

# 2018





# RISK REPORT **2018**



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# 1 ABOUT THE REPORT

This report is drafted for Saxo Bank Group:

Saxo Bank A/S,  
Philip Heymans Allé 15,  
DK-2900 Hellerup,  
company registration no. 15 73 12 49 and all  
subsidiaries hereof (see appendix 1).

The Group publishes information according to Part  
Eight of CRR<sup>1</sup> annually with ICAAP information being  
published quarterly. The Risk Report is subject to  
Board approval.

Additional Pillar III disclosure requirements are covered by an Excel appendix with tables published separately – “Risk Report 2018 – Additional Pillar III Disclosures”. Together, the report and the additional Pillar III information cover the CRD IV disclosure requirements<sup>2</sup>.

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<sup>1</sup> Capital Requirement Regulation 575/2013

<sup>2</sup> The following information is not covered in this report:

Information on remuneration according to CRR article 450, accounting definitions of “past due” and “impaired” article 442 (a) and information on management systems article 435(2) which is given in the Group's Remuneration report and in the Group's annual report: <https://www.home.saxo/about-us/investor-relations>.

The Group is not identified as global systemically important institution. The Group does not use securitisations, the IRB approach, internal models on operational risk or market risk and credit derivatives and does therefore not disclose information related hereto.

## 2 ABOUT SAXO BANK

Saxo Bank is a leading Fintech specialist focused on multi-asset trading and investment, and delivering 'Banking-as-a-Service' to wholesale clients.

For more than 25 years, the Group's mission has been to democratize investment and trading, enabling clients by facilitating seamless access to global capital markets through technology and expertise.

The Group enables its direct clients to trade multiple asset classes across global financial markets from one single margin account and across multiple devices. Additionally, the Group provides wholesale institutional clients such as banks and brokers with multi-asset execution, prime brokerage services and trading technology, supporting the full value chain delivering Banking-as-a-Service (BaaS).

The Group's award-winning trading platforms are available in more than 20 languages and used by more than 100 companies worldwide.

Founded in 1992 and launching its first online trading platform in 1998, Saxo Bank was a Fintech even before the term was created.

Headquartered in Copenhagen the Group today employs more than 1600 people in financial centers around the world including London, Paris, Zurich, Dubai, Singapore, Shanghai, Hong Kong and Tokyo.

The parent company of the Group, Saxo Bank A/S, is a fully licensed bank in Denmark and as such under

supervision of the Danish FSA and European Union regulation. All subsidiary companies are further licensed in their local jurisdiction for the business that is conducted.

Saxo Bank A/S is a privately-owned company.

In September 2018 Geely Holding Group and Sampo acquired a combined 71.9 percent of Saxo Bank A/S respectively.

Geely Financials Denmark A/S, a subsidiary of Geely Holding Group, now owns 52 percent of the shares of Saxo Bank. Saxo Bank Founder and CEO Kim Fournais owns 25.71 percent of the Bank's shares, while Sampo Plc, a leading Nordic financial services group, owns 19.9 percent of the shares. The remaining shares are held by minority shareholders including a number of current and former employees of the Bank.

In April 2018, the Group completed the sale of the retail bank and wealth management activities in Saxo Privatbank A/S and in October, the Group completed the sale of Saxo Payments A/S.

In December 2018 Saxo Bank and Binckbank agreed on recommended all-cash public offer for all Binck-Bank shares. Based on the required steps and subject to the necessary approvals, Binckbank and Saxo Bank anticipate that the Offer will close by third quarter of 2019.

## **SAXO BANK'S BUSINESS MODEL**

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Saxo Bank is a facilitator between its clients and the global financial markets and has a truly scalable technology infrastructure supporting traders, investors and wholesale clients. Saxo Bank's business model is based on unbundling the value chain through an open architecture sourcing the best ideas, products, liquidity and services from the best providers in the market.

### **Liquidity provisioning**

Saxo Bank obtains liquidity from more than 150 different liquidity venues including 20 large global banks as well as the world's major trading venues and stock exchanges.

By aggregating liquidity from multiple sources, Saxo Bank is able to stream competitive prices and spreads to its clients, and deal with the flow of transactions in a cost-effective way. Efficient execution and risk management are core competencies of Saxo Bank.

### **Products**

Saxo Bank offers a wide range of assets and products for online trading including Over-The-Counter (OTC) FX and CFD products as well as exchange-traded funds (ETFs), stocks, futures and options from across the globe.

### **Client interfaces**

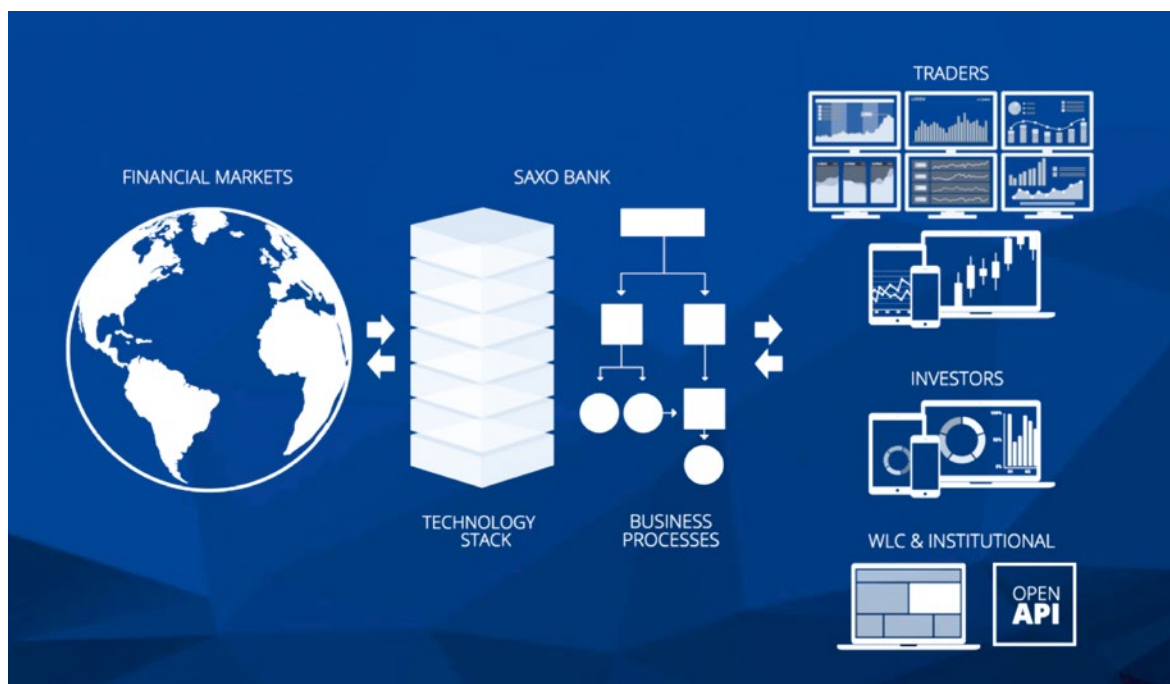
To facilitate its clients' trading and investment needs, Saxo Bank has developed proprietary online trading and investment platforms, tailored to fit different client experiences, preferences and different types of hardware. The platforms remain the focal point of Saxo Bank's core business.

Through the platforms, clients can trade more than 35,000 instruments across bonds, mutual funds, stocks, ETFs, CFDs, futures, options and FX from a single account. Clients also get free access to a large universe of fundamental research and technical trade signals integrated directly in the platform for easy access.









Saxo Bank today offers three platforms: SaxoTrader-PRO, SaxoTraderGO and SaxoInvestor. All platforms are based on HTML5 front-ends connected to the same core technology stack and business process to ensure scalability and flexibility.

Saxo Bank not only supports its own direct clients but also other financial institutions, wholesale partners, looking for an efficient way of giving their end-clients a state-of-the art investment experience. Through this B2B2C-solution, Saxo Bank supports the entire value chain of its partners, offering "Banking-as-Service."

Today, Saxo Bank's technology supports more than 120 white label partners globally.

At the forefront of the Open Banking revolution, Saxo Bank was one of the first financial institutions to give access to its trading infrastructure through the Bank's RESTbased Open API. This advanced APIbased trading solution allows partners, clients and external developers to access over 20 years of trading infrastructure innovation and integrate with Saxo Bank's infrastructure in market access in a very flexible and efficient way.

### 3 SAXO GROUP'S WHITE LABEL SOLUTION

#### Saxo's White Label Solution

The Group's White Label solutions are based on state-of-the-art, scalable technology, efficient value chain processes and the digital facilitation in trading and investment that Saxo Bank Group is renowned for. We understand that each White Label Partner is unique, so we build our solutions using flexible OpenAPI architecture, which allows partners to get the exact solution they need, and integrate seamlessly with bank portals and other third party applications.

Whether you are a bank, a broker or wealth manager, the Group's White Label solutions are a trusted gateway to trading and investment across the world's major markets, via one of the industry's most acclaimed multi-asset platforms. Catering to self-directed traders and investors, advisory clients and discretionary mandates, our solutions can be fully branded to meet your needs and allow you to put your focus where it should be – on distributing your services and nurturing your clients throughout their trading and investing journeys.

#### A single solution, tailored to many needs:

- Fully branded and customised solution, accessible seamlessly across multiple devices
- Complete value chain services from execution to client stop out risk management and back office operations
- Hosted entirely by the Group, with minimum costs
- Partners keep control of their customers using the platform, and own all customer and lead information
- Our Open Bank approach lets partners build their own UIs<sup>3</sup> on top of our solutions, and provides single sign-on for integration, APIs and tools for cash management, account opening, reporting, risk notifications and more
- Partners may customise offering from our universe of over 35,000 financial products
- Partners can control distribution of liquidity in all asset classes, with pricing tailored to defined customer segments and markets
- Large counterparts can use our platform and liquidity model technology to distribute their own liquidity/execution and custody to end-customers
- Effective risk management through automated margin profiles (stop outs) and real-time reporting
- Dedicated Relationship Management and White Label service teams in three time zones to help you with IT, Trading/Markets and back-office.

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3 User interface

## 4 RISK MANAGEMENT OBJECTIVES AND POLICIES

### 4.1 RISK MANAGEMENT STRATEGY

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The Group's risk management strategy places strong emphasis on proactive risk management in order to meet our strategic goals and objectives and uphold our 'no surprises' mandate for our customers and stakeholders. The Group derives part of its earnings by taking and managing financial risks and the aim is thus not just to minimize, but to adequately manage the financial risk exposures in adherence with the Group's risk appetite. Non-financial risks are not desired risks and should be avoided, minimised and managed with the same high attention as financial risks as the potential negative implications of non-financial risks in terms of direct and indirect losses, including reputational and brand value losses, can be as detrimental for the company as any financial risk.

