Banking in Luxembourg

Trends & Figures 2019

Unless stated otherwise, all information used and presented in this publication relates to the data provided in the CSSF's 2018 annual report and in the individual annual accounts of legally independent banking companies (e.g. S.A.s and S.C.A.s). As there is no publication requirement, it was not possible for us to carry out an analysis of the data in the annual reports of legally dependent branches that are not recognised separately. In case banks have changed country segment, the previous year figures are adapted accordingly in both country segments. Therefore, previous year figures may vary from the figures disclosed in the previous year version of this brochure. The values used and calculated have been rounded up or down as appropriate.

Annual accounts reported in a different currency (USD/CHF) were converted at the exchange rate on the relevant closing date.

To accommodate the differences between Lux GAAP and IFRS, we have depicted these banks' balance sheet and income-statement data in a schematic representation that we use with Lux GAAP, and have therefore presented a number of assumptions in a simplified manner. The main assumptions are the following:

- The unused risk provisioning presented pursuant to IFRS has been deducted on a pro rata basis from loans and advances to customers and credit institutions;
- Financial instruments valued at fair value through profit or loss (transferable securities and derivatives) have been assigned to the "bonds and other transferable securities or other assets/liabilities items" item in accordance with the notes to the annual accounts available to us;
- Derivative fair values from hedge accounting have been assigned to the "Other assets/liabilities" item;
- The revaluation reserve has been added to "own funds";
- The profit or loss from financial instruments valued at fair value through profit or loss, as well as the profit or loss from hedge accounting, have been assigned to "Other net income" by virtue of their financial character;
- The profit or loss from financial fixed assets has been assigned to the "credit risk provisioning" item insofar as it relates to unrealised profit or loss components. Realised components, where identifiable, have been assigned to "Other net income".
- The figures presented have been established on the basis of internal calculation methods and may vary from the calculations shown in the individual annual accounts. The choice and classification of companies and the determination of the total number of banks per country segment were made based on internal data and on statistics published by the CSSF.

www.pwc.lu/banking

Updated version released on 27 September 2019

Table of contents

1 Foreword

Foreword

Roxane Haas
Banking Industry Leader
+352 49 48 48 2451
roxane.haas@pwc.com

Located in the heart of Europe and home to 135 banking institutions from all over the world with a range of varied business models, Luxembourg has truly become an international financial centre. Whereas the majority of the banking institutions are from other European countries, Luxembourg has also proven a viable gateway to the European market first for banks from America and more recently for banks from China.

Our annual banking review takes an analytical view at this diversified banking landscape, aiming at identifying the major trends within the Luxembourg and European banking industry and analysing the factors that make Luxembourg unique in Europe.

In order to capture the major trends within the Luxembourg banking industry, we gathered the opinions of the main representatives of banks located in Luxembourg through our banking survey.

As both net interest and net commission income have been rather flat and costs related to compliance, staff and IT are still increasing, banks are required to rethink their strategies and business models and explore new opportunities in order to support revenue growth in the medium term.

Most banks in Luxembourg are experiencing a transformation journey. This ranges from adapting legacy IT systems to developing new platforms for end-to-end client servicing as well as reviewing their value chain—i.e. to outsource non-core services and to offshore support/non-added-value tasks. Banks are also collaborating with Fintechs. While this is gaining relevance, airs of caution also arise given their initial stage of development. As digital-human interplay will increase in the future, banks are looking for digitally-skilled staff. The competition for talent is increasing, as the job market is tight. Banks look beyond Luxembourg for recruiting, while also placing emphasing on upskilling. The workforce of the future will embrace change, be more flexible, and learn new skills while unlearning old ones. Thus, it is important to hire young graduates who will bring in new competencies and have the ability to adapt to change more naturally.

New business opportunities for bankers are coming from Sustainable Finance, in which Luxembourg is well positioned worldwide, hosting half of the global green bonds issued, reflecting positively on the Grand-Duchy's image.

Sustainable Finance is just one of the latest trends that contribute to strengthening the position of the Luxembourg banking industry in Europe. Indeed, the Luxembourg banking industry is top-ranked in Europe in terms of banking ratios (solvency ratio, cost-income ratio, NPL ratio) and leveraging on a qualified and multilingual workforce.

As in previous years, in our publication "Banking in Luxembourg – Trends and Figures", we have categorised the banks according to their country of origin and analysed the financial statements of the six largest country segments of banks present in Luxembourg. The review also reflects on the diversity of the local banking community and illustrates the dynamics within the different country segments as well as their relative development against the overall Luxembourg banking market.

In order to ensure comparability and continuity, we have kept the composition of the six main country segments. Our analysis, therefore, covers the country segments of German, French, Swiss, UK/North American and Chinese banks alongside Luxembourg banks, which are part of the "home segment". For each of these segments, we highlight changes compared to the previous year and discuss observed trends.

The Luxembourg banks continue to exercise a relatively diversified business model in their home market, with a focus on private, retail and corporate banking as well as asset servicing. In comparison to this, the other country segments remain focused on one or two main business areas along the themes of investment fund servicing, depositary banking, private banking, (international) loans business or trade financing.

The UK/North American segment remains focused on asset servicing, i.e. rendering custodian, fund administration and transfer agent services. This segment leveraged the growth in the Luxembourg investment fund industry and institutional wealth management's move to Luxembourg as Brexit implementation programme. The increase in the net commission income from these institutional asset-servicing businesses (+12.2%) strongly supported the rise of the annual profit totals by 3.9%.

The group of Swiss banks in Luxembourg also has a major focus on asset servicing, as well as a tradition of private banking. Additionally, the advantage of the EU passport for the cross-border distribution of financial services is a key factor in making Luxembourg a location of choice for all non-EU banks. The Swiss segment has shown the strongest growth in annual net profit (+17.8%).

The Chinese segment is characterised by Chinese banking groups establishing their European hub in Luxembourg and, by extension of business activities, into the EU via an extended branch network.

The French segment follows a model of universal banking with a focus on private banking, asset servicing and lending, and represents the second largest country segment in terms of number of banks. The French segment has recorded the highest growth in absolute terms in the total assets (EUR +8.0 billion) due to a successful development of its lending business.

The group of German banks remains the segment representing the largest number of banks. German banks offer a large variety of services that range from private banking via asset services to lending business. They also specialise in covered bonds with all three covered bond banks in Luxembourg having German origin. German banks were able to decrease the cost-income ratio this year by 2.3%, whereas the annual net profit remained stable.

Our analysis of the 2018 annual accounts of Luxembourg banks provides once more an insight into the ever-growing diversity of the Luxembourg financial centre and illustrates the dynamics taking place in a fast changing financial services world.

2 Luxembourg Banking Survey 2019

Key takeaways

Setting a "commercial DNA" in motion	As a result of rising costs and relatively flat revenues, banks are forced to rethink their business models and product offering, putting the "client experience" at centre stage. In their search for new opportunities, they are challenged to step out of their comfort zones. They need to reconsider their strategies, reactivate their entrepreneurial spirit and set a real "commercial DNA" in motion. In fact, some areas such as payments have become less appealing for banks, as new players enter the business. For instance, PSD2 is opening the account payment relationships to third parties.
Competition for talent is fierce	In an already tight job market, banks are trying a variety of options to find the right employees. These include searching for people beyond Luxembourg, having retention programmes (including work-life balance and rotational assignments) and focusing more on upskilling. In this context, hiring young graduates who bring in new competencies and the ability to adapt to change more naturally is gaining relevance.
Banking competitiveness fueled by upskilling	Upskilling has become an important response to the ongoing technological and business transformation of the banking industry—transforming people's skills and professional knowledge into the necessary future requirements. As banks review their value chain by outsourcing non-core services and offshoring support and non-added-value tasks, the skills needed in Luxembourg will be more focused on oversight and problem solving rather than on execution. Upskilling then, can play a major role in meeting those emerging demands. Some bankers believe however, that upskilling has its limits. Despite this, they also believe it is the way forward to entice employees to embrace change, be more flexible, learn new skills and unlearn old ones.
Transform or die	Most banks in the Grand Duchy embarked on a transformation journey in the broader sense, encompassing business models, reviewing their value chain/value proposition, people, and technology projects. As banks do not have the privilege of taking a greenfield approach, many struggle to adapt their legacy IT systems and recognise that a proper transformation governance is key. For the most advanced players, the end goal is to develop a platform that offers clients a customised front-end service, in an Amazon or Netflix like fashion.
Digital-human interplay	In the near future, clients will be served by humans with increasing support from technology (digital tools and client data helping relationship managers know when to initiate dialogue with customers and on which topics). The use of data-driven tools in the context of GDPR remains, however, a matter of debate. In Luxembourg, bankers still favour traditional meet and greets with key clients. In the future however, they will need to draw upon data & analytics even more to better understand client needs. The challenge of how to make effective use of such wealth of data and its monetisation will also be present in bankers' agenda.
Embracing Sustainable Finance	As a European and international financial hub, Luxembourg has built up a comprehensive expertise in the area of Sustainable Finance. It has become the frontrunner in sustainable investment funds and green bonds. The Luxembourg Sustainable Finance Roadmap, initiated by the Grand Duchy's government, underpins the country's pioneering role contributing to sustainable development. Respondents acknowledged the potential positive impacts of Sustainable Finance. Not only could it bring in new business for banks, it also has the potential to strengthen Luxembourg's position as a frontrunner.
Smart partnership with Fintech	The emergence of Fintech and Payment Services companies has led to a challenging reality for banks. Despite this, there are new solutions and potential synergies through joint collaborations and it is another way banks could deliver leaner and more cost efficient products. The most advanced banks in Luxembourg have Innovation or Fintech Labs in place, at least at a group level, to shortlist solutions that could generate added value. A number of them, however, doubt that Fintech could become true banking competitors.
Learning to live in a low/negative interest rates environment	The latest macroeconomic events have further cast doubts on an already blurry horizon for the mid-term. The ECB further cut interest rates and launched a new stimulus package in its mid-September meeting, the German 30-year bond-yield curve is below zero and banks across Europe are debating the controversial issue of passing the burden of negative interest rates on to clients. In fact, some have already done so. In this context, Luxembourg-based banks are forced to revise mid-term plans and find the way to coexist with this new reality.

The annual *Banking in Luxembourg, Trends & Figures* brochure is one of the two major banking publications released by PwC Luxembourg over the last ten years. This year, however, we pushed our limits and tried to delve into local bankers' mindsets. To this end, in addition to our usual financial figures analysis, we conducted a survey which helped us to collect the data to produce the following report.

This report contains the views of Luxembourg's bankers on the state of their current and future (until 2021) business, including their talent search and acquisition difficulties at the time. It also elaborates on the transformation that both the banking industry in the Grand Duchy and banks in general are experiencing. Following the remarks on what banks are doing to better understand their customers' needs, the report then illustrates the priorities for Luxembourg bankers in the short term and the trends that will impact their business the most in the coming 3 years.

Survey methodology

60 respondents, each representing a different bank operating in Luxembourg, were interviewed through an online self-administered questionnaire. Collectively, they represent 67% of all banking establishments and subsidiaries authorised in Luxembourg. Respondents answered in their capacities as CEOs, CFOs, CCOs, COOs, CROs, or other C-suite positions.

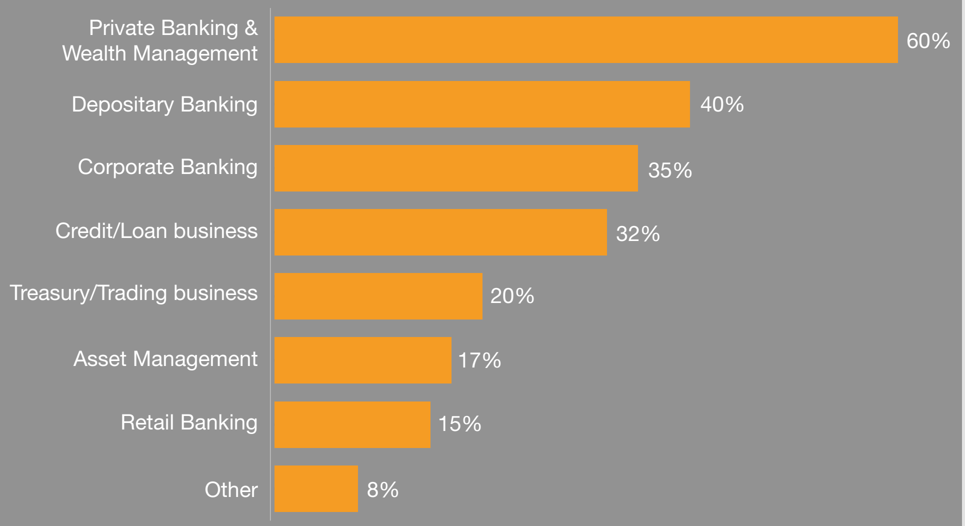
In addition, we conducted 15 face-to-face, in-depth interviews with banking CEOs, who together represent a diverse mix of business segments and geographic origins.

Data collection period

From May to early September 2019. Therefore, the effects of the latest macroeconomic events and the mid-September ECB decision on interest rates were not fully captured.

Banks profile

Many banks in our sample operate in the Private Banking & Wealth Management business segment (60%), followed by the Depositary Banking, Corporate Banking and Credit/Loan segments.



2.4

business segments on average per bank

The development of the banking business in Luxembourg

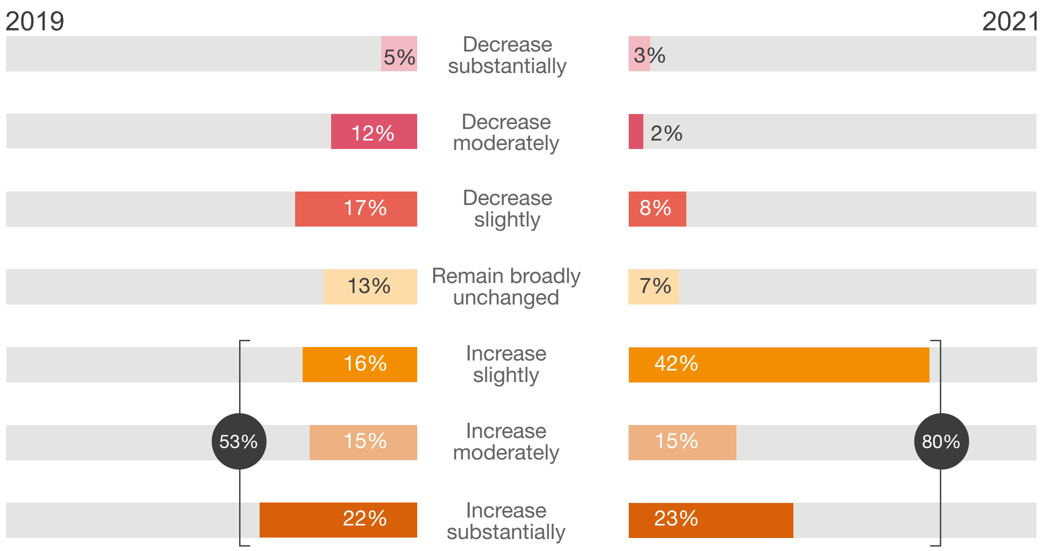
REVENUE

Luxembourg's banking sector ended 2018 in good shape based on its quality of assets, capitalisation and liquidity. Overall, the banks' balance sheets experienced a 3.0% growth compared to 2017, but their profitability declined by 3.2%.[1] Against this backdrop, we asked Luxembourg-based bankers how they see their business in both 2019 and the mid-term (until 2021).

In general, expectations tend to be positive as the bankers expecting their turnover to increase outweigh those who foresee a decline for 2019.

EXHIBIT 1

How would you assess the development of your bank's revenue in 2019? And for the coming 3 years (until 2021)?



Base: 60 respondents/single choice question

Base: 60 respondents/single choice question

Luxembourg-based bankers assessed the medium term more promisingly as those who anticipated a decline in 2019 are hoping for a slight increase in revenues by 2021. Given the period during which the data was collected, the 2021 picture however, may not fully consider the effects of the latest macroeconomic developments. With the ECB further cutting interest rates in its mid-September meeting, the German 30-year bond-yield curve being below zero and the ongoing controversial debate of passing the burden of negative interest rates to clients, respondents' current views about the mid-term could now differ from these findings.

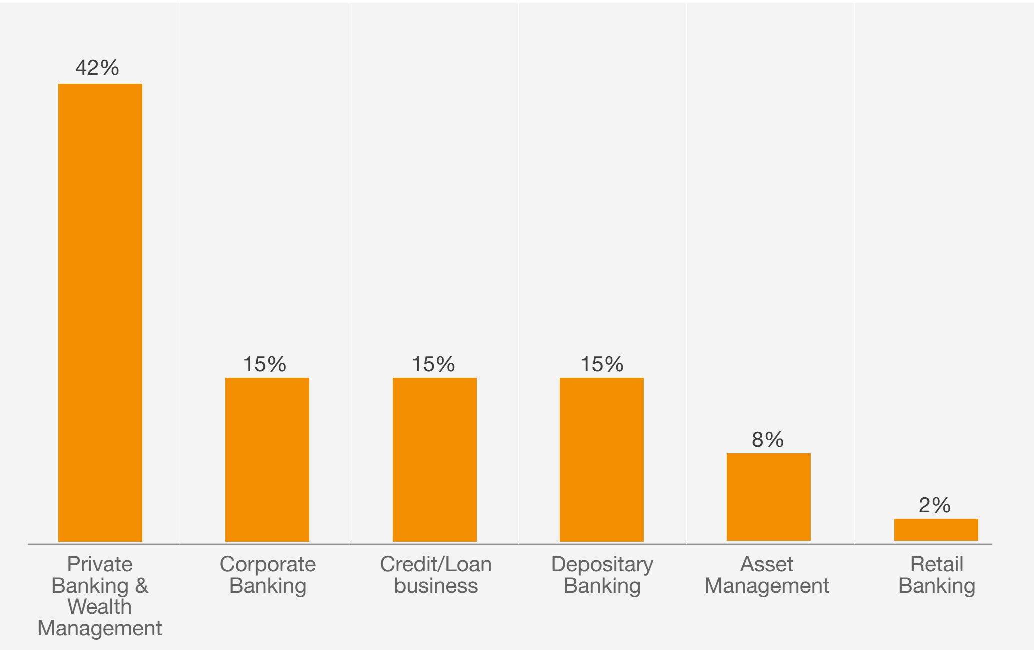
1. Presentation of the CSSF Annual Report 2018 – Press Release 19/31.

The way to approach business in Luxembourg is to combine well-thought out, innovative strategic orientations with a highly efficient and pragmatic implementation. This is a decisive advantage that positions the country among the most relevant financial centres in Europe.

ARNAUD JACQUEMIN
CEO, SOCIÉTÉ GÉNÉRALE LUXEMBOURG

EXHIBIT 2

In which business segment do you expect the largest growth potential for your organisation over the coming 3 years?



Base: Those who expect their bank's revenue to increase over the coming 3 years (48 respondents)/single choice question

Of the banks convinced of a revenue increase over the coming three years, Private Banking & Wealth Management is the business segment offering the largest growth potential at 42%. This finding does not come as a surprise as it is the core business of Luxembourg's banking industry and bankers are making a big push to grow this segment. For instance, some interviewed banks commented on their efforts to increasingly serve non-EU private clients leveraging on the country's AAA rating and its cross-border expertise. The good shape of Luxembourg's private banking is challenged by the context though. Rising compliance-related costs and the burden of negative interest rates urge banks to achieve a certain scale of business to be profitable. As a result, further consolidation and an increased focus on Ultra-High Net-Worth Individuals (UHNWIs) is expected in Luxembourg.

COSTS

Bankers in Luxembourg are clear on the fact that costs are rising. Mounting regulatory pressure and increasing technological investments are the main drivers. In fact, 66% of participants indicated that compliance is the department expecting costs to rise the most in the next 3 years, followed by IT (54%). However, such a surge in costs does not necessarily translate into more revenues. As a number of bankers stated, compliance-related expenses are incurred "just to keep the business running", whereas IT-related investments only begin to pay off in the mid-term. In addition to this, people costs represent close to two thirds or more of total costs.

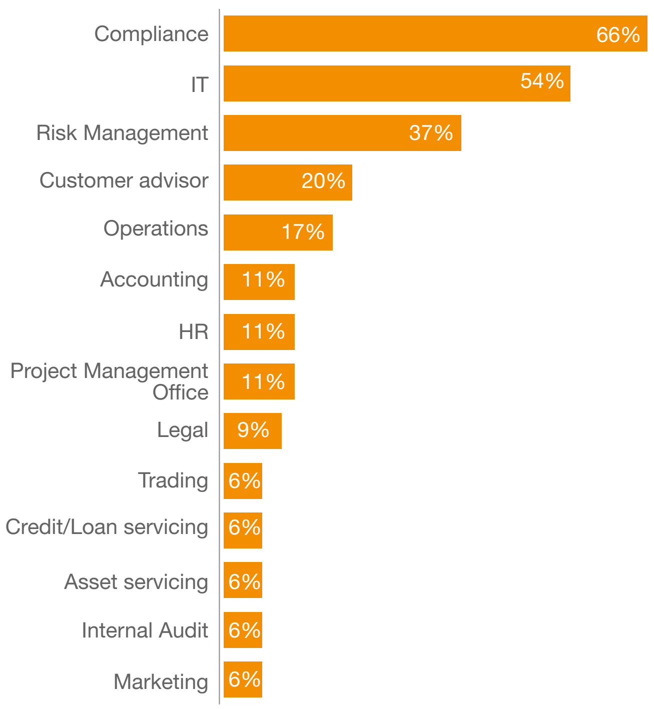
This tight situation leaves banks with little room to manoeuvre cost-wise. In light of this, they are confronted with the challenge of "freeing up" fixed costs to redirect resources to create value for customers. For example, an interviewed Depositary Banking player stated that they are constantly assessing possible solutions (i.e. outsourcing/ offshoring) to turn non-core fixed costs into variable ones.

