

Financial Stability Report 2018

SCHWEIZERISCHE NATIONALBANK
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Financial Stability Report 2018

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Foreword

In this report, the Swiss National Bank (SNB) presents its evaluation of the stability of the Swiss banking sector. The SNB is required to contribute to the stability of the financial system in accordance with the National Bank Act (art. 5 para. 2 (e) NBA). A stable financial system is defined as a system in which the various components fulfil their functions and are able to withstand severe shocks. This report focuses on Switzerland's banks, as experience from financial crises shows that financial stability depends primarily on the stability of the banking sector.

The SNB monitors developments in the banking sector from the perspective of the system as a whole and with a focus on systemically important banks, because the latter have the potential to affect the system at large. The SNB does not exercise any banking supervision and is not responsible for enforcing banking legislation. These powers lie with the Swiss Financial Market Supervisory Authority (FINMA).

This report analyses the macroeconomic environment and the Swiss banking sector in separate chapters. With respect to the macroeconomic environment (cf. chapter 2), the SNB tracks key domestic and global risks to the Swiss banking sector, focusing on credit quality, real estate and stock markets, banks' funding conditions and interest rates. With respect to the Swiss banking sector, the SNB analyses the big banks – Credit Suisse and UBS – and the domestically focused commercial banks separately (cf. chapters 3.1. and 3.2) due to the differences in their size and business models.

The banking statistics used in this report are based on official data submitted and/or on data reported by individual banks. Data on the big banks are analysed on a consolidated basis. This document is based on data as at 31 May 2018.

MACROECONOMIC ENVIRONMENT

Economic and financial conditions for the Swiss banking sector have remained favourable over the last 12 months. At the same time, tail risks have increased, as a range of asset classes look highly valued by historical standards and political uncertainty is elevated.

Along with a strengthening in economic growth, markets have generally been optimistic about global credit quality. This is indicated, for example, by the fact that credit rating upgrades exceed downgrades and by low credit risk premia. In this environment, share prices have risen overall and volatility on bond and foreign exchange markets has remained low for most of the time. However, the stock market rally observed in the second half of 2017 came to an abrupt halt in February 2018, and stock market volatility has increased since then. Moreover, the recent political uncertainty has led to a spike in Italian sovereign risk premia.

More generally, the prolonged period of low interest rates carries risks for global financial stability. There are signs of stretched valuations on real estate, stock and credit markets in several countries. In such situations, small changes in outlook perceptions can lead to strong market reactions, as shown by the recent turbulence. In addition, the profitability of financial institutions remains under pressure, maintaining incentives to increase risk-taking.

To capture the different sources of risk to the Swiss banking sector, the SNB considers a baseline scenario and four adverse scenarios for developments in the economic environment and in financial market conditions. The baseline scenario assumes that international and domestic economic conditions for the Swiss banking sector continue to improve. In the US, the economic expansion persists and monetary policy is gradually normalised. In the euro area, growth remains solid, while monetary policy continues to be expansionary due to the moderate inflation dynamic. In emerging markets, there is ongoing solid growth overall, although growth in China slows in line with declining potential GDP growth. In Switzerland, growth remains above average and the economy operates under full employment conditions.

The four adverse scenarios are used to assess the resilience of the Swiss banking sector against highly unfavourable, unlikely but possible developments in economic and financial conditions. The first adverse scenario considers a protracted recession in the euro area and an extended period of negative interest rates in the euro area and

Switzerland. The second scenario assumes a severe recession in the US, which spreads to the rest of the world. The third scenario involves a major crisis in emerging markets, comparable to those during the second half of the 1990s. The fourth scenario analyses the impact of a global interest rate shock.

BIG BANKS

Since the last financial crisis ten years ago, the two Swiss big banks have implemented a number of measures in line with the Swiss ‘too big to fail’ (TBTF) regulations and the revised international standards. This has strengthened their resilience and reduced the risks to the Swiss economy that would arise if they got into financial distress. In particular, they have increased their capital, reduced their exposures and adjusted their business model and corporate structure. Moreover, in recent years, the global economic environment and conditions on the financial markets have improved. The impact of these positive developments both at the banks and in the economic environment is reflected in more stable operating earnings and improved market indicators such as CDS spreads, which are low compared to the average of the last ten years for both banks.

Against this positive background, Credit Suisse and UBS’s focus is gradually shifting, away from downsizing and reducing legacy assets from the financial crisis, and towards growth strategies and new business initiatives. Credit Suisse and UBS are looking again at growing their business and taking on more risk. Both have also announced an increase in shareholder remuneration over the next few years.

