bond yields will increase plan liabilities, although this will be partially offset by an increase in the value of the plans' bond holdings.
- inflation risk: the plans' benefit obligations are linked to inflation (see sensitivity impact), and higher inflation will lead to higher liabilities. The impact is however limited and the assumptions are cautiously monitored annually.
- life expectancy: as mentioned, longevity risk is limited as the majority of the benefit payments are lump sums.
- medical trend rate risk: as the liabilities of the Belgian and French medical plans are very sensitive to the used medical trend rate, the evolution of this trend rate is monitored regularly to make sure that this trend rate properly reflects the long term expected evolution of the medical cost.
- salary increase: as the pension liabilities are quite sensitive to salary increase, the used assumptions are monitored closely and historic salary evolution is compared against the used assumptions.

The group has not changed the processes used to manage its risks from previous periods.

The movement in the deferred tax asset relating to the pension deficit is as follows:

| (€'000) | Notes | 2019 | 2018 |
|---|---|---|---|
| Amount credited/(charged) through equity | XII | 6,565 | 2,372 |
| Amount credited/(charged) through the income statement | XII | (1,998) | 2,586 |
| Exchange differences | | (31) | (88) |
| **Increase/(decrease) in deferred tax asset** | | **4,536** | **4,870** |

# XXIII. Share capital and share premium

| Issued, allotted and fully paid share capital | Number of ordinary shares | (€'000) Share Capital | Share Premium | Total |
|---|---|---|---|---|
| **At 1 January and 31 December 2019** | **3,147,463** | **3,147** | **943,441** | **946,588** |

| Issued, allotted and fully paid share capital | Number of ordinary shares | (€'000) Share Capital | Share Premium | Total |
|---|---|---|---|---|
| **At 1 January 2018** | **-** | **-** | **-** | **-** |
| Registration of new shares | 3,147,463 | 3,147 | 943,441 | 946,588 |
| **At 31 December 2018** | **3,147,463** | **3,147** | **943,441** | **946,588** |

In the context of the internal reorganisation that took place during 2018 (see note I), the shares in Euroclear plc were transferred from the previous shareholders of Euroclear plc, the former top holding company of the group, to Euroclear Holding SA/NV, the new top holding company (i.e. the Company). In consideration of the contribution of the Euroclear plc shares, 3,147,463 new shares in the Company were issued to the existing shareholders of Euroclear plc on a one-for-one basis. The amount of the capital increase was partly recorded as share capital (€1 per issued share, for a total of €3,147,463) and partly recorded as issuance premium.

The new ordinary shares have the same rights attached to them as to the previous Euroclear plc ordinary shares, i.e. full voting, dividend and capital distribution rights, including on a winding up. They do not confer any rights of redemption.

At 31 December 2019 and 31 December 2018, there was no stock option plan on the shares of Euroclear Holding SA//NV or any subsidiary.

## XXIV. Other reserves

| (€'000) | Notes | Equity instruments at FVOCI | Debt instruments at FVOCI | Cash flow hedging reserve | Hedge of net inv. in foreign operations reserve | Foreign currency translation reserve | Legal reserve | Other | Total |
|---|---|---|---|---|---|---|---|---|---|
| **At 1 January 2019** | | **169,186** | **608** | **1,920** | **18,238** | **(46,112)** | **116,277** | **-** | **260,117** |
| Fair value adjustments | XIII, XV | 132,741 | 29,818 | (5,655) | - | - | - | - | 156,904 |
| Deferred tax on fair value adjustments | XII, XV | (1,941) | (7,394) | 1,539 | - | - | - | - | (7,796) |
| Foreign currency translation differences | | - | - | - | - | 5,329 | - | - | 5,329 |
| Transfer to legal reserve | | - | - | - | - | - | 111 | - | 111 |
| **At 31 December 2019** | | **299,986** | **23,032** | **(2,196)** | **18,238** | **(40,783)** | **116,388** | **-** | **414,665** |