We align our risk management objectives with the Group's vision and strategy by defining and actively promoting and measuring adherence to our risk culture and risk appetite, designing risk management frameworks that are consistent with our strategic and risk management objectives.

Thus, we are having clearly defined roles and responsibilities and governance for risk management, enforcing strong risk oversight, controls and challenges, and having well defined contingency strategies in place.

### 4.2 RISK MANAGEMENT FRAMEWORK

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The Group's overall risk management framework and governance structure is established by the Board of Directors, based on recommendations from the Board Risk Committee.

The Board of Directors have in the Board Instructions laid out a set of instructions to the Board of Management on how to manage the day-to-day business of the Group.

The Board Instructions are supplemented by the Group Risk Management Governance & Policy and Risk Appetite Statements, which define the Group's risk management framework and articulate the Group's risk appetite, including specific limits for the Group's risk taking activities.

The Group Chief Risk Officer (CRO) has the overall responsibility for maintaining and developing the risk management framework, as well as, controlling and reporting of the Group's risk profile.

### 4.3 PROMOTING OUR RISK CULTURE

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Risk culture drives organizational behaviors and may be the single most important success factor for any risk management program. The Group consistently measures whether we live up to our core values and conduct ourselves accordingly. We launched new mandatory trainings and risk awareness programs to support our desired culture, facilitated by the implementation of a new global e-learning platform available for all employees.

### 4.4 RISK MANAGEMENT GOVERNANCE

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The Group continuously upgrades its risk management framework and governance structure.

In order to ensure adequate oversight, the Group utilises the generally accepted industry standard "Three lines of defence" approach to its risk management framework. The "Three lines of defence" approach creates clarity in regards to roles and responsibility related to risk ownership, oversight and the management of the Group's risk exposures.

The first line of defence actively manages risks as part of the daily operations, and as risk owners they are responsible and accountable for the ongoing management of such risks. They make the primary risk-return trade-off decisions within the risk framework and limits determined and approved by the relevant executive

bodies and governed by the second line of defence. The first line of defence is the Business Units and Group Treasury (in capacity of being owner of the Group's investment risks and structural financial risks).

The objective of the second line is to align Strategy, Risk appetite and Group Policy. The second line of defence designs policies, provide oversight, guidance, review (and potentially approval when needed) along with advice, facilitation, and challenge to the first line in their risk management activities and risk-return considerations. Furthermore the second line introduces best practice and ensure compliance.

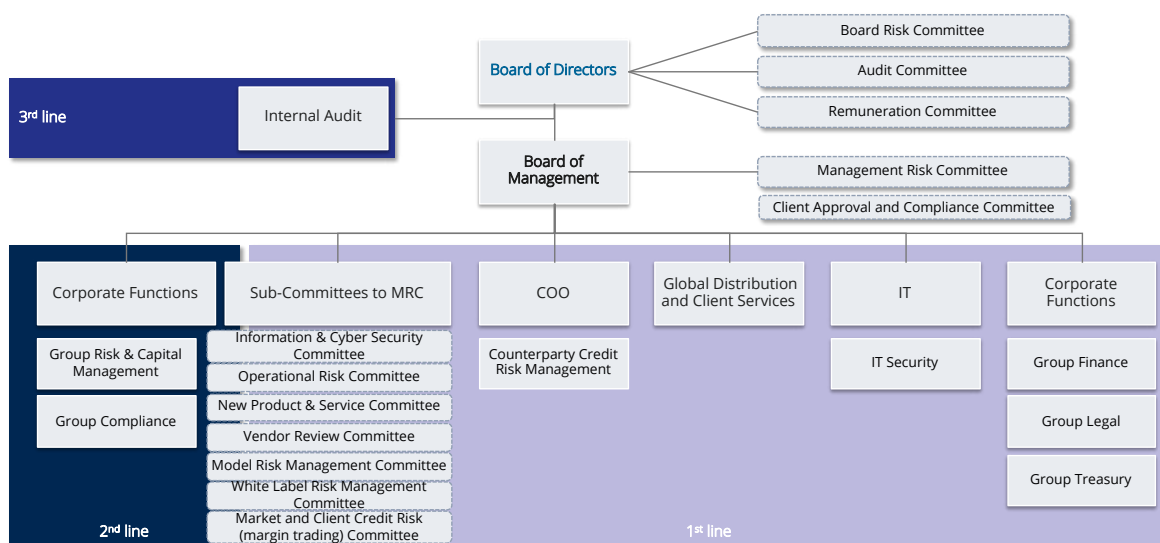
Third line of defence is Internal Audit. Third line of defence shall independently evaluate the adequacy and

effectiveness of the governance, risk management and control processes that are implemented by first and second line of defence.

Further, to provide clearer information about responsibilities for the various elements of risk management, two risk governance committees were introduced or expanded in 2018 with e.g. the Vendor Review Committee. Meanwhile, a White Label (WL) Risk Management Committee was created to address the unique risk management requirements for our white label business model.

An organisational overview of the three lines of defence and risk governance committees can be found in the figure below.

**FIGURE 1: THREE LINES OF DEFENCE**



#### 4.5 OPERATIONAL RISKS INITIATIVES

In keeping with the nature of the Saxo Bank business model, information and cyber security remain highly prioritised risk management areas for the Group. Accordingly, we continuously submit our approach to threat management, and capabilities for prevention, detection, response, and recovery from relevant information and cyber threats to rigorous internal and external scrutiny and review.

The scenario identification process is an important tool used in the understanding of our resilience to operational risk exposures with a low likelihood of occurrence yet can have a severe impact on the business.

The Group enhanced its scenario analysis process in 2018 and set in motion the guidelines for proactively monitoring and preparing for such scenarios. We also strengthened our structure and accountability for managing our vendors, particularly those associated with substantial outsourcing risks.

#### 4.6 RISK COMMITTEES

The Executive Team and/or CRO designate the members of internal managerial bodies, which shall be relevant employees within business units, support and second line of defence functions and further detailed within the respective committee charters. Though members bring knowledge from specific areas of the Group, members represent the entire Group when performing committee work.

In order to govern and to foster transparency, accountability and ownership of risk oversight and management, the Group has established the following risk committees:

**TABLE 1: EXTERNAL EXECUTIVE BODIES**

Governing Body	Responsibilities, which are further detailed in the respective Committee charters:	No. of meetings in 2018
Board Risk Committee	<ul style="list-style-type: none"> <li>• Advise the Board of Directors regarding current and future risk appetite and risk strategy.</li> <li>• Assist the Board of Directors in overseeing the Board of Management's implementation of the strategy.</li> <li>• Provide recommendations and oversee the Risk Management functions.</li> <li>• Review incentive schemes pertaining to risk, capital and liquidity.</li> <li>• Prepare the Group's Risk Management Framework and Risk Appetite Statements for the Board of Directors' review and approval.</li> </ul>	5
Audit Committee	<ul style="list-style-type: none"> <li>• Supervise the preparation of financial statements.</li> <li>• Supervise and assess the effectiveness of the Group's internal controls, risk management and internal audit.</li> <li>• Supervise the statutory audit of the annual financial statements.</li> <li>• Supervise the Group's external auditors</li> </ul>	3
Remuneration Committee	<ul style="list-style-type: none"> <li>• Establish and review the overall remuneration philosophy of the Bank and approve guidelines for incentive programs</li> <li>• Review the compensation level of the Bank's employees</li> <li>• Review the list of Risk Takers</li> <li>• Review succession planning</li> </ul>	3



**TABLE 2: INTERNAL MANAGERIAL BODIES**

<b>Governing Body</b>	<b>Responsibilities, which are further detailed in the respective Committee charters:</b>	<b>Minimum Meeting Frequency</b>
Client Approval and Compliance Committee	<ul style="list-style-type: none"> <li>Review and approve/endorse the Group's Compliance and Financial Crime Framework including related risk appetite statements.</li> <li>Approve (or reject) new high-risk client applications and existing high-risk client reviews as appropriate.</li> </ul>	Twice a month
Management Risk Committee (see sub-committees below)	<ul style="list-style-type: none"> <li>Review and approve/endorse the Group's risk, liquidity and capital management frameworks.</li> <li>Monitor the development of the Group's capital and liquidity position and risk profile in relation to the Risk Appetite Statements and supporting limits and ensure that actions are being taken as needed.</li> </ul>	Quarterly
Information and Cyber Security Risk Committee	<ul style="list-style-type: none"> <li>Review and endorse relevant risk appetite statements, policies and standards related to Information &amp; Cyber Security Risk, and anchor updates to the Framework and supporting documents prior to approval by the relevant decision-making body.</li> <li>Review and assess current and emerging IT/cyber security threat and risk level including significant security incidents.</li> </ul>	Quarterly
Operational Risk Committee	<ul style="list-style-type: none"> <li>Review and endorse relevant risk appetite statements, policies and standards related to the Operational Risk Management Framework.</li> <li>Review and assess the Group's operational risk profile and material exposures to losses for the Group and escalate as appropriate.</li> </ul>	Quarterly
New Product and Services Committee	<ul style="list-style-type: none"> <li>Review and approval of new product and services prior to commercial launch.</li> </ul>	Quarterly
Vendor Review Committee	<ul style="list-style-type: none"> <li>Review and endorse new, renewed or terminated Substantial Outsourcing arrangements.</li> <li>Review and endorse vendor risk management reporting.</li> </ul>	Quarterly
Model Risk Management Committee	<ul style="list-style-type: none"> <li>Coordinate, align and approve new model development initiatives.</li> <li>Approve the use of new models and material model changes.</li> </ul>	Quarterly
White Label Risk Management Committee	<ul style="list-style-type: none"> <li>Review and endorse the White Label Risk Management Framework.</li> <li>Review and assess the risk profile against the approved risk appetite and applicable limits, discuss potential emerging risks, and initiate actions as appropriate.</li> </ul>	Bi-weekly
Market and Client Credit Risk (margin trading) Committee	<ul style="list-style-type: none"> <li>Review and endorse the Framework for Client Credit Risk and Market Risk related to the Group's margin trading.</li> <li>Monitor and assess the aggregated market risk and client credit risk exposure profile including risk concentrations, related critical risk issues, potential emerging risks, take decisions and initiate actions as appropriate.</li> </ul>	Weekly



## 5 CAPITAL

### TOTAL CAPITAL RATIO

35.0 %



All-time high total capital base with total capital up 12.3 %-points since 2017.