At the same time, from a financial stability perspective, it is important to complete all the regulatory measures foreseen in the revised TBTF regulations (TBTF2). Given the size of the big banks relative to the size of the Swiss economy, full implementation is necessary in order to resolve the ‘too big to fail’ issue in Switzerland and remove the de facto obligation by the state to provide assistance (cf. ‘Ten years on: What are the lessons of the financial crisis for Switzerland?’, p. 22).

The TBTF regulations rest on two complementary pillars. First, higher requirements for, in particular, going-concern capital are intended to strengthen the resilience of a systemically important bank, thereby reducing the likelihood of it getting into financial distress. Second, if a systemically important bank nevertheless gets into distress, the regulations provide for orderly resolution without the use of public funds. To this end, the regulations stipulate requirements both for loss-absorbing capacity in a gone-concern perspective and for resolution planning.

Since publication of the last *Financial Stability Report*, the two Swiss big banks have further improved their compliance with these regulatory requirements. However, progress is still necessary, particularly as regards resolution planning.

Resilience: Implementation of regulatory requirements is on track

In the area of resilience, the capital situation at both Swiss big banks has improved slightly overall, predominantly due to the capital increase by Credit Suisse in the second quarter of 2017. Thus, as regards compliance with the look-through capital requirements under TBTF2 – i.e. the requirements that will apply once all transitional arrangements have expired – both big banks are on track. Credit Suisse and UBS already meet all risk-weighted capital requirements; as regards their leverage ratios, further improvement is needed. The loss potential analyses based on the adverse scenarios considered by the SNB, as well as historical loss experience during the last financial crisis, show that the requirements are necessary to ensure adequate resilience of the two institutions.

Under the applicable provisions of the Basel III international framework, Credit Suisse and UBS already meet the look-through capital requirements. In an international comparison, their risk-weighted capital ratios are above the average for large globally active banks, whereas their leverage ratios continue to be below average.

In December 2017, the Basel Committee on Banking Supervision finalised the Basel III reform package. A key objective of these recently adopted measures is a reduction in unwarranted variability in risk-weighted assets (RWA) across banks. Equally, the revised rules are intended to ensure that the model-based capital requirements do not fall below prudent levels. Based on current information, the impact of these measures on the Swiss big banks' RWA density (ratio of RWA to total exposure) seems to be in line with the estimates underlying the calibration of the TBTF2 capital requirements.¹ Due to the long transition period until 2027, however, a precise quantification of the impact is not yet possible.

Resolution: Further progress needed on resolution planning

Since publication of the last *Financial Stability Report*, the two Swiss big banks have also made further progress in the area of resolution. In particular, they have improved their gone-concern loss-absorbing capacity overall, by further expanding their holdings of bail-in instruments. These are debt instruments used to recapitalise a bank in the event of impending insolvency, without recourse to government support. Capital is generated in a crisis by writing off creditors' claims from these bail-in instruments and converting them to equity. Both big banks are now

already fully compliant with the look-through requirements for gone-concern instruments under the TBTF2 regulations.²

Moreover, since the TBTF regulations came into force, the big banks have implemented key organisational measures. These aim to ensure the maintenance, during a crisis, of the functions that are systemically important for the Swiss economy (under the 'emergency plan'), and to improve the resolvability of the bank as a whole.

Nonetheless, further progress is needed in three areas in particular. First, in accordance with Financial Stability Board (FSB) guidelines, the Swiss Financial Market Supervisory Authority (FINMA), as the home resolution authority, is currently developing resolution funding plans that set out the strategy, key actions and measures that would be employed to address liquidity stress in resolution. Second, it must be ensured that loss-absorbing capacity is adequate not only at a consolidated group level, but also on a stand-alone basis at the level of the individual group entities. In this context, the FSB's recently published guidelines on internal TLAC need to be put into practice. Third, the big banks must further reduce the financial and operational dependencies within the group.

Experience shows that the resolution of a bank, especially a large globally active bank, is highly complex. Therefore, resolution planning needs to be carried out in a thorough and prudent manner. In this context, the big banks must demonstrate to FINMA by end-2019 that they have credible and workable emergency plans. In addition, as a result of their international activities, the big banks also have to comply with the applicable requirements of foreign authorities, including those in the US and the UK.

