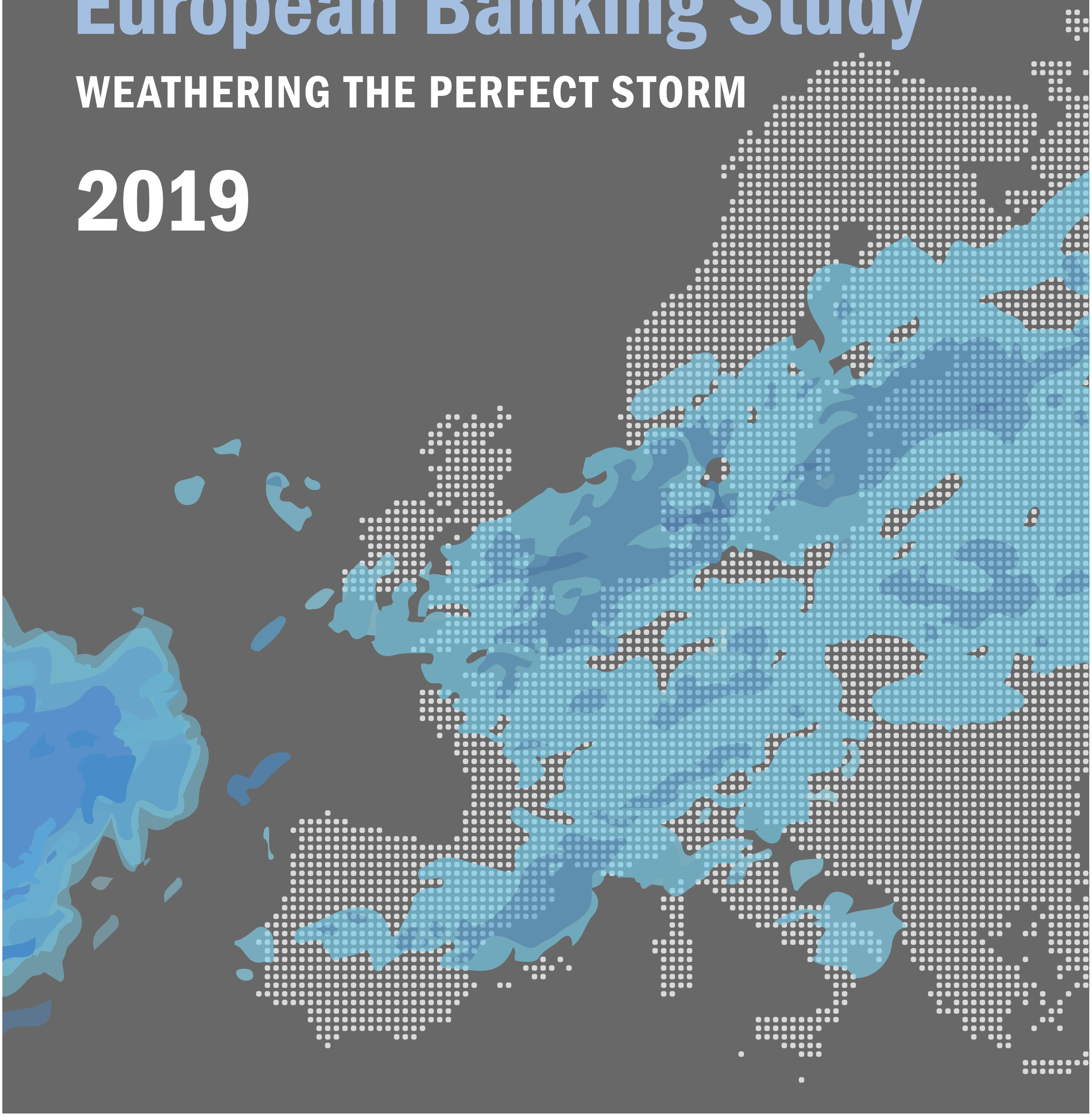
FINANCIAL SERVICES

zeb

European Banking Study

WEATHERING THE PERFECT STORM

2019



MANAGEMENT SUMMARY

Europe's banks face multiple hazards in an increasingly turbulent economic climate. In "Weathering the perfect storm", the sixth edition of our European Banking Study, our comprehensive look at the banking business in 2019 reveals that Europe's leading banks – despite some undeniable improvements – still do not generate enough profit from their core banking services on average. This has been a consistent finding since we started our study six years ago. However, there are of course also very successful banks in the market. Especially some mid-sized, less complex institutions focused on specific customers, products or regions are ahead of the pack.

Using zeb's tried-and-tested, proprietary simulation model to look into the future, we found that the industry's essential overall problems are even likely to worsen. All our scenarios paint a troubling picture for an industry facing what could be a perfect storm of adverse economic and regulatory forces in the coming years. If we assume constant interest rates, market conditions from the end of 2018 and no changes to bank's business / operating models, the average return on equity of Europe's top 50 banks will halve by 2023. Even our most optimistic and least likely "Euroboom" scenario indicates that, on average, banks will only just meet investors' profitability expectations.

How can Europe's banks avoid sinking further into stagnation? This latest edition of the European Banking Study reveals if and how digitalisation – obviously the hottest topic across the whole industry – could be the "silver bullet" that delivers long-term profits and leads banks into the Promised Land. We have been able to come up with significant answers:

- Banks that are digitalisation "pioneers" outperform less digitalised peers according to every significant banking KPI
- The most profitable banks replicate five success factors found in global Tech Giants like Google and Amazon to a greater extent than less successful banks
- However, the "silver bullet" of digitalisation will only work for banks that understand how to pull the trigger

We are very happy that zeb's annual European Banking Study has established itself as the leading industry research source for the region's top 50 banks and an indispensable guide to how they can navigate the challenges ahead. We would be pleased to discuss our analyses and findings with readers of our study and offer customised analyses for individual institutions. Please see pages 38–39 for contact details.

We hope you will find this study an enjoyable and informative read!

Dr. Dirk Holländer
Senior Partner

Dr. Florian Forst
Partner

Dr. Ekkehardt Bauer
Senior Manager

Dr. Frank Mrusek
Senior Manager

Martin Rietzel
Manager

OUR MAJOR FINDINGS IN FIVE KEY STATEMENTS

"European banks' improved capitalisation is good news for regulators and politicians. But investors and executives should worry deeply about the persistent inability of Europe's top banks to earn enough money."

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"Mid-sized, less complex banks with a clear focus on particular customers or regions are the winners in Europe. They achieve higher profits and better market valuations."

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Dr. Frank Mrusek, Senior Manager, zeb

"Banks that have moved early to digitalise their business and operating model are outperforming their peers across all relevant KPIs."

Dr. Florian Forst, Partner, zeb

"Tech Giants have delivered a blueprint for successful digitalisation. Banks need to follow five key success factors based on their own digital maturity."

Martin Rietzel, Manager, zeb

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1 CLOUDY WITH SOME HEAVY RAIN

The prevailing climate in European banking

Dr. Dirk Holländer, Senior Partner, zeb

"European banks' improved capitalisation is good news for regulators and politicians. But investors and executives should worry deeply about the persistent inability of Europe's top banks to earn enough money."

Where do European banks stand a little over a decade after the global financial crisis? The answer to this essential question is not straightforward and depends in large part on the level of scrutiny.

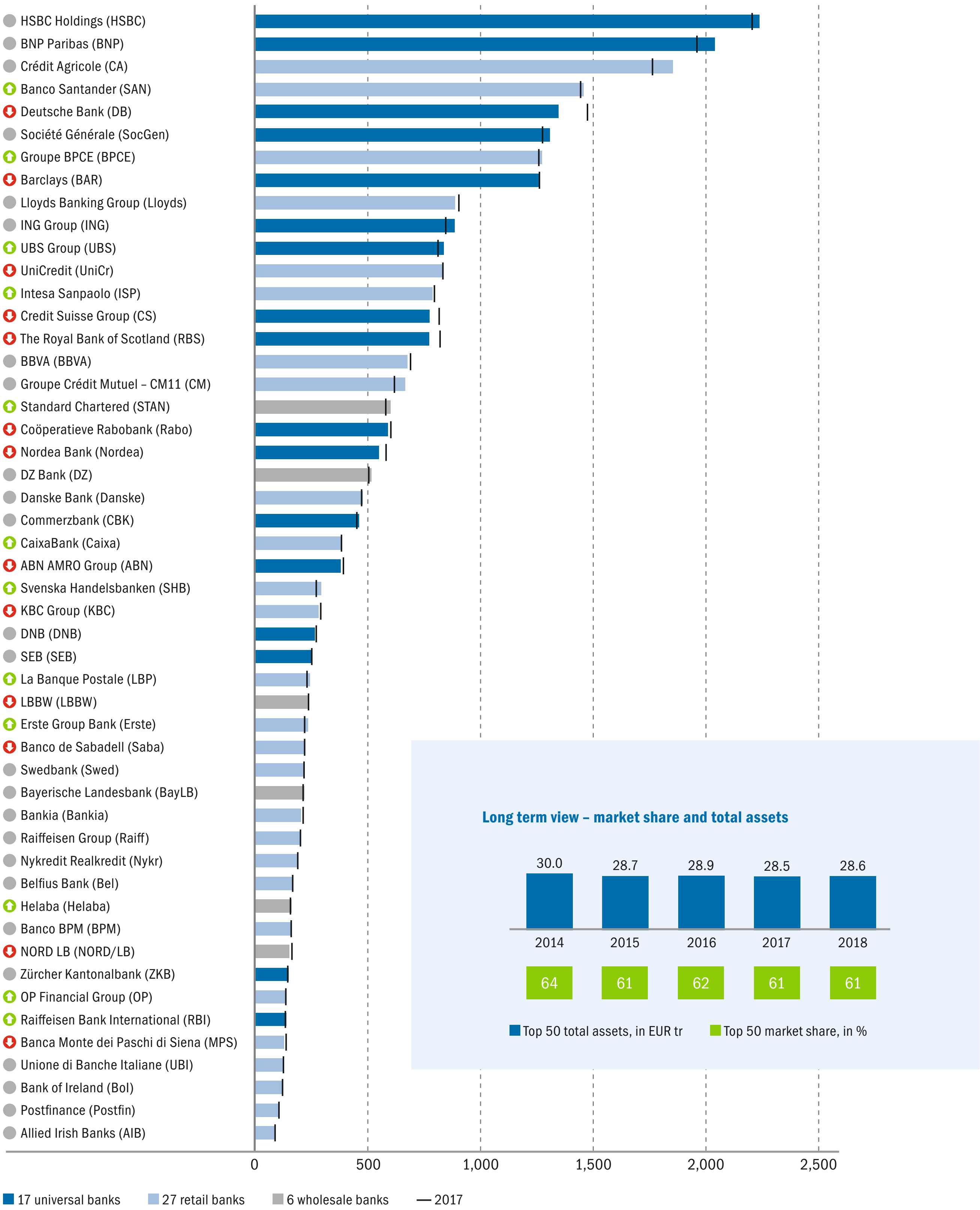
At first glance, Europe's top 50 banks appear to have achieved a gradual recovery from tough times. They have made significant progress in improving capitalisation and to some degree even returns. However, a closer look raises grave concerns. Not all banks have shaken off post-crisis weaknesses, while some apparent improvements disappear under scrutiny. Most importantly, investors are understandably not buying any sunny equity story featuring European banks. Overall, an objective view of the current situation reveals cloudy weather and plenty of rain.