An interesting finding of our survey is that the IT department ranks second when it comes to bankers foreseeing a decrease in costs in the coming three years. This could be due to IT investments requiring a significant upfront expenditure, which tends to moderate in the mid-term once the new technology is up and running. At the same time, as the use of the latter matures, operation costs tend to decrease given the automation processes, predominantly in middle and back office spaces.

> If Luxembourg would like to play a leading role in Global and European Wealth Management and financing markets long-term, which entails delivering international and increasingly digitalised cross border services to different time zones and regions, the country's and the financial industry's current remuneration and work-life balance framework - be it legislated or agreed between the social partners - may require prudent adaptation for the country to stay competitive.
>
> **FRANK KRINGS**
> CEO, DEUTSCHE BANK LUXEMBOURG S.A. AND CHAIRMAN OF THE CORPORATE FINANCE, CAPITAL MARKETS AND CASH MANAGEMENT CLUSTER AT ABBL

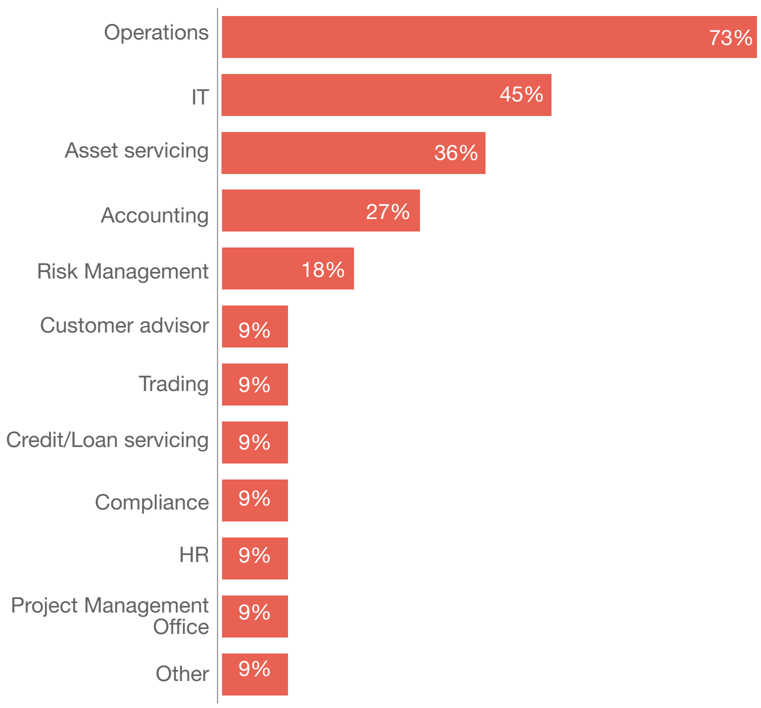
EXHIBIT 3

In which departments do you expect the bank's costs to INCREASE the most over the coming 3 years?



Base: Those who expect their bank's costs to increase over the coming 3 years (35 respondents)/multiple choice question

In which departments do you expect the bank's costs to DECREASE the most over the coming 3 years?



Base: Those who expect their bank's costs to decrease over the coming 3 years (11 respondents)/multiple choice question

NUMBER OF EMPLOYEES

With regards to staff, banks in Luxembourg do not expect an important change for 2019. In fact, 70% of respondents indicated that the number of their employees in 2019 will remain broadly unchanged or will change slightly. Banks operating in the Corporate Banking, Asset Management and Treasury/Trading businesses tend to be more optimistic since around 40% of them pointed out that their headcount will increase either moderately or substantially this year.

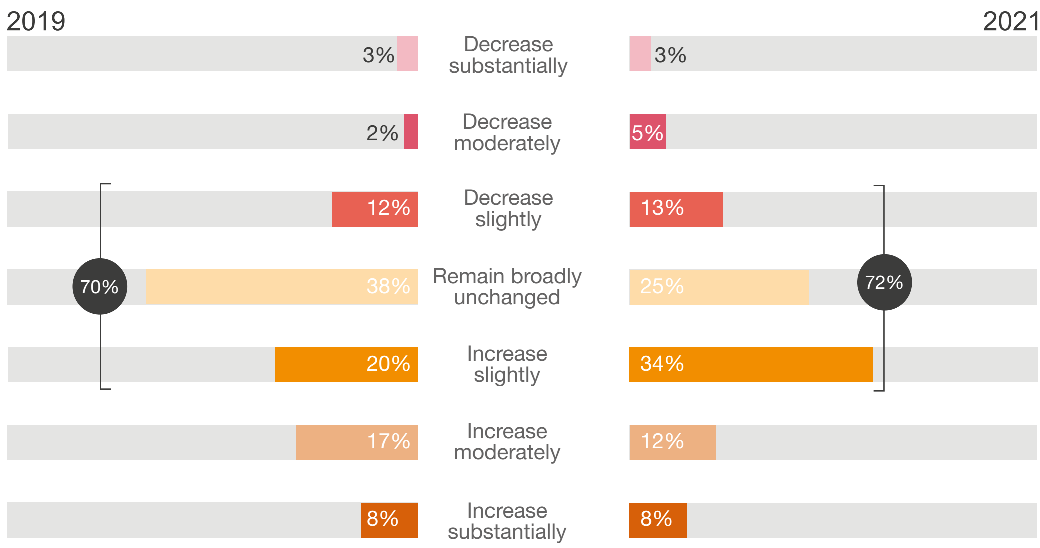
For the mid-term the picture does not look that different. However, Private Banking and Asset Management players expect the largest growth with 64% and 60%, respectively, anticipating staff increases.

An increase in business volume is the main reason (81%) why banks expect their employee base to grow. In addition to this, bankers mirror regulatory pressures with 69% referring to the need to hire more people to comply with regulation. In fact, a number of private bankers interviewed highlighted the increased reporting workload from MiFID II, PSD2 and EMIR. They also noted duplicated amounts of work when registering the same product across different European countries. This is due to each country having its own local requirements to fulfil, in spite of EU passporting.

> As of today there are still different requirements for the same financial product across European countries. Regulatory alignment is key for the EU passport to really work!
>
> **THOMAS STEIGER**
> CEO, VP BANK (LUXEMBOURG) S.A.

EXHIBIT 4

How would you assess the development of your bank's number of employees in 2019 and over the coming 3 years (until 2021)?



Base: 60 respondents/single choice question

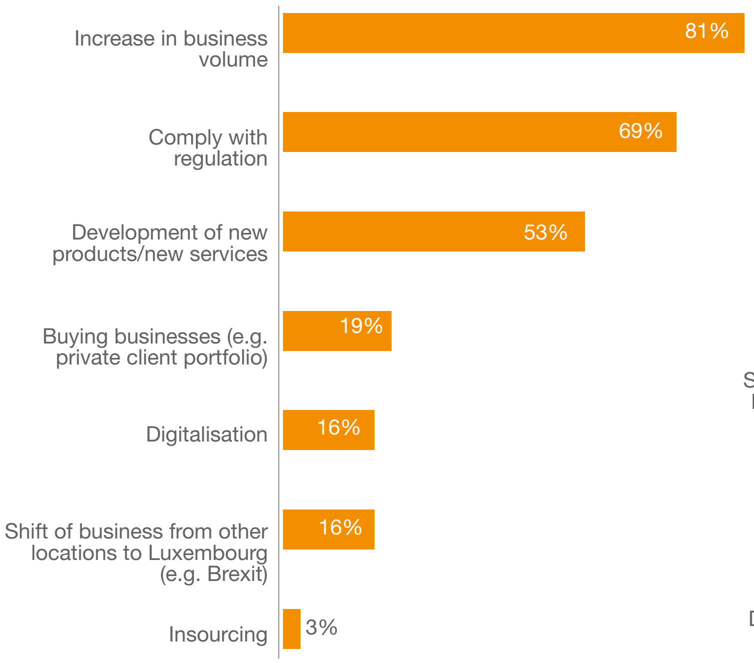
Base: 60 respondents/single choice question

The third reason for needing more people is the development of new products/new services (53%). In contrast, those respondents who anticipate a decrease in their headcount for 2021 attribute it mainly to cost cutting measurements (54%), followed by process optimisation (38%) and digitalisation (31%). In fact, those banks involved in the custody business foresee a considerable decrease in their workforce as a result of surging outsourcing and automation.

EXHIBIT 5

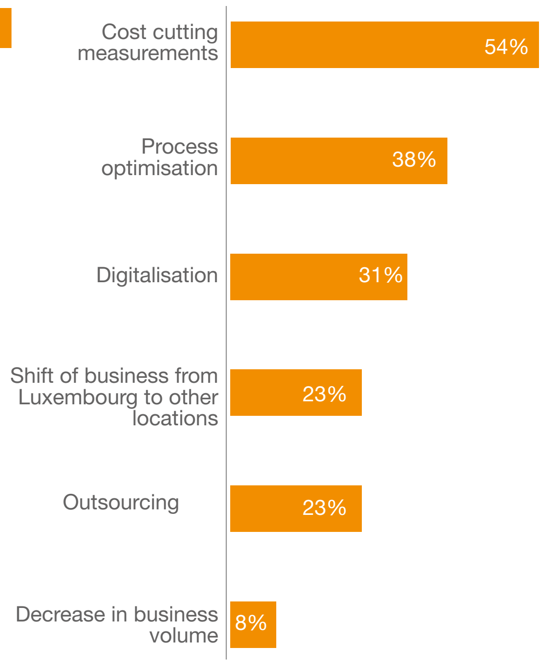
Why do you expect an increase/decrease of the employee number in your bank over the coming 3 years?

Staff INCREASE



Base: Those who expect their bank's number of employees to increase over the coming 3 years (32 respondents)/multiple choice question

Staff DECREASE



Base: Those who expect their bank's number of employees to decrease over the coming 3 years (13 respondents)/multiple choice question

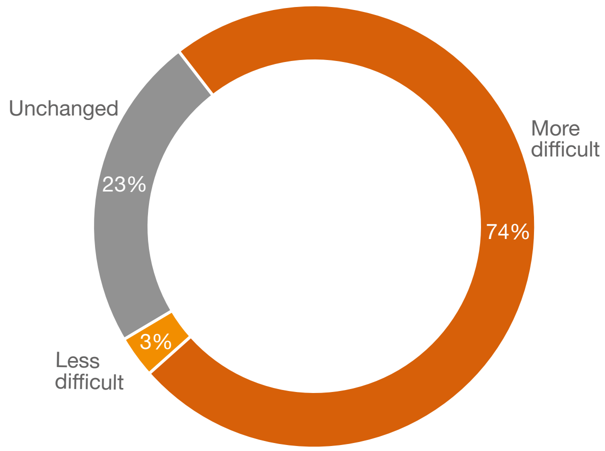
People

HIRING

According to 74% of banks, people hires in Luxembourg are more difficult in the current environment, irrespective of the segment in which they do business.

EXHIBIT 6

In general, has it become more difficult or less difficult to hire workers in the Luxembourg Banking industry, or is it unchanged?



Base: 60 respondents/single choice question

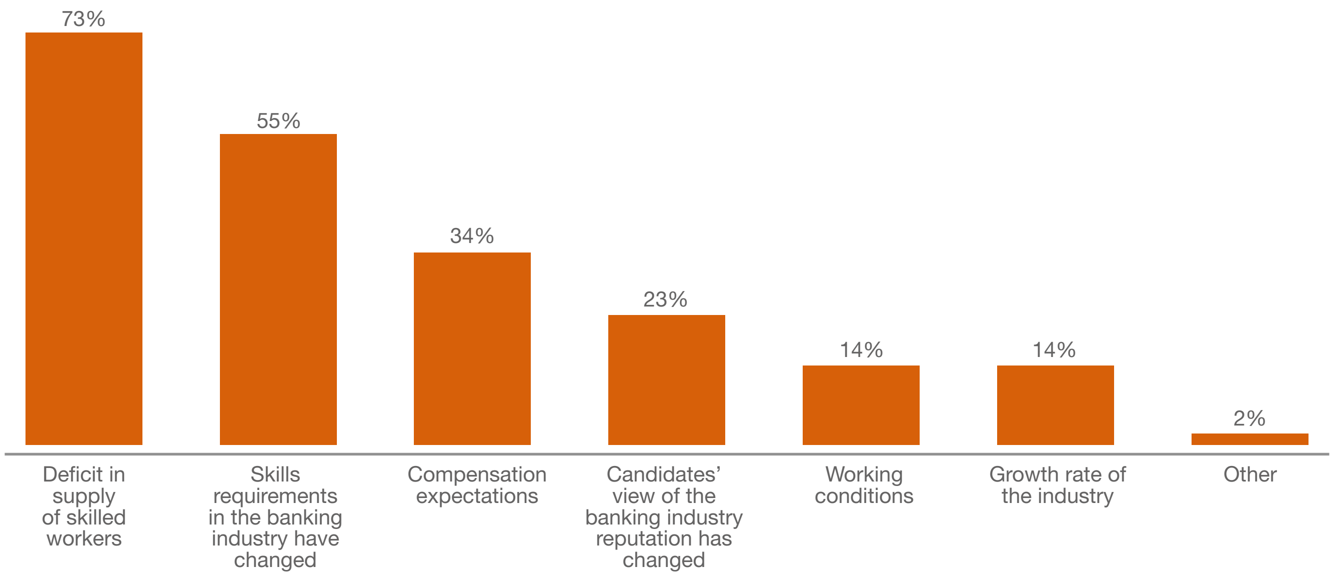
Bankers mostly attributed this situation to a deficit in supply of skilled workers (73%). At the same time, they recognised that the skillset requirements in the banking industry have changed (55%). The bankers interviewed highlighted specific skills as a possible cause. These skills are not only in IT related roles such as data analytics, data scientists and cyber security officers but also cover areas of compliance, risk management, front-office and internal audits.

Compensation expectations also play a role as certain profiles may expect a better package in the context of rising demand and skills shortages. In fact, the compensation issue ranked as the second most important one within banks involved in Asset Management.

On the other hand, Retail Banking players considered that the candidates' changing view of the banking industry reputation is the third most relevant cause why it has become more difficult to hire workers in Luxembourg. Indeed, on this change of perception, the CEO of a retail bank commented that, especially for the younger generation, working in banks may not be as appealing as it once was.

EXHIBIT 7

Which of the following are the main reasons why it has become more difficult to hire workers?



Base: Those who said it has become more difficult to hire workers (44 respondents)/multiple choice question

> Hiring people with the adequate expertise has never been more difficult in the banking industry in Luxembourg and setting up new approaches to address the skill gap is even more important.
>
> **MARCEL LEYERS**
> CEO, BANQUE INTERNATIONALE À LUXEMBOURG S.A.

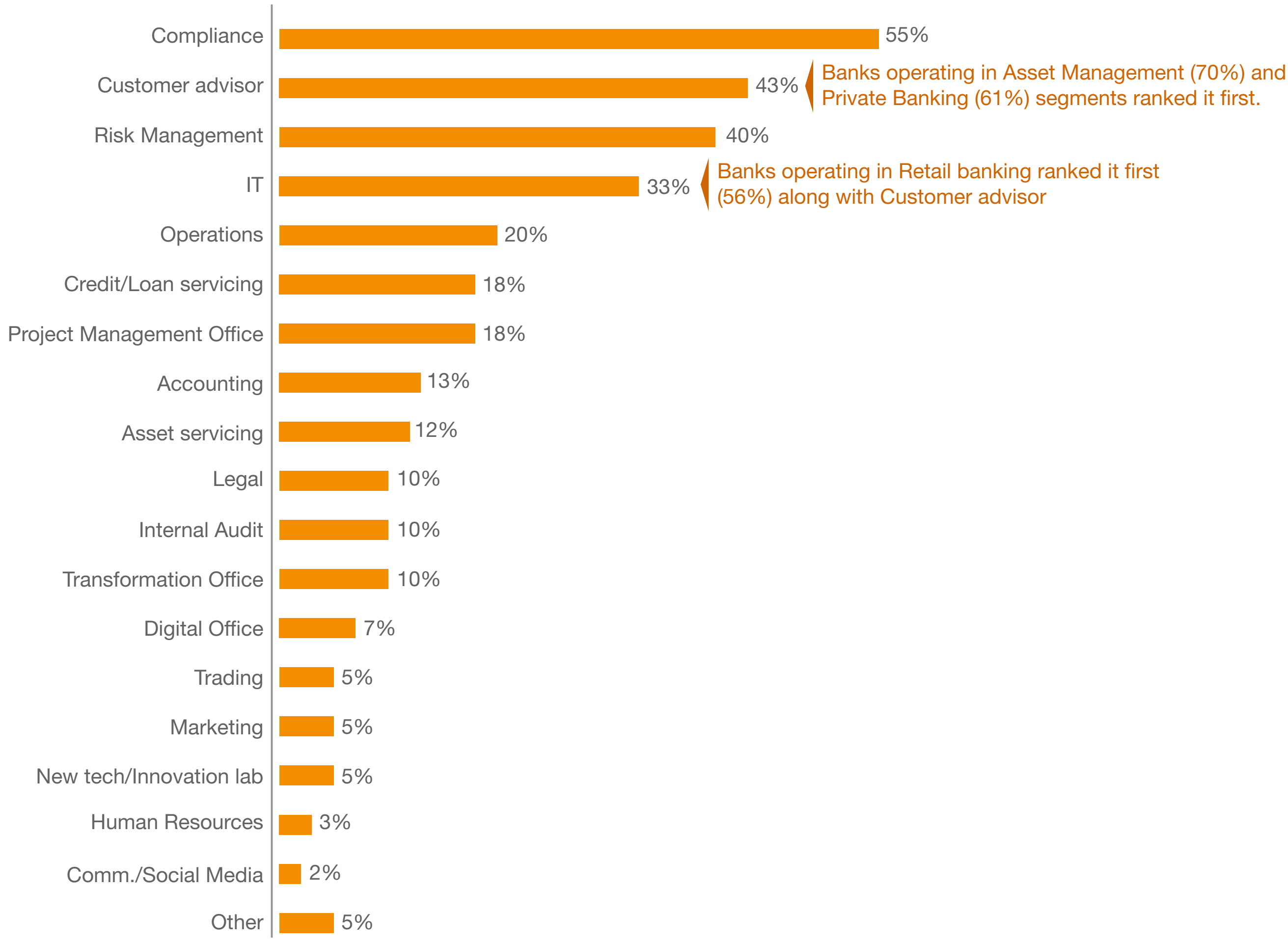
Another reflection of the perennial over-regulation issue sees banks primarily searching for new employees in the Compliance (55%) and Risk Management (40%) departments. The importance of client relationship in the banking industry is echoed through Customer Advisor completing the top three departments where bankers conduct their search for staff. This is reiterated by banks doing business in the Asset Management and Private Banking segments, with 70% and 61%, respectively, looking for new hires in front-office positions. In spite of digitalisation efforts, having a personal relationship with clients is still key for many banks.

The search for new hires in the IT department only reached the fourth position but respondents from the Retail Banking sector gave IT the same importance as Customer Advisor, with both garnering a 56% response.

Interestingly, despite digitalisation being high on bankers' agendas, only 5% of them stated that they are searching for people for the New Technology/Innovation lab areas. Among those who are active in this regard, Robotic Process Automation, Artificial Intelligence and Big Data Analytics are the themes where most vacancies need to be filled. Likewise, only 7% of respondents plan to recruit for their Digital Office.

EXHIBIT 8

In which departments do you search primarily for new employees?