| (€'000) | Notes | Equity instruments at FVOCI | Debt instruments at FVOCI | Cash flow hedging reserve | Hedge of net inv. in foreign operations reserve | Foreign currency translation reserve | Legal reserve | Other | Total |
|---|---|---|---|---|---|---|---|---|---|
| **At 31 December 2017** | | **184,751** | **(1,875)** | **37** | **18,238** | **(36,279)** | **114,557** | **800,217** | **1,079,646** |
| Adjustment on adoption of IFRS 9 | II | | | | | | | | |
| - Financial assets reclassified from available-for-sale to FVPL | | (2,461) | - | - | - | - | - | - | (2,461) |
| - Debt instruments measured at FVOCI | | - | 91 | - | - | - | - | - | 91 |
| **At 1 January 2018** | | **182,290** | **(1,784)** | **37** | **18,238** | **(36,279)** | **114,557** | **800,217** | **1,077,276** |
| Fair value adjustments | XIII, XV | (13,450) | 3,384 | 2,674 | - | - | - | - | (7,392) |
| Deferred tax on fair value adjustments | XII, XV | 346 | (992) | (791) | - | - | - | - | (1,437) |
| Foreign currency translation differences | | - | - | - | - | (9,833) | - | - | (9,833) |
| Transfer to share premium | | - | - | - | - | - | - | (800,217) | (800,217) |
| Transfer to legal reserve | | - | - | - | - | - | 1,720 | - | 1,720 |
| **At 31 December 2018** | | **169,186** | **608** | **1,920** | **18,238** | **(46,112)** | **116,277** | **-** | **260,117** |

The hedge of net investment in foreign operations reserve and the foreign currency translation reserve relate to the group's subsidiaries in Sweden and the United Kingdom.

In addition to the translation of structural currency exposures relating to the group's subsidiaries and joint venture with a functional currency other than the euro, the foreign currency translation reserve includes the translation impact of goodwill and intangible assets expressed in Swedish krona and sterling that were recognised at the time of acquisition of subsidiaries in Sweden, and EMXCo in the United Kingdom.

The legal reserve represents non-distributable amounts required to be established as separate reserves in compliance with local laws in certain countries where the group operates.

2017 Other reserves mainly included amounts previously classified as a merger reserve under UK Generally Accepted Accounting Principles (GAAP). Since merger relief accounting was no longer permitted under IFRS, this amount was classified under Other reserves. In the context of the group restructuring, the nature of the reserve changed and is since November 2018 recognised as share premium.

## XXV. Dividends paid

| € per share | 2019 | 2018 |
|---|---|---|
| Equity paid | **55.00** | **-** |
| (€'000) | | |
| Equity paid | **173,110** | **-** |

Dividends paid principally relate to the dividend of €173,110,465 (€55 per share) that was paid by Euroclear Holding SA/NV as interim dividend in respect of the financial year ending 31 December 2019.

## XXVI. Contingent liabilities and commitments

| (€'000) | 2019 | 2018 |
|---|---|---|
| At 31 December | | |
| Collateral pledged, of which: | 4,358,710 | 4,273,299 |
| - Own assets | 1,552,915 | 1,778,167 |
| - Re-use of collateral received | 2,805,795 | 2,495,132 |
| Financial guarantees | 7,190,637 | 26,448,880 |
| Loan commitments | 3,928 | 4,030 |

The collateral pledged mainly relates to:

– securities deposited with the National Bank of Belgium as potential collateral, principally for Target2-related exposures. It includes investment securities with a market value of €1,552,715,000 (2018: €1,777,967,000) and the reuse of securities received as collateral for reverse repurchase agreements from participants with a market value of €2,805,795,000 (2018:€2,495,132,000); There was no exposure at 31 December 2019 (2018: €0); and

– a bank deposit of €200,000 (2018: €200,000) pledged by Euroclear Finland to a third-party registration fund in order to fulfil its obligations as account operator.