Large European banks remain an exclusive club

The European Banking Study focuses on a representative group of institutions: the 50 largest commercial banks by total assets headquartered in Europe. This exclusive circle has shown little momentum in recent years: the list of Europe's top 50 banks has scarcely changed since 2017 and there has been no significant overall shift in their market share or total assets. The long expected and steadily increasing pressure for more consolidation or specialisation among large banks is still not reflected in the overall numbers. Figure 1 shows how little the general picture has altered since 2017, despite the ups and downs of a few individual banks.

2018 basis[1)]

in EUR bn



1) Sample contains 50 largest European banking groups by latest stated total assets, for 2018, all figures are based on full year numbers and calculated with fixed FX rates as of 31/12/2018, Europe includes the 28 countries of the European Union, Liechtenstein, Iceland, Norway and Switzerland; see appendix for further details

Source: company reports, European Banking Federation, European Central Bank, FitchConnect, zeb.research

Figure 1: Europe's 50 largest banks by total assets, 2018

Capital and liquidity are fairly solid, but structural risks exist

Superficially, Europe's top 50 banks are in a strong position. Their capitalisation has risen steadily in recent years, despite a slight overall decrease in 2018 due to the introduction of the International Financial Reporting Standard 9 (IFRS9) and tightening regulatory rules in the Nordics. The top 50's average overall Common Equity Tier 1 (CET1) ratio (13.9% in 2018) remained comfortably above the average regulatory and market minimum requirement of 12.5%.

The picture is similar for the top 50's average leverage ratio (LR) and average liquidity coverage ratio (LCR). The latter had reached 146% by the end of 2018, well above the regulatory hurdle of 100%. This is not only due to the overwhelming amount of liquidity in the market resulting from the ECB's monetary policy. It is also because many banks have problems in managing and monitoring their liquidity position and buffers. “Buffer management” is currently a hot topic and will remain so in the coming years, given that banks lose a significant amount of money by holding excess liquidity and capital because of regulatory ratios.

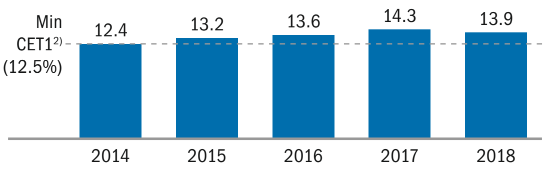
Figure 2 shows the development of the top 50's capital, leverage and liquidity ratios.

Overall, regulatory figures show a European banking industry whose financial strength has improved significantly and become more resilient since the years leading up to the global financial crisis. However, scrutiny of the banks' risk situation also raises concerns. Although the situation differed from one part of Europe to the next, the substantial increase in spreads of credit default swaps (CDS) in 2018 signalled that investors were increasingly worried about banks' underlying risks.

As a result, CDS spreads for banks from Southern Europe in our top 50 sample almost doubled. The two major reasons for this development were non-performing loans, of which a very high proportion remained inadequately adjusted in value, and high levels of exposure to only medium-grade sovereign bonds (see Figure 3) – in most cases from the banks' respective home country. Western European banks, Nordic banks and UK banks last year also experienced rising credit spreads, albeit much lower in degree. This problem will accelerate in the future, as there are some signs that Europe is heading towards the end of the current credit cycle, which would lead to new non-performing loans and credit losses.

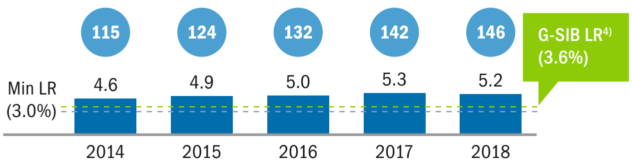
Common equity tier 1 (CET1) ratio[1)]

in %



Leverage ratio (LR) / liquidity coverage ratio (LCR)[3)]

in %



● Liquidity coverage ratio

1) Transitional CET1 ratio: CET1 capital to risk-weighted assets;
2) Est. market avg., individual req. for each bank; avg. consists of 4.5% Pillar 1 req. + 2.5% capital conservation buffer + 1.0% avg. countercyclical buffer + 1.0% avg. systemic buffers (incl. G-SIB, syst. buffer) + 2.0% avg. SREP surcharge + 1.5% “manoeuvring” buffer;
3) All figures based on reported numbers;
4) Average LR req. of all G-SIB banks

Source: Bloomberg, company reports, FitchConnect, zeb.research

Figure 2: Average capital and liquidity ratios of Europe's top 50 banks

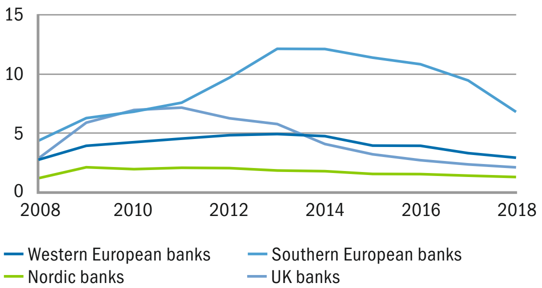
Furthermore, there are indications that Europe's banks have in the last 3–4 years begun to price loans without adequately factoring in default risk. A zeb analysis based on our risk-adjusted pricing model for Europe's top 50 banks shows that the pricing for syndicated loans – as one part of the overall loan business – has fallen well below the theoretically fair price, including all margins and risk costs. Ominously, a similar trend was visible during the 2007 run-up to the financial crisis. Today, the same phenomenon suggests that the willingness of banks to take risks is growing amid a desperate search for at least some positive yields in a liquidity-flooded market. This greater appetite for risk has in turn eroded the (risk-adjusted) profitability of lending and the average quality of credit portfolios.

Despite the positive development regarding regulatory KPIs, our analysis shows that some banks are exposed to significant credit risks and related losses in the event of economic downturn driven by international trade tensions, a hard Brexit or a renewed sovereign debt crisis in Southern Europe. Whether their capital ratios are high enough to absorb such shocks and prevent crisis-driven bank failures is a crucial question; the reality check is still to come.

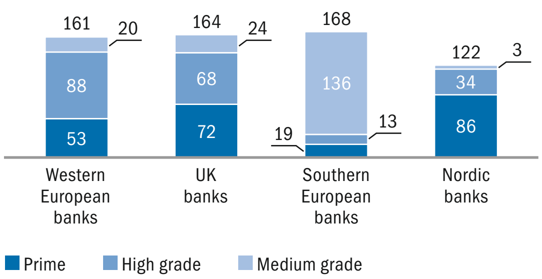
Selected drivers

in %

NPL ratio[1]



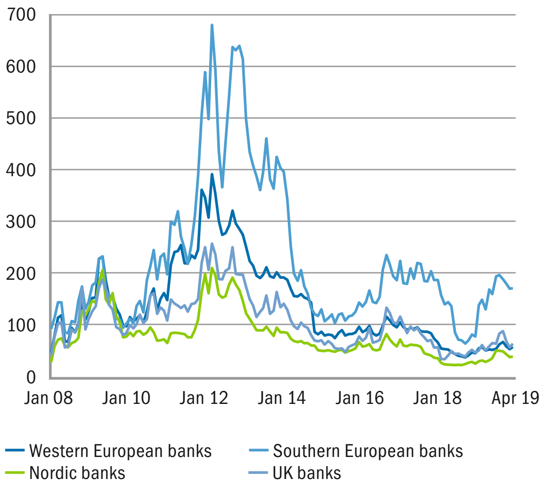
Sovereign bonds exposure to equity[2]



Market view

in bps

5-year CDS spreads of top 50 banks



1) Non-performing loans to gross loans;
2) Shares of total sovereign exposure to total equity by rating class and sorted by region as of Q2/2018, without Swiss banks, Fitch ratings as of 21/01/2019 used, prime: AAA, high grade: AA+ to AA-, medium grade: A+ to BBB;
3) Top 50 banks clustered by countries, Southern E.: Italy, Spain, Nordics: Denmark, Finland, Norway, Sweden, Western E.: all other countries

Source: European Banking Authority, FitchConnect, Thomson Reuters Datastream, zeb.research

Figure 3: Risk situation of Europe's top 50 banks[3]

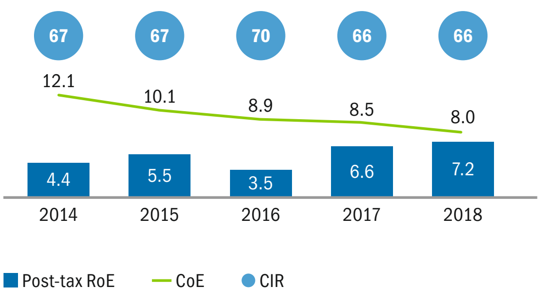
Profitability is the main problem

Starting with some good news, the profitability of Europe's top 50 banks has steadily recovered over the last years. Post-tax return on equity (RoE) reached 7.2% in 2018, 0.6 percentage points more than in 2017 (see Figure 4). Banks are continuing to close the gap between their performance and the returns expected by investors, with a current cost of equity of around 8.0%.

However, closer scrutiny brings some bad news. The increase in banks' RoE over the last five years was solely due to non-operational factors. Lower litigation costs, lower taxes and especially reduced loan loss provisions, which reached a historical low in 2018, improved the overall results of the top 50 banks. Even more dramatic is the fact that the development of the overall operating result was negative during the same time. In other words, Europe's largest banks are currently making less profit from their core banking services than five years ago. All the operational and strategic improvements of recent years have not been substantial or sustainable enough to counter decreasing earnings and increasing costs such as higher regulatory charges, increasing IT spend and rising salaries.