Base: 60 respondents/multiple choice question

DEALING WITH THE SKILLS SHORTAGE

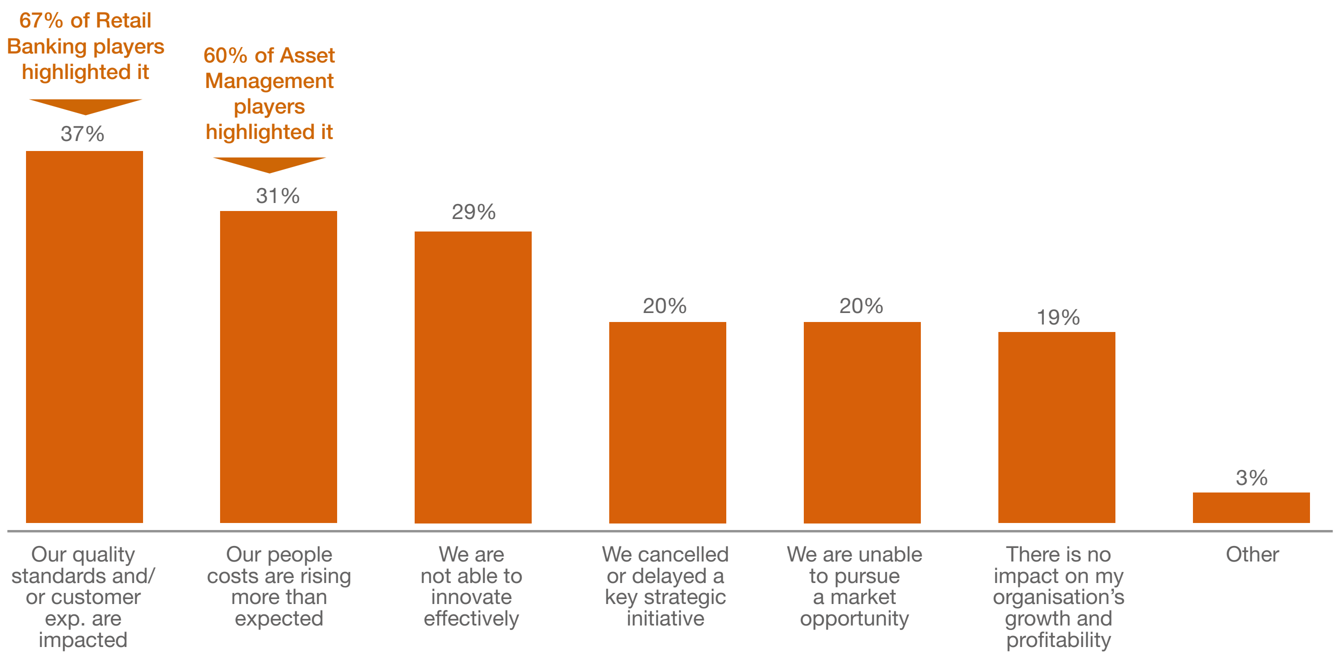
To fill the gaps, Luxembourgish banks are expanding their geographical focus for their skills search. Interviewed bankers reported that they were looking for people beyond Luxembourg, ranging from Western to Eastern Europe, the Baltics or even worldwide. However, this can prove challenging as some profiles – i.e. compliance officers or specialist lawyers – need to be knowledgeable in Luxembourgish legislation/regulation to be fit for the role.

At the time of sourcing staff members, banks tend to collaborate with universities to find young employees while they work with specialised headhunters to fill positions that require more experienced people. The challenge, though, is to avoid inter-generational conflicts within the company as youngsters and "grey hair" employees have to work together.

Faced with a shortage of specific skills, but an increased need for them, we asked bankers about the impact this may have on their organisation's growth prospects. 37% of participants indicated that their quality standards and/or the customer experience is impacted, for instance, by increasing the time to market of certain products. This was highlighted by two thirds of players operating in the retail space. In addition to this, banks reported surging people costs and an impact on the organisation's capacity to innovate.

EXHIBIT 9

What impact does the availability of key skills have on your organisation's growth prospects?

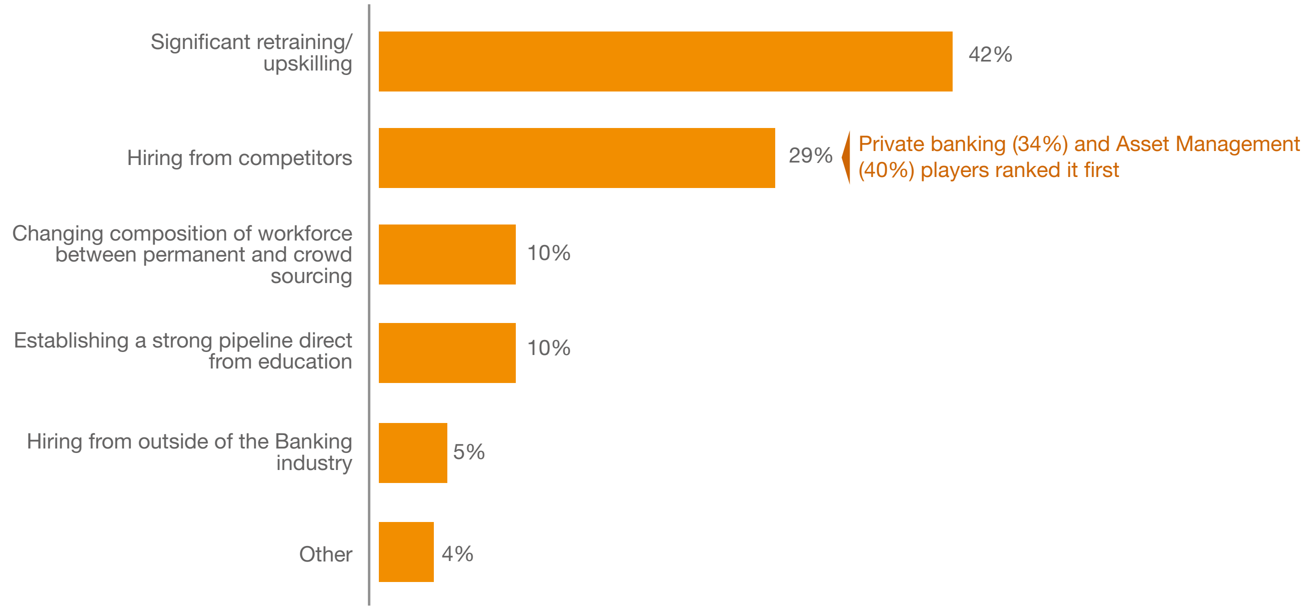


Base: 59 respondents/multiple choice question

To close potential skills gaps, banks are mainly retraining their staff and/or leveraging on upskilling. Other avenues explored are changing the composition of the workforce between permanent and crowd sourcing, as well as liaising with universities. The latter includes establishing a pipeline of candidates, for instance, to hire young graduates which bring in new competencies and are able to adapt to change more naturally. In particular, players in the Private Banking and Asset Management realms tend to hire from competitors to remedy a potential skills gap in their organisations.

EXHIBIT 10

Which of these is the most important to close a potential skills gap in your organisation?



Base: 59 respondents/single choice question

UPSKILLING & RETAINING

In Luxembourg, approaches to upskilling vary. For certain players, it is more systematic and company-wide in nature. On the other hand, some prefer a group of focused initiatives. Some even have in-house trainings while others leverage on third party programmes like Luxembourg Digital Skills Bridge – or a mix of both. Interestingly, some banks tend to have less confidence in the capability of upskilling to close the skills gap.

The CEOs of two major players were sceptical about the real possibilities of changing a worker's profile completely, for instance changing from client advisor to data scientist or cyber security specialist. Another player stressed that looking forward, the most important feature among employees will be flexibility. This means employees need to be at ease with learning new skills but also able to "unlearn" those skills that will no longer be needed. Likewise, they should bring an "entrepreneurial spirit" to the team.

"This financial center is not the same as 30, 20, or even 10 years ago; it has been developing not in singular steps but in significant jumps, and that's why the requirements in terms of knowledge, skills, and willingness to change are completely different.

FALK FISCHER
CEO, BANK JULIUS BAER EUROPE S.A.

The "Workforce of the future" presents one of the greatest challenges to the Luxembourg banking sector, as we deal with the perfect storm of Brexit-fueled demand, prescriptive greater substance regulations, upskilling as new technology is introduced, generational approach to careers from the millennials, and competition from across the FinTech/RegTech sectors for a talent pool at full capacity."

DAVID SUETENS
COUNTRY HEAD OF STATE STREET IN LUXEMBOURG

From hiring people to retaining them, growing competition within the industry adds to the ever increasing difficulties. Paired with challenges created by new sectors such as FinTech and Payment services, the banks' response to this reality differs. Their action plans may span more suitably tailored packages to their employees' needs but also on focused programmes to re-energise their careers, for instance with rotations across functions and geographies within the organisation.

Bankers explained that young employees tend to stay in the bank for three to four years before moving on – either internally or externally. These millennials come with a different mindset than previous generations. In fact, they are more interested in working on challenging projects than looking for a linear or classical banking career. The rotation that ensues is actually beneficial for both sides: the employees gain experience while the bank benefits from staff with a fresh view and renewed energy.

Transformation

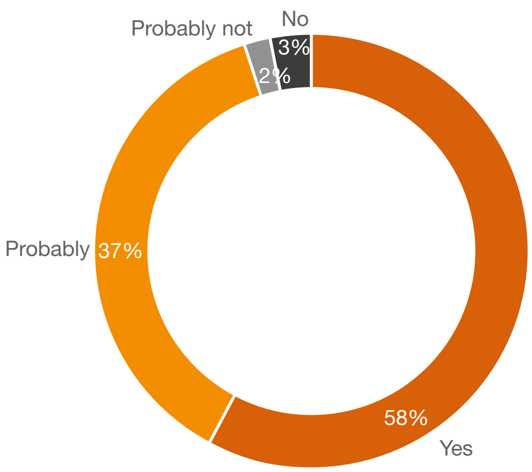
The Luxembourg banking industry is transforming. This is what 58% of bankers believe, regardless of the segment they do business in. At a bank level, 51% of respondents stated that a transformation is already ongoing within their organisation, while slightly more than a third indicated that it is in the early stages. Only 5% of banks surveyed pointed out that they have no plans for transformation at the moment.

The level of transformation among Luxembourg banks is therefore quite heterogeneous. Although some banks are still working on the optimisation of their cost base, a number of firms are now focusing on transforming their business models from the revenue side. For instance, this includes looking into areas beyond banking, such as health and mobility, to develop new products or services.

Those banks that are ahead in their transformation journey reported a drop in their clients base. This comes naturally as new business models often call for redefining the client segments served by the bank.

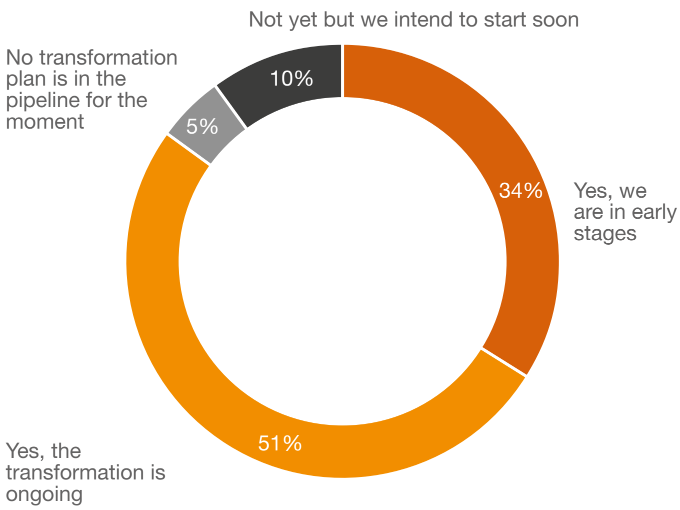
EXHIBIT 11

In your opinion, is a transformation already taking place in the Luxembourg Banking Industry?



Base: 60 respondents/single choice question

Has your bank started a transformation journey?



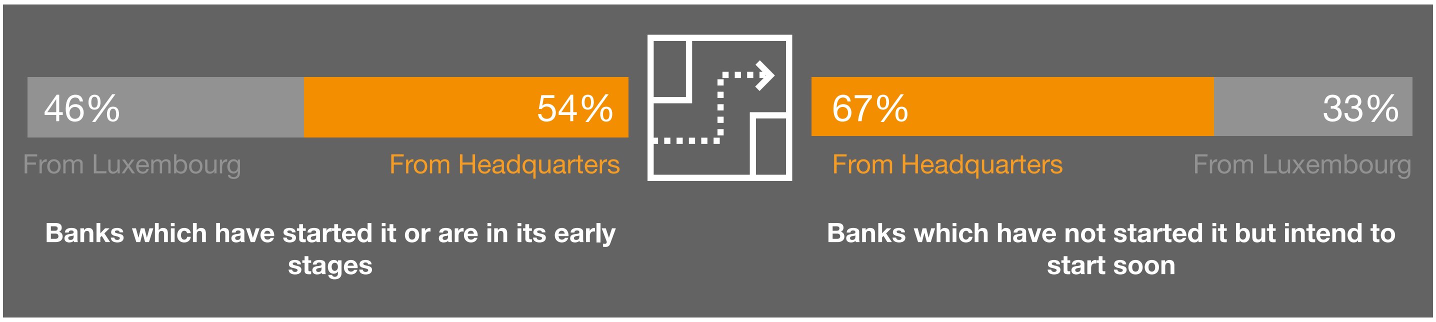
Base: 59 respondents/single choice question

On the one hand, banks that have already started their transformation process are seeing their headquarters as the driving force. On the other hand, more than 40% of respondents said it would be driven locally by their Luxembourg office.

The emphasis on headquarters-driven transformation is even more pronounced in banks that are just starting. Close to 70% assured they would be led from their headquarters.

EXHIBIT 12

The transformation journey is driven…



Base: 50 respondents/single choice question

Base: 6 respondents/single choice question

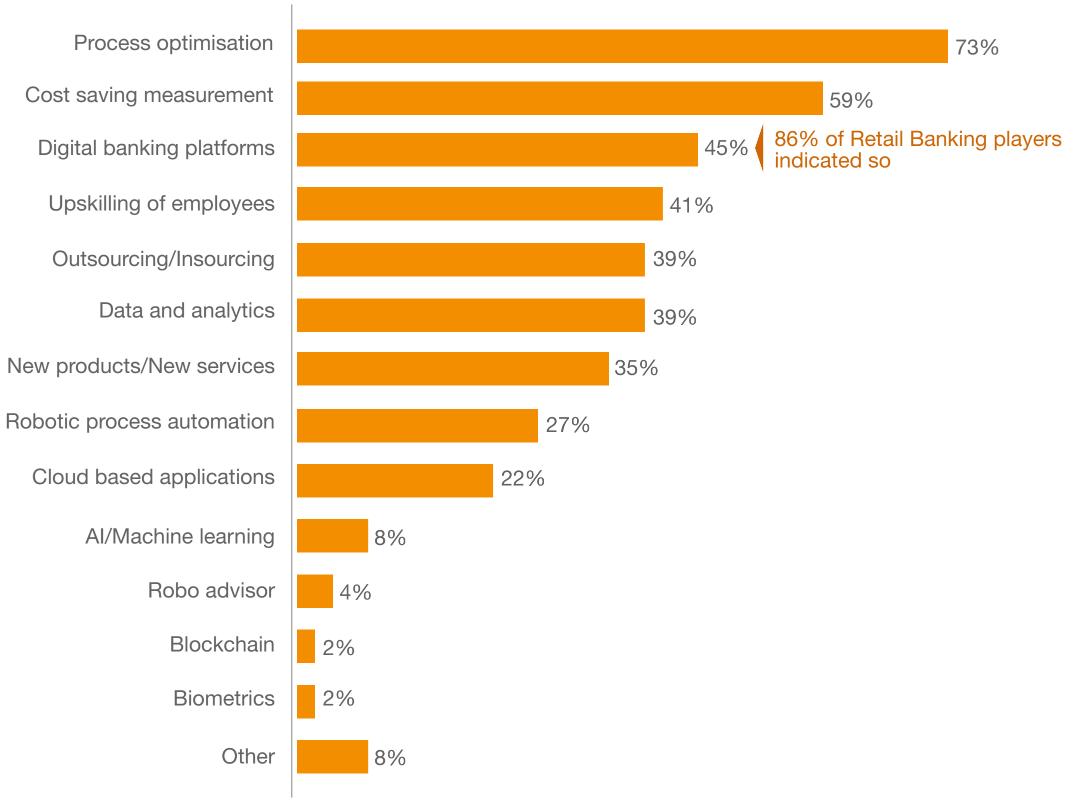
TRANSFORMATION PRIORITIES

Confronted with an evolving industry, we asked bankers which areas they are substantially investing in to avoid losing ground in their business. For most of them, the priority is process optimisation via digital enhancements, regardless of the segment they are involved in. With the underlying idea of refining the "client experience", a number of bankers have ongoing projects to optimise processes for client onboarding (i.e. KYC, account opening), client relationship management, and reporting. Moreover, efforts to automate other low-value and repetitive middle/back office processes have been made by leveraging on Robotic Process Automation (RPA). This is good news considering that, in Luxembourg, there are still a high number of processes done manually. In turn, all of those processes are linked to saving costs, which also ranks high on the bankers' agenda.

Most banks are working on improving their front-end, for instance by investing in better apps or in more user-friendly online channels. However, just a few of them have started streamlining the full front-to-back connection via digitalisation. Indeed, this can prove to be very costly and a great challenge in terms of adapting the legacy IT systems.

EXHIBIT 13

Which topics are the most important on your transformation agenda? (showing only "high importance/currently investing heavily" answers)



Base: Those who have started a transformation or are in its early stages (49 respondents)/multiple choice question

Digitalisation is no longer an option for Private Banks. The 2nd generation of HNWI clients live in a digital world, and Family Offices need real time information on their clients' assets.

LENA LASCARI

CEO, EFG BANK (LUXEMBOURG) S.A.

The more advanced banks are building a digital platform that will have the capacity to onboard clients from the Luxembourg business as well as other entities of the group. The aim is to have a platform that standardises the middle & back office processes while offering to clients a customised front-end service, in an Amazon or Netflix like fashion.

A number of private bankers see a business opportunity in establishing an "overarching" central reporting service for their group-offering complex tax and regulatory filings aimed at cross-border High Net-Worth Individual (HNWI) clients. As clients are ready to pay for a high-value tailored reporting, this activity is bound to improve revenue margins.

Similarly, many CEOs mentioned that the Luxembourg entity could become the EU hub for their respective groups – offering specialised Private Banking or Corporate Banking services. While the Grand Duchy has various, well-known advantages to offer in this sense (e.g. a multilingual and skilled workforce, a forward-looking regulatory framework, a tax-efficient legislation, and specialist knowledge in cross-border financial products), it is the flexibility to adapt quickly that bankers highlighted. In fact, some claimed that piloting a small boat like Luxembourg is easier than steering a "tanker" like Germany or France.

Finally, some CEOs encouraged the use of Shared Service Centres on areas such as compliance or AML. In fact, compared to other countries, this notion is still in its infancy in the Grand Duchy. An example to draw upon are the initiatives in the payment sector where different players join forces to offer an open banking API platform for PSD2 compliance purposes.

> The impact of this summer's events as well as the prospective of a long-term negative interest rate environment stress even more the need to fundamentally transform the banking business model
>
> **GEOFFROY BAZIN**
> CEO, BGL

TRANSFORMATION GOVERNANCE

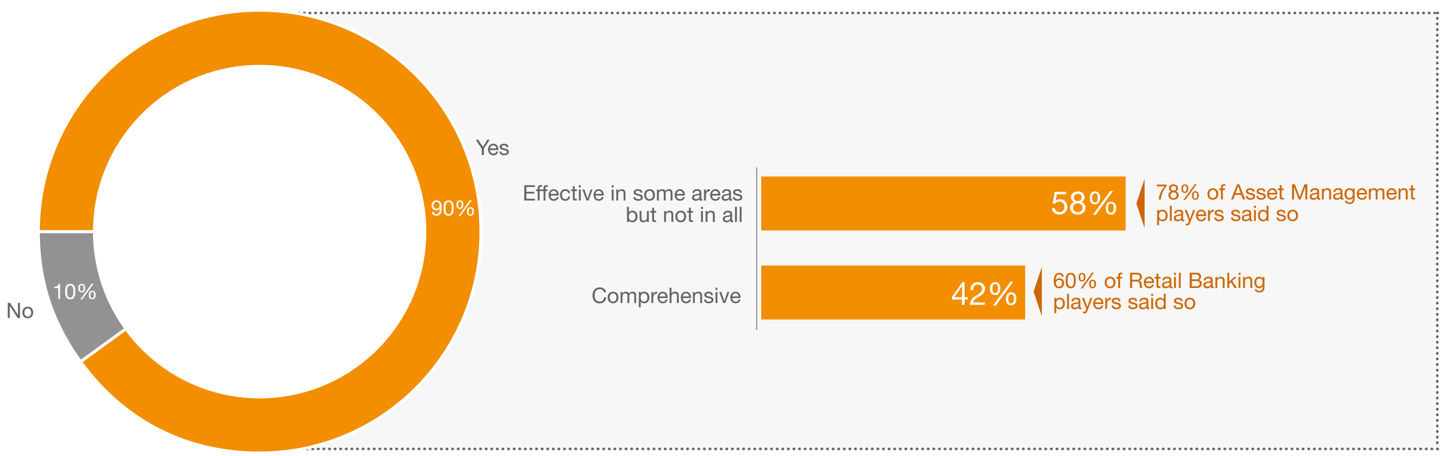
An overwhelming majority (90%) of Luxembourg's bankers believe they have a good governance framework in place to properly manage any potential risks that may emerge. However, they recognised that it is not flawless. Close to 60% of respondents suggested that in some areas their framework is not effective. One reason for this is that banks do not have the privilege of taking a greenfield approach as they operate a running business. This makes the transformation process more difficult adding the challenge of needing the right governance for a successful outcome.

As a banker interviewed put it. "There is no perfect governance". On the contrary, it is an iterative exercise where, in the context of limited resources, the transformation leaders must reshape and reallocate their attention in accordance with the state of the project.

In addition to this, for a framework to work effectively, cross-company collaboration is a must. This is because the project team also needs the input from the business side, from the conceptualisation to the implementation stage. Furthermore, the process requires appropriate change management as the path is full of challenges such as resource bottlenecks, resistance to change, new knowledge requirements and internal conflicts of interest.

EXHIBIT 14

Do you have a governance framework in place to ensure that potential risks from your transformation journey are properly managed? If so, how do you think it is?