Financial guarantees relate to guarantees under the SLB and GCA programmes.

- Under the terms of the Euroclear Securities Lending and Borrowing Programme, Euroclear Bank provides a guarantee to securities lenders whereby if a securities borrower is unable to return the securities, Euroclear Bank guarantees the lender to receive replacement securities or their cash equivalent. The guarantee is valued at market value of the loan securities plus accrued interest. Euroclear Bank's policy is that all securities borrowings are covered by collateral pledged by the borrowing banks and clients.

- A similar guarantee applied to Euroclear Bank's GC Access Programme until April 2019. In April 2019, changes have been made to the Supplementary Terms of the GCA programme to reflect that the guarantee Euroclear Bank provides to the GCA lender, should the GCA borrower fail to return lent Securities, is provided on a net basis, meaning the difference between the market value of the unreturned Loan Securities and the market value of the Collateral Securities relating to the unreturned Loan Securities. This translates into lower financial guarantees recognised for the GCA programme.

## XXVII. Lease commitments

| (€'000) | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| | Software | Property | Vehicles and other equipment | Software | Property | Vehicles and other equipment |
| **Group company as lessee** | | | | | | |
| Future aggregate minimum lease payments under non-cancellable leases: | **32,326** | **83** | **333** | **43,817** | **90,977** | **18,716** |
| - up to one year | 11,930 | 28 | 150 | 14,467 | 16,669 | 7,494 |
| - later than one year and not later than five years | 20,396 | 55 | 183 | 29,341 | 48,217 | 11,222 |
| - over five years | - | - | - | 9 | 26,091 | - |

The lease payments recognised as an expense in 2018 amounted to €37,418,000 (Software: €10,484,000, Property: €17,425,000 and Vehicles and other equipment: €9,509,000).

The 2019 lease expenses/revenues in the income statement, following the adoption of IFRS 16, are as follows:

| (€'000) | Notes | 2019 |
|---|---|---|
| **Net interest income** | VI | |
| Interest expenses on lease liabilities | | 751 |
| **Administrative expenses** | IX | |
| Depreciation expenses | XVII | 17,877 |
| Expenses from low-value assets | | 505 |
| Expenses from sotware leases | | 12,853 |
| Expenses from car leases (including non-lease components) | | 8,929 |
| **Impairment of right-of-use** | XVII | 510 |

The difference between the operating lease commitments disclosed applying IAS 17 as at 31 December 2018, period immediately preceding the date of initial application and the lease liabilities recognised in the statement of financial position at the date of initial application can be explained as follows:

| (€'000) | Property | Vehicles and other |
|---|---|---|
| **Lease commitments at 31 December 2018** | **90,977** | **18,371** |
| Practical expedients for short-term leases | (93) | - |
| Practical expedients for low-value assets | (63) | - |
| Payments for service components of operating lease commitments | - | (7,036) |
| Adjustement for free rent | 5,964 | - |
| Effect of discounting using the incremental borrowing rate | - | (2,525) |
| **Total present value of lease liability at 1 January 2019** | **96,786** | **8,810** |

The weighted average lessee's incremental borrowing rate applied to lease liabilities recognised in the statement of financial position at the date of initial application amounts to 0.94%. The property-related operating lease commitments disclosed as of 31 December 2018 were already discounted using the above incremental borrowing rate, hence no impact from discounting is shown in the reconciliation table.

## XXVIII. Related party disclosures

Euroclear Holding SA/NV, incorporated in Belgium, is the ultimate parent and controlling party of the group since November 22, 2018. Before that date, the ultimate parent company was Euroclear plc, incorporated in the United Kingdom.

Euroclear Holding SA/NV's investments in its subsidiaries are set out in Note I.

Transactions with related parties, other than those between companies of the group eliminated on consolidation, principally relate to investments in subsidiaries and joint ventures and to key management compensation.