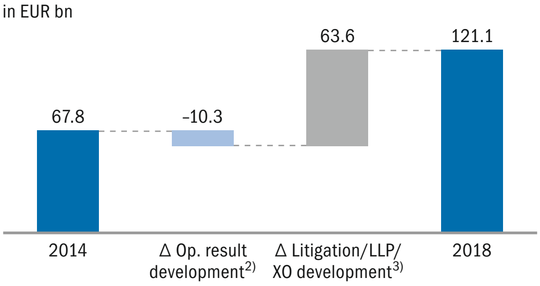
Post-tax return on equity / cost of equity / cost-income ratio[1)]

in %



Post-tax profit development

in EUR bn



1) Post-tax RoE (return on equity): post-tax profit to avg. total equity, cost of equity (CoE): yearly average of European 10-year gov. bonds as risk-free rate plus risk premium of 6% multiplied by banks' individual yearly average beta; CIR (cost-income ratio): operating expenses to total earnings;
2) Includes total operating earnings and operating expenses;
3) Litigation costs, loan loss provisions (LLPs), extraord. result / result from discount. op. (XO result) and tax

Source: company reports, FitchConnect, zeb.research

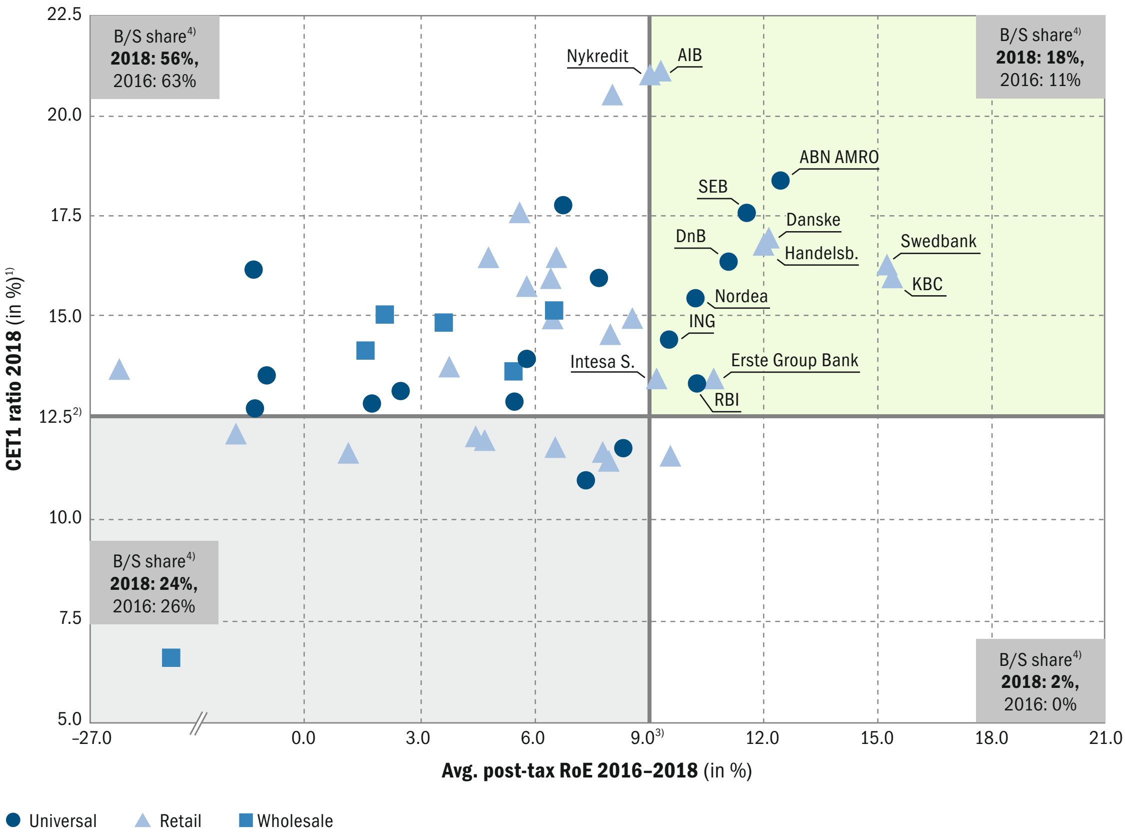
Figure 4: Post-tax profit and profit development of Europe's top 50 banks, 2014–2018

Dr. Ekkehardt Bauer, Senior Manager, zeb

"Mid-sized, less complex banks with a clear focus on particular customers or regions are the winners in Europe. They achieve higher profits and better market valuations."

Europe lacks top-performing banks

The performance of individual banks among Europe's top 50 offers a mixed picture but supports our overall analysis. Most banks exceeded the capital requirement threshold of 12.5% demanded on average by markets, investors and regulators. However, a remarkable 11 institutions failed to achieve this average target. In addition, most banks were still not sufficiently profitable to cover their long-term cost of equity, which we estimate at around 9%. Overall, only 14 of the top 50 banks achieved both a sufficient CET1 ratio and a post-tax RoE above their cost of equity. Figure 5 below shows the detailed picture.



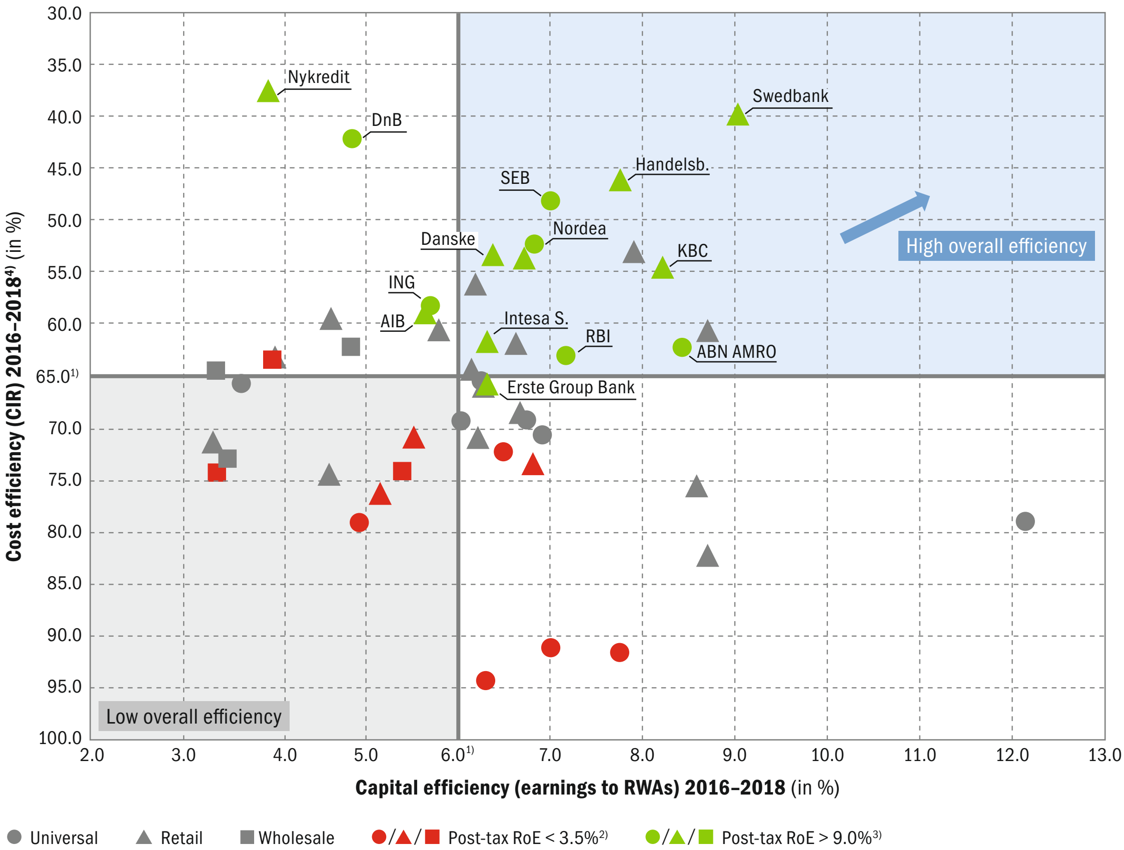
1) Transitional CET1 ratio;
2) Estimated market average, individual requirements for each bank; average consists of 4.5% Pillar 1 req. + 2.5% capital conservation buffer + 1.0% average countercyclical b. + 1.0% average systemic b. (incl. G-SIB, systemic risk buffer) + 2.0% average SREP surcharge + 1.5% "manoeuvring" buffer;
3) Average cost of equity 2016–2018;
4) Percentage of total assets held by banks in each quadrant; see appendix for banks' individual figures

Source: company reports, FitchConnect, zeb.research

Figure 5: Profitability and capitalisation of Europe's top 50 banks

An analysis of these 14 top performers reveals a clear pattern. The group comprises mid-sized (in comparison to the overall sample), less complex banks with a clear regional, product and/or target customer focus. They are large enough to gain adequate economies of scale but benefit from far less complex structures, IT systems and regulatory rules compared with some of their larger top 50 peers. Significantly, this finding is not just a one-off snapshot. The pattern has been evident since we launched our annual EBS in 2013. Over the past six years, only one of Europe's 10 largest banks, an institution with a strong retail focus, has ever reached the top right corner in our profitability-capital matrix.

One key reason for the gap between the top 14 and the remaining 36 banks is clear: the top performers use capital and labour more efficiently. Our analysis shows that they excel at cost and capital efficiency, while their peers lag behind in one or both areas. As a result, the latter banks are far less profitable (see Figure 6)[1].



1) Median of all banks;
2) Approx. low quartile boundary;
3) Average costs of equity;
4) Cost-income ratio: operating expenses to total earnings

Source: company reports, FitchConnect, zeb.research

Figure 6: Efficiency dimensions of Europe's top 50 banks

[1] We measure a bank's cost efficiency based on its three-year average CIR. Capital efficiency is defined as the three-year average ratio of earnings to RWA.

Of course, the degree of efficiency any bank can attain depends substantially on its business model and other individual characteristics.

European banks have miserable, but fair market valuations

Putting all previous arguments together, it comes as no surprise that capital market investors have lost their faith in European banks. The average capital market performance of Europe's top 50 banks was poor in 2018 and the average valuation of the top 50 banks remained at disastrous levels. The average price-to-book ratio (P/B ratio) had fallen to 0.61 by the end of 2018, moving Europe's banks further away from the important threshold of a P/B ratio of 1 and increasing the gap to other industries. Figure 7 details stock market performance and valuation patterns. Beyond the idiosyncratic factors mentioned before, the fading hopes for higher yields in Europe, Brexit, looming trade wars and other (geo-)political and economic problems, low growth dynamics in the classic banking segment and new banking litigation issues have crushed the equity stories of many institutions.

More frustratingly, our analysis did not turn up any evidence that current market valuations are unfair or the result of some irrational exuberance. Based on a classic evaluation model (Gordon Growth Model), we find a theoretical price that is comparable to current market valuation. Whilst only being an approximation, the long-term valuation of a bank can be seen as a direct function of overall profitability and growth for a given risk profile.

Turning the argument around, we could also argue that assuming an average future cost of equity of around 9% and a payout ratio of 75%, current valuations, i.e. the market participants, imply an expected long-term RoE of 7% and revenue growth of around zero.[2] This implied RoE is in line with 2018 figures and could represent the "natural" long-term RoE rate of Europe's top 50 banks if banks do not adjust their business or operating model significantly.

As "sunny" as average regulatory and profitability KPIs of Europe's top 50 banks may look on the surface, scrutiny of other data reveals a rather cloudy environment with a lot of rain. Although capitalisation and profitability have improved, other KPIs have worsened, raising substantial concerns. If economic conditions were to become less favourable, inadequately provisioned credit risks, lack of organic growth and poor market sentiment will combine into yet another perfect storm for Europe's 50 biggest banks.