DOMESTICALLY FOCUSED COMMERCIAL BANKS Increase in mortgage exposure, adequate resilience at most institutions

In 2017, domestically focused banks further increased their exposure to the Swiss mortgage and real estate markets. Mortgage growth at these banks has remained strong. Moreover, affordability risks as measured by the loan-to-income (LTI) ratio are at a historical high, and have increased further for the residential investment segment. This segment is also showing signs of an accumulation of loan-to-value (LTV) risks and affordability risks. Meanwhile, interest rate risk from maturity transformation has remained high. These developments occurred against the backdrop of persistent imbalances on the mortgage and real estate markets. Imbalances have decreased somewhat on the mortgage market, but they have increased on the residential real estate market.

¹ For more information about the calibration of the TBTF2 capital requirements, cf. Federal Department of Finance, *Erläuterungsbericht zu Änderungen der Eigenmittelverordnung und zur Bankenverordnung*, 13 May 2016 (not available in English).

² Taking into account reductions on look-through gone-concern requirements (cf. chapter 3.1.2).

The average interest rate margin on outstanding claims of domestically focused banks decreased further in 2017. This renewed reduction illustrates the ongoing pressure faced by these banks in their core business in an environment of exceptionally low interest rates. In 2017, domestically focused banks maintained their net interest income at levels similar to those of 2016. This is mainly because the growth in the volume of interest-bearing positions offset the reduction in the interest rate margin.

The resilience of most domestically focused banks remains adequate. First, their available capital increased broadly in step with the size of their balance sheets and slightly faster than their RWA in 2017. Both the leverage ratio and the risk-weighted ratio for these banks lie significantly above the regulatory minimum requirements.

Second, stress test results suggest that most domestically focused banks' capital surpluses, relative to the regulatory minimum requirements, are large enough to absorb the losses under the relevant adverse scenarios. Given the domestically focused banks' exposures, the interest rate shock scenario and protracted euro area recession scenario are of particular relevance. Under the interest rate shock scenario, a surge in write-downs on domestic mortgages and a decline in net interest income would lead to the depletion of a sizeable proportion of domestically focused banks' surplus capital. Most banks should be able to absorb these losses without seeing their capitalisation fall below the regulatory minima. However, a number of banks with a significant cumulative market share are projected to fall near or below the regulatory minima, unless they take counteracting measures. Under the protracted euro area recession scenario, the main impact on banks would come from eroding interest rate margins due to a period of persistently negative interest rates, as well as from higher corporate default rates as a consequence of a severe recession. This scenario would also result in losses at many domestically focused banks. Nevertheless, both the number of banks experiencing losses and the aggregate size of these losses would be significantly smaller than under the interest rate shock scenario.

The losses under such adverse conditions and the inherent uncertainty in the output of stress tests highlight the importance of preserving the capital adequacy of the banking system going forward. Two regulatory reforms that are currently underway play a key role in this context. First, capital requirements for mortgage loans, the core business of many banks in Switzerland, will be revised over the next few years as Basel III is implemented. As a result, capital requirements will become more risk sensitive. This may lead to higher capital requirements for some banks and lower requirements for others, depending on the composition of their assets. From a financial stability perspective, it is important to preserve the capitalisation of the banking sector at its current, adequate level.

Second, in the context of the finalisation of TBTF2, specific gone-concern loss-absorbing capacity requirements will be introduced for domestically focused systemically important banks (DF-SIBs). Such requirements are necessary to enable a recapitalisation in the event of impending insolvency, so that the banks' systemically important functions continue without financial risk to the taxpayer. Moreover, gone-concern loss-absorbing capacity may facilitate restructuring measures such as the sale of business lines or a wind-down of non-viable parts of the bank. Within the framework of TBTF2, such requirements have been in place for the two big banks in Switzerland since July 2016. For the DF-SIBs, however, their finalisation is still pending. In 2017, the Federal Council defined the key principles of these requirements, including those regarding level and quality. The SNB supports the Federal Council's key principles and regards these requirements as necessary, given the high costs of recapitalisation or resolution observed in banking crises both domestically and abroad.

Growing concerns about residential investment property, targeted measures appear necessary

Nominal interest rates have been exceptionally low in Switzerland for almost a decade. Low rates have softened the impact of the global financial crisis and stabilised inflation, but favoured the build-up of risks to financial stability. Strong growth in both bank credit and real estate prices over several years has resulted in imbalances on the mortgage and residential real estate markets.

Measures taken between 2012 and 2014³ have helped to contain the further build-up of imbalances in the owner-occupied segment. At the same time, however, affordability risks in mortgage lending have continued to increase, particularly in the residential investment segment. Furthermore, the risk of a price correction in residential investment property has risen substantially. The most recent vintages of mortgage loans in the residential investment segment appear particularly vulnerable, due to the accumulation of LTV and affordability risks.