Base: Those who have started a transformation or are in its early stages (50 respondents)/single choice question

Customers

CUSTOMER NEEDS

When it comes to better understanding customer needs, digital means have yet to overtake more traditional channels. In fact, 78% of bankers meet their key clients on a regular basis to listen to them and to find out what they expect from the bank. However, they also leverage on both CRM tools (53%) and data analytics (53%). The use of data-driven tools is relevant – recent consumer surveys revealed that financial services consumers are willing to share their data if they receive valuable advice and suitable deals in return.

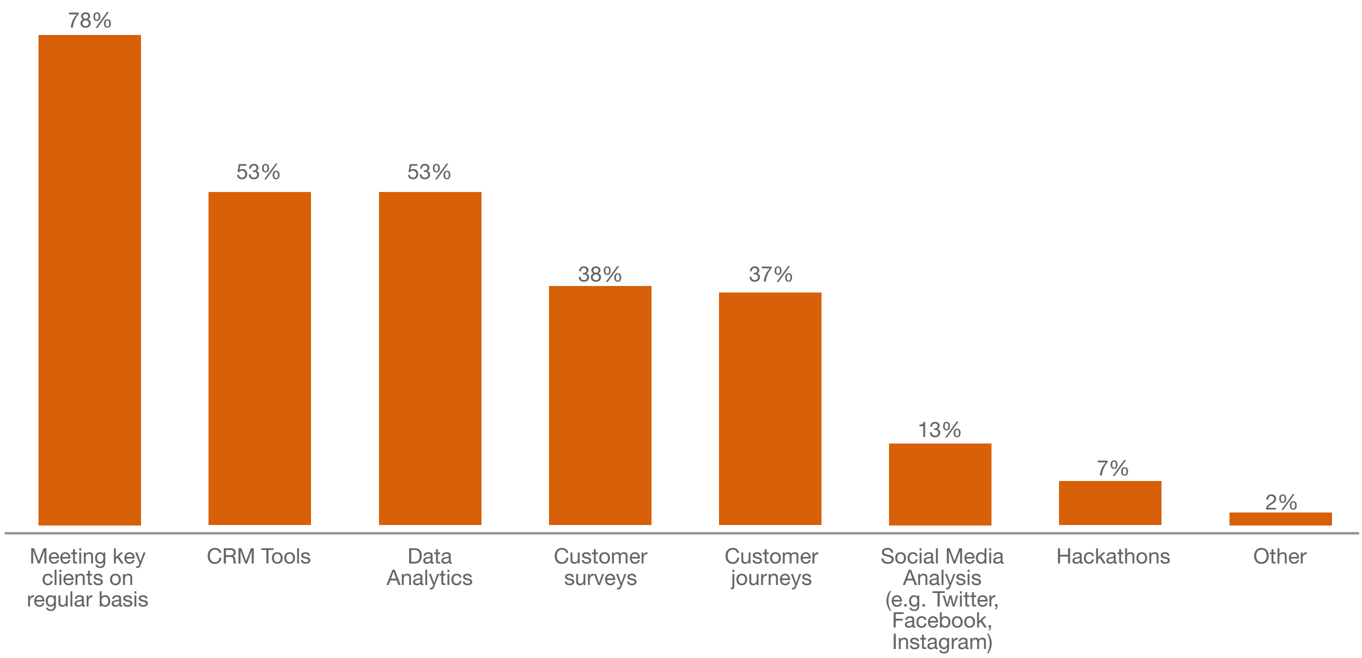
Customer surveys and customer journeys complete a set of tools most used by banks in Luxembourg. In spite of how widespread social media use is among the population, bankers generally give it little relevance. However, retail banking players leverage on social media analysis more frequently than others. Likewise, they mostly draw on CRM tools to come to grips with their clients requirements.

The key for successful Private Banking is the close and trustful relationship to the client, the in-depth knowledge of the individual and family situation of the client and an offering which fits to the customer needs underpinned by a technology-enabled service.

PETER SCHIRMBECK
CEO, DZ PRIVATBANK S.A.

EXHIBIT 15

Which of the following concepts/tools are used to better understand customer needs?



Base: 60 respondents/multiple choice question

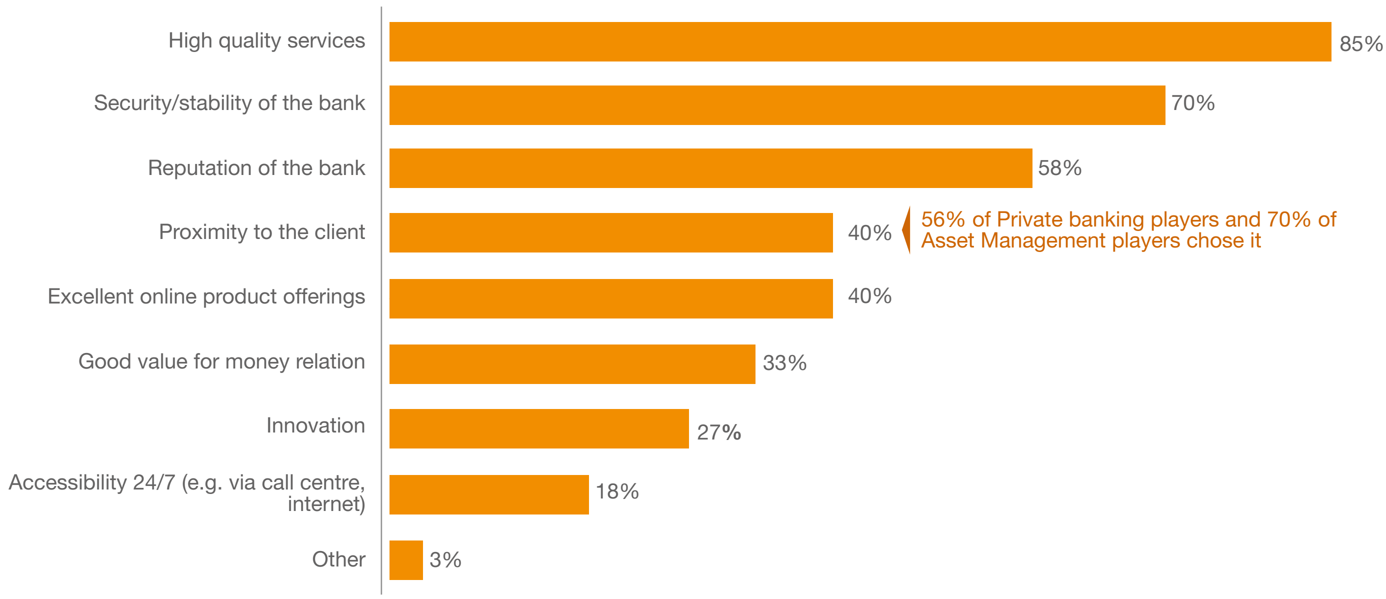
CUSTOMER RETENTION

In such a competitive marketplace as banking, customer retention is critical. Therefore, we asked bankers which factors will ensure their customers' loyalty in the future. High quality services topped the list, followed by the security/stability of the bank. Banks operating in the retail space considered having excellent online product offerings and 24/7 accessibility as distinctive features to ensure customer loyalty.

In addition to this, Private Banking and Asset Management players weighted the proximity to the client over players operating in other segments. In fact, the CEO of a bank commented on their initiative to professionalise the role of the relationship manager and appoint a COO for each large client. This proximity not only ensures a more efficient operational interaction, but also allows the bank to gather information on emerging needs from the clients, expanding their offerings and serving them better.

EXHIBIT 16

Which factors, in your view, will be decisive in ensuring customer loyalty in the future?



Base: 60 respondents/multiple choice question

GO-TO-MARKET STRATEGY

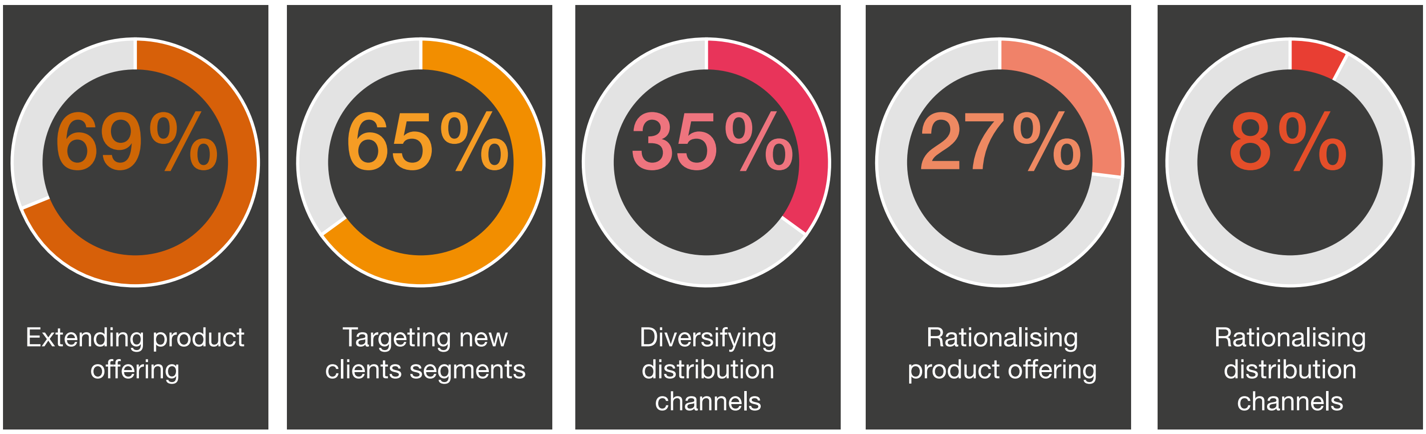
Despite their efforts to get feedback from their clients, 56% of banks indicated they are not planning changes to their go-to-market strategy. However this differs according to the segment in which they are doing business. In fact, while close to 60% of Private Banking players have no plans to change, almost 70% of Retail banking players do. Likewise, 53% of banks operating in the Credit/Loan segment do not foresee any changes, but 55% of Corporate Banking players and 60% of Asset Management players are working on it. In general, the two main changes from the customer analysis done by participating banks relate to the extension of product offerings and the targeting of new client segments. To a lesser extent they plan on diversifying distribution channels and rationalising product offerings.

For banks with businesses in the Retail, Corporate, Credit/Loans and Treasury/Trading spaces, finding new client segments is of the utmost importance. On this point, an important retail banker reflected on the avenue that serving expats coming to Luxembourg may imply. This involves the challenge of understanding their cultural background and delivering on their preferences, for instance by going mobile. At the same time they must not lose the banks' identity in front of the traditional clients.

> The resilience of the banking industry is key for its future. From traditional banks to alternatives emerging, they face the challenge of how to open up to new customers, to gain their trust, while remaining attractive for longtime clients. Banks should be pro-active and forward-looking in this sense.
>
> **FRANÇOISE THOMA**
> CEO AND PRESIDENT OF THE EXECUTIVE COMMITTEE, BCEE

EXHIBIT 17

If you are planning changes to your go-to-market based on your customer analysis, what changes would you make?



Base: Those who plan changes to their go-to-market (26 respondents)/multiple choice question

Current topics and future trends

Luxembourg's bankers are facing an environment that is constantly transforming and evolving. Against this backdrop, we asked them about the most pressing challenges and trends lying ahead.

MAIN TOPICS IN 2019

Coming as no surprise whatsoever, bankers ranked complying with regulations at the top of the list. Indeed, a number of them insisted on the need of a EU-wide, unified set of regulations - like Capital Markets Union (CMU) - in the diverse areas surrounding the banking and capital markets industry. In such a context, not only would the EU passport really work as such but it would also be beneficial for Luxembourg as a financial hub.

Margin compressions and the low interest rate environment also takes up a lot of bankers attention. Given the latest macroeconomic events, they had to readjust their expectations on a potential rates hike for this year. This adds more pressure to the existing need to rethink business models.

To that end, Luxembourg's banks do not have a unique recipe. For most bankers interviewed, their approach is to work on the revenue side. This could be done by extending their offerings or finding additional sources of income from products that are less dependent on interest generation. According to an interviewee, Luxembourg players still lack a "commercial DNA". He argued that they have relied on their legacy business for too long and it is high time to redefine their unique selling proposition (USP) and deliver on it.

EXHIBIT 18

How important are the following topics for your bank in 2019? (showing only "critical and important" answers)

95%	Complying with regulations (e.g. AML, Solvency)
87%	Pressure on margin/New pricing models
85%	Low interest rates environment
85%	Availability of key talents/skills
80%	Investment in tech to increase customer experience
80%	Process optimisation
72%	Cyber threats
72%	Cost reduction
58%	Outsourcing
47%	Tax (e.g. Transfer Pricing, DAC 6)
30%	Brexit
23%	Non-Performing Loans

Base: 60 respondents/multiple choice question

Luxembourg has done well to position itself as a forward thinker and respected partner in sustainable finance. Credit Suisse believes responsible, purpose-driven investments are here to stay and we count on partners like Luxembourg to continue to support us all to “Generate returns. Sustainably.”

RAFFAEL GASSER

CEO, CREDIT SUISSE (LUXEMBOURG) S.A.

Another revelation that comes as no surprise, stems from bankers’ concerns about talent shortages. In addition to this, two components of the digitalisation agenda are also high on their radar: drawing on the latest technology to create a better customer experience and process optimisation.

In contrast, only a third of Luxembourgish bankers considered Brexit a critical or important topic for the year. As the head of a retail bank commented, banks have already integrated Brexit into their plans taking appropriate measures to avoid potential disruptions to their operations.

EXHIBIT 19

What impact do you believe the following trends will have on your bank’s growth prospects in the coming 3 years? (showing only “high positive impact” answers)

46%	Sustainable finance
46%	Data & Analytics
20%	AI/Machine learning
17%	Cloud technology
17%	Partnership with non-banks (e.g. Fintechs)
9%	Blockchain
3%	Cryptocurrencies
3%	New competitors (e.g. Google, Amazon)

Base: 35 respondents/multiple choice question

TRENDS UNTIL 2021

For the next three years, the two major trends that bankers assess as having a positive impact on their organisations are sustainable finance and data & analytics.

With the European Union intensely backing the transition to a low-carbon and more sustainable economy, sustainable finance is gaining momentum. Achieving the COP21 goals and delivering on the 17 UN Sustainable Development Goals, will hardly be done without private sector funding. The Grand Duchy is already on top of this and banks in Luxembourg tend to follow suit. While they recognise the current and future potential of sustainable finance as a new business, the topic is not exempt from doubts. In fact, one CEO mentionned that there is a growing appetite among investors for ESG-related products. However, the challenge is how to define what it means, what investors understand and what they want as a response to their needs.

Sustainable finance and the integration of ESG factors is still a big hype, but it is the best hype of the last few years. It can be a big driver for change in society as the initiative is taken up by the private business side.

GUY HOFFMANN

CEO, BANQUE RAIFFEISEN S.C.

The potential impact on the industry from data & analytics could be extensive. Not only will making effective use of the wealth of data available be an important issue, its monetisation is also an ever increasing challenge faced by bankers. This is the case as data is the "new fuel of the banking industry" according to an interviewed banker. However, the "devil" is in the data since this topic raises concerns in relation to GDPR. A CEO commented on an internal debate about how far the bank should go in its use of data analytical tools due to it. Even more so, some bankers wondered to what extent the application of GDPR could prevent the European financial industry from moving at the same speed as other regions in the world. For instance, while the use of biometrics for opening a bank account is well advanced in Asia, and China in particular, Europe lags behind.

As the use of data becomes more widespread, so too does cybersecurity. Indeed, the International Monetary Fund (IMF) estimates that the average annual potential losses from cyber attacks may be close to 9% of banks' net income globally, or around USD 100 bn[2].

Bankers also recognised the positive contribution that new technologies such as RPA, AI and cloud computing can bring to their business. For instance, relying on a cloud computing infrastructure has become commonplace in the banking industry worldwide. With the CSSF clarifying the regulatory framework for IT outsourcing based on such technology[3], Luxembourg made another step towards a level playing field.

"

The world is being re-shaped by new technologies like mobile, cloud, big data, artificial intelligence and other powerful developments. The combination of these technologies unlocks an incredible opportunity for banks and will dramatically change the way banks function in the future.

BINGKAI ZHENG
CEO, AGRICULTURAL BANK OF CHINA (LUXEMBOURG) S.A.

2. Estimating Cyber Risk for the Financial Sector, Christine Lagarde, 22 June 2018, blogs.imf.org
3. CSSF Circular 19/714 published on 27 March 2019 updating Circular 17/654

Establishing a strategic vision on AI has become a national priority for the Grand Duchy. To that end, the Government has been working in close collaboration with the research community and even plans to launch a public consultation towards the end of 2019[4]. In general, banks in Luxembourg tend to be attentive when it comes to this topic. Indeed, 20% of respondents foresee that AI will have a high and positive impact on their business in the coming years.

Lastly, collaborations with non-banks, e.g. FinTechs, are on the rise. Banks are increasingly working with them in an attempt to find a variety of solutions. These range from streamlining operations and making better use of the wealth of data available to enhancing customer experiences and improving their protection against cyber attacks. Luxembourg's banks' approach to this differs between players. While some banks devote resources to "build" them in-house, others prefer buying FinTechs "off the shelf", finding the best fit for their value chain.

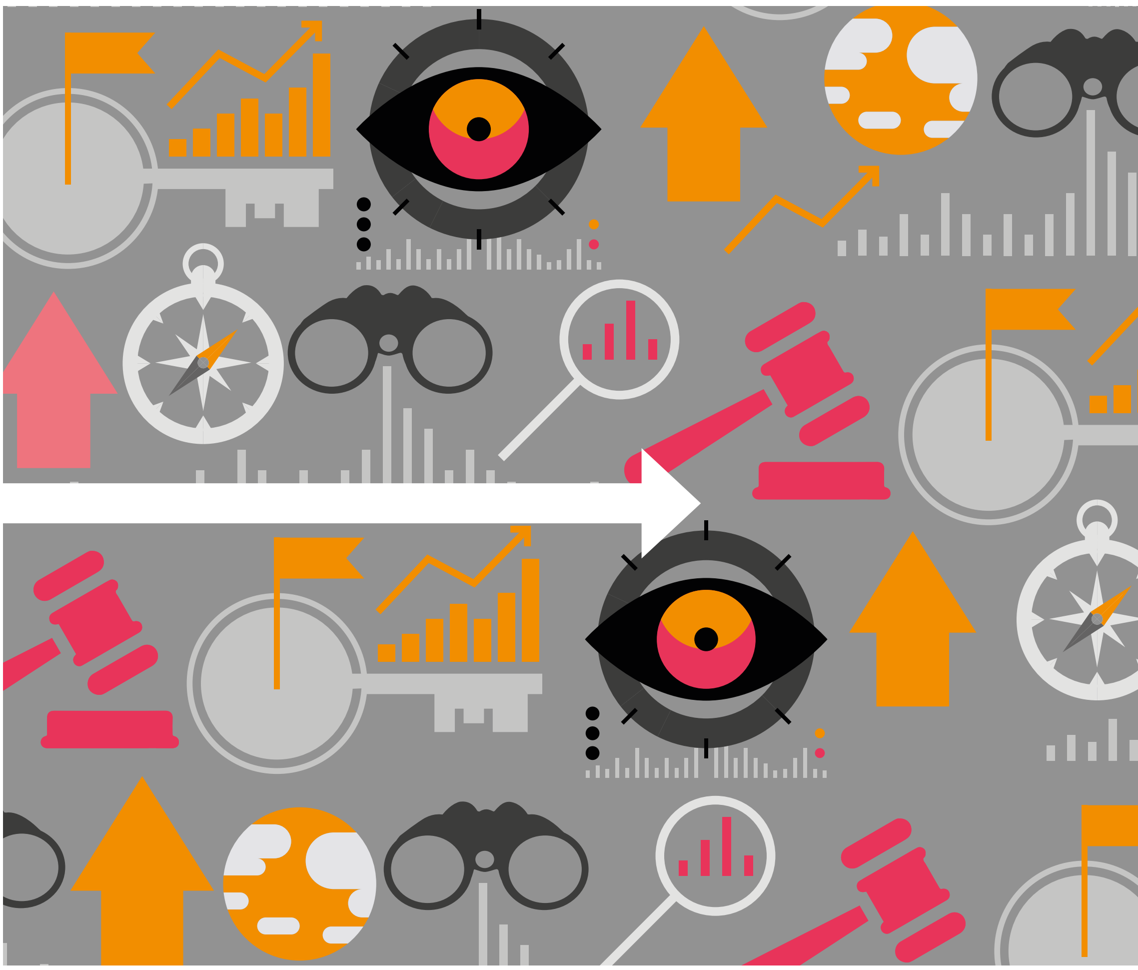
In that regard, a number of banks have put an Innovation Lab in place. Although they are mostly at a group level, they aim to track the latest developments in the matter and shortlist solutions that could add value to them. While FinTechs are gaining relevance in conversation, airs of caution also arise. Some bankers pointed out some scenarios about the disruptive power of Fintechs. In particular, certain technologies have not come to fruition such as robo-advisors. Furthermore, a number of them cast doubts on Fintechs' potential to become true banking competitors. Given the highly regulated banking industry, it is not easy for new comers to join the game.

"The collaboration between banks and FinTech companies should be strategically approached with each party focusing on their strengths in order to deliver a better customer outcome. There are many areas in which synergies can be created.

NICCOLO POLLI
CEO, HSBC PRIVATE BANK (LUXEMBOURG) S.A.