[2] Implied revenue growth of zero is also reasonable as the banks have not generated any organic growth in the last five years.

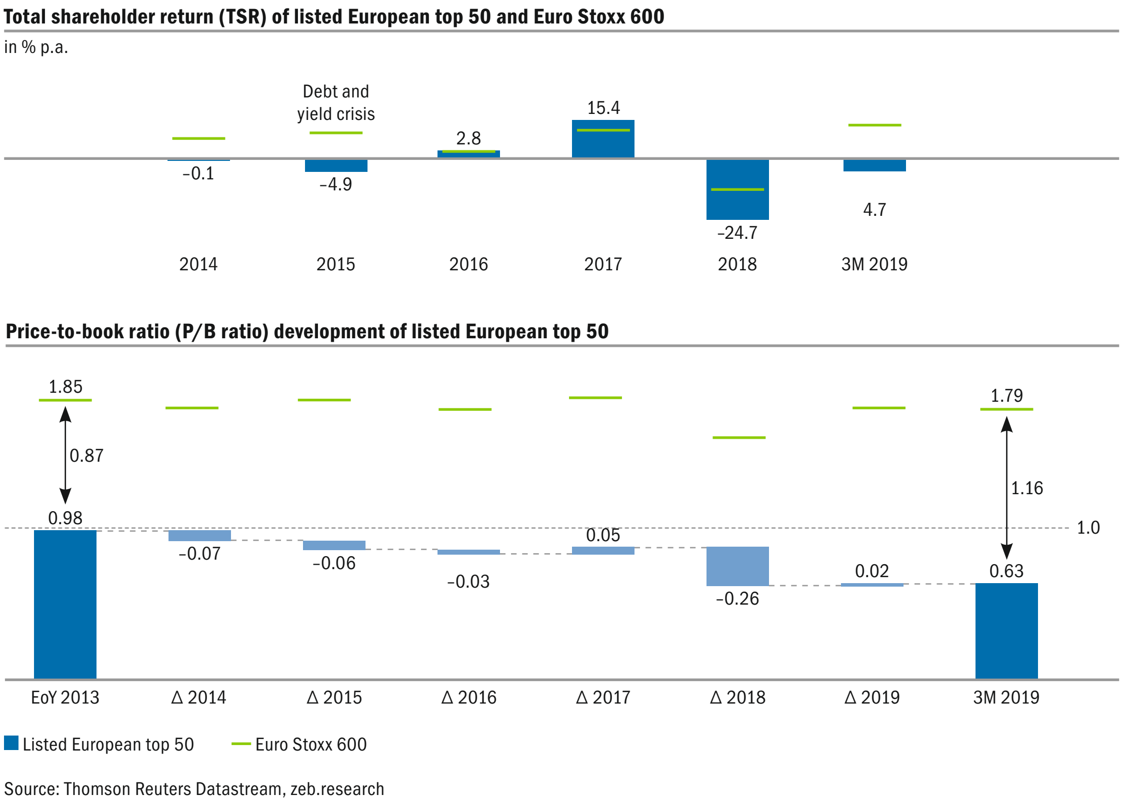


Figure 7: Capital market performance and valuation of Europe's top 50 banks

2 PERFECT STORM ON THE HORIZON?

A closer look at four scenarios

Dr. Frank Mrusek, Senior Manager, zeb

"Our simulation of upcoming regulatory and economic pressure shows that banks must substantially adjust their business and operating model. Simple cost cutting and hoping for higher yields is not good enough."

Looking ahead, Europe's banks face significant vulnerabilities and especially a very volatile future economic environment. One issue is the still existing regulatory agenda. Although no new game-changing rules are to be expected, banks will have to comply with a long list of initiatives, which will become even longer in the future. They will not only affect banks' capitalisation and capital ratios. As many key initiatives will not only lead to higher costs but also to regulatory-inflicted lower earnings, regulation still directly affects one of the most critical areas of banking in Europe: the ability to earn money and to achieve a reasonable return for investors.

Another issue to discuss is the economic perspective. Based on current developments, like global trade tensions, an unresolved Brexit and rising fiscal fragility in several European countries and other (geo-)political turmoil just to name a few, the future direction based on economic sentiment or forecasts is more volatile and uncertain than ever.

These issues are of course major concerns for banks. Therefore, we believe that it is of high importance for bank managers

1. to still have an up-to-date view of regulatory changes including respective quantitative impact analyses,
2. to consider several different economic scenarios in their strategy and planning processes, and
3. to base their decision-making on sophisticated analyses and simulations that combine regulatory effects and different scenarios as well as their correlations within a holistic approach.

In the following paragraphs, we will provide such an analysis and simulation by formulating an integrated outlook for the large European banks until 2023.

New regulations exacerbate the profitability problem

As a first step and starting point, we defined a baseline scenario. In this baseline scenario, we examined the effects of the most important regulatory initiatives on the KPIs of each European top 50 bank. Based on this, we developed three further scenarios to combine the regulatory impact on each bank with the effects from different macroeconomic scenarios such as interest rate hikes or credit risk deterioration. (See separate box for more details on zeb's simulation approach.)

DETAILED VIEW:
HOLISTIC ZEB.SIMULATION OF EUROPEAN BANKS

General methodology

zeb's proprietary banking simulation model – tried, tested, and back-tested – estimates the impact of yields, the most important upcoming regulatory initiatives and macroeconomic developments on the key performance indicators of each individual top 50 bank. We use detailed assumptions based on working papers, quantitative impact studies and our expert knowledge to determine the specific impacts of each factor on the regulatory capital, earnings, costs or balance sheet positions. It is important to highlight that our model takes into account dependencies and connections between the income statement, balance sheet and regulatory figures during the simulation periods. This allows zeb to conduct an integrated simulation of the development of each bank's essential KPIs, rather than isolated, "silo" calculations that do not take these very important correlations and connections into account. For each bank, the model uses only publicly available data.

Unlike other forecasts, we project each bank's results without factoring in assumed operational changes or improvements (e.g. cost cutting, earnings measures or balance sheet changes). This enables us to calculate scenarios for each bank that help senior executives determine the required management actions in the future.

Two-stage modelling approach

In our two-stage modelling approach, we first focused on simulating the bank-specific effects of the most important regulatory initiatives. We identified 15 major initiatives through our regulatory analyses tool zeb.regulatory-hub, based on more than 500 regulatory initiatives, rules and laws from different standard-setters that are currently relevant for European banks.

Next, we broadened our baseline simulation by modelling three different macroeconomic developments with interest rate and credit risk changes and their effects on bank KPIs: an optimistic "Euroboom" scenario, developments in line with market expectations and a "Eurogloom" crisis scenario.

Finally, we took each bank's individual impact and simulation results and combined them into the overall findings for the aggregate of Europe's top 50 banks. More detailed impact findings for any bank are available and can be provided to interest parties upon request.

Our baseline scenario for Europe's top 50 banks forecasts a decline in the average capital ratio and a halving of RoE over the next five years. This scenario assumes banking executives will take no additional measures in reaction to developments, and that interest rates, profit margins and loan loss provisions will remain at the levels seen at the end of 2018.

The capital strength of Europe's top 50 banks will be hit dramatically by pending regulatory initiatives. In particular, the implementation of the final Basel III reforms will have a major negative impact on the CET1 ratio. Based on our calculations, average banks' RWA will increase by around 27%. As banks will be able to only partly offset the effect by retaining earnings, the average CET1 ratio will decline almost to the minimum ratio of 12.5%. This would leave banks without any room to embark on either substantial growth or transformation strategies.

In the longer term, profitability will remain the fundamental problem for banks. From an already low starting point, their average RoE will still only be 3.5% in five years' time. The EU's Revised Directive on Payment Services (PSD2) alone looks set to lower average RoE by 1.2 percentage points. Disregarding the additional downward impact of the existing low yield environment, PSD2 will substantially lower retail earnings from payments services, as third parties will have free access to banking clients' account and transaction data via APIs. Figure 8 summarises these effects.

1) Retained earnings incl. non-operating adjustments (i.e. tax adjustments and adjusted litigation costs (reaching bank-representative value of the last 3 years at the end of 2020);
2) Incl. final Basel III (calc. fully phased-in) and TLAC/MREL;
3) Incl. earnings effects of PSD2 and additional regulatory costs for the implementation of IT & digitalisation and risk management initiatives

Source: zeb.research

Figure 8: Impact of regulatory initiatives – baseline scenario

Hoping and waiting for higher yields will not save all banks

In a second step, we combined three economic scenarios with the baseline results. This allowed us to add the effects of a very optimistic scenario ("Euroboom"), an average development according to current market expectations and an economic downturn and crisis ("Eurogloom"). We chose four key parameters to model these scenarios: (1) scenario-specific developments in interest rate structure, (2) corresponding developments of loan and deposit margins, (3) possible funding surcharges, (4) the development of loan loss provisions.

Each economic scenario was defined by different settings of these parameters, capturing interest rate dynamics and credit events. As with our baseline scenario, these three economic scenarios did not include explicit management actions. Figure 9 shows the main modelling assumptions and scenario characteristics.

		"Euroboom" 10–15%[1)]	"Market expectations" 60–70%[1)]	"Eurogloom" 20–25%[1)]
Main model parameters	**Interest rate structure**	• Regional yield curves rise and slopes steepen significantly	• Moderate increase of regional yield curves based on market expectations	• Regional yield curves flatten further (Japanese interest rate conditions)
Main model parameters	**Loan and deposit margin sensitivity**	• Rising interest rates result in increasing deposit margins • Constant loan margins	• Rising interest rates result in increasing deposit margins • Constant loan margins	• Assumption of constant loan and deposit margins
Main model parameters	**Funding surcharge**	• No additional funding surcharge	• No additional funding surcharge	• Significant funding surcharge based on rating category (only for long-term capital market funding)
Main model parameters	**Loan loss provisions**	• Loan loss provisions (LLPs) stay at historically low levels	• LLPs return to long-term average as economic growth decreases and interest rates increase	• Calculation based on bank-specific NPL ratio estimates • Impact of NPL on LLPs based on regression analyses
Economic rationale		• Increasing domestic demand due to structural reforms / fiscal stimulus • Free trade agreements (US/China/UK) revive trade	• Economy still grows, but at a slower pace – decreasing net trade surplus as major driver (e.g. international trade tensions)	• Recession driven by an escalating international trade war, a hard Brexit and increasing fiscal fragility in European countries