Besides this, the group considers its Belgian pension fund as a related party as it has the ability to exercise significant influence over it in taking financial or operational decisions. Disclosures related to the pension funds are presented in Note XXII.

| (€'000) | 2019 Other group companies | 2019 Joint venture | 2019 Total | 2018 Other group companies | 2018 Joint venture | 2018 Total |
|---|---|---|---|---|---|---|
| **Assets** | | | | | | |
| Loans and advances at amortised cost | 2,672 | - | 2,672 | 116 | - | 116 |
| Non-trading financial assets mandatorily at FVPL | 5,695 | - | 5,695 | 2,363 | - | 2,363 |
| Other assets | - | 9 | 9 | - | 36 | 36 |
| Prepayments and accrued income | - | 24 | 24 | 3 | 172 | 175 |
| Investments in subsidaries and joint ventures | 14,094 | 9,012 | 23,106 | 14,094 | 8,208 | 22,302 |
| **Total assets** | **22,461** | **9,045** | **31,506** | **16,576** | **8,416** | **24,992** |
| **Liabilities** | | | | | | |
| Other liabilities | - | 5,820 | 5,820 | - | 1,029 | 1,029 |
| Accruals and deferred income | - | 32 | 32 | - | - | - |
| **Total liabilities** | **-** | **5,852** | **5,852** | **-** | **1,029** | **1,029** |
| **Income statement** | | | | | | |
| Interest income | 260 | - | 260 | 41 | - | 41 |
| Other operating income/expense | - | 1,536 | 1,536 | (170) | 1,784 | 1,614 |
| Impairment | (3) | - | (3) | 2 | - | 2 |
| **Total income statement** | **259** | **1,536** | **1,795** | **(118)** | **1,784** | **1,666** |
| **Off-balance sheet** | | | | | | |
| Liquidity facility given | (2,468) | - | (2,468) | (3,298) | - | (3,298) |
| **Total off-balance sheet** | **(2,468)** | **-** | **(2,468)** | **(3,298)** | **-** | **(3,298)** |

## XXVIII.1. Transactions with other companies of the Euroclear group

### XXVIII.1.a. Administrative support

Certain administrative support costs are periodically recharged to and by other companies within the Euroclear group.

### XXVIII.1.b. Loans and liquidity facilities provided

The two-year GBP 300,000 liquidity facility provided by Euroclear SA/NV to Taskize Limited in April 2015 has been used in January 2017. The loan has been fully reimbursed in October 2019. In June 2017, Euroclear SA/NV granted a new one-year liquidity facility of GBP 1,000,000 that was drawn in March 2018 under the form of an intra group convertible loan agreement. GBP 200,000 of this loan have been reimbursed in September 2019. In August 2018, Euroclear SA/NV granted an intra group convertible loan of GBP 4,500,000, consisting of one tranche of GBP 1,200,000 and three tranches of GBP 1,100,000. The four tranches were respectively paid in September and October 2018 and in January and April 2019. The first tranche of GBP 1,200,000 has been converted, granting Euroclear SA/NV an additional 14,000 newly issued shares. In December 2019, Euroclear SA/NV granted another one-year liquidity facility of GBP 3,000,000 of which GBP 1,500,000 were immediately drawn down.

In May 2017, Euroclear SA/NV provided a three-year liquidity facility to Quantessence Limited for an amount up to GBP 750,000. The facility has been replaced by a new loan agreement in May 2019 consisting of one non convertible tranche of GBP 750,000 and two convertible tranches of GBP 600,000. The two first tranches were respectively paid in May and October 2019.