4. Artificial Intelligence - a strategic vision for Luxembourg, 21 May 2019, digital-luxembourg.public.lu

3 Luxembourg within Europe

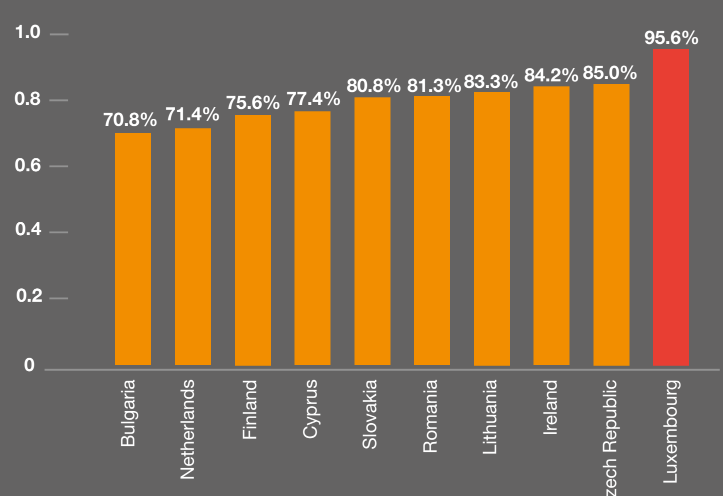


Luxembourg is a major financial centre, located strategically in the heart of Europe.
It comes as no surprise that the country has strong links not just with its neighbouring countries—France, Belgium and Germany—but also with the rest of Europe and far beyond.
In the following section, we will highlight how Luxembourg differs from other financial centres and what its unique advantages are within Europe.

An international centre in the heart of Europe

- Luxembourg is ideally located within driving distance of the continent's major business centres.
- An estimated 60% of the EU's wealth is concentrated within a 700 km radius of Luxembourg.
- With bank subsidiaries from over 30 different countries, Luxembourg has the highest internationalisation rate in Europe. This corresponds to an internationalisation rate of 95.6%.

Internationalisation Rate



Source: ECB Data Warehouse

Asset Management & Private Banking: Centre of Excellence

- Luxembourg is the leading asset management centre in the Eurozone, with around EUR 4.5 trillion AuM as at 31 December 2018 (2017: 4.2 trillion; +7.1%). Luxembourg is the second largest fund industry centre in the world after the US.
- Luxembourg handles 62.0% of cross-border investment funds worldwide from over 70 countries.
- 98 out of the top 100 asset managers worldwide have funds domiciled in Luxembourg.
- Private Banking's AuM amounted to around EUR 363.4 billion, showing a steady and positive growth (+35.0%) above the level reached before the 2008 financial crisis (EUR 271.0 billion).
- Banks from Switzerland, the US and Canada use Luxembourg as a gateway to access customers in the EU. Indeed, 42.0% of Luxembourg's private banking client assets are from non-EU countries.

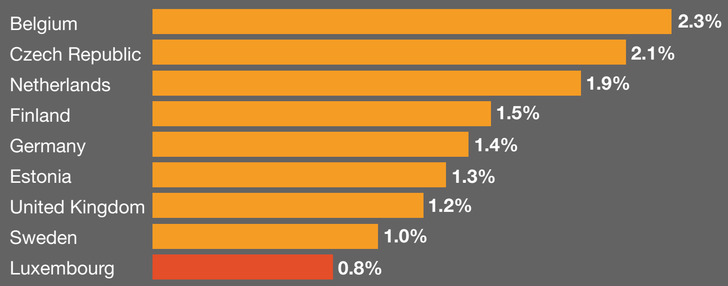
Resilience of Luxembourg's Banking Industry

AAA

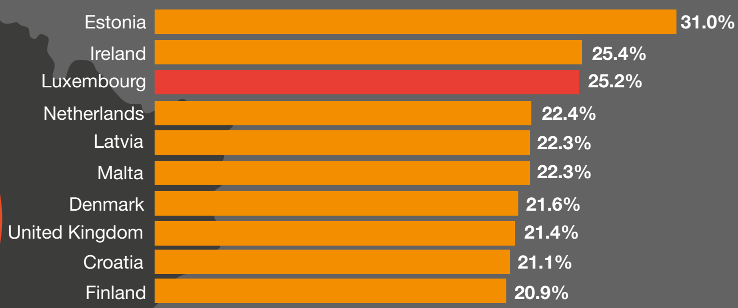
One of **11 prime-grade** rated countries in the world

Core Banking Ratios

NPL Ratio: Lowest in the EU

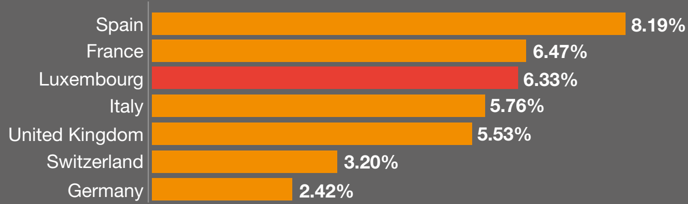


Solvency Ratio: 3rd highest in the EU



Cost-Income Ratio: 2nd lowest among the top players in the EU financial sector

Return on Equity: 3rd highest among the top players in the EU financial sector



Return on Equity

The Euro area financial sector remained resilient as it experienced an increase in return on equity from 5.6% to 5.9% amidst low profitability prospects and possible hampering of bank intermediation capacity.

In 2018, Luxembourg registered the third highest ratio of approximately 63% among the top peers in the Euro financial sector principally due to the decrease in net profits (-3.2%) countered by a decrease of own funds (-6.0%).

Country Rating: Prime Grade-Rated

There are 11 Prime Grade-rated countries in the world. Luxembourg's credit profile is attributable to very high wealth levels and sound financial regulatory and well-defined fiscal framework, transparent finances and decreased average inflation rate from 1.7% in 2017 to 1.5% in 2018.

Non Performing Loans ("NPL") Ratio

- Across the EU, the aggregate non-performing loan (NPL) ratio declined from 5.2% in 2017 to 4.2% in 2018.
- Out of the top 10 countries with lowest NPL ratio, Luxembourg remained at the top rank, as its NPL ratio stood at 0.8% as at 31 December 2018.

Solvency Ratio

- The solvency ratio of the EU financial sector remained solid at 18.9% in 2018 (2017: 18.9%), supported by economic growth, limited contagion from volatility events, and improving banking sector resilience.
- Out of the top 10 countries with the highest solvency ratio, Luxembourg secured the third rank at 25.2% in 2018 (2017: 25.9%).

Cost-Income Ratio

- Cost efficiency of the EU's financial sector has deteriorated since 2010 as cost containment has not offset a marked decline in revenues. As a result, euro area banks continue to underperform some of their international peers in terms of cost efficiency with an average cost-to-income ratio of 66.0%.
- In 2018, Luxembourg registered the second lowest cost-income ratio of approximately 60.4% among the major players in the EU's financial sector, backed by the growth in net interest income and net commission income (+2.0% and +5.4% respectively).

Workforce and Labor Market

- As of 31 December 2018, the number of employees with Luxembourg credit institutions amounted to 26,317, compared to 26,149 units as at 31 December 2017, which corresponds to an increase of 168 employees (+0.6%). Among the main European financial centres, Luxembourg and the UK (+0.8%) are the only countries that increased their workforce.
- The distribution of employment between men and women remains almost unchanged (2017: 68.8% men, 31.2% women). At the same time, there is an increase in the number of employees with academic backgrounds higher than Master degree (+4.7%), while the number of employees whose training is equivalent or lower than BAC decreased by 3.8%.
- Located in the heart of Europe, Luxembourg has a unique pool of multilingual, highly skilled talent. Luxembourg is number 2 in the world for attracting talent (INSEAD Global Talent Competitiveness Index 2018). Luxembourg is also considered one of the most proficient English-speaking nations in the world, ranking 7th globally.
- It is not just the population that is multilingual – authorisation procedures, reporting and official communication with public administrations and regulators can all be done in English, German or French.
- Luxembourg is the most multilingual country in Europe with an average of 3.6 languages spoken by residents and 84% of the population speaks at least 2 languages as 48.0% of the population are foreigners and come from 170 countries.

EF English Proficiency Index 2018

Very high

01	Sweden
02	Netherlands
03	Singapore
04	Norway
05	Denmark
06	South Africa
07	Luxembourg
08	Finland
09	Slovenia
10	Germany
11	Belgium
12	Austria

	UK	France	Germany	Spain	Switzerland	Luxembourg	Italy
Growth	+0.8%	-0.2%	-5.4%	-2.1%	-1.4%	+0.6%	-2.8%
No of staff 2018	370,083	408,941	564,935	179,055	107,388	26,317	274,056
2017	367,044	409,925	597,319	183,053	108,935	26,149	281,928

Sustainable Finance

Key information

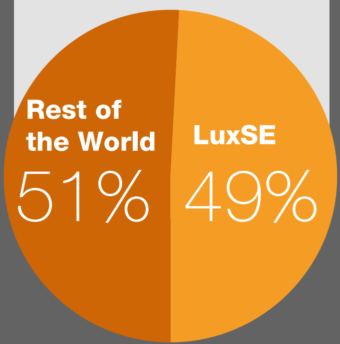
290+
Number of bonds displayed on LGX

1st
Ranking based on global share of listed green bonds

EUR 130bn+
Volume of bonds displayed on LGX

70+
Issuers of green bonds

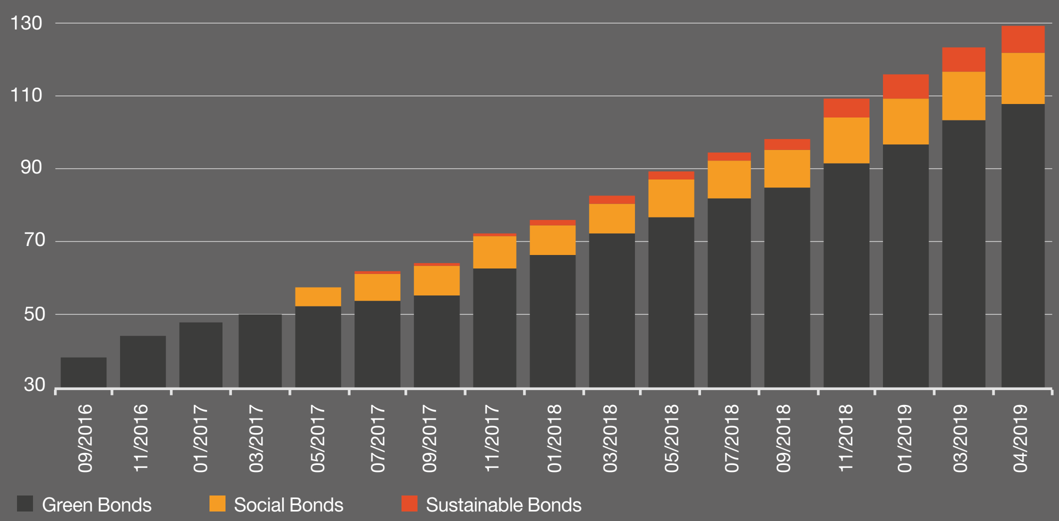
LGX market share for listed green bonds by amount issued



> "World's leading exchange for sustainable bonds and home to almost half of the world's listed green bonds."

- Launched in 2016, the Luxembourg Green Exchange ("LGX") is the world's largest platform exclusively dedicated to green, social and sustainable bonds.
- Bonds displayed on LGX range from those issued by local governments and multinationals, to supranational and privately owned companies.
- European Responsible Investment Funds grew AuM by 12.5% in 2018 to reach EUR 496.4 billion. 32% of these funds are domiciled in Luxembourg, making it a key beneficiary of this growth.

Green, social and sustainable bonds displayed on LGX (EUR bn)



FinTech in Luxembourg

- Luxembourg as a European hub is the country of choice of major Fintech companies to leverage on the highly developed financial system and the ICT infrastructure.
- Offering the latest communication technology, Luxembourg hosts 25% of all European Tier IV (highest reliability) data centres.
- Luxembourg has a national Fintech platform: the Luxembourg House of Financial Technology ("The LHoFT"), bringing together financial institutions, the IT industry, investors, academia as well as regulatory and public authorities.
- Another innovation hub is the House of Startups ("HoST"), which is backed by the Luxembourg Chamber of Commerce.
- Luxembourg offers a tech-friendly regulatory environment: the filing fee for registering new Payment or Electronic Money Institutions is EUR 10,000 and regulatory approval takes 4-12 months.

1st
Globally for international bandwidth and laws relating to ICTs

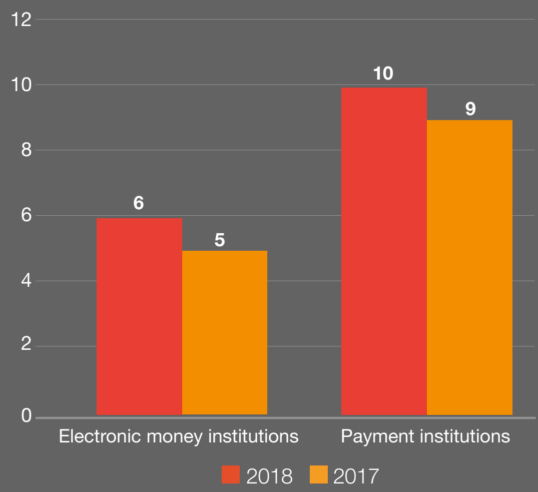
1st
Technological readiness worldwide

2nd
Intellectual property protection

Electronic Money Institutions (EMI) and Payment Institutions (PI)

- As at year-end 2018, Luxembourg is home to 10 regulated Payment Institutions (2017: 9) and 6 regulated Electronic Money Institutions (2017: 5). So far, in 2019, three new EMI and one new PI have obtained their licence from the CSSF.
- The total assets of PI grew by 37.7% to reach EUR 819.0 millions and grew by 40.7% to reach EUR 1.8 billion for EMI.
- With nearly EUR 3.0 billion in e-money payments issued by resident institutions, Luxembourg's share in the Euro area amounted to 74.6% in 2018, with a year-on-year growth of 15.9% (+18.6% in the Euro area).
- Luxembourg hosts a number of big international players with Alipay (Europe) Limited S.A., Amazon Payments Europe S.C.A., eBay S.à r.l., PingPong Europe S.A., SIX Payment Services (Europe) S.A. and PayPal (Europe) S.à r.l. et Cie, S.C.A., which actually has a universal banking licence.

Regulated EMI and PI in Luxembourg



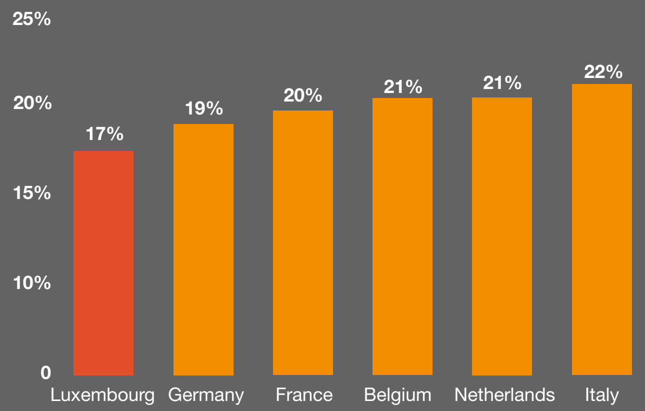
Attractive corporate tax and VAT rates

Luxembourg has established competitive measures in relation to taxation:

Attractive and stable corporate tax and VAT rates

- The corporate tax rate of 26.0% has been reduced to 24.9% in 2019, becoming one of the lowest rates in the EU.
- Luxembourg has the lowest standard VAT rate (17.0%) within the EU.

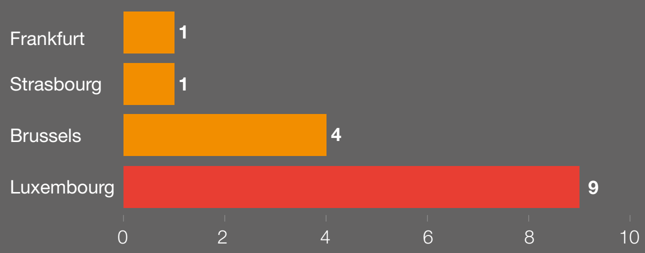
Comparison of standard VAT rates in the EU



Luxembourg: Home to the most EU Institutions

- Luxembourg is one of the six founding members of the European Union.
- With its central location in Europe, Luxembourg hosts many European institutions, such as:
  - the Court of Justice of the European Union
  - the European Court of Auditors
  - the European Investment Bank and the European Investment Fund
  - the European Stability Mechanism
  - the Publications Office of the EU
  - the Consumers, Health, Agriculture and Food Executive Agency
- Luxembourg is home to the largest number of EU institutions, with 11,000 civil servants.

European Institutions headquarters



Facts about the European Investment Bank (EIB)

- Nicknamed the “EU bank”, the EIB represents the lending arm of the European Union. In its over 60 years of existence, the EIB has provided over EUR 1 trillion of financing, making it the biggest multilateral financial institution in the world.
- Taking advantage of its AAA rating, the EIB raises money from investors in the capital markets. These investments are focused on four main areas: Innovation and skills, small business, infrastructure and increasingly climate and environment.
- Through the European Investment Fund (“EIF”), the EIB is managing the European Fund for Strategic Investments (“EFSI”), which has mobilised over EUR 375 billion in assets to provide funding for strategic infrastructure and education projects, aiming to reach EUR 500 billion by 2020.
- The EIB issues innovative financial instruments, such as venture debt through the EFSI. Venture debts are loans with equity investments’ characteristics: the repayment of the debt is aligned with the performance of the borrower, without diluting the founder’s ownership stake.
- The EIF provides guarantees for risky projects to support SMEs to raise funds from venture capitalists. In addition, EIF takes significant minority stakes in PE funds which provide a catalytic effect on commitments from a wide range of investors, particularly in the private sector. Thus over 1 million SMEs have already benefitted from easier access to finance.

Sources for the entire section:
EIB, EIF, CSSF, ECB data warehouse, European Banking Federation, Luxembourg for Finance, Luxembourg Stock Exchange, PwC Global Fund Distribution, STATEC, World Economic Forum

4 Overview of the Luxembourg banking sector's evolution

Key takeaways – Overview of the Luxembourg banking sector's evolution

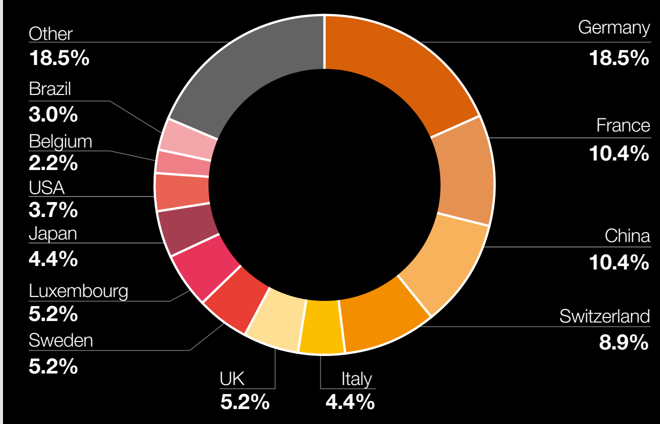
- With 135 authorised banks at year-end 2018, the number of banks has slightly decreased by four.
- 132 of the 135 authorised banks have a universal banking licence, whereas three banks (all of them belonging to the German segment) solely have a mortgage-bond banking licence.
- Regarding the legal status, 89 banks are under Luxembourg law, 32 are branches of banks from EU Member States or a country considered on equal terms and 14 are branches of banks from non-EU Member States.
- The staff count has slightly increased from 26,149 to 26,317 (+0.6%).
- In terms of geographical representation in the Luxembourg financial centre, German banks still make up the largest group at 18.5%, followed by French banks with 10.4% and Chinese banks with 10.4%.
- The following banks were deregistered during 2018:
  - Société Générale LDG S.A. *(cessation of business activities)*
  - Standard Chartered Bank, Luxembourg Branch *(cessation of business activities)*
  - UniCredit Luxembourg S.A. *(cross-border merger with UniCredit Bank AG, München)*
  - Danieli Banking Corporation S.A. *(name change into Danieli Finance Solutions S.A., continuing to operate in Luxembourg as a Professional of the Financial Sector ("PFS"))*
  - Banco BTG Pactual Luxembourg S.A. *(cessation of business activities)*
  - BNP Paribas Wealth Management *(Luxembourg) S.A. (formerly called ABN Amro Bank (Luxembourg) S.A.; merger with BGL BNP Paribas S.A.)*
- The following banks have started operations in 2018:
  - UniCredit Bank AG Luxembourg Branch
  - Banco Santander (Brasil) S.A., Luxembourg Branch

Number of banks

Number of banks	2018	2017
Subsidiaries	89	94
Branches	46	45
Total	**135**	**139**

Countries of origin of banks established in Luxembourg

2018



* Classification as per CSSF

Headcount

2018

26,317

2017

26,149

- In 2018, the number of people employed in the banking sector grew by 168 staff (+0.6%).
- For 11.3% of banks, the headcount remained stable, 52.5% of banks saw an increase and 36.2% saw a decrease.
- On average, staff are more qualified, with the number of staff having a Master degree or higher increased by 4.7%.