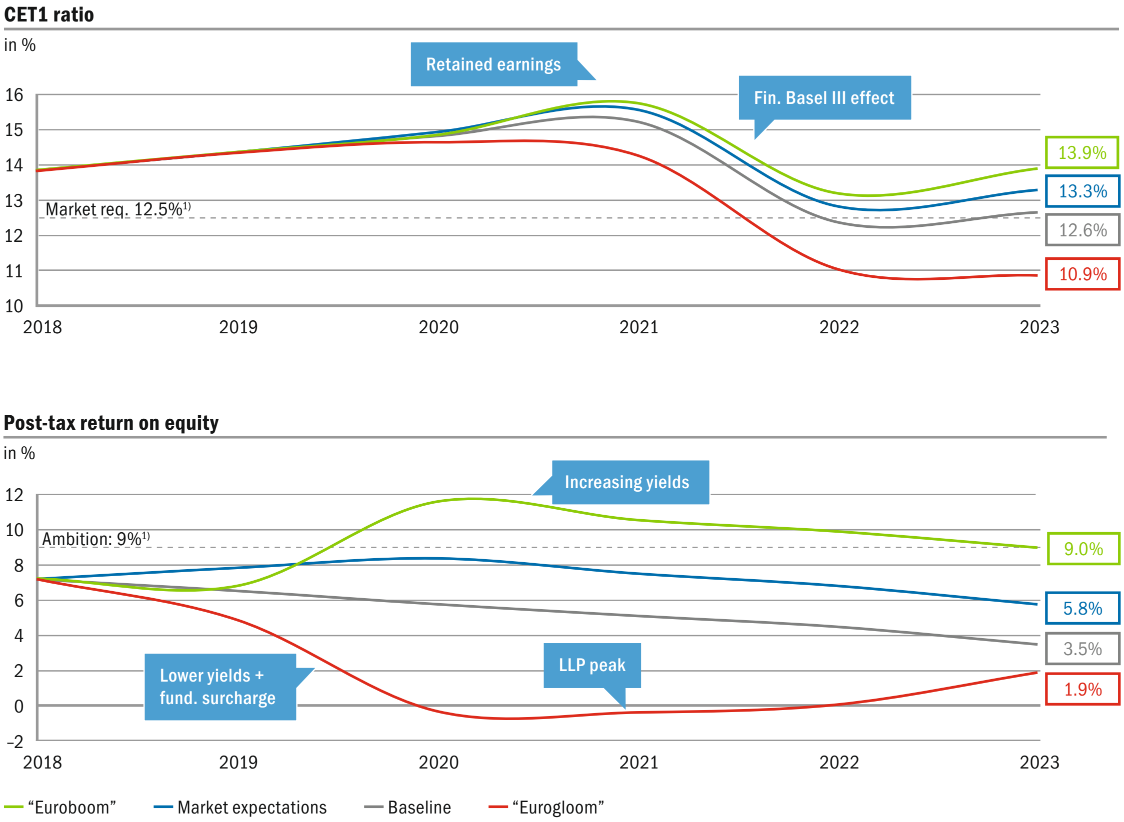
1) Average expected probability of occurrence

Source: research institutes, zeb.research

Figure 9: Overview of simulated economic scenarios

In the "Eurogloom" crisis scenario, a flattening or inverting yield curve, higher loan loss provisions (LLPs) and funding surcharges will significantly reduce banking profits. (Figure 10 presents the results of all three economic scenario analyses.) While unlikely, it is not impossible that banks will see average returns dip into the red, albeit for a short period, before returning to moderate average profits. The model forecasts the banks' average RoE down at just 1.9% in 2023, with an average CET1 ratio of only 10.9%. In this scenario, capital appears once more to be turning into a problem.

European banks' lack of profitability features prominently in the most likely scenario, based on current market expectations about economic growth. Moderate increases in interest rates will not be sufficient to fully make up for the effects of regulation and normalising loan loss provisions. In 2023, average RoE is forecast to be 5.8%, more than two points above the baseline result but still far below the cost of equity. However, Europe's top 50 banks will remain adequately capitalised over the next five years, with the average CET1 ratio falling by just 0.6 points to 13.3% in 2023.



1) Estimated market requirement

Source: zeb.research

Figure 10: Simulation results – averages of Europe's top 50 banks

In the least probable "Euroboom" scenario, the banks' average profitability will improve significantly and just cover their cost of equity. Positive effects from strongly increasing and steepening yield curves and a favourable credit environment will more than make up for the negative impact of regulation. As a result, banks' average RoE will rise to 9.0% in 2023 and support efforts to build up capital to offset negative regulatory effects. This scenario suggests that most of Europe's top 50 banks would have a comfortable capital situation with an average CET1 ratio of 13.9% in 2023. There would, however, still be several banks that would remain below the average and therefore below their costs of equity.

Cost cutting cannot be the only lever

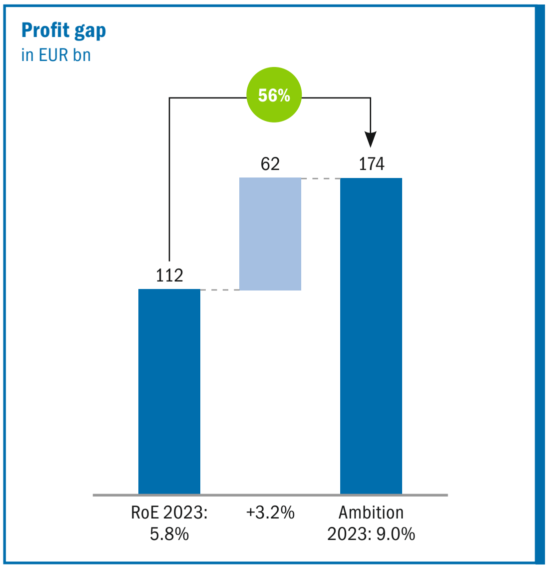
Given that Europe's economic growth will most likely be in line with current market expectations, banks must take urgent measures to address the industry's key problem: profitability. Undeniably, banking executives have already taken such measures and will continue to do so in the future. The question is whether the measures are adequate to address the challenges set out by our simulation model.

Our market expectations scenario indicates that Europe's top 50 banks need to significantly improve their profitability to cover the longer-term cost of equity. To achieve this target, they will have to increase post-tax profits by a massive 56% over the next five years, or by a cumulative total of EUR 62 bn.

The daunting scale of this challenge strongly suggests that cost cutting alone will not be the solution. Our analysis of possible cost reductions and earnings increases (see Figure 11) shows that even a 15% reduction in general administrative and personnel costs will not be sufficient to raise RoE to the required level. In any case, such a reduction is hardly realistic in view of upcoming costs relating to digitalisation, IT systems rejuvenation and regulation. Banks will have to boost earnings while also cutting costs in order to meet investors' RoE expectations.

Our analyses show that only a combination of measures to address costs and earnings can address the long-term issue of profitability. Yet the search for new profit sources is challenging in itself, since banks' revenue-generating activities are constrained by capital ratios.

All our scenarios, considered together, send one clear message: a "wait and see approach" cannot be a viable strategy. Even "Euroboom" market conditions – with, say, higher interest rates – will not automatically help all banks to achieve necessary RoE figures or build comfortable capital cushions. They must urgently find ways to reduce their operating costs while growing revenues, or risk finding themselves in an even more perilous position in 2023 than they are in today.



Cost and earnings potentials[1] – RoE after tax
in %

Cost decrease \ Earnings increase	0%	5%	10%	15%
0%	5.8	7.1	8.3	9.5
5%	6.7	7.9	9.1	10.3
10%	7.5	8.7	9.9	11.1
15%	8.3	9.5	10.7	12.0

RoE below ambition # RoE above ambition

1) Estimation of cost decreases / earnings increases on banks' RoE as ceteris paribus analysis with constant loan loss provisions, extraordinary result and tax rate

Source: company reports, FitchConnect, zeb.research

Figure 11: Effects of cost cuttings and earnings increases

3 BRAVING THE STORM
Digitalisation as the silver bullet?

Dr. Florian Forst, Partner, zeb

"Banks that have moved early to digitalise their business and operating model are outperforming their peers across all relevant KPIs."

The immediate outlook for Europe's banks contains both positive and negative aspects, with the prospect of additional burdens and obstacles in the coming years. What action can banks take to combat the approaching storm and, in the long term, increase profitability, reduce costs and improve capitalisation?

In last year's European Banking Study, we identified four general directions that Europe's banks can follow, given the current challenging environment:

1. Overall consolidation, i.e. merging with other financial institutions
2. Specialisation by focusing on certain products and/or customers or on particular sales channels
3. Breaking up the value chain by focusing on specific parts and keeping them within the bank while outsourcing others
4. Going beyond banking by developing and offering ecosystems to customers.

The enablers for these four strategic options are M&A, outsourcing and digitalisation, with the latter playing an increasingly important role in the financial services industry and acting as the main driver. Digitalisation could be a significant force in dispersing the clouds. At the very least, the potential of digitalisation merits close analysis.

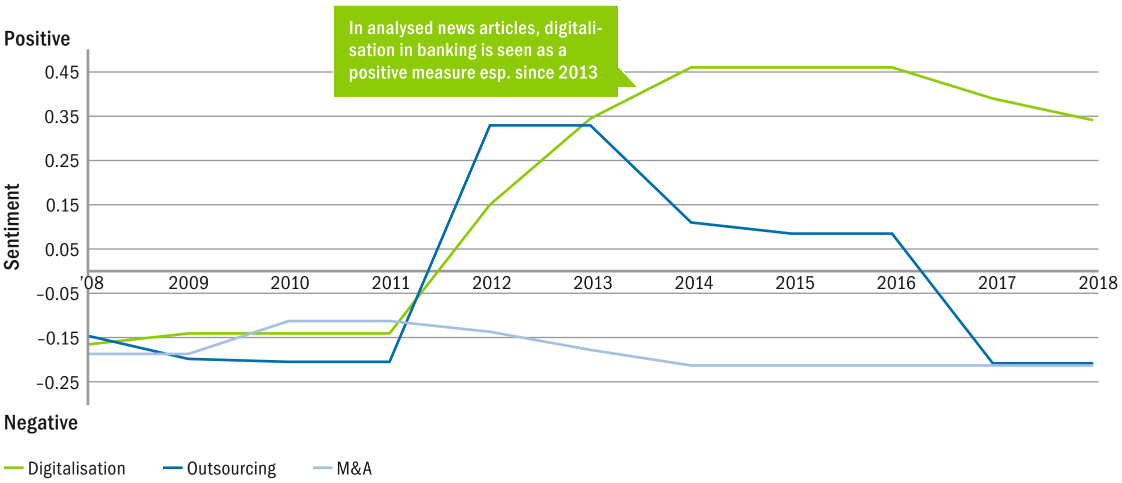
First, we confirmed that our positive perception of digitalisation was reflected in the market and the press by using a sentiment analysis to compare the public perception of digitalisation compared to the other enablers. Second, we determined how often financial institutions referred to digitalisation in their annual reports, as a proxy for their focus on digitalisation. This enabled us to cluster banks into three groups based on their communicated digitalisation effort and then to compare average KPIs and therefore the potential success of banks for the different digitalisation clusters. Finally, we derived digital success factors and tested them against the respective groups.