### TOTAL CAPITAL REQUIREMENT

14.2 %



Total Capital Requirement including combined buffers reflecting the capital required to safely operate Saxo Bank Group.

### EXCESS CAPITAL RATIO

27.0 %



Excess Capital Ratio (distance to 8 % Capital Requirement) indicating the financial strength of the Group. A 27.0 % buffer to the minimum requirement represents a large buffer to the 8 % regulatory capital minimum requirement.

### LEVERAGE RATIO

10.9 %



10.9 % leverage ratio indicating a low level of leverage. The leverage ratio minimum requirement is expected to be set at 3 % in the forthcoming CRR regulation. The Group remains substantially above the expected forthcoming minimum requirement.

## KEY REGULATORY EVENTS CAPITAL

### EVENTS IN 2018:

- End December 2018, the Danish FSA has issued a new version of the capital adequacy guideline (*dk: Vejledning om tilstrækkeligt kapitalgrundlag og solvensbehov for kreditinstitutter*) which defines a new Pillar II add-on based on credit spread risk derived from the risk in losses from holding bonds with issuers with increased risk of credit quality deterioration. The add-on will have a minor impact on the capital requirement of the Group.
- IFRS9 was implemented 1 January 2018 following which impairments for expected credit losses apply to the Group's financial assets recognised at amortised cost and certain loan commitments and financial guarantee contracts. The Group has opted not to use the transitional provisions in article 473a of the CRR, and has recognized the full effect (approx. DKK 25 m) of the IFRS9 implementation in the Group's Common Equity Tier 1 capital, capital ratios and leverage ratio.
- March 2019 the Countercyclical Capital Buffer for Denmark will increase from 0 % to 0.5 % and September 30 2019 from 0.5 % to 1 %. Further, the Systemic Risk Board is expected in first quarter of 2019 to propose a further increase of the buffer to 1.5 %.

### UPCOMING EVENTS:

In December 2018 The European Commission has presented the Banking Package to reduce risk in the EU banking industry. The Banking Package comprises amendments to the CRR and CRD (CRR2 and CRD 5) and the recovery and resolution for banks (BRRD) and the Single Resolution Mechanism (SRMR II).

The CRR2 and CRD5 package is the result of agreement between the European Council and the Parliament on the European Commission's original CRR2 proposal from November 2016. Expectations are that negotiations will be finalized mid 2019 with implementation date two to three years hereafter. The package

includes the following significant measures which are not expected to significantly impact the Group on the capital side:

- SA-CCR will be implemented into EU law with the upcoming CRR revision. The Group will migrate from the use of the current Mark-to-Market method which is discontinued with the implementation. The Group has already reserved capital in the Pillar II requirement to accommodate for the transition.
- A binding leverage ratio.
- The extension of the SME (small and medium sized) supporting factor up to EUR 2.5 m. (up from EUR 1.5 m).

Fundamental Review of Trading Book (FRTB): The Commission's proposal to introduce new capital requirements for bank's trading or derivative activities is based on the new standard regarding capital requirements for market risks introduced by the Basel Committee in January 2016 with updating text from January 2019. The standard is pending finalization in the Basel Committee and will be implemented in the EU once completed.

As of year-end 2018 the Group was not subject to an MREL requirement (Minimum Requirement for own funds).

### BREXIT

On 23 June 2016 The UK voted to leave the European Union.

As a consequence of the referendum the UK will leave the EU on 30 March 2019. If the EU and UK are unable to reach an agreement the outcome will result in a so-called "Hard" Brexit in which case the UK will become a third country. In case of a hard Brexit the Group does not expect to discontinue activities or make any other major changes in its operations. The Group has established a steer committee with members from relevant departments to handle Brexit related issues.

## 5.1 CAPITAL REQUIREMENT IN CRR

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The minimum capital requirements, in percentage of REA, in CRR article 92 are:

- 4.5 % Common equity tier 1 capital requirement.
- 6 % tier 1 capital ratio.
- 8 % total capital ratio.

The 8 % requirement is the “hard” pillar 1 capital requirement which the Group must meet at all times.

In addition to the Pillar I requirement, the Group must meet:

**An individually assessed capital need in addition to the minimum capital requirement.** This addition is the Pillar II requirement.

**The two regulatory required capital buffers** being the Capital Conservation Buffer and the Countercyclical Buffer.

From January 1 2019 a possible **MREL requirement** for own funds and eligible liabilities allowing institutions to be able to absorb losses and restore their capital position in the event of losses.

## 5.2 CAPITAL POLICY

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The purpose of the Group Capital Policy is to determine the overall guidelines for the management of the Group's capital and the assessment of the capital requirement.

The Group recognizes that a strong capital position is necessary for maintaining a strong liquidity and funding position. Therefore, the Group has defined an internal solvency buffer<sup>4</sup> (on top of the capital requirement) which defines the minimum distance to the capital requirement relative to REA. If this buffer is breached the internal policy dictates that dividends cannot be paid out.

An internal solvency buffer is defined to avoid early intervention or breach of the capital requirement which would impose restrictions on the Group.

## 5.3 CAPITAL PLAN

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The Group has defined a capital plan, as a dynamic tool which is regularly updated, to ensure that the Group will always have enough capital to meet its capital requirements and support its risk profile and strategic aims. For this, it takes into consideration both short-term and long-term effects of changes to the risk profile. As such, the Group's capital plan includes expectations to regulations, strategic initiatives and any other potential major changes to the risk profile, and thereby the future solvency needs. The capital plan is revisited on quarterly basis, or upon need, to ensure that the Group's projected capital adequacy is up-to-date.

## 5.4 CAPITAL POSITION OF SAXO GROUP

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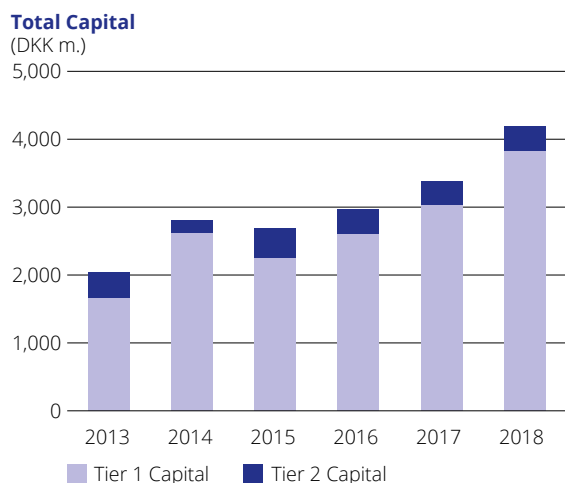
31 December 2018, the Group had an all-time high capital position with a Total Capital ratio of 35.0 % compared to 22.7 % year-end 2017.

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<sup>4</sup> The internal solvency buffer should not be confused with the combined regulatory buffers which are the capital conservation buffer and the countercyclical buffer. See later section below.



**FIGURE 2: TOTAL CAPITAL**



As a consequence of the increased capital base, the Group has significantly improved its key capital ratios.

The total capital ratio consists mostly of common equity tier 1 capital (highest quality of regulatory capital) with an CET1 ratio of 29.2 %.

## 5.5 TOTAL CAPITAL

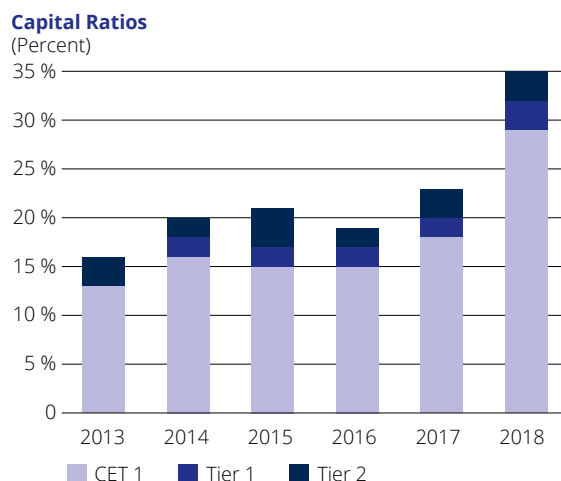
The Group's total capital is given by the Common Equity Tier 1 (CET1), Additional Tier 1 and Tier 2 capital instruments calculated in accordance with CRR and takes into account Danish transition rules.

The amounts recognised in total capital are based on accounting values in accordance with the Danish Executive Order on financial reporting for credit institutions and investment companies.

Reconciliation with the balance sheet can be found in the Additional Pillar III disclosure, Index 1.

Additional own funds disclosures requirements are disclosed in the Additional Pillar III disclosure.

**FIGURE 3: CAPITAL RATIOS**



## 5.6 COMMON EQUITY TIER 1 CAPITAL

The CET1 capital of 3,510 million is calculated as shareholder's equity per accounting rules subject to certain deductions in accordance with CRR and the Danish Executive Order concerning transitional rules in accordance with CRR. Main deductions are listed below:

- Expected dividend
- Intangible assets, including goodwill
- Deferred tax assets
- Prudent valuation adjustment (AVA adjustment)

On Prudent valuation adjustments the Group has implemented the Simplified Approach.

## 5.7 ADDITIONAL TIER 1 AND TIER 2 CAPITAL INSTRUMENTS

The Group's Additional Tier 1 capital amounted to DKK 335 million and Tier 2 Capital to DKK 361 million at the end of 2018.

The issue of Additional Tier 1 capital includes a level (trigger level) at which a write-down of the Additional Tier 1 would take effect. Likewise, the Tier 2 issuance

has a trigger level at which a conversion to equity is effected. Both instruments' trigger levels are set at 7 % CET1 ratio for both the Bank and the Group.

Specifications of the capital instruments are disclosed in the Additional Pillar III disclosure, Index 2.

## 5.8 CONSOLIDATION METHODS

The Group's financial statement is consolidated in accordance with IFRS<sup>5</sup>, while the prudential consolidation of the statement of capital is based on CRR. The Group's subsidiaries are fully owned and fully consolidated under CRR.

More information regarding the consolidation methods for accounting purposes can be found in the Group's Annual Report 2018 available at [www.home.saxo/about-us/investor-relations](http://www.home.saxo/about-us/investor-relations).