Balance sheet total (in EUR million)

2018

774,378

2017

751,574

- In 2018, the balance sheet total increased by EUR 22.8 billion (+3.0%).
- This increase was principally driven by the growth in loans and advances to customers (EUR +12.8 billion; +5.8%). Loans to households as well as non-financial companies increased, whereas loans to financial companies decreased.
- The trend of increasing loans and advances to central banks and central governments since 2016 continued in 2018. This further strengthened the banks' compliance with the Liquidity Coverage Requirement ("LCR"). However, in the current context of the ECB's negative deposit rates, this puts pressure on the banks' margins.
- On the liability side, amounts owed to customers continued to grow strongly by EUR 16.1 billion (+4.4%), and this across all types of clients. This leads to the conclusion that the automated information exchange between EU member states did not have a negative impact on this important financing source for Luxembourg's credit institutions.

- Net profit for the year 2018 slightly decreased by EUR 120.0 million (-3.2%). Despite the positive growth in core banking income, i.e. net interest income and net commission income, the decrease of other net income (EUR -425.0 million; -19.6%) as well as the increase in staff costs (EUR +92.0 million; +2.9%) and administrative expenses (EUR +282.0 million; +9.1%) were responsible in driving down net profits.
- With 9.1%, the growth in administrative expenses was well over its average annual growth rate since 2014 (+7.3%). This acceleration is even more significant when compared to the long term average annual growth rate of 3.6% from 2001 to 2018. Although the increase in administrative expenses was in large parts due to investments in new technology and infrastructure, a significant portion of these costs was directly linked to the banks' compliance with new accounting and regulatory standards.

Annual net profit or loss (in EUR million)

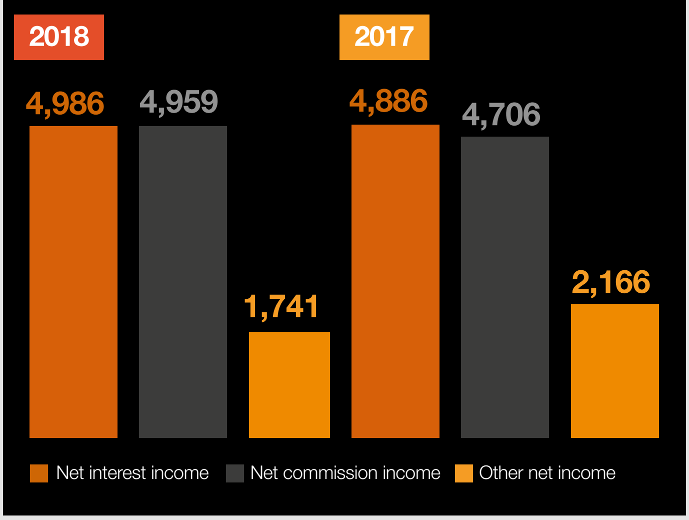
2018

3,602

2017

3,722

Banking income (in EUR million)



- The net interest income increased by EUR 100.0 million (+2.0%), as a result of both a growth in volume and an improved rate of return for a majority of banks. The growth in net interest income is continuing (5.2% average annual growth rate since 2014), despite the ECB's negative interest regime, which will prove to be a challenge for the banks in the future.
- Net commission income increased by EUR 253.0 million (+5.4%), which resulted primarily from the favourable results in the asset management business for private and institutional clients, including the provision of services to investment funds. This was fuelled by a favourable development of global financial markets in 2018, of which about 56.0% of banks could profit.

Solvency ratio

2018	25.2%
2017	25.9%

- The solvency ratio decreased slightly by 0.7%. This was due to the decrease of aggregate own funds by EUR 3.6 billion (-6.0%), partially capped by the decrease in risk weighted assets by EUR 7.1 billion (-3.6%).
- Nevertheless, the Luxembourg banks continue to have a high capitalisation rate, well above the 8.0% required by Basel III (10.5% including capital buffer).
- According to the 2018 CSSF annual report, 86 banks (legal entities) have a Tier 1 capital ratio of over 11.0%.

Return on assets

2018	2017
0.47%	0.50%

- Return on assets slightly decreased by 0.03%, as a consequence of lower net profits of EUR 120.0 million (-3.2%), coupled with the increase in total assets by 3.0%.

Return on equity

2018	2017
6.33%	6.15%

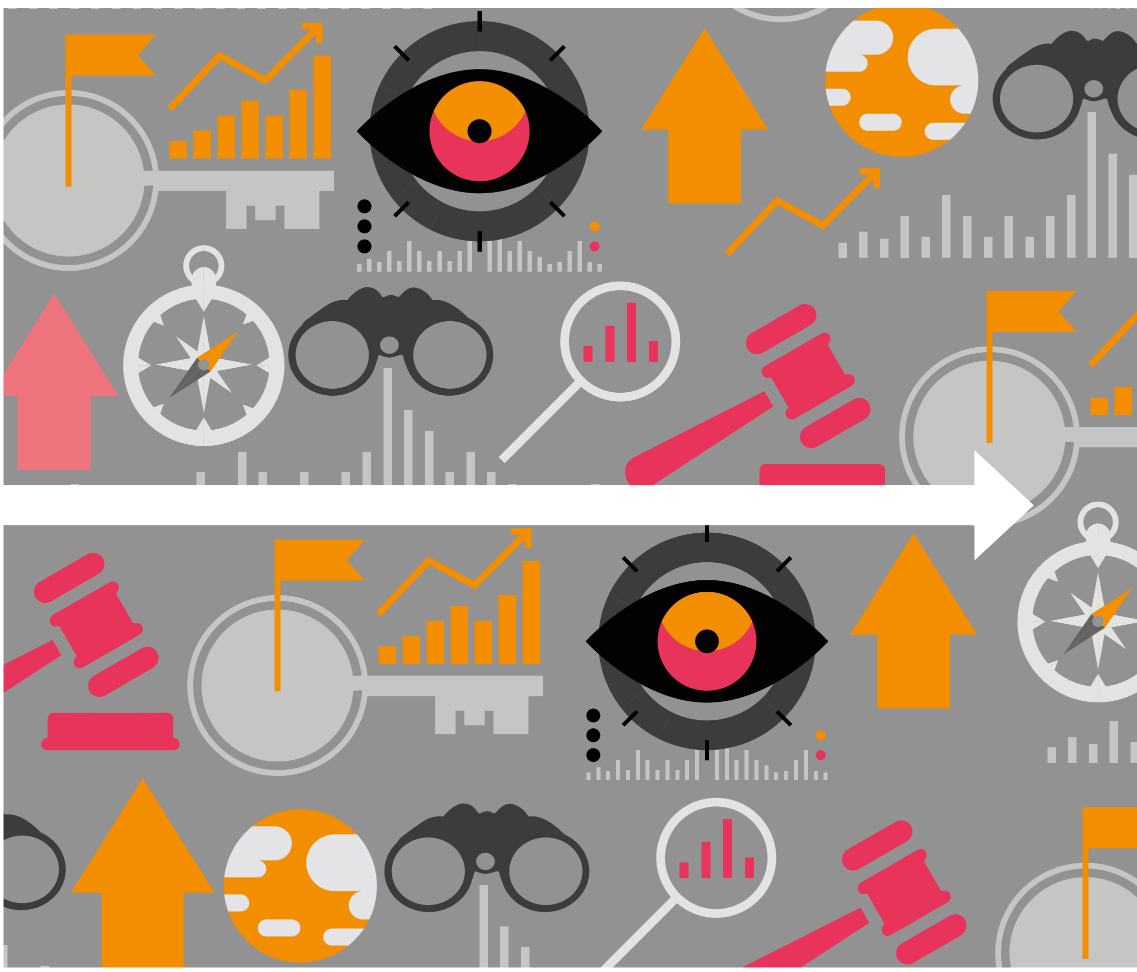
- Return on equity increased more significantly, as the decrease in net profits (-3.2%) was countered by a decrease of own funds (-6.0%).

Cost-income ratio

$$CIR = \frac{\text{staff costs+administrative costs (incl.depreciation)}}{\text{net interest and commission income +net result on financial operations+other operating result+risk provisioning}}$$

- The cost-income ratio increased by 2.5% which was primarily driven by the growth in staff costs and administrative expenses by an aggregate of EUR 374.0 million (+6.0%), partially compensated by the growth in net interest income and net commission income (+2.0% and +5.4% respectively).

5 Overview of developments in each segment



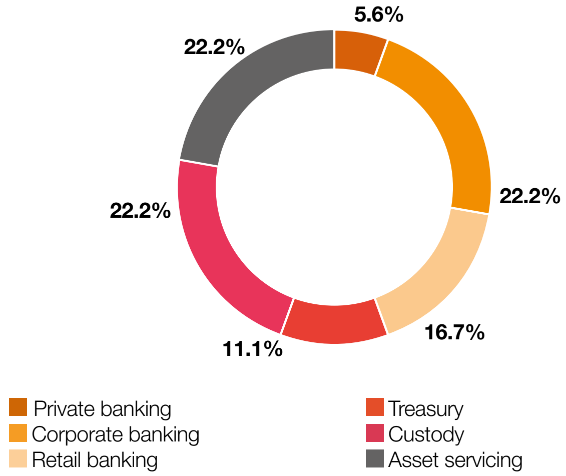
Key takeaways – UK/North American segment

- The number of subsidiaries analysed in the UK/North American segment remained stable at 8; the number of branches decreased by 1, from 9 to 8 in 2018 due to the market exit of Standard Chartered Bank Luxembourg Branch.
- The balance sheet of the UK/North American segment increased by EUR 8.2 billion (+16.1%), primarily due to an increase of client deposits as well as loans and advances to credit institutions, mainly driven by J.P. Morgan Bank Luxembourg S.A. ("J.P. Morgan") (EUR +7.1 billion; +54.9%) as a result of its strategic firm-wide Brexit implementation programme leading to the move of some of its services to Luxembourg.
- The overall UK/North American segment is characterised by off-balance sheet business, thus net commission income is a key driver, which showed an increase of EUR 132.9 million (+11.9%) compared to the prior year. The net commission income for the segment mainly stems from State Street Bank Luxembourg S.C.A. (EUR 408.9 million), J.P. Morgan (EUR 283.1 million) and RBC Investor Services Bank S.A. (EUR 228.4 million).
- The year-on-year increase in the cost-income ratio (+2.9%) was driven by an increase in current operating expenses by EUR 143.7 million (+16.5%), mainly due to a significant increase in overheads and depreciation resulting from higher activity in Luxembourg of J.P. Morgan (EUR +54.4 million; +34.1%).
- All of the analysed seven banks were profitable this year; PayPal (Europe) S.à r.l. et Cie, S.C.A. ("PayPal") contributed the most with EUR 281.6 million, followed by J.P. Morgan with EUR 151.4 million. The UK/North American segment has seen a strong growth in the return on equity (+2.4%), supported by the increase in aggregate annual net profits by EUR 31.8 million (+4.6%) while own funds decreased by EUR 1.5 billion (-18.3%). The decrease in own funds is driven by PayPal which performed a capital reduction in the amount of USD 3.9 billion (EUR 3.4 billion) through a repurchase and cancellation of shares.
- The net decrease of 91 staff results from decreases at J.P. Morgan (-19 staff) and State Street Bank Luxembourg S.C.A. (-72 staff), which continued to implement a strategy focused around the operating model optimisation by leveraging centres of excellence in global hubs. However, J.P. Morgan established 9 new branches in Europe during 2018, bringing up the average staff count including the branches on an FTE basis to 420 (2017: 362).

Number of banks

Number of banks	2018	2017
Subsidiaries	8	8
Branches	8	9
Total	**16**	**17**

Business areas



Annual net profit or loss (in EUR million)

2018
717

2017
685

Headcount

2018
3,164

2017
3,255

Cost-income ratio

Balance sheet total (in EUR million)

2018
59,115

2017
50,931

Return on equity

10.76% — 2018

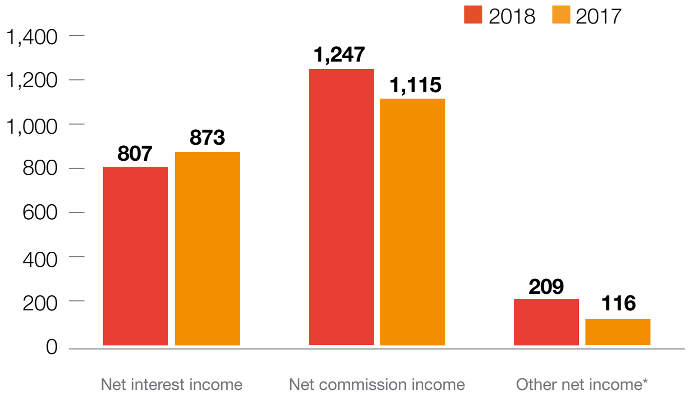
8.40% — 2017

Return on assets

1.21% — 2018

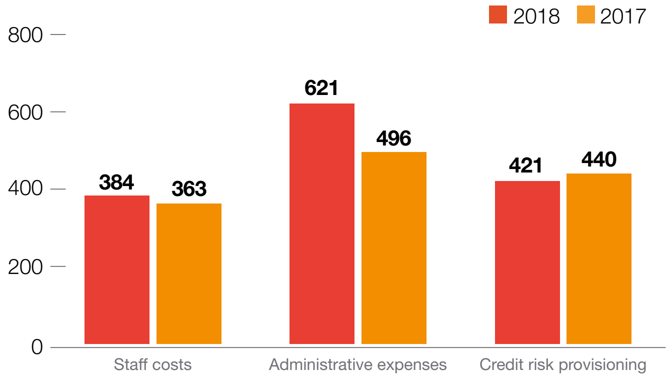
1.35% — 2017

Banking income (in EUR million)

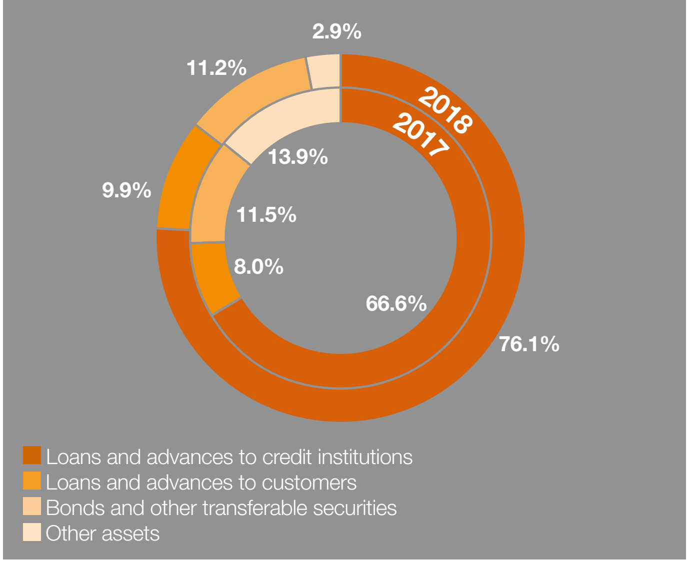


*other net income includes: net profit/loss on financial operations (including gains/losses on derivatives, revaluation gains/losses) other net operating income and dividend income

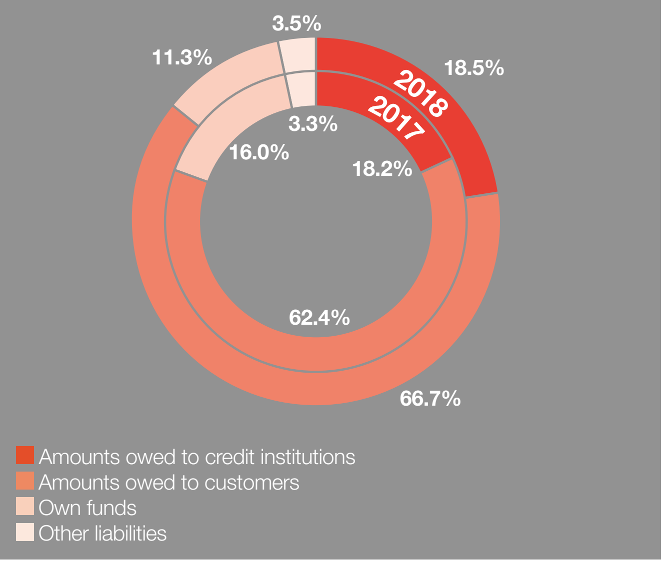
Staff costs, administrative expenses and credit risk provisioning (in EUR million)



Breakdown of assets



Breakdown of liabilities



Ranking of balance sheet totals (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	J.P. Morgan Bank Luxembourg S.A.	20.599	13.235	55.6%	▲ +1
2	RBC Investor Services Bank S.A.*	17.855	15.119	18.1%	▼ -1
3	HSBC Private Bank (Luxembourg) S.A.	10.248	9.580	7.0%	▲ +1
4	PayPal (Europe) S.à r.l. et Cie, S.C.A.	6.958	9.655	-27.9%	▼ -1
5	John Deere Bank S.A.*	2.180	2.058	5.9%	=
6	State Street Bank Luxembourg S.C.A.	748	764	-2.1%	=
7	Internaxx Bank S.A.	431	436	-1.1%	=
8	Brown Brothers Harriman (Luxembourg) S.C.A.	96	84	14.3%	=
	Total	59.115	50.931	16.1%	

Ranking of annual net profit or loss (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	PayPal (Europe) S.à r.l. et Cie, S.C.A.	281.6	297.0	-5.2%	=
2	J.P. Morgan Bank Luxembourg S.A.	151.4	105.3	43.8%	▲ +1
3	State Street Bank Luxembourg S.C.A.	135.6	127.9	6.0%	▼ -1
4	RBC Investor Services Bank S.A.*	72.9	65.4	11.5%	=
5	Brown Brothers Harriman (Luxembourg) S.C.A.	44.4	54.0	-17.8%	=
6	John Deere Bank S.A.*	28.8	33.4	-13.8%	=
7	Internaxx Bank S.A.	2.1	1.7	23.5%	=
8	HSBC Private Bank (Luxembourg) S.A.	0.2	0.8	-75.0%	=
	Total	717.0	685.5	4.6%	

*figures as at 31 October 2018

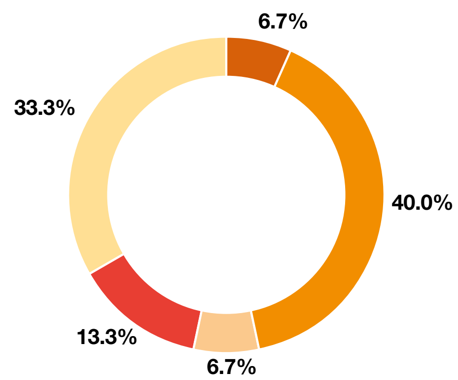
Key takeaways – Chinese segment

- The aggregated balance sheet of the Chinese segment decreased by EUR 170.7 million (-1.2%) due to a downturn in loans and advances to customers by EUR 678.9 million (-7.4%), which was partially offset by the increase in loans and advances to credit institutions by EUR 455.6 million (+15.7 %). The overall decrease in loans to customers was driven by Bank of Communications (Luxembourg) S.A. (EUR -267.3 million; -66.3%). During 2018, the bank sold part of its loans to ensure large exposure regulatory compliance.
- The Chinese banks operate predominantly in corporate banking (trade finance, project finance, bilateral and syndicated loans). Consequently, the net interest income represents 60.5% of the total banking income of the Chinese sector. Chinese banks have a total of 18 branches in European countries other than Luxembourg, with no new branches having been opened in 2018.
- During 2018, Chinese banking groups expanded funding via customers from EUR 4.6 billion in 2017 to EUR 5.7 billion in 2018 (+22.2%), switching its main source of refinancing, which were amounts owed to credit institutions, especially intragroup-lending from EUR 6.9 billion to EUR 5.6 billion in 2018 (-19.2%).
- The aggregated profit of the Chinese segment decreased by EUR 4.8 million (-15.0%), mainly due to the adverse development in the current operating expenses (EUR +12.5 million; +8.0%) which results in a higher cost-income ratio (+6.7%). The increase in operating expenses is due to higher staff costs (EUR +7.4 million; +7.4 %), due to a higher headcount (+3.5%), and a higher credit risk provisioning (EUR +15.6 million; +247.6%). The increase in risk provisioning is mainly due to additional value adjustments recorded by Industrial and Commercial Bank of China (Europe) S.A. in respect to loans and advances to customers for an amount of EUR 12.3 million. In 2018, 4 out of 6 banks have made profits for a total of EUR 39.6 million, mainly driven by Bank of China (Luxembourg) S.A. with EUR 34.8 million (+0.9%).