Digital pioneers outperform other banks across all relevant KPIs

How do the market and the public perceive digitalisation as a driver for transformation in the financial sector, as compared to M&A and outsourcing? To answer this question, we developed a proprietary algorithm to analyse more than 20,000 press articles about major European banks published in major newspapers and magazines across Europe between 2008 and 2018. The algorithm checked the articles for approval or rejection of the enablers by searching for positive and negative words and then calculating a sentiment indicator based on the findings.

The analysis shows that digitalisation is the only one of the three enablers that has consistently been perceived positively since 2011 (Figure 12). In contrast, outsourcing appears to have lost its appeal, following a brief period of favourable coverage between 2011 and 2013. The current perception of outsourcing is generally negative, as has been continuously the case for M&A. These findings support our assumption that digitalisation is still recognised as a positive tool for the required transformation in the banking sector.

Sentiment of news articles 2008 to 2018[1)]



1) Methodology: Dictionary approach based on Loughran and McDonald's (2011) financial dictionary; sentiment indicator is defined between very good (+1) and very bad (–1), +/–1 means that predominantly positive/negative words were contained in news article; 203,483 article paragraphs on ten largest European banks

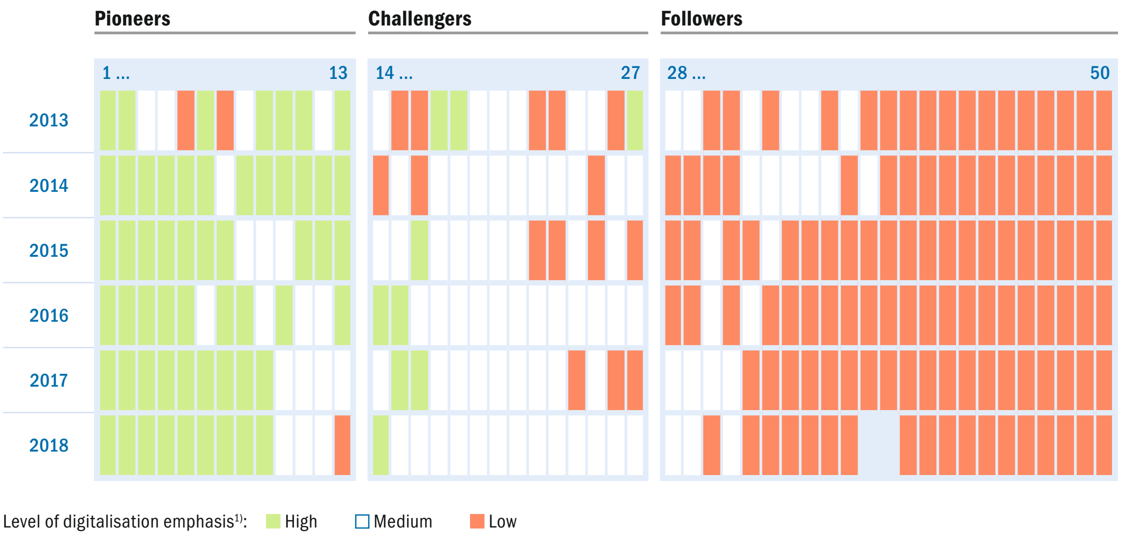
Source: zeb.research

Figure 12: Sentiment analysis of news articles about major European banks, 2008–2018

However, positive perception represents a soft factor that on its own does not indicate whether digitalisation really is the silver bullet for banks to address present and future challenges. Reliable, preferably quantitative KPIs are also required. Since there are no such KPIs for digitalisation, we had to select a proxy. We chose the external communication of banks, on the assumption that if banks discuss digitalisation and report about it extensively, they will accordingly invest more time and resources on digital initiatives. By the same logic, banks that talk a lot about digitalisation should also outperform banks when measured against typical financial industry KPIs, compared with less communicative banks – the rationale being "If you are good at something you are highly likely to talk about it".

To check this correlation, we used a similar algorithm to analyse all annual reports of Europe's top 50 banks from 2013 to 2018 to identify which banks started emphasising digitalisation early and intensively. First, we defined a pool of 44 digitalisation keywords for the algorithm to search and quantify. We then divided the number of deflections by the total number of words in each annual report. This enabled us to calculate an indicator that allowed for comparison with the peer group, consisting of 50 banks for each year between 2013 and 2018. Some might argue that annual reports by banks are not an ideal source, given cultural differences and the fact that in some countries like France or Italy they tend to be more "technical" and data focused. However, the annual report is still the most important combined publication for shareholders, customers, employees, analysts and the public.

Our algorithm established that the communication of digitalisation varies greatly between banks. Several banks were early, extensive communicators regarding digitalisation, while other banks either started later or communicated to a significantly lesser extent. Based on the starting date and extent of communication, we divided banks into three groups: digital "pioneers", "challengers", and "followers" (Figure 13).



1) Rating based on communication, not implementation;
2) Methodology: All top 50 banks' annual reports from 2013 to 2018 analysed by proprietary engine, searching for appearance of 44 "digital" key words; key words used for analysis were defined by zeb expert pool; the result of the analysis shows relative share of "digital" relevant text within the reports and against peers

Source: zeb.research

Figure 13: Digitalisation emphasis in annual reports[2]

The 13 digital pioneers emphasised digitalisation very early and continue to stress it strongly. The cohort mostly consists of Nordic, Dutch and Spanish banks and is largely composed of retail banks or universal banks with a less complex business and operating model compared to the largest institutions in Europe. These findings correspond to expectations, as digitalisation was long seen as a topic mainly relevant for retail banks.

The 14 digital challengers took longer to start communicating about digitalisation and still do not emphasise it greatly. The group is geographically diverse and covers universal, retail and wholesale banking, with no striking similarities in their business models.

Based on our analysis, the remaining 23 banks can be regarded as digital followers. They are generally wholesale banks or large, more complex universal banks, with only a few retail institutions. Most institutions of this group made only marginal references to digitalisation in their annual reports.

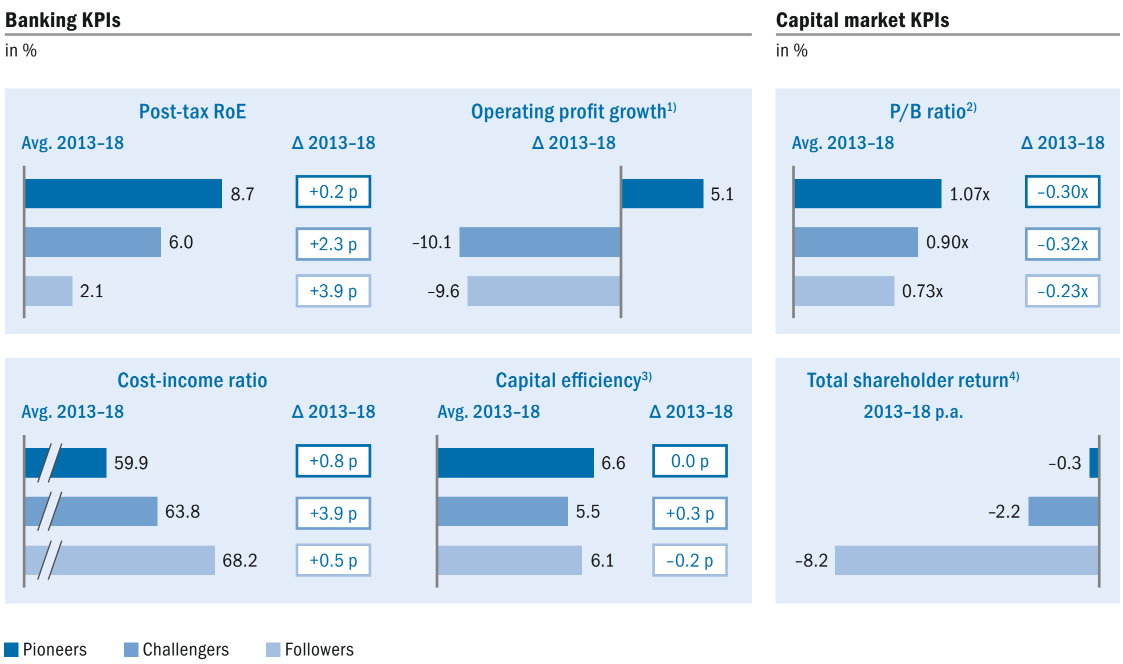
It is important to note that banks have shifted the focus of their digitalisation efforts in recent years. Digitalisation is no longer a customer facing / front-end-only issue that is only relevant for retail banks. All banks, regardless of their business model, address digitalisation across the entire value chain, from the back to the front office in one way or the other.

Against this background, the key question is whether the KPIs of more digitalised banks – the pioneers in our study – are superior to those of other clusters. The (perhaps surprising) answer is “yes”.

A comparison of the three different clusters shows that banks that are ahead in digitalisation are more successful according to every important performance indicator (Figure 14). For example, between 2013 and 2018, digital pioneers registered an average post-tax RoE of 8.7%, compared with 6.0% for challengers and just 2.1% for followers. In the same period, pioneers increased average operating profit by 5.1%, while the average returns of challengers and followers shrunk dramatically by 10.1% and 9.6, respectively. We obtained similar results when comparing efficiency ratios and especially the cost-income ratio, where pioneers were clearly ahead of the other two groups.

Given this performance gap, it is no surprise that the capital market performance of digital pioneers is significantly better. For example, pioneer banks are the only group that achieved a price-to-book ratio of more than 1.0x. Most importantly, these differences are not random or just marginal. Pioneers' superior numbers are statistically significant, as was shown by a separate analysis.

Our analysis still leaves one unanswered question: Was digitalisation the driver of higher profits, or were higher profits the enabler of digitalisation? This question requires further detailed analyses in future studies, but anecdotal market evidence already suggests that digitalisation does indeed drive higher profits. The coincidence of digitalisation and improving KPIs is obvious when looking at the examples of several large European banks. One example is Lloyds Banking Group, which had weak results and fundamental problems in the aftermath of the financial crisis and is now far more successful consistently following on its digital journey.



1) Trimmed average excl. outliers;
2) Excl. Allied Irish Banks due to unnaturally high P/B ratios after government capital injection;
3) Total earnings to risk-weighted assets, excl. UBS due to sp. business model;
4) Excl. Banca MdPdS and BFA due to a TSR of nearly –100% since end of 2013

Source: FitchConnect, Thomson Reuters Datastream, zeb.research

Figure 14: Europe's top 50 banks – digital clusters' KPIs

Martin Rietzel, Manager, zeb

"Tech Giants have delivered a blueprint for successful digitalisation. Banks need to follow five key success factors based on their own digital maturity."