## 5.9 MORE INFORMATION ON CAPITAL INSTRUMENTS

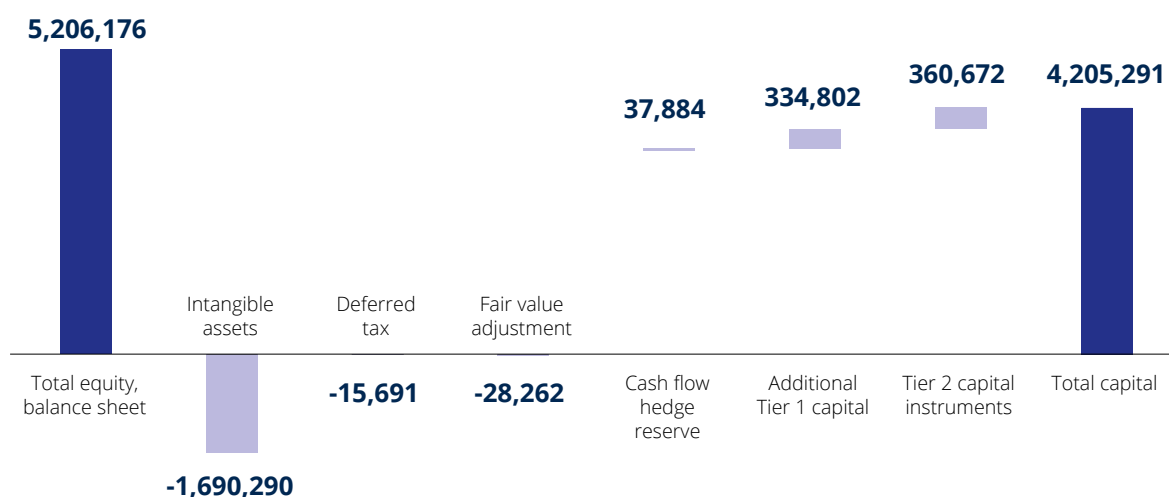
For more information on the Group's capital instruments see the additional pillar III information, Index 2.

## 5.10 PILLAR II REQUIREMENT IN SAXO GROUP

The total capital requirement consists of the minimum regulatory capital requirement (Pillar I) (previous chapter) as well as the internal assessment of whether additional capital requirements are needed over and above the Pillar I calculations (Pillar II).

The Pillar II requirement is implemented into Danish law via the Danish Financial Business Act and further subsequent regulation including the ICAAP Guideline<sup>6</sup>.

FIGURE 4: ACCOUNTING TO REGULATORY CAPITAL DKK 1,000



<sup>5</sup> International Financial Reporting Standards

<sup>6</sup> DK: Vejledning om tilstrækkeligt kapitalgrundlag og solvensbehov for kreditinstitutter



Following the methodology in the ICAAP Guideline the Group utilises the so-called 8+ Model. The 8+ Model uses the 8 % Pillar I capital requirement as a reference point with add-ons for other risks and relations not fully reflected in the Pillar I requirement.

### 5.11 ICAAP PROCESS

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The calculation of the ICAAP is based on an internal process in which the Board of Management, supported by Group Risk & Capital Management (GRCM), assesses the Group's risks. Capital adequacy levels are assessed and approved by the Board of Directors on a quarterly basis. The Capital adequacy levels are reported to the Danish FSA on a quarterly basis.

Group Risk & Capital Management is responsible for the preparation of the ICAAP Report, by collecting, simulating and aggregating relevant information from stakeholders and experts across all business units in the Group.

Part of the ICAAP is identifying the risks associated with the activities of the Group. The primary business activity of the Group is facilitating online trading, investment and other investment services within capital markets to private, corporate institutional clients including white label clients. These activities are driven through Saxo Bank A/S and a number of subsidiaries.

For each identified risk, it is assessed by the Group whether the risk is covered by Pillar I and, if so, whether it is sufficiently conservative. It is based on internal, quantitative approaches and, if relevant, internal expert input and management judgements.

### 5.12 STRESS TESTING

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The ICAAP stress testing ensures that the assessed adequate capital level for the Group is sufficient to withstand unlikely, but plausible, stress scenarios.

A number of stress scenarios have been outlined in the various single risk areas. Furthermore, a reverse stress scenario has been implemented to create a very severe and highly unlikely stress-scenario. Management mitigating actions, like contingency plans and insurance coverage, are considered. The Group also conducts an income sensitivity analysis to ensure that business risks are covered adequately in the budgeted income.

As of 31 December 2018 the stress testing did not result in an additional capital requirement.

### 5.13 REGULATORY CAPITAL BUFFERS

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According to CRD IV the Group is required to hold a capital conservation buffer and a countercyclical capital buffer, commonly referred to as the Combined Buffers. The capital conservation buffer is designed to absorb losses and conserve capital outside a period of stress. The countercyclical capital buffer is designed to ensure that financial institutions in times of high economic growth will accumulate sufficient capital to enable it to continue being a stable source of credit in a subsequent downturn. If the Group does not meet the buffer-criteria, restrictions will be placed on the Group's ability to pay out dividends until the buffers are rebuilt and a capital conservation plan will have to be submitted to the Danish FSA.

The level of the Countercyclical Buffer is set by national Systemic Risk Boards, where the level set by the Danish Systemic Risk Board is the primary driver in the buffer requirement for the Group. The maximum level of the buffer is 2.5% of REA. A breach of the Combined Buffer levels will result in restrictions on dividends and bonus payments and a capital reconstruction plan is required to be established and approved by the FSA.

The countercyclical capital buffer rate is calculated as the weighted average of the countercyclical buffer rates set by jurisdictions of where the relevant credit exposures are located. The weight for each

jurisdiction's set capital buffer is given by the credit exposure (including trading book) to the jurisdiction divided by the total credit exposure across jurisdictions. As of 31 December 2018, the countercyclical buffer requirement for the Group is immaterial relative to the total capital requirement. The level of the countercyclical buffer is disclosed in the Additional Pillar III disclosure.

The capital conservation buffer phase-in started in 2016 with the first annual 0.625 % of REA increment and will reach 2.5 % in 2019. The Group meets the fully phased-in requirement of 2.5 % with the Group's current capital-level. End 2018 the requirement for the capital conservation was 1.875 %. From January 1 2019 the capital conservation buffer will be fully phased-in with a 2.5 % requirement.

#### 5.14 MREL REQUIREMENT

MREL requires banks to meet a minimum requirement for own funds and eligible liabilities so as to

be able to absorb losses and restore their capital position, allowing banks to continuously perform their critical economic functions during and after a crisis.

In June 2018 the Group received its draft MREL requirement from the Danish FSA. The MREL requirement is to be set yearly by the Danish FSA and is expressed as a percentage of Saxo Bank's total liabilities and own funds.

The MREL requirement can be met with capital instruments and debt instruments that are written down and converted before simple creditors during resolution and bankruptcy and which fulfil the conditions for MREL funds.

MREL consist of a loss absorption amount and a recapitalisation amount based on the resolution strategy which is defined in the banks' resolution plan which is

drafted by the resolution authorities which in Denmark is Finansiel Stabilitet A/S.

The MREL requirement is applicable from 1st. of January 2019 and will be phased-in gradually from the beginning of 1st of January 2019. The MREL requirement is intended to improve banks' resolvability allowing resolution authorities to maintain critical functions and restore a bank's capital position after resolution.

#### 5.15 LEVERAGE RATIO

The leverage ratio is a non-risk adjusted capital measure, defined as Tier 1 capital as a percentage of the total non-risk weighted exposures both on- and off-balance exposures. The ratio is intended to prevent credit institutions from building up excessive leverage. A 3 % LR measure is expected to be imposed with the revised CRR.

The Group's monitoring of the leverage ratio is done as part of the ICAAP and the Recovery Plan. The Group's buffer to the expected leverage ratio requirement, and the monitoring of the leverage ratio via the Recovery Plan ensures that excessive leverage in the Group is not build up.

Further, the Group has defined a minimum level for the Leverage Ratio in the Risk Appetite Statement. Business decisions are tested with regards to their Leverage Ratio impact with the intent to prevent business decisions which would lead to excessive leverage in the Group.

The Group has a safe distance to the expected minimum requirement with an actual leverage ratio of 10.9 %. A high leverage ratio indicates a high ratio of equity to assets. The Group Leverage Ratio is up from 7.7 % last year primarily due to the sale of Saxo Privatbank A/S and Saxo Payments A/S during 2018.

More details on the Group's leverage ratio can be found in the Additional Pillar III disclosure, Index 14.



## 6 CREDIT RISK

Credit risk is defined as the potential risk that a broker or client will fail to meet its contractual obligations in accordance with agreed terms, and that the broker or client will hence not be able to repay principal amounts outstanding and interest owed to the Group.

In the Group credit risk occurs when customers trade derivatives (see section 8) and against the Group's Brokers in the market. The Group does not engage in traditional lending activity.

### 6.1 CREDIT POLICY

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The Group Credit Policy is an integrated part of the Group's enterprise risk management framework.

The Group accepts credit risk based on a balanced risk taking to secure a low level of non-performing clients. To support a strong credit culture the Group has established:

- an integrated credit risk management framework
- a credit authority framework with clear procedures for delegation of approval authority
- a clear separation of the credit function from the business function and other monitoring functions (or with compensating controls)
- a diversified approach to avoid concentration risks

### 6.2 CREDIT AUTHORITY

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The Group Credit Authority Policy defines the Group's policy for approving, maintaining and reviewing credit exposure to brokers and clients.

The Group Credit Authority Policy determines how:

- The Board of Directors can delegate credit authority to the Board of Management

- The Board of Management can delegate credit authority to the Head of Group Credit
- The Head of Group Credit can delegate credit authority to authorized individuals

Furthermore, the Group Credit Authority Policy defines reporting requirements including frequency of reporting of credit authority utilization and credit approvals to the Board of Directors and Board of Management.

### 6.3 CREDIT ORGANISATION

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The Board of Directors is the highest credit authority in the Group, responsible for the overall credit risk management and credit related principles.

The Head of Group Credit reports to the Chief Risk Officer, who reports to the Group Chief Financial and Risk Officer, who is a member of the Board of Management.

Group Credit acts as the first line of defence in relation to all credit risk in the capacity of being mandated to grant credit limits and assign client classifications.

### 6.4 CREDIT RISK MITIGATION

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The Group's collateral requirements act as the primary credit loss buffer and have been calibrated to avoid losses under volatile market conditions. Cash and certain high quality bonds and equities are the main sources of collateral pledged. Collateral placed as stocks and bonds are subject to haircuts when assessing the collateral value. (see further under section 7).