Number of banks

Number of banks	2018	2017
Subsidiaries	6	6
Branches	7	7
Total	**13**	**13**

Business areas



Private banking
Corporate banking
Retail banking
Treasury
Service centre

Annual net profit or loss (in EUR million)

2018
27

2017
32

Headcount

2018
790

2017
763

Cost-income ratio

Balance sheet total (in EUR million)

2018
13,926

2017
14,097

Return on equity

1.97%
2018

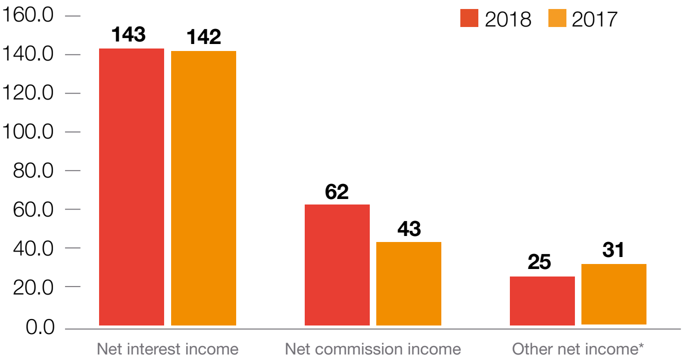
2.37%
2017

Return on assets

0.19%
2018

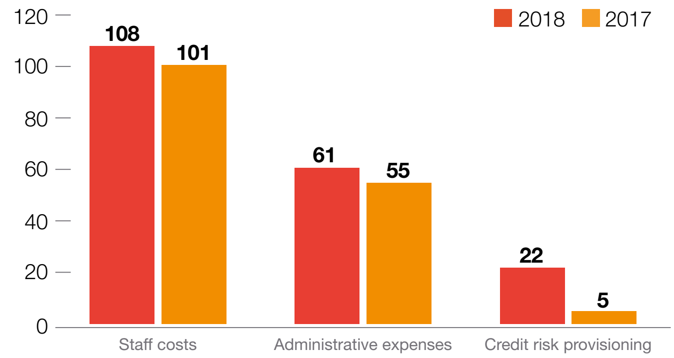
0.23%
2017

Banking income (in EUR million)

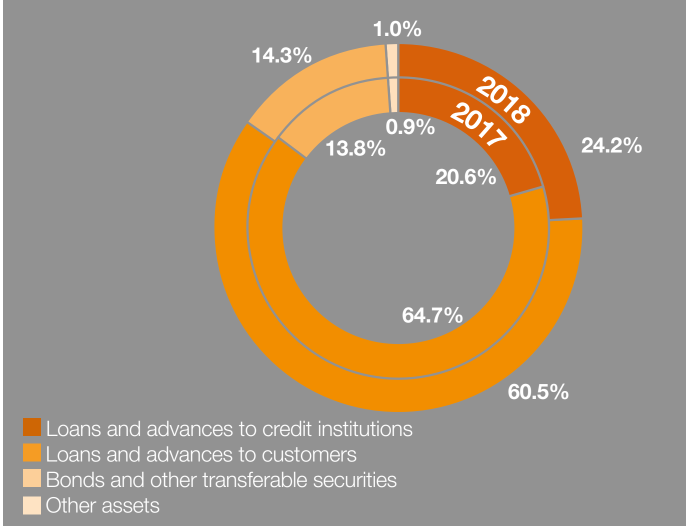


*other net income includes: net profit/loss on financial operations (including gains/losses on derivatives, revaluation gains/losses), other net operating income and dividend income

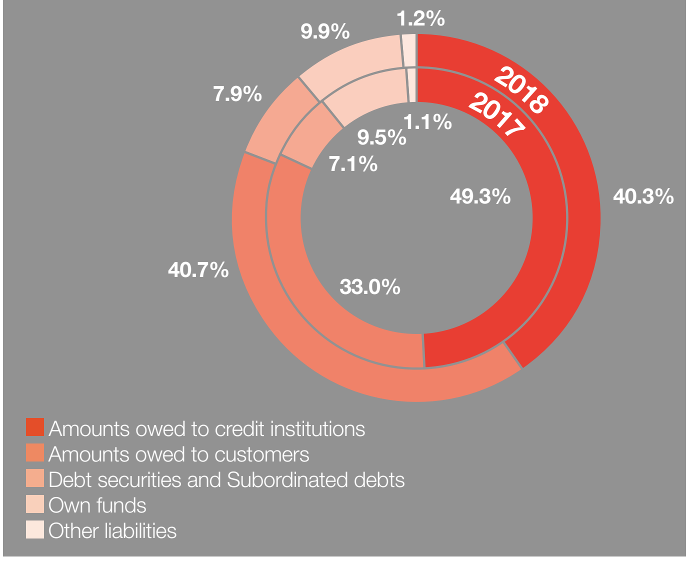
Staff costs, administrative expenses and credit risk provisioning (in EUR million)



Breakdown of assets



Breakdown of liabilities



Ranking of balance sheet totals (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Industrial and Commercial Bank of China (Europe) S.A.	6,825	6,815	0.2%	=
2	Bank of China (Luxembourg) S.A.	5,146	4,818	6.8%	=
3	China Construction Bank (Europe) S.A.	1,243	1,411	-11.9%	=
4	Bank of Communications (Luxembourg) S.A.	640	969	-34.0%	=
5	Agricultural Bank of China (Luxembourg) S.A.	40	21	90.5%	▲ +1
6	China Everbright Bank (Europe) S.A.	33	64	-48.4%	▼ -1
	Total	13,927	14,098	-1.2%	

Ranking of annual net profit or loss (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Bank of China (Luxembourg) S.A.	34.8	34.5	0.9%	=
2	China Construction Bank (Europe) S.A.	2.4	-5.4	144.4%	▲ +3
3	Industrial and Commercial Bank of China (Europe) S.A.	1.6	10.2	-84.3%	▼ -1
4	Agricultural Bank of China (Luxembourg) S.A.	0.8	0.8	0.0%	▼ -1
5	China Everbright Bank (Europe) S.A.	-2.8	-1.7	-64.7%	▼ -1
6	Bank of Communications (Luxembourg) S.A.	-9.7	-6.5	-49.2%	=
	Total	27.1	31.9	-15.0%	

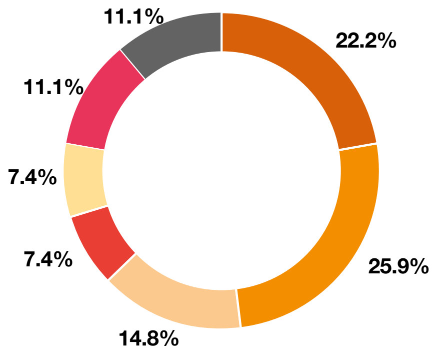
Key takeaways – French segment

- Société Générale LDG S.A. ceased its business activities and was liquidated in 2018. Consequently, no 2018 figures were available and we excluded 2017 figures to ensure better comparability.
- The aggregated balance sheet increased by EUR 8.0 billion (+11.0%), fuelled by a growth in the interbank lending (EUR +5.7 billion; +16.6%). This was primarily driven by the four largest banks, with their increases ranging between EUR 0.8 billion to EUR 1.9 billion. Loans and advances to customers also grew by EUR 2.0 billion (+7.9%), again driven by the same banks, apart from Société Générale Bank & Trust S.A. ("SGBT"), which saw a small decrease of EUR 0.4 billion (-3.0%).
- On the liability side, the increase was mainly driven by amounts owed to customers that increased by EUR 5.6 billion (+15.4%), with the four largest banks growing by over EUR 1.1 billion each.
- The aggregated net profits grew slightly from EUR 409.3 million to EUR 418.1 million (+2.2%). The increase in other net income (EUR +128.5 million), that stems from Banque de Luxembourg S.A. and SGBT both turning prior year's losses on financial operations into gains this year, was mitigated by a decrease in the net interest income (EUR -69.2 million; -18.9%) and increased credit risk provisioning (EUR 48.5 million; of which EUR 18.2 million credit risk provisioning and EUR 30.3 million net impairments on investments).
- The headcount increased by 132 (+4.7%), contributing to an increase in staff costs of EUR 12.6 million (+4.0%). The highest growth was at Banque de Luxembourg S.A. (+63 staff; +7.5%) and CA Indosuez Wealth (Europe) S.A. (+41 staff; +8.4%).
- Administrative expenses also slightly increased (EUR +13.3 million; +4.8%). Together with the increase in staff costs, they drove up the cost-income ratio slightly by 1.7%.

Number of banks

Number of banks	2018	2017
Subsidiaries	9	10
Branches	4	4
Total	**13**	**14**

Business areas



Private banking
Corporate banking
Retail banking
Treasury
Service centre
Custody
Asset servicing

Annual net profit or loss (in EUR million)

2018
418

2017
409

Cost-income ratio

Headcount

2018
2,948

2017
2,816

Balance sheet total (in EUR million)

2018
80,393

2017
72,417

Return on equity

8.46%
2018

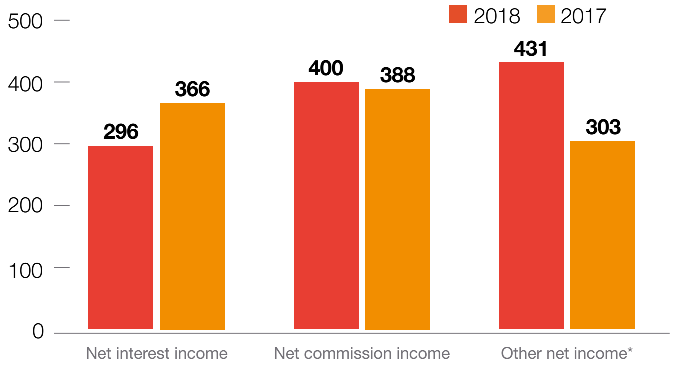
8.16%
2017

Return on assets

0.52%
2018

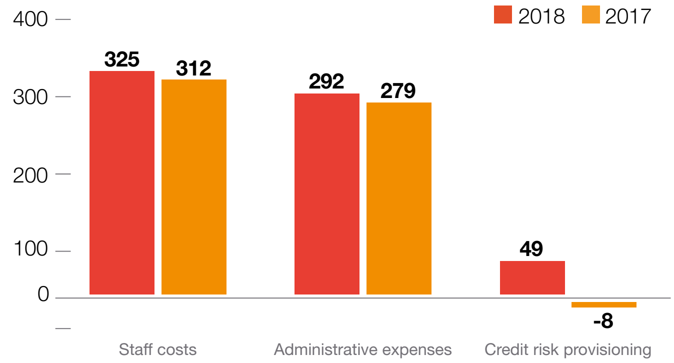
0.57%
2017

Banking income (in EUR million)

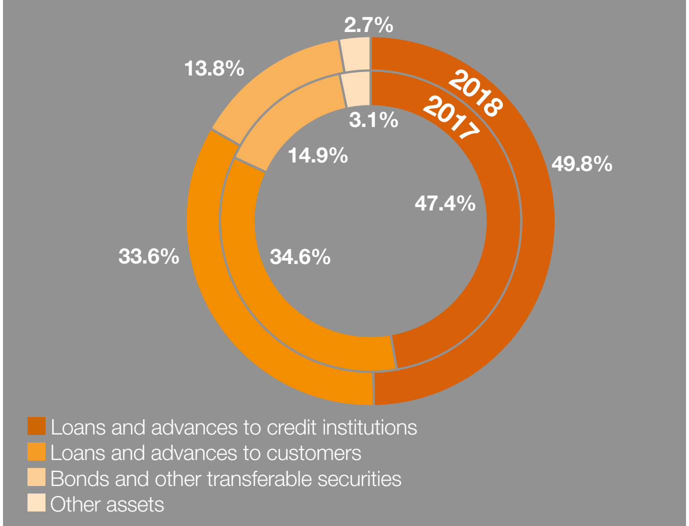


*other net income includes: net profit/loss on financial operations (including gains/losses on derivatives & revaluation gains/losses), other net operating income and dividend income

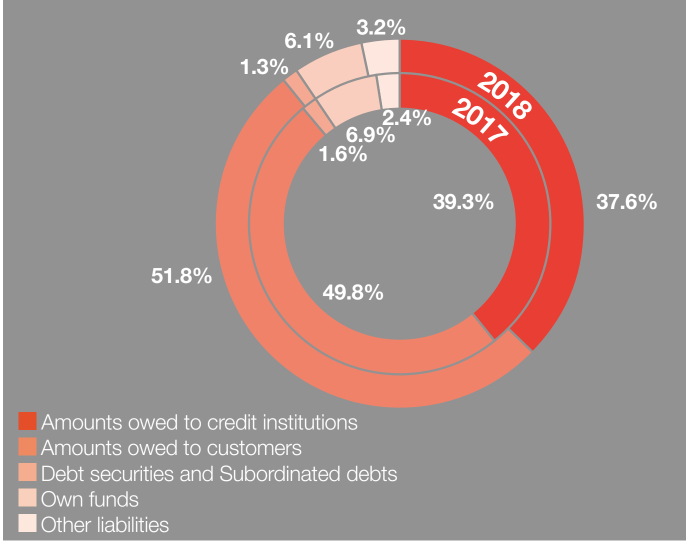
Staff costs, administrative expenses and credit risk provisioning (in EUR million)



Breakdown of assets



Breakdown of liabilities



Ranking of balance sheet totals (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Société Générale Bank and Trust S.A.	41,636	40,402	3.1%	=
2	Banque de Luxembourg S.A.	15,287	13,086	16.8%	=
3	Société Générale Capital Market Finance S.A.	9,394	7,523	24.9%	=
4	CA Indosuez Wealth (Europe) S.A.	8,095	6,441	25.7%	=
5	Natixis Bank S.A.	4,386	3,525	24.4%	=
6	Banque BCP S.A.	662	648	2.2%	=
7	Banque Transatlantique Luxembourg S.A.	536	511	4.9%	=
8	Keytrade Bank Luxembourg S.A.	282	243	16.3%	=
9	Société Générale Financing and Distribution S.A.	116	39	197.4%	=
	Total	80,394	72.418	11.0%	

Ranking of annual net profit or loss (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Société Générale Bank and Trust S.A.	359.6	298.6	20.4%	=
2	Banque de Luxembourg S.A.	64.1	63.4	1.1%	=
3	Natixis Bank S.A.	7.1	14.7	-51.7%	▲ +1
4	Société Générale Financing and Distribution S.A.	3.1	3.2	-3.1%	▲ +1
5	Banque Transatlantique Luxembourg S.A.	1.4	1.7	-17.6%	▲ +1
6	Banque BCP S.A.	1.2	0.9	33.3%	▲ +2
7	Société Générale Capital Market Finance S.A.	0.1	0.1	0.0%	▲ +2
8	Keytrade Bank Luxembourg S.A.	-0.1	0.9	-111.1%	▼ -1
9	CA Indosuez Wealth (Europe) S.A.	-18.4	25.8	-171.3%	▼ -6
	Total	418.1	409.3	2.2%	

Key takeaways – Swiss segment

- The aggregated balance sheet total in the Swiss segment increased by EUR 1.9 billion (+6.8%), mainly due to the growth in interbank lending (EUR +1.4 billion; +9.5%). The highest growth was at Pictet & Cie (Europe) S.A. that contributed with EUR 0.7 billion (+21.1%) as a result of the redistribution of the client deposits which increased from EUR 7.2 billion to EUR 8.1 billion in 2018 (EUR +0.9 billion; +12.1%). On the liability side, the increase was mainly driven by amounts owed to customers that increased by EUR 2.0 billion (+8.9%), with 7 of 8 banks growing in aggregate by EUR 2.3 billion (+12.7%).
- The aggregated net profits grew from EUR 107.6 million to EUR 126.8 million (EUR +19.2 million; +17.8%). The increase is mainly due to the increase of the net commission income by EUR 18.8 million (+ 4.0%), since private banking, depositary banking and investment fund servicing are key components of the Swiss segment's business model. The growth was driven by Pictet & Cie (Europe) S.A., which showed a steady development of net commission income from EUR 183.9 million in 2017 to EUR 206.5 million in 2018 as a result of increased business activity.
- Credit Suisse (Luxembourg) S.A. saw the largest improvement in annual net profits (EUR +15.8 million; +115.3%), driven by increased revenues and a decrease in general administrative expenses due to cost efficiency measures combined with less platform transformation changes.
- The headcount grew by 22 staff (+1.0%), contributing to an increase in staff costs of EUR 34.9 million (+9.9%), mainly driven by the increase of headcount at Pictet & Cie (Europe) S.A. (+30 staff; +5.5%). Administrative expenses also slightly increased in 7 out of 8 banks (EUR +15.1 million; +6.2%), due to increased business development, resulting in a high increase at Pictet & Cie (Europe) S.A. (EUR +7.6 million; +15.3%), followed by Bank Julius Baer Europe S.A. (EUR +5.1 million; +17.1%).
- Due to the aggregated growth on the income side, the Swiss segment showed a rather stable cost-income ratio with a slight increase by 1.0%. Both the return on equity (+0.7%) and the return on assets (+0.04%) have been positively impacted by the increased overall profitability of the banks from the Swiss segment.

Headcount

2018 2,122

2017 2,100

Balance sheet total (in EUR million)

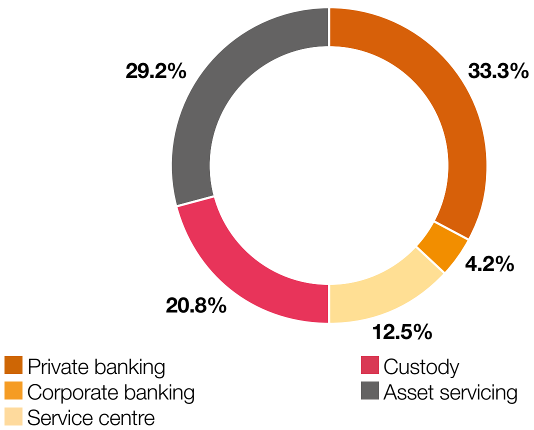
2018 29,215

2017 27,361

Number of banks

Number of banks	2018	2017
Subsidiaries	8	8
Branches	3	3
Total	**11**	**11**

Business areas



Annual net profit or loss (in EUR million)

2018 127

2017 108

Cost-income ratio

Return on equity

8.77% 2018

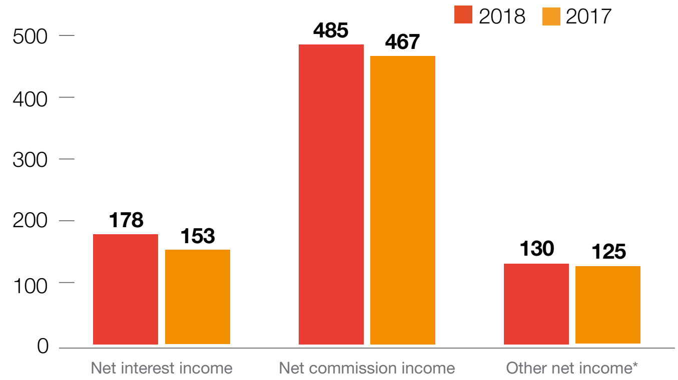
8.07% 2017

Return on assets

0.43% 2018

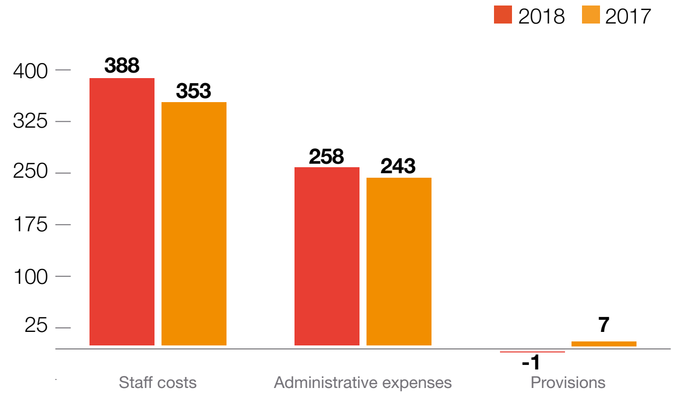
0.39% 2017

Banking income (in EUR million)

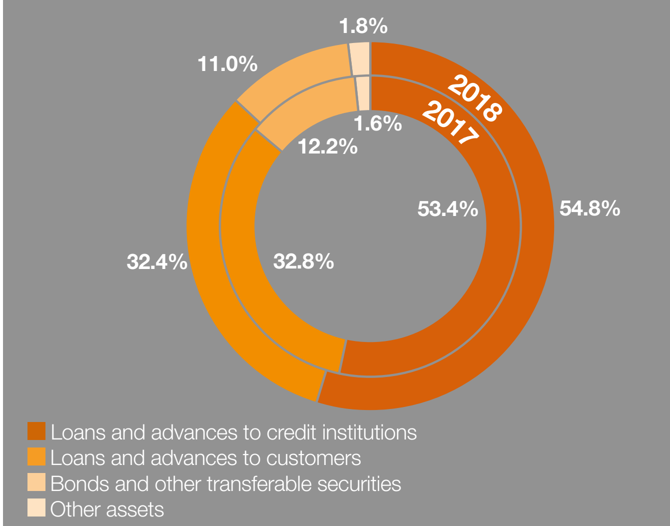


*other net income includes: net profit/loss on financial operations (including gains/losses on derivatives, revaluation gains/losses), other net operating income and dividend income

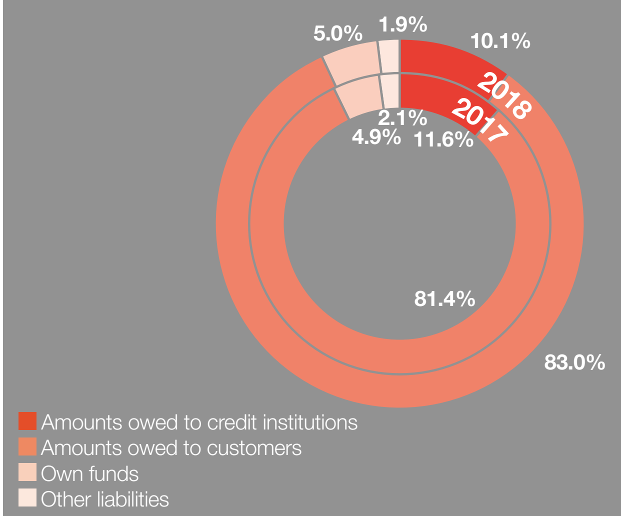
Staff costs, administrative expenses and credit risk provisioning (in EUR million)