### XXVIII.2. Key management compensation

The compensation of key management (members of the Management Committees of Euroclear SA/NV and its (I)CSD subsidiaries, group division heads and the Euroclear Holding SA/NV General Manager) and non-executive directors was as follows:

| (€'000) | 2019 | 2018 |
|---|---|---|
| Short-term employee benefits | 25,450 | 23,292 |
| Post-employment benefits | 2,737 | 1,846 |
| Other long-term benefits | 2,074 | 1,885 |
| Termination benefits | 463 | 2,683 |
| Total compensation of key management | 30,724 | 29,706 |
| Emoluments of non-executive directors | 3,049 | 2,364 |
| **Total compensation of key management and directors** | **33,773** | **32,070** |

The NBB has been informed of the compensation principles for the members of the Management Committees of Euroclear SA/NV and Euroclear Bank and of certain other Senior Management, taking into account the applicable regulations. The amounts - as approved by the respective Remuneration Committees/Boards - reflect these principles and more specifically the allocation between short-term and long-term benefits.

No loans or similar transactions occurred with directors, key management or their close family members.

The companies employing the Euroclear SA/NV non-executive directors are subject to the same terms, conditions and tariffs as other companies.

Directors' emoluments are in the form of fees with the exception of life insurance benefits for one director amounting to €13,000 (2018: €12,000).

## XXIX. Events after the balance sheet date

On 31 March 2020, the directors resolved not to propose any additional dividend to the interim dividend already paid in respect of the financial year ending 31 December 2019 (€173,110,465 (€55 per equity share)).

The Covid-19 event has significantly influenced the financial markets early 2020. At the end of Q1 2020, the impacts this event may have on Euroclear cannot be fully quantified reliably. As a financial market infrastructure, Euroclear is taking all the necessary measures to deliver its clients with the same level of service and is closely monitoring the situation on the markets. Indeed, Management is closely assessing the potential effects of this situation on Euroclear's future profitability and balance sheet structure, and remains confident that its low risk profile and the resilient nature of its business will preserve its safety and financial robustness.

A practical consequence of the Covid-19 crisis relates to dividend payments. Indeed, in its publication dated 27 March 2020, the ECB recommends significant credit institutions to hold back dividend distributions for the financial year 2019, at least until October 2020. Equally, credit institutions should refrain from executing share buy-back programs aimed at remunerating shareholders until that date. This recommendation applies on a consolidated level of a significant supervised group as well as on an individual level of a significant supervised entity, if such significant supervised entity is not part of a significant supervised group.

As a result, despite the robustness of the current and projected capital ratios and financial performance of the group, no dividend upstreaming is expected from Euroclear SA/NV to its parent company and upwards before October 2020. This absence of dividend upstreaming in the near term does however not cause any prejudice to the interim dividends that were paid in the course of 2019.

This decision is not expected to have any impact on the Recovery and Resolution instruments issued by certain group entities.

# Statutory auditors' report

to the general shareholders' meeting on the consolidated financial statements for the year ended 31 December 2019

## Statutory auditor's report to the shareholders' meeting of Euroclear Holding SA for the year ended 31 December 2019 - Consolidated financial statements

In the context of the statutory audit of the consolidated financial statements of Euroclear Holding SA ("the company") and its subsidiaries (jointly "the group"), we hereby submit our statutory audit report. This report includes our report on the consolidated financial statements and the other legal and regulatory requirements. These parts should be considered as integral to the report.

We were appointed in our capacity as statutory auditor by the shareholders' meeting of 10 August 2018, in accordance with the proposal of the board of directors ("bestuursorgaan" / "organe d'administration"). Our mandate will expire on the date of the shareholders' meeting deliberating on the financial statements for the year ending 31 December 2019. We have performed the statutory audit of the consolidated financial statements of Euroclear Holding SA for 2 consecutive periods.

### Report on the consolidated financial statements

#### Unqualified opinion

We have audited the consolidated financial statements of the group, which comprise the consolidated income statement and the consolidated statement of comprehensive income for the year then ended, the consolidated statement of changes in equity, the consolidated statements of financial position as at 31 December 2019, and the consolidated statement of cash flow, as well as the summary of significant accounting policies and other explanatory notes. The consolidated statement of financial position shows total assets of 27 568 588 (000) EUR and the consolidated statement of comprehensive income shows a profit for the year then ended of 430 768 (000) EUR.