Tech Giants are the true pioneers of digitalisation – banks must aspire to reach their level

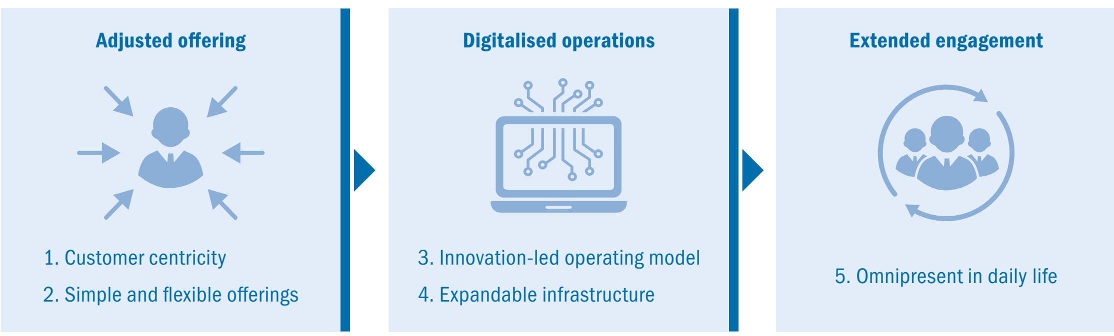
No bank that addresses digitalisation can afford to ignore the so-called Tech Giants, such as Google, Amazon and Apple. Many bank executives refer to these global companies in interviews, publications and even annual reports. On the one hand, there is widespread fear that these Tech Giants will enter and disrupt the financial sector. On the other hand, many banks see them as digitalisation role models. But what do the Tech Giants do differently? To answer this question, we reviewed the Tech Giants in detail, including publications about these players, and identified five success factors with which Tech Giants set the standard for others to follow (Figure 15).

The first strategic phase, the adjustment of the product offering, is divided into two steps:

1. Customer centricity: alignment of strategy, product development and other operational areas with the customer's perspective; deployment of profound knowledge of the customer to identify how to add value
2. Simple and flexible offerings: reduction of product complexity and product range; increasing flexibility in carefully chosen areas to enhance the value proposition for the customer

The second phase builds on the success of customer-centric offerings by digitalising operations:

3. Innovation-led operating model: process automation and acceleration enhanced by algorithms and deep-learning artificial intelligence (AI) as well as automation of more complex tasks, such as credit risk assessment or product recommendations
4. Expandable infrastructure: adaptive infrastructure to incorporate new offerings seamlessly; data for cross-selling within one system



Source: zeb

Figure 15: Success factors of digitalisation

The third phase leverages phases one and two to extend the engagement with customers dramatically and to cover all kinds of services:

5. Omnipresence in daily life: broad fixed presence in customers' lives; ability to leverage continuous engagement for additional offerings, not just in banking.

Crucially for these Tech Giants, digitalisation is not an end in itself, but a means to achieving sharper, value-adding customer focus, efficient and scalable delivery of offerings, as well as wide-ranging customer engagement.

More digitally advanced banks have adopted the Tech Giants' success factors to a greater extent

We used the Tech Giants' digital success factors as the basis for an outside-in analysis of Europe's top 50 banks. To quantify the performance of every bank in each of the five fields, we evaluated available public information for each institution. We then aggregated the scores according to the three groups: digital pioneers, challengers and followers. The analysis shows that digital pioneers have adopted the digital success factors of Tech Giants to a greater extent than their peers (Figure 16).

Approach[1)]

- Outside-in analysis of Europe's top 50 banks regarding current achievement levels on each of the five identified success factors
- For each bank, externally available information (e.g. annual reports, investor presentations, press coverage) reviewed and evaluated by experts
- Aggregation of results to the three defined clusters

	Pioneers	Challengers	Followers
Customer centricity	75%	53%	35%
Simple and flexible offerings	63%	53%	38%
Innovation-led operating model	63%	43%	34%
Expandable infrastructure	58%	43%	26%
Omnipresence in daily life	25%	17%	6%

Implementation levels of success factors from nonexistent to fully implemented

1) Methodology: review and evaluation of top 50 banks concerning fulfilment level of each success factor based on publicly available information; each bank was scored in each category based on a scale of 0% / 25% / 50% / 75% / 100%; figures shown are averages for each cluster in the respective categories

Source: zeb

Figure 16: Prevalence of digital success factors among Europe's top 50 banks

Overall, pioneers have adopted the success factors to the greatest degree, with challengers and followers lagging behind. Yet even the pioneers are still far behind the Tech Giants.

We derive several key findings from our outside-in analysis:

- Most banks have not fully realised that customer centricity lies at the heart of success. There is still major potential for further digitalisation in pursuit of this goal.
- Most banks have already adjusted their product offering to improve the customer experience. However, the process is still ongoing.
- Most banks have identified an innovative, digitalised operating model as a key to success, but not all of them have been able to address existing issues.
- So far, only a few banks have developed expandable infrastructures to enable the integration of (beyond) banking services.
- Most banks have identified omnipresence in everyday life as essential and have started moving in this direction, for example by building ecosystems around certain customer needs/products.

Given their different starting points, pioneers, challengers and followers must focus on different topics to further integrate the five digital success factors into their business models (Figure 17). Even the pioneers are not quite there yet and have to further address digitalisation.

Application of the silver bullet

	Pioneers Become fast and dynamic	Challengers Establish excellence	Followers Build on existing base
Customer centricity	Expand customer centricity to all business segments and ensure value-adding customer advice	Ensure the entire organisation integrates the customer perspective into its DNA	Focus on customer perspective by establishing customer panels and challenging customer journeys
Simple and flexible offerings	Allow individualisation of products without adding complexity and speed up time to market	Review and adjust offerings also based on big data analytics	Simplify product catalogue and streamline channels with focus on customer value-add
Innovation-led operating model	Push STP[1)] rate to nearly 100% by applying AI to more complex process tasks	Automate processes and adopt more agile and dynamic organisational approaches	Gain transparency over processes and harmonise process variations
Expandable infrastructure	Pool and use scale of cloud service and BaaS[2)] providers	Modularise processes to enhance flexibility and leverage sourcing opportunities	Streamline IT applications and replace old core banking systems
Omnipresence in daily life	Review strategy on whether to aim at becoming a platform provider	Assess ways to establish and complement ecosystems by integrating third parties	Identify ways to increase interaction frequency with customers

Immediate focus areas: low medium high

1) Straight Through Processing;
2) Banking as a Service

Source: zeb

Figure 17: Digital success factors – focus areas for pioneers, challengers and followers

To start with, followers need to build the basics in order to be able to further address the five factors. This starts with rigorous reshaping of the business model towards a pure focus on customer perspective, including the challenging of customer journeys and a substantial simplification of the product offering. Additionally, followers need to overhaul their operating model, beginning with gaining transparency about processes and streamlining the IT landscape.

Challengers need to push for excellence in the activities described above. That means not only working hard on even deeper-rooted customer focus and further fine-tuning of the product offering, but also pursuing operational excellence by modularising and automating processes. In addition, challengers should explore avenues beyond banking, by integrating banking services into third party offerings or vice versa. The goal is always to increase value by finding additional selling points, often in certain ecosystems.

Eventually, pioneers must become faster and more dynamic in expanding and perfecting their offering, relying for instance on data analytics. To this end, pioneers need to aim for nearly complete process automation, while allowing for individualised offerings without increased complexity. Providers of "Banking as a Service" can help by sharing scale effects in non-differentiating activities and providing flexible capacity. Pioneers may also evaluate paths towards omnipresence in the customer's daily life, for example by becoming the platform provider for a wider service range.

In summary, it is apparent that digitalisation can help banks in each development stage to fully leverage the vast opportunities that digitalisation offers, as shown by the Tech Giants. Digitalisation can be the silver bullet that Europe's banks so desperately need in a challenging environment, with more potential difficulties looming on the horizon. However, as with any bullet, one must aim accurately and pull the trigger at the right time. Banks need to apply digitalisation in line with their own digital maturity and, above all, make sure not to mistake the means for the end.

ABOUT US

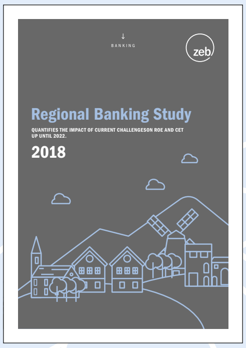
Through entrepreneurial spirit, strategic thinking and, above all, our clients' trust, zeb has established itself as the number one strategy and management consultancy for the financial services industry in Europe. With our support, our clients address pressing issues and challenges arising from the industry's transformation, digitalisation and new regulatory requirements. Together, we master today's only constant – change.

We are the partner for change.

We develop creative ideas as well as innovative strategies and implement them effectively and reliably. In projects, we work in partnership with our clients as a team. Our expertise and project experience span the entire value chain of European financial intermediaries. Our deep specialist knowledge, our innovativeness and not least our digital savviness allow us to "walk our talk" and successfully implement our concepts.

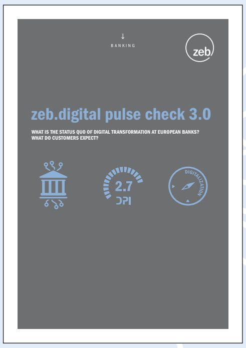
Our company was founded in Münster in 1992 by university professors Bernd Rolfes and Henner Schierenbeck. We currently employ more than 1,000 staff at 18 international locations.

THIS YEAR'S FEATURED ZEB STUDIES



Regional Banking Study

Quantifies current challenges for regional banks in Germany until 2022.



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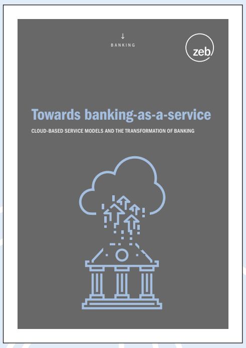

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Answers the question: is now the right moment to move your business to the cloud?

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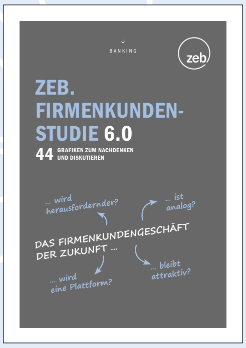

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Pinpoints the major challenges for successful corporate banking in Germany, Switzerland and Austria.