Breakdown of assets



Breakdown of liabilities



Ranking of balance sheet totals (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Pictet & Cie (Europe) S.A.	9,745	8,704	12.0%	=
2	Credit Suisse (Luxembourg) S.A.	6,183	6,652	-7.1%	=
3	Edmond de Rothschild (Europe) S.A.	5,362	5,143	4.3%	=
4	EFG Bank (Luxembourg) S.A.	2,552	2,867	-11.0%	=
5	Bank Julius Baer Europe S.A.	2,037	1,674	21.7%	=
6	Lombard Odier (Europe) S.A.	1,595	1,122	42.2%	=
7	Union Bancaire Privée (Europe) S.A.	1,081	692	56.2%	=
8	Mirabaud & Cie (Europe) S.A.	660	507	30.2%	=
	Total	29,215	27,361	6.8%	

Ranking of annual net profit or loss (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Pictet & Cie (Europe) S.A.	106.2	92.2	15.2%	=
2	Credit Suisse (Luxembourg) S.A.	29.5	13.7	115.3%	▲ +1
3	Edmond de Rothschild (Europe) S.A.	21.9	43.1	-49.2%	▼ -1
4	Union Bancaire Privée (Europe) S.A.	0.9	2.2	-59.1%	=
5	Mirabaud & Cie (Europe) S.A.	-1.8	2.0	-190.0%	=
6	EFG Bank (Luxembourg) S.A.	-6.1	-12.9	52.7%	=
7	Lombard Odier (Europe) S.A.	-6.9	-13.3	48.1%	=
8	Bank Julius Baer Europe S.A.	-16.9	-19.4	12.9%	=
	Total	126.8	107.6	17.8%	

Key takeaways – German segment

- During the year 2018, two banks changed their names: HSH Nordbank Securities S.A. became HCOB Securities S.A., following the privatisation of the German parent in 2018. M.M. Warburg & CO Luxembourg S.A. became European Depositary Bank S.A. following the finalisation of the bank's sale to Apex Group Ltd. (approved by relevant supervisory authorities in January 2019).
- The aggregated balance sheet of the German segment has decreased by EUR 5.9 billion (-6.6%) as a direct result of the decrease in loans and advances to credit institutions. Most notably at Deutsche Bank Luxembourg S.A., continued efforts to reduce the carrying amount of interbank receivables resulted in a repayment of approximately EUR 7.0 billion, thus reducing its balance sheet by 18.6%.
- Overall, all banks were profitable this year. The most significant increase was recorded at Commerzbank Finance & Covered Bond S.A., which saw previous year's loss of EUR 83.6 million turn into a profit of EUR 64.5 million. This increase was countered by decreasing net profits at 6 banks, the largest being Deutsche Bank Luxembourg S.A. (EUR -85.4 million; -39.1%).
- Net interest income increased slightly by EUR 7.5 million (+1.6%), remaining the key revenue stream in the German segment, as the lending activity is core for all the banks. On the other hand, the net commission income decreased sharply by EUR 64.0 million (-44.6%), mainly due to DekaBank Deutsche Girozentrale Luxembourg S.A. ("DekaBank") planning a restructuring foreseeing a transfer of the majority of its activities to its Luxembourg branch by the beginning of 2020.
- With the headcount slightly decreasing by 60 staff (-2.8%), staff costs decreased more significantly by EUR 24.6 million (-11.1%). This again was due to discontinued activities at DekaBank.
- In combination with lower administrative expenses (EUR -20.4 million; -7.6%), again driven by DekaBank, this led to a decrease in the cost-income ratio (-2.3%).

Headcount

2018	2017
2,069	2,129

Balance sheet total (in EUR million)

2018

84,643

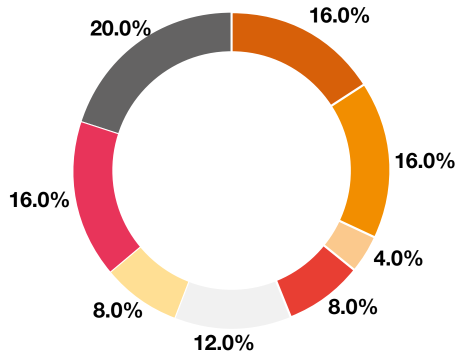
2017

90,582

Number of banks

Number of banks	2018	2017
Subsidiaries	9	9
Branches	13	12
Total	**22**	**21**

Business areas



Annual net profit or loss (in EUR million)

2018	2017
246	244

Cost-income ratio

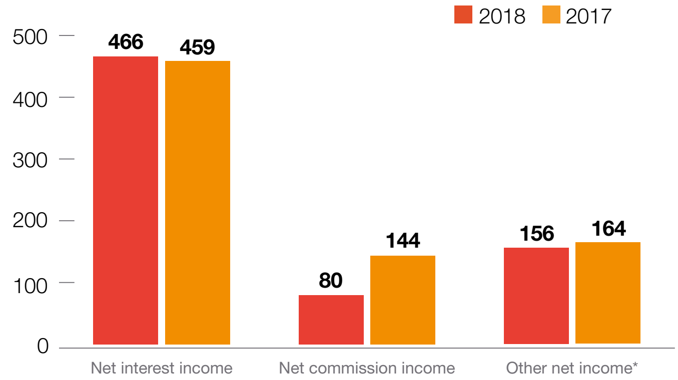
Return on equity

2018	2017
2.79%	2.49%

Return on assets

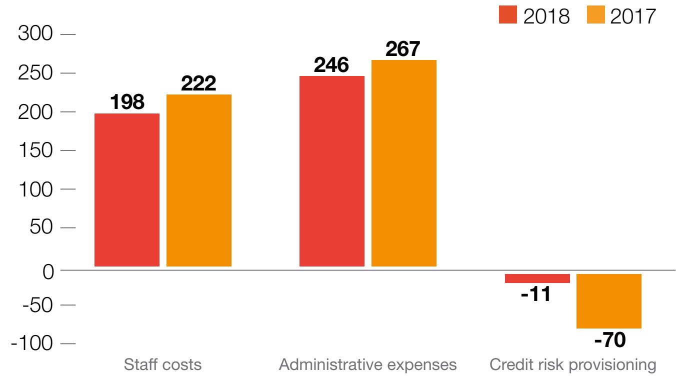
2018	2017
0.29%	0.27%

Banking income (in EUR million)

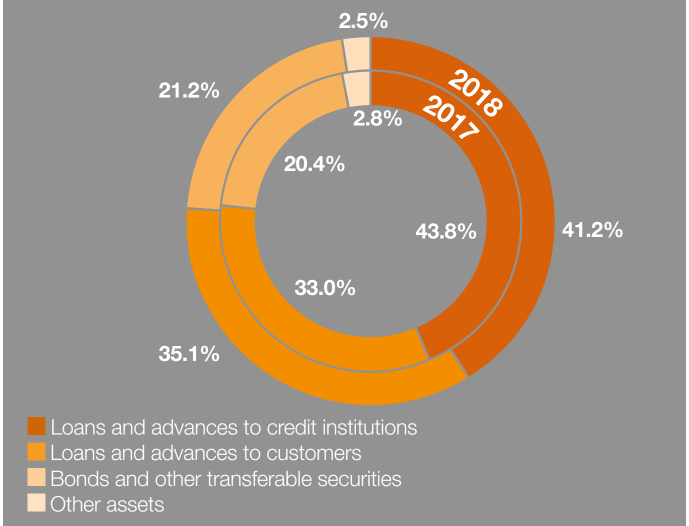


*other net income includes: net profit/loss on financial operations (including gains/losses on derivatives & revaluation gains/losses), other net operating income and dividend income

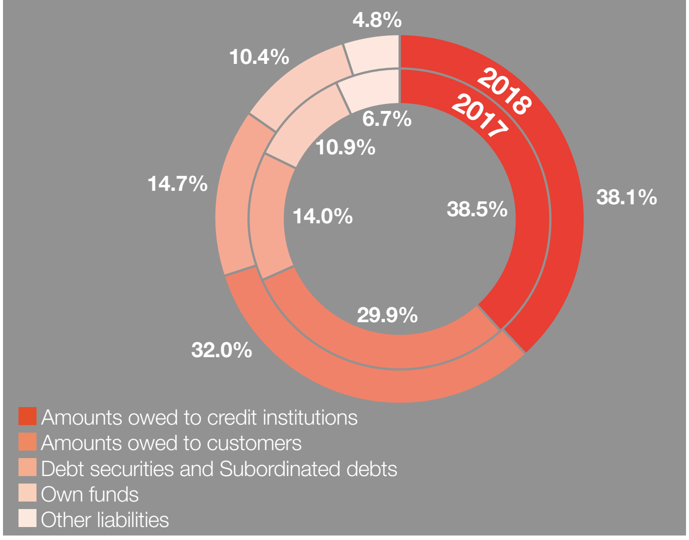
Staff costs, administrative expenses and credit risk provisioning (in EUR million)



Breakdown of assets



Breakdown of liabilities



Ranking of balance sheet totals (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Deutsche Bank Luxembourg S.A.	30,677	37,676	-18.6%	=
2	DZ PRIVATBANK S.A.	17,556	15,660	12.1%	=
3	NORD/LB Luxemburg S.A. Covered Bond Bank	17,199	15,361	12.0%	=
4	Commerzbank Finance & Covered Bond S.A.	12,053	14,705	-18.0%	=
5	DekaBank Deutsche Girozentrale Luxembourg S.A.	5,016	4,681	7.2%	=
6	European Depositary Bank S.A.	1,207	1,378	-12.4%	=
7	HCOB Securities S.A.	762	752	1.3%	=
8	DEPFA Pfandbrief Bank International S.A.	127	321	-60.4%	=
9	Freie Internationale Sparkasse S.A.	46	48	-3.4%	=
	Total	84,643	90,582	-6.6%	

Ranking of annual net profit or loss (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Deutsche Bank Luxembourg S.A.	132.8	218.2	-39.1%	=
2	Commerzbank Finance & Covered Bond S.A.	64.5	-83.6	177.2%	▲ +7
3	DekaBank Deutsche Girozentrale Luxembourg S.A.	23.9	57.2	-58.2%	▼ -1
4	DZ PRIVATBANK S.A.	11.3	11.4	-0.9%	=
5	DEPFA Pfandbrief Bank International S.A.	9.2	-0.8	> 1,000.0%	▲ +3
6	European Depositary Bank S.A.	3.4	4.8	-29.2%	=
7	NORD/LB Luxemburg S.A. Covered Bond Bank	1.0	29.4	-96.6%	▼ -4
8	Freie Internationale Sparkasse S.A.	0.4	0.0	> 1,000.0%	▼ -1
9	HCOB Securities S.A.	0.0	9.3	-100.0%	▼ -4
	Total	246.5	245.9	0.2%	

Key takeaways – Luxembourg segment

- The Luxembourg segment is dominated by three banks – Banque et Caisse d'Epargne de l'Etat, Luxembourg ("BCEE"), BGL BNP Paribas S.A. ("BGL") and Banque Internationale à Luxembourg S.A. ("BIL") – which in 2018 together make up 84.9% of the aggregated balance sheet, 95.4% of the aggregated annual net profit or loss and 80.5% of the staff count.
- The aggregated balance sheet grew strongly by 6.4%. Loans and advances to credit institutions grew by EUR 3.4 billion (+10.8%), primarily driven by BGL (EUR +3.4 billion; +27.1%) due to repurchase agreements within the BNP Group. Loans and advances to customers grew by EUR 3.2 billion (+5.5%), again driven by BGL (EUR 2.1 billion; +11.3%) which experienced positive growth in mortgages, investment loans and financed other group entities.
- On the liability side, customer deposits increased strongly by EUR 7.5 billion (+8.9%), most notably at BGL (EUR +4.9 billion; +18.9%).
- Aggregated net profits decreased by 86.0 million (-14.9%), driven by increased staff costs (EUR +13.2 million; +1.6%) and increased administrative expenses (EUR +38.2 million; +7.2%). The largest growth in administrative expenses was recorded at KBL European Private Bankers S.A. ("KBL") and BIL, with +26.8% and +11.0% respectively. At BIL, this was mainly driven by increased depreciation on IT equipment and amortisation on intangible fixed assets.
- The headcount grew by net 46 staff during the year. Staff reductions at KBL (-72 staff; -10.3%) were mitigated by increases at four banks ranging from 24 staff at Banque Raiffeisen S.C. to 37 staff at BCEE.

Headcount

2018	2017
7,532	7,486

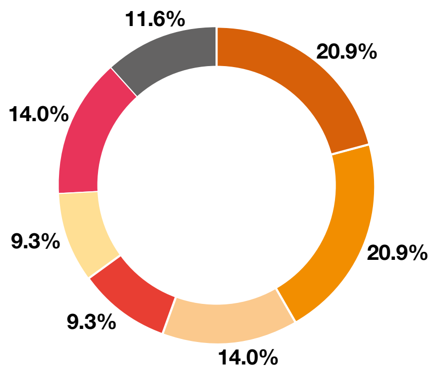
Balance sheet total (in EUR million)

2018	2017
134,440	126,309

Number of banks

Number of banks	2018	2017
Subsidiaries	11	11
Branches	0	0
Total	**11**	**11**

Business areas



- Private banking
- Corporate banking
- Retail banking
- Treasury
- Service centre
- Custody
- Asset servicing

Annual net profit or loss (in EUR million)

2018	2017
493	579

Cost-income ratio

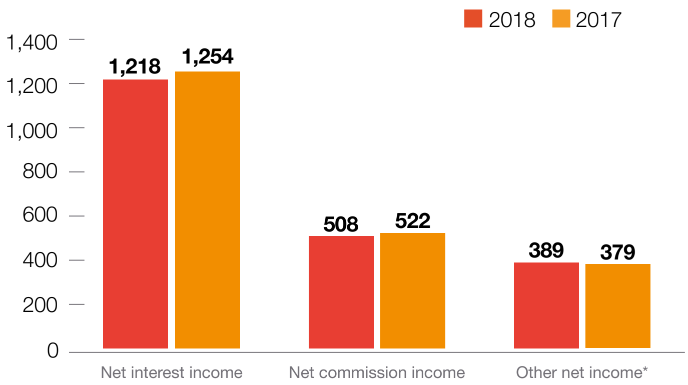
Return on equity

2018	2017
3.53%	4.19%

Return on assets

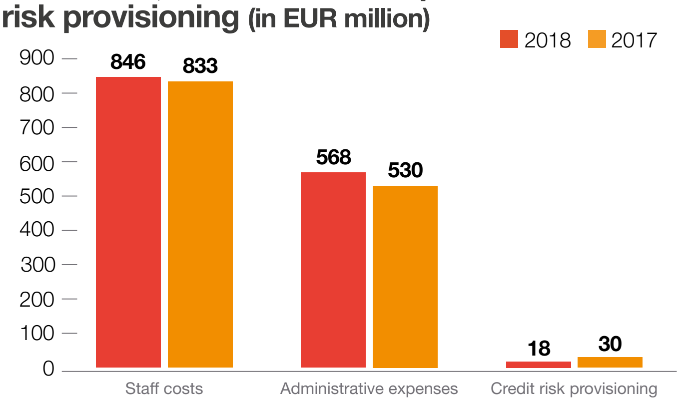
2018	2017
0.37%	0.46%

Banking income (in EUR million)

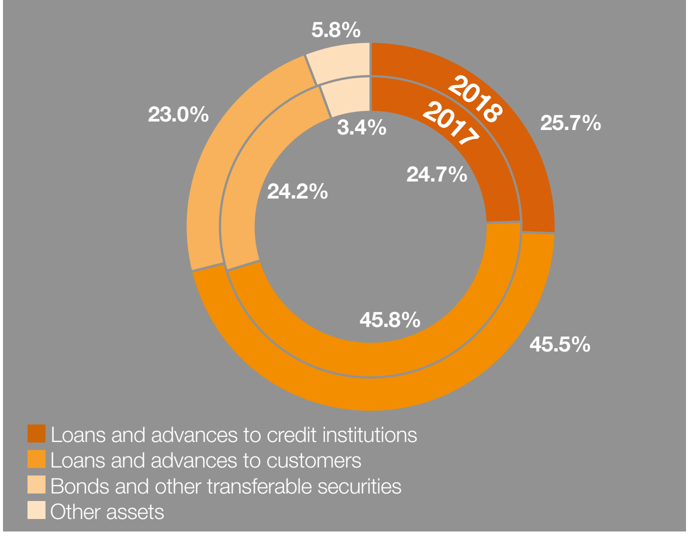


*other net income includes: net profit/loss on financial operations (including gains/losses on derivatives & revaluation gains/losses), other net operating income and dividend income

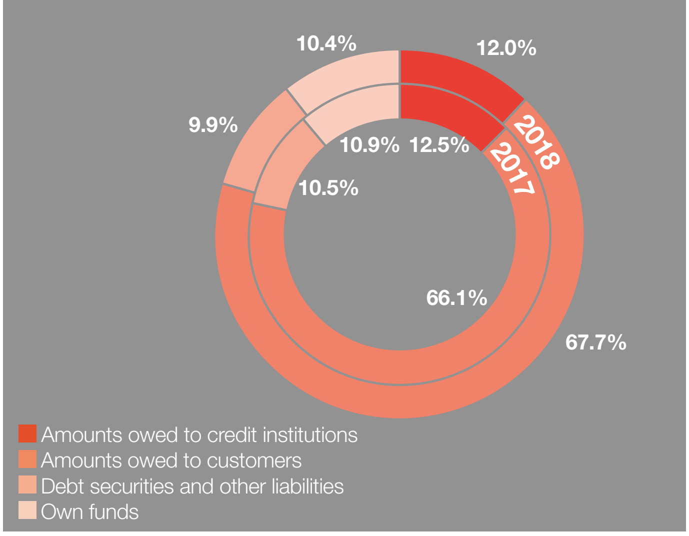
Staff costs, administrative expenses and credit risk provisioning (in EUR million)



Breakdown of assets



Breakdown of liabilities



Ranking of balance sheet totals (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	Banque et Caisse d'Epargne de l'Etat, Luxembourg	46,128	45,518	1.3%	=
2	BGL BNP Paribas S.A.	42,931	38,464	11.6%	=
3	Banque Internationale à Luxembourg S.A.	25,148	23,401	7.5%	=
4	KBL European Private Bankers S.A.	9,342	8,592	8.7%	=
5	Banque Raiffeisen S.C.	5,644	4,919	14.8%	=
6	Compagnie de Banque Privée Quilvest S.A.	2,006	1,944	3.2%	=
7	Société Nationale de Crédit et d'Investissement	1,482	1,443	2.7%	▲ +1
8	Banque Havilland S.A.	1,182	1,491	-20.7%	▼ -1
9	Fortuna Banque S.C.	271	257	5.4%	=
10	Bemo Europe - Banque Privée S.A.	266	235	13.1%	=
11	RiverBank S.A.	40	45	-10.5%	=
	Total	134,440	126,309	6.4%	

Ranking of annual net profit or loss (in EUR million)

Ranking	Bank	2018	2017	Shift	Change in rank
1	BGL BNP Paribas S.A.	209.2	145.7	43.6%	▲ +1
2	Banque et Caisse d'Epargne de l'Etat, Luxembourg	175.4	240.8	-27.2%	▼ -1
3	Banque Internationale à Luxembourg S.A.	86.6	112.8	-23.2%	=
4	Société Nationale de Crédit et d'Investissement	38.9	28.4	37.0%	▲ +1
5	Banque Raiffeisen S.C.	9.0	8.6	4.7%	▲ +1
6	Compagnie de Banque Privée Quilvest S.A.	7.1	6.7	6.0%	▲ +1
7	Banque Havilland S.A.	0.3	0.2	50.0%	▲ +2
8	Fortuna Banque S.C.	0.1	0.5	-80.0%	=
9	Bemo Europe - Banque Privée S.A.	-2.7	-1.0	-170.0%	▲ +1
10	RiverBank S.A.	-6.8	-4.3	-58.1%	▲ +1
11	KBL European Private Bankers S.A.	-23.0	39.3	-158.5%	▼ -7
	Total	494.1	577.7	-14.5%	

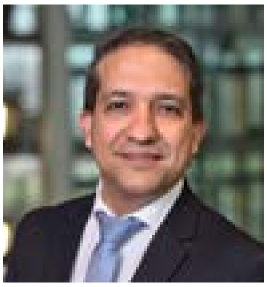
Contacts

Roxane Haas
Banking Industry Leader
+352 49 48 48 2451
roxane.haas@lu.pwc.com

Olivier Carré
Markets and Strategy
Financial Services Leader
+352 49 48 48 4174
oliver.carre@lu.pwc.com

Jörg Ackermann
Banking Consulting Partner
+352 49 48 48 4131
jorg.ackermann@lu.pwc.com

Björn Ebert
Banking Assurance Partner
+352 49 48 48 2256
bjorn.ebert@lu.pwc.com



Dariush Yazdani
Market Research Center Leader
+352 49 48 48 2191
dariush.yazdani@lu.pwc.com

Murielle Filipucci
Banking Tax Partner
+352 49 48 48 8304
murielle.filipucci@lu.pwc.com

PwC Luxembourg (www.pwc.lu) is the largest professional services firm in Luxembourg with 2,850 people employed from 77 different countries. PwC Luxembourg provides audit, tax and advisory services including management consulting, transaction, financing and regulatory advice. The firm provides advice to a wide variety of clients from local and middle market entrepreneurs to large multinational companies operating from Luxembourg and the Greater Region. The firm helps its clients create the value they are looking for by contributing to the smooth operation of the capital markets and providing advice through an industry-focused approach.

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 158 countries with more than 236,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.com and www.pwc.lu.