For the calculation of REA (risk exposure amount) the Group uses the Financial Collateral Comprehensive Method to calculate the effects of credit risk mitigation. Under the Financial Collateral Comprehensive Method collateral values are adjusted for currency and volatility mismatch with haircuts set out in CRR.

## 6.5 CREDIT EXPOSURE MANAGEMENT

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All credit exposures are monitored and managed on the basis of the total credit exposure to brokers and clients.

The Group's internal credit rating of clients is an integrated part of the credit exposure management for the Group, and an important part of the credit assessment and credit management process. An internal Saxo Rating is assigned to all clients where the Group incurs credit risk. The rating reflects the probability of default.

Clients are monitored on an ongoing basis and credit ratings as well as credit exposures are subject to annual risk reassessment at a minimum. In order to avoid risk concentration, the Group has implemented internal risk appetite limits towards client segments as well as overall instrument limits.

## 6.6 IMPAIRMENTS

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For financial assets recognised at amortised cost, expected credit losses are recognised in the income statement and set off against the asset in the statement of financial position. However, on loan commitments and financial guarantee contracts expected credit losses are recognised as a liability.

The impairment for expected credit losses follows a three-stage model:

Stage 1: If the credit risk has not increased significantly since initial recognition, the impairment equals an amount equal to 12 month expected credit losses.

Stage 2: If the credit risk has increased significantly since initial recognition, the financial assets are

transferred to stage 2 and an impairment equal to the lifetime expected credit losses is recognised.

Stage 3: If a financial asset is in default or otherwise credit-impaired, it is transferred to stage 3, which is the same as stage 2, except that interest income is recognised on the net carrying amount.

Further on Impairments can be found in the Group's Annual Report at [www.home.saxo/about-us/investor-relations](http://www.home.saxo/about-us/investor-relations).

## 6.7 REPORTING AND CONTROL

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Group Risk and Capital Management report on the credit area to the Board of Directors and Board of Management. In addition, Group Risk and Capital Management is responsible for credit reporting allowing for control of credit exposures and limit breaches.

Frequent credit reporting allows Group Credit to be proactive in respect of the credit quality of the portfolio, and allows for timely action in case part of the portfolio, or individual clients, show signs of weakness.

## 6.8 EXTERNAL CREDIT RATING AGENCIES (ECAI)

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The Group has nominated Standard & Poor's Financial Services LLC (S&P) as ECAI for credit exposures. The Group is not rated by a credit rating agency.

The conversion of credit ratings to credit quality steps is based on the mapping tables issued by the EBA<sup>7</sup>. The individual credit quality steps are accorded a weighting to be used for the exposures on the individual credit quality steps when calculating the total risk exposure according to the standardized approach for credit risks.

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7 European Banking Authority

## 6.9 OTHER CREDIT RISKS

Equities outside the Trading Book are valued at fair value, with a prudential value adjustment in Total Capital. These equity exposures are related to stocks in the Danish banking-infrastructure as well as strategic investments. Investment securities are measured according to the equity method.

It is not part of the Group's strategy to increase investments in this type of assets in relation to strategic investments such as acquisitions. The balance sheet value is risk weighted with 100 %-150 % in the Risk Exposure Amounts for credit risk.

**TABLE 3: EXPOSURES TO EQUITIES INCLUDED IN THE BANKING BOOK**

(DKK million)	Balance sheet value
Unlisted equities: Investment securities	26
<b>Total</b>	<b>26</b>

**TABLE 4: ECAI MAPPING FOR INSTITUTIONS, LONG-TERM**

Credit Quality Step	S&P Rating	Risk Weight	
		Maturity above 3 months	Maturity 3 months or less
1	AAA to AA	20%	20%
2	A	50%	20%
3	BBB	50%	20%
4	BB	100%	50%
5	B	100%	50%
6	CCC and below	150%	150%

**TABLE 5: ECAI MAPPING FOR INSTITUTIONS, SHORT-TERM**

Credit Quality Step	S&P Rating	Risk Weight
1	A-1+	20%
2	A-1	50%
3	A-2 to A-3	100%
4	B and below	150%
5		150%
6		150%

**TABLE 6: ECAI EXPOSURE BEFORE AND AFTER RISK-WEIGHTING**

(DKK million)	Exposure	Exposure after ECAI risk-weighting
Institutions	3,180	692

**TABLE 7: RISK EXPOSURE AMOUNT BY EXPOSURE CLASS, ULTIMO 2018**

Exposure Class (DKK million)	Risk Exposure Amount
Central governments and central banks	0
Institutions	692
Corporates	831
Retail	245
Secured by mortgages on immovable property	0
Exposures in default	0
Equity	26
Other items	999
<b>Total</b>	<b>2,793</b>



## 7 COUNTERPARTY CREDIT RISK

### KEY REGULATORY EVENTS COUNTERPARTY CREDIT RISK

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The following events are expected to impact Counterparty Credit Risk in the Group:

- SA-CCR will be implemented into EU law with the upcoming CRR revision. The Group will migrate from the use of the current Mark-to-Market method which is discontinued with the implementation. The Group has already reserved capital in the Pillar II requirement to accommodate for the transition.
- In March, the European Securities and Markets Authority (ESMA) announced having agreed on a range of measures intended to harmonise EU-wide regulation and to provide better protection to retail clients trading leveraged products, like CFDs. The new measures have taken effect from 30 July 2018 and include:
  - Leverage limits on new positions
  - Introduction of maintenance margin: stop out as soon as the client does not meet maintenance margin requirement
  - Prohibition on benefits used to incentivise trading
  - Standardised warning statement of the risks involved across promotional material
  - Prohibition on the marketing, distribution or sale of binary options regardless of type
- The Group welcomed the proposals set forth by ESMA and believes that consistent, harmonised regulation at a European level will be positive for clients and the industry as a whole. I.e. the Group will not compete on leverage and embrace competition on quality of platform, price, product and service.

### 7.1 DERIVATIVES IN SAXO GROUP

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The Group offers a number of derivative products to clients who wish to trade on the derivatives market. Product groups include:

Over 9000+ **CFDs** across stocks, indices,

**FX options:** Puts and calls on 40 FX vanilla options, plus six FX touch options.

**Listed options:** 1,200+ equity, index and futures options including metals, energy and rates.

**Futures:** 200+ futures across 23 global exchanges and a range of asset classes.

See further under: <https://www.home.saxo/products>

### 7.2 COUNTERPARTY CREDIT RISK IN SAXO GROUP

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Counterparty credit risk stems from the Group's derivatives exposures with clients and other banks. I.e. counterparty credit risk occurs on two fronts in the Group:

1. When facilitating margin trading to the Group's clients
2. When trading clients' positions with the Group's financial counterparties (Brokers).

For regulatory purposes the Group applies the mark-to-market method (MtM) to calculate the REA exposure. MtM is a regulatory methodology that, in addition to current market value of the exposure, includes potential future exposure (PFE).



### 7.2.1 COUNTERPARTY CREDIT RISK WITH CLIENTS

When facilitating margin trades to the Group's clients the Group is prepared to take credit risk against collateral to support non-institutional<sup>8</sup> clients' margin trading within the leverage limits offered by the Group. The primary buffer against counterparty credit risk losses is thus margin posted to the Group by its clients. To control margin setting an overall policy across products and jurisdictions has been defined; and to enforce the Margin Policy the Group has risk management procedures in place which are further described below.

For margin-instrument-transactions the Group is acting as a Principal, meaning the Group is the client's legal counterparty in the transaction. Trading for clients can only be initiated subject to the client's acceptance of the Group's General Business Terms including close-out and collateral netting agreements or other standard legal terms for trading.

### 7.2.2 COUNTERPARTY CREDIT RISK WITH AGAINST BROKERS

To facilitate margin trading to its clients the Group provides derivatives instruments to the market via its Brokers. To manage credit risk from these transactions the Group has defined credit limits on individual counterparties including the Group's brokers. Moreover, to further limit counterparty credit risk, the Group uses (standard) netting and collateral agreements in the form of ISDA<sup>9</sup> Master Agreements with Credit Support Annexes limiting risk to daily margin calls. Collateral posted by the Group as initial margin is pledged via a tri-party setup at a custodian, which protects the Group from credit risk when pledging collateral.

## 7.3 MARKET PRICE GAP RISK

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Market Price Gap-risk is the main financial risk in the Group's business model. A "Market price gap" occurs when there is no market liquidity to support trading at a price level close to the most recently traded level. Consequently on such situations the Group is not able to execute the standard client exposure liquidation procedures ("stop Out"), which normally prevents client credit risk exposures to exceed posted collateral. "Market price gaps" may occur due to unexpected events or unforeseen circumstances e.g. geo-political events, political intervention, natural disasters etc.

The risk of observing "market price" gaps is in general highest when:

- The market has been closed for a period of time (e.g. overnight or over the weekend)
- Central Banks communicate decisions on economic policy
- Political uncertainty
- Release of certain economic data

Large market movements (or volatility in general) is not problematic for the Group's business model as long as there is continuous trading in the market with sufficient liquidity enabling the Group to execute trades on behalf of clients at price levels close to recently traded price levels. In this environment the Group's stop-out procedure enables the Group to stop out clients before uncollateralised exposures can occur. However, a market price gap may lead to a credit loss where clients' pledged collateral is insufficient to offset a loss following a market price gap. The Group has defined

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8 To clients other than Broker counterparties and WLC (White Label clients). WLCs are financial intermediaries, which offer the Group's products and the Group's trading-platform to their own clients in their own name.

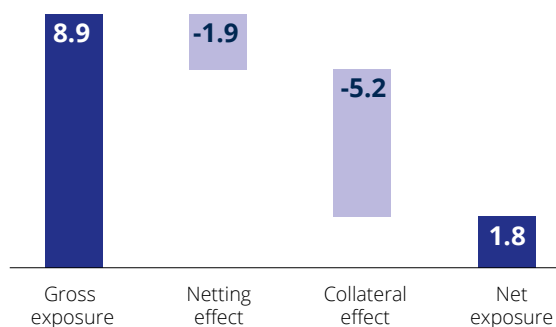
9 International Swaps and Derivatives Association-agreements

risk appetite statement for market price gaps and to enforce the policy the Group has its risk management framework in place which rests on:

1. The Client's acceptance of the Bank's Legal Terms prior to trading. Trading can only be initiated subject to the client's acceptance of the Group's General Business Terms including close-out and collateral netting agreements or other standard legal terms for trading.
2. The Group's Risk Appetite  
To address the Group's market price gap risks, the BoD (Board of Directors) has set out a number of Risk Appetite Statements (RAS), which define risk appetite on large market price gap.
3. The Group's Real Time Margin Requirement Enforcement  
The Group calculates and monitors client's margin requirements in real-time, and clients must all times meet their margin requirement.
4. The Group's Ongoing Risk Monitoring and Discussions among key stakeholders.  
Key stakeholders meet on a weekly basis to address risk concentrations and pro-actively put in place risk mitigants when necessary. To address e.g. unusual geo-political risks, the Group pre-emptively sets up ad-hoc committees to coordinate and discuss the necessity of imposing further risk mitigants and risk monitoring.