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APPENDIX

Overview of sample and key figures

Bank	Country	Cluster	Total assets in EUR bn	Post-tax RoE[1)]	Cost-income ratio[2)]	CET1 ratio	Leverage ratio[3)]
HSBC Holdings (HSBC)	GB	Universal bank	2,237.8	8.6%	61.6%	14.0%	5.6%
BNP Paribas (BNP)	FR	Universal bank	2,040.8	8.1%	70.9%	11.8%	4.5%
Crédit Agricole (CA)	FR	Retail bank	1,854.8	6.9%	64.9%	15.0%	5.4%
Banco Santander (SAN)	ES	Retail bank	1,459.3	8.7%	51.6%	11.5%	5.2%
Deutsche Bank (DB)	DE	Universal bank	1,348.1	0.5%	91.3%	13.6%	4.3%
Société Générale (SocGen)	FR	Universal bank	1,309.4	8.1%	71.0%	11.0%	4.2%
Groupe BPCE (BPCE)	FR	Retail bank	1,273.9	5.4%	72.8%	15.8%	5.3%
Barclays (BAR)	GB	Universal bank	1,262.6	4.4%	76.6%	13.2%	4.6%
Lloyds Banking Group (Lloyds)	GB	Retail bank	888.6	10.1%	58.5%	14.6%	5.2%
ING Group (ING)	NL	Universal bank	887.0	9.4%	58.4%	14.5%	4.4%
UBS Group (UBS)	CH	Universal bank	838.5	8.6%	79.2%	13.1%	5.2%
UniCredit (UniCr)	IT	Retail bank	831.5	7.0%	70.2%	12.1%	5.1%
Intesa Sanpaolo (ISP)	IT	Retail bank	787.7	7.3%	57.5%	13.5%	6.3%
Credit Suisse Group (CS)	CH	Universal bank	779.1	4.7%	78.4%	12.6%	5.2%
The Royal Bank of Scotland (RBS)	GB	Universal bank	773.5	4.9%	71.6%	16.2%	5.6%
BBVA (BBVA)	ES	Retail bank	676.7	11.6%	51.0%	11.6%	6.5%
Groupe Crédit Mutuel – CM11 (CM)	FR	Retail bank	667.4	7.1%	61.6%	16.5%	6.2%
Standard Chartered (STAN)	GB	Wholesale bank	602.5	2.5%	77.4%	14.2%	5.5%
Coöperatieve Rabobank (Rabo)	NL	Universal bank	590.4	8.8%	66.0%	16.0%	6.4%
Nordea Bank (Nordea)	FI	Universal bank	551.4	9.5%	54.8%	15.5%	5.1%
DZ Bank (DZ)	DE	Wholesale bank	518.7	4.1%	70.0%	13.7%	4.3%
Danske Bank (Danske)	DK	Retail bank	479.5	9.7%	59.7%	17.0%	4.6%
Commerzbank (CBK)	DE	Universal bank	462.4	3.3%	81.6%	12.9%	5.0%
CaixaBank (Caixa)	ES	Retail bank	386.6	8.4%	58.2%	11.8%	5.6%
ABN AMRO Group (ABN)	NL	Universal bank	381.3	12.0%	58.8%	18.4%	4.2%
Svenska Handelsbanken (SHB)	SE	Retail bank	293.9	12.2%	47.7%	16.8%	4.4%
KBC Group (KBC)	BE	Retail bank	283.8	14.8%	56.3%	16.0%	6.1%
DNB (DNB)	NO	Universal bank	266.2	11.9%	43.5%	16.4%	7.5%
SEB (SEB)	SE	Universal bank	253.3	16.0%	47.9%	17.6%	5.1%
La Banque Postale (LBP)	FR	Retail bank	245.2	7.7%	83.8%	11.7%	4.6%
LBBW (LBBW)	DE	Wholesale bank	241.2	3.2%	72.4%	15.1%	5.0%
Erste Group Bank (Erste)	AT	Retail bank	236.8	12.3%	63.7%	13.5%	6.6%

Bank	Country	Cluster	Total assets in EUR bn	Post-tax RoE[1)]	Cost-income ratio[2)]	CET1 ratio	Lever-age ratio[3)]
Banco de Sabadell (Saba)	ES	Retail bank	222.3	2.6%	75.3%	12.0%	4.9%
Swedbank (Swed)	SE	Retail bank	221.6	15.6%	38.7%	16.3%	5.1%
Bayerische Landesbank (BayLB)	DE	Wholesale bank	220.2	7.5%	66.3%	15.2%	4.1%
Bankia (Bankia)	ES	Retail bank	205.2	5.2%	58.0%	13.8%	6.1%
Raiffeisen Group (Raiff)	CH	Retail bank	200.0	3.1%	75.7%	16.5%	7.6%
Nykredit Realkredit (Nykr)	DK	Retail bank	194.0	7.6%	39.4%	21.0%	4.9%
Belfius Bank (Bel)	BE	Retail bank	164.2	6.8%	61.3%	16.0%	6.0%
Helaba (Helaba)	DE	Wholesale bank	163.0	3.4%	80.1%	14.9%	5.1%
Banco BPM (BPM)	IT	Retail bank	160.5	–0.6%	77.0%	12.1%	4.8%
NORD LB (NORD/LB)	DE	Wholesale bank	154.0	–49.4%	95.5%	6.8%	2.1%
Zürcher Kantonalbank (ZKB)	CH	Universal bank	150.3	6.8%	61.3%	17.8%	6.8%
OP Financial Group (OP)	FI	Retail bank	140.4	6.9%	58.2%	20.5%	8.6%
Raiffeisen Bank International (RBI)	AT	Universal bank	140.1	12.8%	59.8%	13.4%	6.7%
B. Monte dei Paschi di Siena (MPS)	IT	Retail bank	130.5	2.9%	84.5%	13.7%	5.5%
Unione di Banche Italiane (UBI)	IT	Retail bank	125.3	4.7%	69.5%	11.7%	5.5%
Bank of Ireland (BoI)	IE	Retail bank	123.7	8.2%	68.5%	15.0%	7.0%
Postfinance (Postfin)	CH	Retail bank	104.9	2.6%	85.4%	17.6%	5.0%
Allied Irish Banks (AIB)	IE	Retail bank	91.5	8.2%	63.2%	21.1%	11.8%

All figures are based on full year numbers and calculated with fixed FX rates as of 31/12/2019; all bank names refer to the respective group or parent institutions.
1) Post-tax profit to average total equity;
2) Operating expenses to total earnings;
3) Based on reported figures

Source: company reports, FitchConnect, zeb.research

Definitions

Ratio	Definition
Capital efficiency	Total income/earnings (net interest income, fees & commission income, trading income, other operating income) to total risk-weighted assets
Common Equity Tier 1 ratio (CET1 ratio)	Common Equity Tier 1 capital to risk-weighted assets (RWA)
Cost-income ratio (CIR)	Operating expenses (personnel and other administrative expenses) to total income (net interest income, fees & commission income, trading income, other operating income)
Cost of equity (CoE)	Cost of equity is defined as risk-free rate + beta x risk premium, risk-free rate is the yearly average of European 10-year government bond yields, beta equals average yearly 2-year-beta, risk premium is the long-term average risk premium (6%)
Loan-deposit ratio	Loans to customers to customer deposits
NPL ratio	Non-performing loans to gross loans
Post-tax return on equity (RoE)	Post-tax profit to average total equity
RWA density	Risk-weighted assets to total assets
Tier 1 ratio	Tier 1 capital to risk-weighted assets (RWA)
Total shareholder return (TSR)	Total return of shareholders of a bank including all stock price changes (changes of market capitalisation), dividends and changes of capital base within a given period

Abbreviations

Abbreviation	Term
AI	Artificial intelligence
API	Application programming interface
Approx.	approximately
avg.	Average
BaaS	Banking as a Service
B/S	Balance sheet
bn	Billion
b.	buffer
Calc.	Calculation
CDS	Credit default swap
CET1	Common Equity Tier 1
CIR	Cost-income ratio
CoE	Cost of equity
ECB	European Central Bank
EoY	End-of-year
esp.	especially
E.	Europe
E.g.	Exempli gratia
Est	estimated
excl.	excluding
Extraord.	extraordinary
Fin.	Financial
Fund.	Funding
FX rate	Foreign exchange rate
Gov.	Government
G-SIB	Global systemically important bank

Abbreviation	Term
i. e.	Id est
IFRS	International Financial Reporting Standards
Incl.	including
IT	Information technology
KPI	Key performance indicator
LCR	Liquidity coverage ratio
LLP	Loan loss provisions
LR	Leverage ratio
M&A	Mergers & Acquisitions
MREL	Minimum requirement for eligible liabilities
NPL	Non-performing loans
Op.	Operational
P/B ratio	Price-to-book ratio
PSD2	Payment Services Directive 2
Req.	Requirements
RoE	Return on equity
RWA	Risk-weighted assets
sp.	special
SREP	Supervisory review and evaluation process
STP	Straight Through Processing
TLAC	Total loss absorbing capacity
tr	Trillion
TSR	Total shareholder return
XO	Extraordinary
Y	Year

LIST OF FIGURES

CONTACTS

Jens Kuttig
Senior Partner
Managing Director Netherlands
Barbara Strozzilaan 101
1083 HN Amsterdam
Netherlands
Phone +31.20.2409.071
E-mail jens.kuttig@zeb-consulting.com

Bertrand Lavayssière
Managing Partner UK
107 Cheapside
EC2V 6DN London
United Kingdom
Phone +44.207.7968.699
E-mail bertrand.lavayssiere@zeb.co.uk

Arnd Heßeler
Executive Manager Luxembourg
37A, Avenue John F. Kennedy
1855 Luxembourg
Luxembourg
Phone +352.273.561.305
E-mail arnd.hesseler@zeb.lu

Dr. Gabor David Friedenthal
Managing Director Italy
Via Santa Maria Segreta, 6
20123 Milan
Italy
Phone +39.027.2275.208
E-mail gabor-david.friedenthal@zeb.eu

Dr. Florian Forst
Partner Germany
Theresienhöhe 13a
80339 Munich
Germany
Phone +49.89.543433.250
E-mail florian.forst@zeb.de

Alexander Nefedov
Managing Director Russia
Testovskaya St., 10
123112 Moscow
Russia
Phone +7.495.545.4289
E-mail anefedov@zeb.com.ru

Frank Farrell
Senior Manager Sweden
Biblioteksgatan 11
111 46 Stockholm
Sweden
Phone +46.85.2743.329
E-mail frank.farrell@zeb.se

Dr. Michaela Schneider
Managing Partner Austria
Praterstraße 31
1020 Vienna
Austria
Phone +43.1522.6370.711
E-mail mschneider@zeb.at

Dr. Maciej Meder
Managing Director Poland
ul. Krolewska 18
00-103 Warsaw
Poland
Phone +48.22.3787.462
E-mail mmeder@zeb.pl

Peter F. Rek
Managing Partner Switzerland
Gutenbergstraße 1
8002 Zurich
Switzerland
Phone +41.44.560.9770
E-mail prek@zeb.ch

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publications@zeb.de
www.zeb.eu/ebs19

zeb
Hammer Straße 165
48153 Münster
Germany
Phone +49.251.97128.0
Fax +49.251.97128.101
E-mail muenster@zeb.de
www.zeb.eu

zeb
Taunusanlage 19
60325 Frankfurt
Germany
Phone +49.69.719153.0
Fax +49.69.719153.410
E-mail zentrale-frankfurt@zeb.de
www.zeb.eu

zeb
107 Cheapside
London EC2V 6DN
United Kingdom
Phone +44.2077968694
E-mail london@zeb.co.uk
www.zeb.co.uk