In our opinion, the consolidated financial statements give a true and fair view of the group's net equity and financial position as of 31 December 2019 and of its consolidated results and its consolidated cash flow for the year then ended, in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and with the legal and regulatory requirements applicable in Belgium.

#### Basis for the unqualified opinion

We conducted our audit in accordance with International Standards on Auditing (ISA), as applicable in Belgium. In addition, we have applied the International Standards on Auditing approved by the IAASB applicable to the current financial year, but not yet approved at national level. Our responsibilities under those standards are further described in the "Responsibilities of the statutory auditor for the audit of the consolidated financial statements" section of our report. We have complied with all ethical requirements relevant to the statutory audit of consolidated financial statements in Belgium, including those regarding independence.

We have obtained from the board of directors and the company's officials the explanations and information necessary for performing our audit.

We believe that the audit evidence obtained is sufficient and appropriate to provide a basis for our opinion.

#### Responsibilities of the board of directors for the preparation of the consolidated financial statements

The board of directors is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and with the legal and regulatory requirements applicable in Belgium and for such internal control as the board of directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the board of directors is responsible for assessing the group's ability to continue as a going concern, disclosing, as applicable, matters to be considered for going concern and using the going concern basis of accounting unless the board of directors either intends to liquidate the group or to cease operations, or has no other realistic alternative but to do so.

#### Responsibilities of the statutory auditor for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue a statutory auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISA will

always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

During the performance of our audit, we comply with the legal, regulatory and normative framework as applicable to the audit of consolidated financial statements in Belgium. The scope of the audit does not comprise any assurance regarding the future viability of the company nor regarding the efficiency or effectiveness demonstrated by the board of directors in the way that the company's business has been conducted or will be conducted.

As part of an audit in accordance with ISA, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from an error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the group's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the board of directors;
- conclude on the appropriateness of the use of the going concern basis of accounting by the board of directors and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our statutory auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our statutory auditor's report. However, future events or conditions may cause the group to cease to continue as a going concern;
- evaluate the overall presentation, structure and content of the consolidated financial statements, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- obtain sufficient appropriate audit evidence regarding the financial information of the entities and business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, amongst other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

## Other legal and regulatory requirements

### Responsibilities of the board of directors

The board of directors is responsible for the preparation and the content of the directors' report on the consolidated financial statements.

### Responsibilities of the statutory auditor

As part of our mandate and in accordance with the Belgian standard complementary to the International Standards on Auditing (ISA) as applicable in Belgium, our responsibility is to verify, in all material respects, the director's report on the consolidated financial statements, as well as to report on this matter.

### Aspects regarding the directors' report on the consolidated financial statements

In our opinion, after performing the specific procedures on the directors' report on the consolidated financial statements, this report is consistent with the consolidated financial statements for that same year and has been established in accordance with the requirements of article 3:32 of the Code of companies and associations.

In the context of our statutory audit of the consolidated financial statements we are also responsible to consider, in particular based on information that we became aware of during the audit, if the directors' report on the consolidated financial statements

is free of material misstatement, either by information that is incorrectly stated or otherwise misleading. In the context of the procedures performed, we are not aware of such material misstatement.

**Statements regarding independence**

- Our audit firm and our network have not performed any prohibited services and our audit firm has -remained independent from the group during the performance of our mandate.
- The fees for the additional non-audit services compatible with the statutory audit, as defined in article 3:65 of the Code of companies and associations, have been properly disclosed and disaggregated in the notes to the consolidated financial statements.

Zaventem, 2 April 2020

**The statutory auditor**

**Deloitte Bedrijfsrevisoren/Réviseurs d'Entreprises CVBA/SCRL**
Represented by Yves Dehogne

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