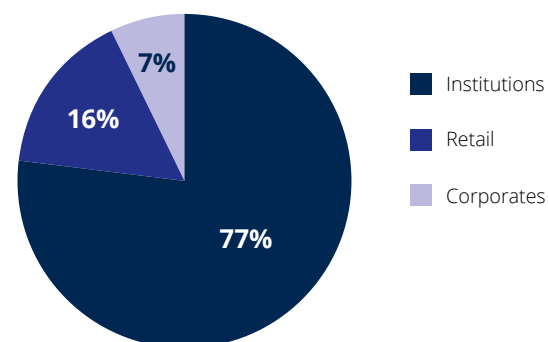
**FIGURE 5: EXPOSURE AT DEFAULT, END-OF-YEAR 2018**

**Counterparty Credit Risk Exposure, ultimo 2018**  
(DKK billions)



**FIGURE 6: COLLATERAL EFFECT**

**Counterparty Credit Risk Exposure by Exposure Class, ultimo 2018**



#### **7.4 STRESS TESTING**

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As part of the above framework, daily stress testing is conducted on all clients. The stress tests are performed on a daily basis and the results of the tests are sent daily to the Board of Management and other key stakeholders.

Via the stress tests the Group calculates uncollateralised exposure, and therefore potentially losses, in market price gap scenarios in order to test the defined risk appetite tolerance for market price gaps.

#### **7.5 WRONG WAY RISK**

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Wrong-way risk is the risk of increased credit exposure to a counterparty as that counterparty's creditworthiness deteriorates. The Group does not have any appetite for specific wrong-way risk.

#### **7.6 CREDIT VALUATION ADJUSTMENT (CVA)**

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The Group applies the standardised method for calculating the own funds requirements of CVA risk. CVA risk is defined as the risk of losses from adjustment to the mid-market valuations to reflect credit risk of the counterparty, when measuring fair value of derivatives or similar fair value measured financial assets.

The Group has limited exposure to CVA risk since most counterparties over-collateralise their positions and the average maturity of counterparties is only rarely higher than 1 year. The main part of the CVA risk is against prime brokers who all have investment grade ratings and diversified exposures with the Group. EU regulation exempts non-financial counterparties with various exceptions for large non-financial counterparties, from CVA risk calculations. As of 31 December 2018 the CVA risk in the Group amounted to DKK 277 million in Risk Exposure Amounts and DKK 22 million in minimum capital requirement.

## 8 MARKET RISK

Market Risk is defined as the risk of a loss in value as a result of changes in market rates and parameters that affect the market values, e.g. interest rates, credit spreads, FX rates, equity prices, commodity prices and option volatilities.

The Group's market risks can be grouped into the following three main categories:

1. Trading market risk exposures relating to the Market Making of Trading & Market Access supporting the Group's online trading and investment services.
2. Investments/liquidity buffer related market risk exposures in Group Treasury.
3. Structural market risk exposures in the Group's balance sheet.

### 8.1 MARKET RISK POLICY

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The Board of Directors has defined the overall Group Market Risk Policy, articulated the Group's market risk appetite and set limits for the different types of market risk. Based on this, market risk limits are delegated to the organisation, i.e. Trading & Market Access and Group Treasury. Market risk exposures are monitored by the Group Risk & Capital Management-department, and the limit utilisation is reported to all governing levels of the Group, including the Board of Directors on a regular basis.

The overall Board policies and limits are supplemented by sub policies, business procedures, work instructions and more detailed risk limits. The Group Market Risk Policy, the Market Risk Appetite Statements and the limits are reviewed as often as needed and as a minimum once a year.

### 8.2 MARKET RISK EXPOSURE METHODS

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The Group does not apply intern models on the market risk area (see Appendix 2 for list of methods on the market risk area).

The Risk Exposure Amounts related to market risk consist of:

- Interest rate risk regarding positions in the Trading Book
- Equity price risk regarding positions in the Trading Book
- Commodity risk regarding all commodity positions excluding gold positions
- Foreign-exchange risk regarding all foreign-exchange positions including gold positions

The Group's interest rate risk and equity price risk in the Banking Book is disclosed in section 8.5.

### 8.3 MARKET RISK EXPOSURE AMOUNTS

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Exposures to various types of market risk for the Bank and the Group end of 2018 are disclosed below as well as the minimum capital requirements corresponding to 8 % of the Risk Exposure Amounts. According to regulatory requirements the Market Risk Exposure Amounts for each risk category shall be aggregated to a total exposure amount. Hence any diversification effects between the risk categories are disregarded.

### 8.4 FOREIGN-EXCHANGE RISK

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The Group's Foreign-exchange risk is divided into two measures: Delta risk and non-delta risk. The delta risk represents the largest of all net long or short positions per currency summarized. The delta risk is mainly driven by the Group's role as liquidity provider in the market for FX spot, forwards and options whereas the daily

liquidity management is a minor contributor to the total Foreign-exchange risk. Table 11 shows the composition of the largest net long and net short FX positions end 2018.

**TABLE 8: NET FX POSITION BY CURRENCY**

DKK 1,000	Net Long	Net Short
CHF	27,146	
PLN	23,851	
HUF	10,267	
EUR		79,386
INR		19,432
SGD		15,997
Other currencies	30,596	41,179
<b>Total</b>	<b>91,860</b>	<b>155,994</b>

The non-delta risk represents an additional option risk related to the Group's positions in FX Options. The non-delta risk is calculated per currency pair and the largest contributors end year is stated below.

**TABLE 9: NON-DELTA FX RISK BY CURRENCY PAIR**

DKK 1,000	Risk Exposure
EURNOK	121,855
EURPLN	75,088
AUDNZD	68,832
USDCNH	68,588
Other currency pairs	98,996
<b>Total</b>	<b>667,595</b>

## 8.5 INTEREST RATE RISK

The Group's interest rate risk in the Trading and Banking book is determined by the standard interest rate risk measure modified duration, i.e. change of market value when the yield is changed by a certain percentage. The Group applies a +100 bps change of the yield curves. Any negative interest rate risk is netted with positive interest rate risk when calculating the net interest rate risk and amounts expressed in foreign currencies is converted into DKK.

## 8.6 INTEREST RATE RISK IN THE BANKING BOOK

On Group level the interest rate risk in the Banking Book comes from: The financing of the headquarter domicile and issued subordinated debt. The total interest rate position in the Banking Book is a net short position in both the Bank and the Group.

**TABLE 10: EXPOSURES IN INTEREST RATE RISK INCLUDED IN THE BANKING BOOK**

DKK 1,000	Saxo Bank Group
<b>Net Exposures Banking Book</b>	<b>749,289</b>
DKK	388,617
EUR	360,672
<b>Interest rate risk</b>	<b>21,371</b>
DKK	17,147
EUR	4,224





## 9 OPERATIONAL RISK

Operational risk is defined as the risk of loss due to inappropriate or inadequate internal procedures, human errors and system errors or as a result of external events. The definition includes legal, compliance risk, and model risk, but excludes strategic risk, business and reputational image risk.

Operational risk is inherent in all products, processes, systems and activities within the organisation, in outsourced activities and in all interactions with external parties.

The Board of Directors has defined the Group Operational Risk Policy, covering also Information Security Risk and Contingency Risk, which consists of Crisis Risk, Business Continuity Risk, and the Group's Insurance policy, and articulated the Group's operational risk appetite. The Policy and Risk Appetite Statements are reviewed as often as needed and as a minimum once a year.

The overall objective of the operational risk management framework is to define standards, tools and processes to support the organisation in proactively identifying, assessing, monitoring and managing/mitigating operational risks. Operational risks are not desired risks and we seek to proactively and reactively mitigate such risks in adherence with the Group's risk appetite and ensure risk management efforts are aligned with the Group's risk culture objectives.

To support the desired risk culture, the Group emphasises having a clear governance structure assigning precise roles and responsibilities for the conduct of business and employees including management of risks in the Group, adherence to the code of conduct and applicable company policies and business procedures, and risk training, risk awareness, and incentives programmes.

Operational risks are identified and assessed through regular self-assessment processes, at least annually, to assess the quality of internal controls, ensure that all

material operational risks inherent in the Group's products, activities, processes and systems are captured and reassessed in a systematic and timely manner and identify areas for improvements. Moreover, all material changes in the Group's products, activities, processes and systems are subject to a formal, internal risk assessment and approval processes. Particular focus is placed on the understanding of the Group's resilience to operational risk exposures with a low likelihood of occurrence yet can have a severe impact on the business.

The Group strives to obtain maximum learning from materialized operational events and observed near misses. Operational events and near misses that are equal to or higher than DKK 15 thousand, arising from operational risk incidents are collected and registered in the Group's error register. Risk assessments and root cause analysis are performed to effectively address and provide future mitigants to material operational risk events.

### 9.1 CAPITAL REQUIREMENT CONCERNING OPERATIONAL RISK (PILLAR I AND II)

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The Group uses the Basic Indicator Approach, cf. CRR art. 315, to calculate the Risk Exposure Amounts for operational risks (Pillar I). Under the Basic Indicator Approach, the Risk Exposure Amounts for operational risk is calculated as an average over three years of the sum of following accounting related items:

- Net interest, fees and commissions
- Price and exchange rate adjustments
- Other income

The calculation of the basic indicator throughout 2018 consists of accounts from the financial statement 2015-2017.

**TABLE 11: REA CONCERNING OPERATIONAL RISK FOR SAXO BANK GROUP**

DKK million	Saxo Bank Group Q4 2018
Risk Exposure Amount	5,487
Capital Requirements	439

## 9.2 MANAGEMENT AND MITIGATION OF OPERATIONAL RISKS

The Group uses mainly three methods to manage and mitigate risks:

**Controls:** Appropriate internal controls are designed and implemented to ensure that operational risks are mitigated to remain within the risk appetite.

**Insurance coverage:** Insurance coverage is used for protection against unexpected and substantial unforeseeable losses to ensure that key risks related to conducting the business and the Group's key tangible assets and employees are covered and safeguarded effectively and sufficiently.

**Contingency plans:** The Group's contingency plans establish the processes and procedures necessary to ensure that all business critical processes, services, and personnel remain operational at an acceptable level in the event of a severe disruptive event.

Furthermore, the Group Operational Risk is governed through a number of committees and policies, as a part of the Risk and Management Governance and Framework of the Group. For more details see Section 4.

## 9.3 REPORTING

The Group's operational risk profile is monitored on a regular basis, and reported to the Board of Directors and the Management's Risk Committee at least quarterly and without delay whenever the situation dictates so. Moreover, operational risk events with a direct or indirect loss exceeding DKK 300 thousand must be reported to the Management's Risk Committee and if exceeding DKK 1 million also reported to the Board of Directors.

## 10 LIQUIDITY RISK

### LIQUIDITY COVERAGE RATIO

264.4 %



Strong actual LCR position with LCR ratio on Group level of 264.4 %. The actual LCR ratio of the Group provides safe distance to the regulatory minimum of 100 % as well as the internal Board limit of 120 %.

### HQLA-POSITION

17,073.2  
m. DKK



Actual liquidity buffer of 17,073.2 m. DKK means that the Group has a strong liquidity position to cover liquidity requirements.

## KEY REGULATORY EVENTS LIQUIDITY

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- June 30 2018 a new Supervisory Diamond measure was introduced on liquidity. The revised measure uses a three months forward looking LCR approach. The purpose of the measure is to maintain institutions' focus on liquidity, to ensure that institutions can withstand a three months stress and to prevent the build-up of funding with a maturity of just over 30 days. For Saxo Bank A/S the measure is moderately lower than the 30 days LCR, however, still significantly above the required 100 pct.
- With the upcoming CRR revision a 100 pct. NSFR measure is expected to be imposed. The Group has internally calculated its NSFR which, based on the Presidency compromise text from 25 May 2018, is substantially above 100 pct.

## 10.1 LIQUIDITY RISK IN SAXO GROUP

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Liquidity Risk is defined as:

- The risk that the Group's cost of funding rises to disproportionate levels or in worst case prevents the Group from continuing as a going concern under its current business model.
- The risk that the Group does not have sufficient liquidity to fulfil its payment obligations as and when they fall due.
- The risk that the Group does not comply with regulatory liquidity requirements, e.g. liquidity coverage ratio.

Due to its business model Saxo Group is not exposed to the same maturity transformation of short term deposits to long loan commitments of traditional banking. The main liquidity risk in Saxo Group is therefore the risk of the Group having to place margin with its brokers for negative market value of derivative contracts.

## 10.2 LIQUIDITY POLICY

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To manage liquidity risk the Board of Directors has defined the Group's Liquidity Policy, the Group's liquidity risk appetite as well as specific liquidity risk limits.

The Group has low appetite for liquidity risk, and the overall strategy of liquidity risk management is to ensure that the Group at all times has a strong liquidity position with a prudent margin to the regulatory and Board defined minimum requirements. The Board defined minimum LCR requirement is defined as a 20 %-points buffer to the LCR minimum requirement, i.e. the LCR ratio must be at least 120 %. The 20 %-points buffer is set following the yearly ILAAP-process.

## 10.3 LIQUIDITY ORGANISATION

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The Group operates with a lines of defence on the Liquidity area according to which:

**The first line of defence** is Group Treasury who is responsible for measuring and managing liquidity risk, financial risks in the liquidity buffer and other non-trading market risks such as structural FX and interest rate risk exposures. Group Treasury has the overall responsibility for the operative liquidity management and planning in the Group including subsidiaries. Group Treasury is placed organisationally under Global Finance & Risk Operations with direct reference to the Board of Management.

**The second line of defence** is Group Risk and Capital Management and Group Compliance who provide oversight, guidance, review (and potentially approval when needed) along with advice, facilitating, and challenging Group Treasury in their risk management activities and risk-return considerations.

**The third line of defence is internal audit.**

## 10.4 LIQUIDITY REPORTING

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Group Risk & Capital Management assume responsibility for appropriate liquidity risk reporting in the Group including:

**A yearly ILAAP** to the Board of Directors is produced. The ILAAP focuses on the LCR requirement and the Group's required level of liquidity. The ILAAP is approved by the Board of Directors on a scheduled Board meeting.

**A monthly Risk & Capital Report** including key metrics on liquidity to the Board of Directors and the Management Risk and Compliance Committee.

**A Daily Treasury Report** to the company's Group Chief Financial & Risk Officer, who is also a member of

the Board of Management. The report contains e.g. lines and utilization hereof within key risk ratios as well as a position list for the liquidity buffer and the daily calculated LCR.

## 10.5 LIQUIDITY RISK MANAGEMENT

The primary risk management tool of liquidity risk in the Group is the Board defined liquidity risk limits which build on the regulatory requirements. To monitor liquidity risk the Group performs daily liquidity calculations and monitoring of liquidity risk metrics (LCR) as well as of the liquidity position.

The Group's Asset Liability Management Committee (ALCO) suggests changes to the balance sheet composition of the Group and makes recommendations on balance sheet composition. This includes taking operational limits within the liquidity and funding are in to consideration when supporting management of the Group's balance sheet.

To ensure that the Group stays with a safe distance to Board and regulatory limits the Group utilizes stress tests which have been implemented based on the LCR-requirement. The defined stress scenarios capture both liquidity impact from external market related events, as well as events related specifically to the Group. Furthermore, stress scenarios using a combination of both market related and bank-specific incidents are also performed. The liquidity buffer is stress tested on different time horizons, meaning both short-, medium- and long term effects are measured in the applied stress scenarios.

In the unlikely event of a liquidity crisis the Group has a Recovery plan in place according to which indicators based on the LCR and NSFR ratios are monitored and actions are taken if indicators are breached. The Recovery Plan defines liquidity contingency measures available to improve the liquidity under stressed conditions and ways to restore to normal state of business in the event of a crisis.

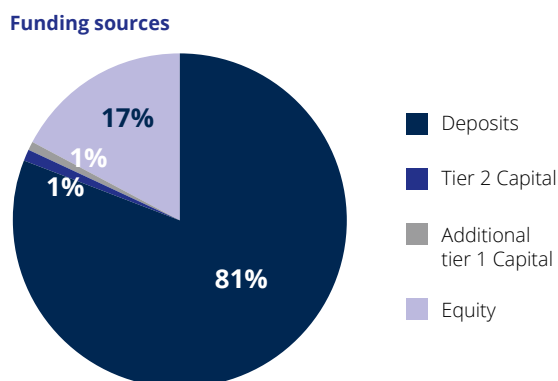
The Group does not hedge liquidity risk but mitigates liquidity risk by above risk management and contingency measures.

## 10.1 ADDITIONAL LIQUIDITY REGULATION

The Group monitors and reports the long-term Net Stable Funding Ratio (NSFR). The scope of the NSFR is to ensure that banks have an appropriate amount of stable funding to support their assets and activities on a longer term (i.e. a one-year period). NSFR is planned to be a 100 % requirement and is expected with the forthcoming CRR 2.

The Group's NSFR is relatively simple given the range of business activities is centered on derivatives trading. The main components requiring stable funding (RSF) are trading assets, derivatives assets, and a residual category of "other assets". The components supplying available stable funding (ASF) are own funds and deposits.

FIGURE 7: FUNDING SOURCES



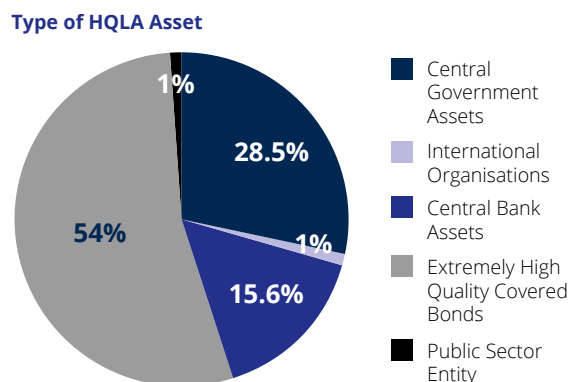
Managing daily liquidity in the Group means receiving liquidity on OTC-products from multiple providers and liquidity for listed products through various exchanges and providing that product liquidity to customers via the Group's trading platform. When opening a position with a broker the Group pledges initial margin (IM) (typically bonds) via a triparty setup to eliminate credit



risk on broker counterparties. After entering into a transaction with a broker the Group exchanges market values (variation margin) on a daily basis, thus reducing credit and liquidity risk on open positions to day to day movements in the market.

The Group does not as such incur the same transformation of (demand) deposits into long loan commitments as a conventional bank. I.e. the Group maintains a highly liquid balance sheet on the asset side consisting of mostly highly liquid bonds of very high credit quality (at least investment grade). Investment limits are imposed for bonds with a lower credit quality than AA- and most of the bond portfolio therefore consists of bonds rated at least AA-.

**FIGURE 8: HQLA BY ASSET TYPE**

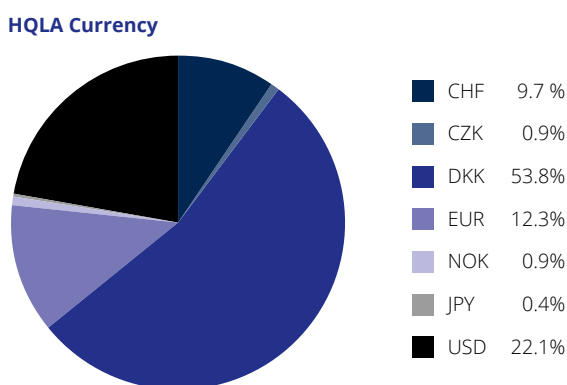


The Group relies on deposits as the main source of funding and does not rely on market funding. The Group has a diversified portfolio of deposits ranging from retail deposits from private customers to large deposits from financial counterparties. Market based

funding originally obtained for solvency reasons only makes up a small portion of the total funding – only approx. 2 %.

Currency mismatch is dealt with by internal guidelines on LCR-minimum requirements for LCR on significant currencies which for the Group are EUR and USD. LCR on significant currencies is monitored on a daily basis according to the general risk management framework on the liquidity area.

**FIGURE 9: HQLA BY CURRENCY**



The Group (first and second line) monitors the daily LCR ratio via daily reporting to ensure a safe distance to the ILAAP Requirement (20 %-points above regulatory minimum requirement). The buffer to the Board Requirement far exceeds any observed volatility in the LCR over the year.

The primary liquidity risk in the Group is the risk of an adverse market movement (price gap) following which the Group will have to pledge collateral for negative values. To minimize losses from a price gap and thus

10 This section follows: EBA Guideline EBA/GL/2017/01 Annex I – Table EU LIQA on liquidity risk management whereby institutions must provide: A concise liquidity risk statement approved by the management body succinctly describing the institution's overall liquidity risk profile associated with the business strategy. This statement shall include key ratios and figures (other than those already covered in Annex II of these guidelines) providing external stakeholders with a comprehensive view of the institution's management of liquidity risk, including how the liquidity risk profile of the institution interacts with the risk tolerance set by the management body. For Management Approval see section 1: Management Declaration.

mitigate liquidity risk, the Group has several setups for taking mitigating action. The risk management contingencies are mentioned in chapter 10.1.5. Stress tests test the capacity of the Group to pledge IM or VM with its brokers via the LCR effect of a large margin call. Stress tests indicate that the Group can withstand considerable levels of stress before breaching the board defined LCR buffer. Moreover, the Group's LCR already reflects a stress corresponding to a requirement to hold liquidity equivalent to the largest margin call which the Group has faced in the preceding 24 months via the so-called adverse market scenario. Liquidity Risk may also arise as a result of credit- or settlement risk. To avoid such losses the Group utilizes its general Risk Management Framework as described above.

As of 31 December 2018, the Group reported an LCR ratio of 264.4 % (2017: 204.9 %), thereby comfortably fulfilling the current regulatory LCR requirement.

In addition to the LCR requirement, the Group complies with the liquidity requirement of the Supervisory Diamond. The fulfilment of current Danish liquidity requirement is published in the Supervisory Diamond 2018 report available at [www.home.saxo/about-us/investor-relations](http://www.home.saxo/about-us/investor-relations).

The Group thus has a safe operational setup within the liquidity area and the current liquidity position is sufficient to uphold the Group's operation and meet a prudent requirement under the LCR regime.

**TABLE 12: LCR DISCLOSURE TEMPLATE**

**LCR disclosure template, on quantitative information of LCR which complements Article 435(1)(f) of Regulation (EU) No 575/2013.**

Consolidated		Total Adjusted Value			
Currency and units (DKK million)					
Quarter ending on (DD Month YYYY)		31-Mar-18	30-Jun-18	30-Sep-18	31-Dec-18
Number of data points used in the calculation of averages		3	3	3	3
21	LIQUIDITY BUFFER	18,640	18,680	18,457	17,864
22	TOTAL NET CASH OUTFLOWS	7,217	6,713	6,574	6,619
23	LIQUIDITY COVERAGE RATIO (%)	258	278	281	270





TRADING

SEARCH ACCOUNT

Find instrument

Log out

Sticks

Probability

All

Chart Patterns

Emerging

Completed

Key Levels Patterns

Approaching

Breakout

Fibonacci Patterns

Emerging

Completed

Interval

15 Minutes

30 Minutes

60 Minutes

4 Hours

Daily

AZDCAD

NZOJPY

Interval

1 Day

Chart

Pattern Type

Falling Wedge

Pattern Name

Pennant

Identified

13-Jan-2017 05:00

Type

Completed

Age

2

Falling Wedge

NZDCAD

New Zealand Dollar/Canadian Dollar

0.83 12<sup>2</sup>

Bid

0.83 20<sup>2</sup>

Ask

Realtime prices

Spread

Market open

TYPE

Market

Duration

Day Order

PRICE

Market

SELL

BUY

Add Take profit / Stop loss

Margin impact

1,448.26 / 1,447.78 USD

(Sell / Buy)

Indicative Prices

Nov 2016

Dec 2016

Jan 2017

Direction

Pattern Name

Pattern Type

Type

Probability

Quality

Identified

Age (Candles)

Take Profit

Stop Loss

Disclaimer

Performance statistics

User manual

Disclaimer

TRIAL\_687016

USD

Cash available: 123,601.42

Account value: 194,722.42

Margin available: 143,046.56

Margin utilisation: 26.54%

MARKET DATA PROVIDED BY SAXO BANK - DATA DELAY 15MIN





## 11 ASSET ENCUMBRANCE

The Group's main business activity includes derivatives trading, which requires posting collateral to cover margin requirements. Accordingly, the Group's asset encumbrance originates mostly from bonds and cash placed as collateral to cover margin requirements from financial counterparties and brokers.

End of December 2018 13.5 % of the total balance sheet was encumbered. This is a decrease from year-end 2017 (16.1 %) caused by the sale of Saxo

Payments A/S and Saxo Privatbank A/S. The Group can encumber a large part of its balance sheet to obtain liquidity if need be as almost all of the Group's bonds are eligible for repo transactions and are central bank eligible. The Group does not, however, depend on asset encumbrance for financing purposes.

Additional information on Asset Encumbrance in the Group can be found in the Additional Pillar III Disclosure, Index 15.

## 12 MANAGEMENT DECLARATION<sup>11</sup>

The Board of Directors assesses that the Group's risk management framework is adequate in relation to the Group's risk profile and strategy, and that it complies with the applicable regulation. Furthermore, it is the Board of Directors' assessment that the following description of the Group's overall risk profile associated with the Group's business strategy and business model reflects the actual risks. In addition, this Risk Report

provides a relevant and a comprehensive review of the Group's risk management. Information in this report has been prepared in accordance with the internal control processes of the Group.

The Group's Board of Directors and Board of Management have approved the Risk Report for 2018 in accordance with article 435 in the CRR<sup>12</sup>.

### BOARD OF DIRECTORS

Ian Zhang  
Board Member

Daniel Donghui Li  
Chairman

Henrik Normann

Preben Damgaard  
Board Member

Patrick Lapveteläinen  
Board Member

### BOARD OF MANAGEMENT

Kim Fournais  
CEO

Søren Kyhl  
COO

Steen Blaafalk  
CFO/CRO

Damian Bunce  
CCO

- 
- 1 This declaration is given according to CRR art. 435 (f) and Annex I – Table EU LIQA on liquidity risk management of EBA/GL/2017/01: declaration approved by the management body on the adequacy of liquidity risk management arrangements of the institution.
- 2 Capital Requirement Regulation 575/2013.

## 13 APPENDIX 1: SUBSIDIARIES OF SAXO BANK A/S<sup>13</sup>

Owner	Company Name	Type of license	Domicile	IFRS Consolidation method	Regulation	
-	Saxo Bank A/S	Licensed Bank	Denmark	Fully consolidated	Fully consolidated	CRR (EU requirements)
Saxo Bank A/S	Saxo Banque France SAS, France	Licensed Bank	France	Fully consolidated	Fully consolidated	CRR (EU requirements)
Saxo Bank A/S	Saxo Privatbank A/S, Denmark	Licensed Bank	Denmark	Fully consolidated	Fully consolidated	CRR (EU requirements)
Saxo Bank A/S	Saxo Bank (Switzerland) AG, Switzerland	Licensed Bank	Switzerland	Fully consolidated	Fully consolidated	Local bank regulation
Saxo Bank A/S	Saxo Capital Markets UK Ltd., UK	Licensed Broker	United Kingdom	Fully consolidated	Fully consolidated	CRR (EU requirements)
Saxo Bank A/S	Saxo Capital Market Pte. Ltd., Singapore	Licensed Broker and Capital Markets Services provider	Singapore	Fully consolidated	Fully consolidated	Local broker regulation
Saxo Bank A/S	Saxo Capital Market HK, Hong Kong	Licensed Broker	Hong Kong	Fully consolidated	Fully consolidated	Local broker regulation
Saxo Bank A/S	Saxo Bank Securities Ltd.	Licensed Broker	Japan	Fully consolidated	Fully consolidated	Local broker regulation
Saxo Bank A/S	Saxo Capital Markets Pty Ltd, Australia	Licensed Broker	Australia	Fully consolidated	Fully consolidated	Local broker regulation
Saxo Bank A/S	Saxo Bank do Brasil Excritório de Rep. Ltda, Brazil	Representative office license	Brazil	Fully consolidated	Fully consolidated	N/A
Saxo Bank A/S	BG Saxo SIM	Licensed Broker	Italy	Fully consolidated	Fully consolidated	CRR (EU requirements)
Saxo Bank A/S	Ejendoms-selskabet Bygning 119 A/S, Denmark	Non-financial	Denmark	Fully consolidated	Fully consolidated	N/A
Saxo Bank A/S	Initto A/S, Denmark	Non-financial	Denmark	Fully consolidated	Fully consolidated	N/A
Saxo Bank A/S	Saxo Group India Private Limited	Non-financial	India	Fully consolidated	Fully consolidated	N/A
Saxo Bank A/S	Saxo Treasury A/S	Non-financial	Denmark	Fully consolidated	Fully consolidated	N/A

<sup>13</sup> Includes significant and active subsidiaries (offices not included).



## TRANSFER RESTRICTIONS ON GROUP LEVEL

The Bank's financial subsidiaries, comply with EU regulation or local capital and liquidity Requirements. In addition, non-financial subsidiaries may have other legal restrictions. Transfer of own funds or repayment of liabilities among the parent undertaking and its subsidiaries should comply with all regulatory requirements. These requirements limit the transfer of own funds or repayment of liabilities among the parent undertaking and its subsidiaries.

## TRANSFER RESTRICTIONS IN SWITZERLAND

Saxo Bank (Switzerland) AG, Switzerland: FINMA<sup>14</sup> has reserved right to diminish inter company balances to zero in case of transfer restrictions imposed by foreign regulator.

# 14 APPENDIX 2: MARKET RISK METHODS

The Group applies the following methods in the market risk area:

### Market Risk Methods:

- Equity Price Risk: The Standardised Approach<sup>15</sup>
- Foreign-exchange Risk: The Standardised Approach<sup>16</sup>
- Interest Rate Risk: The Duration Based Approach<sup>17</sup>
- Option Risk, non-delta (gamma, vega): The Scenario Approach<sup>18</sup>
- Commodity Risk: The Maturity Ladder Method<sup>19</sup>

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14 Swiss Financial Market Supervisory Authority

15 CRR art. 341-344.

16 CRR art.351-355.

17 CRR art. 340.

18 CRR art. 329.

19 CRR art. 359.