Should interest rates remain low, these risks might accumulate further. Incentives to increase risk-taking in the domestic credit and real estate markets will remain substantial for banks, commercial investors and households. Banks, in particular, have strong incentives to take on more risk in mortgage lending, given the pressure on their margins and profitability. More generally, increased risk-taking might also lead to a further build-up of imbalances on the mortgage and real estate markets.

³ These measures include stricter capital requirements for high-LTV mortgage loans, revisions of the self-regulation guidelines for mortgage lending in 2012 and 2014, and the activation and subsequent increase of the CCyB.

In this context, targeted measures for residential investment property lending should be considered. Such measures could be implemented via a renewed revision of the self-regulation guidelines or by regulatory changes, as a complement to intensified supervision of particularly exposed banks (for instance, capital charges within the Pillar 2 framework of capital requirements).

The SNB will continue to monitor developments on the mortgage and real estate markets closely, paying particular attention to developments in the residential investment property segment and to banks' risk-taking in mortgage lending. In parallel, the SNB will regularly reassess the need for an adjustment of the countercyclical capital buffer (CCyB).

2 Macroeconomic environment

2.1 KEY DEVELOPMENTS

Economic and financial conditions for the Swiss banking sector have remained favourable over the last 12 months. At the same time, tail risks have increased, as a range of asset classes look highly valued by historical standards and political uncertainty is elevated.

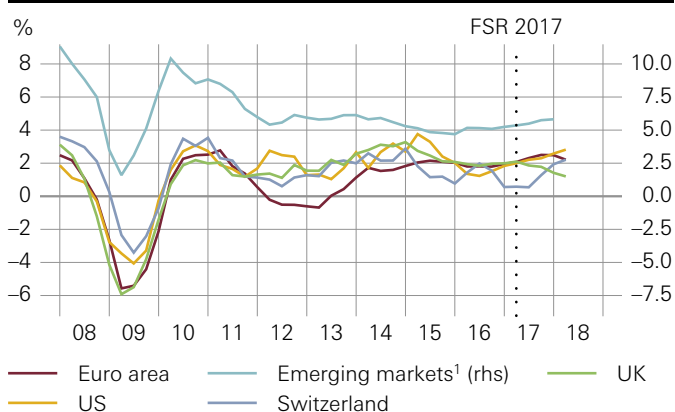
Along with a strengthening in economic growth, markets have generally been optimistic about global credit quality. This is indicated, for example, by the fact that credit rating upgrades exceed downgrades and by low credit risk premia. In this environment, share prices have risen overall and volatility on bond and foreign exchange markets has remained low for most of the time. However, the stock market rally observed in the second half of 2017 came to an abrupt halt in February 2018, and stock market volatility has increased since then. Moreover, the recent political uncertainty has led to a spike in Italian sovereign risk premia.

More generally, the prolonged period of low interest rates carries risks for global financial stability. There are signs of stretched valuations on real estate, stock and credit markets in several countries. In such situations, small changes in outlook perceptions can lead to strong market reactions, as shown by the recent turbulence. In addition, the profitability of financial institutions remains under pressure, maintaining incentives to increase risk-taking.

GDP GROWTH

Year-on-year real GDP growth rates

Chart 1



¹ China, South Korea, India, Brazil and Russia.

Sources: State Secretariat for Economic Affairs (SECO), Thomson Reuters Eikon, SNB calculations

Global acceleration in economic growth: Economic growth has accelerated in most regions over the last 12 months (cf. chart 1). Notably, growth has picked up in the US, the euro area and Switzerland. By contrast, growth has slowed in the UK.

Market assessment of credit quality still favourable: Overall, market indicators for global credit quality have remained favourable over the last 12 months. In the corporate and household segments, most market indicators show a positive assessment of credit quality. In both the US and Europe, corporate spreads remain at low levels (cf. chart 2) and the ratio of credit rating downgrades to total rating changes has decreased (cf. chart 3).¹ In the sovereign segment, credit risk premia are generally at similar levels to those of 12 months ago (cf. chart 4).

Despite the positive market assessment, there are a number of reasons for caution. While sovereign credit risk premia had shown a downward trend for most of the last 12 months, recently they have increased. The rise has been particularly pronounced in Italy, pointing to investor concern about fiscal vulnerabilities and political uncertainty. Sovereign risk premia have also widened in large emerging economies such as Brazil. Moreover, global public debt remains high by historical standards. In the corporate and household segments, non-performing loan ratios in Italy and Spain remain at high levels, despite recent improvements. Furthermore, global corporate leverage has increased and, in combination with low corporate spreads, this has led to worries that credit risk may be mispriced.²

In Switzerland, the fact that backward-looking indicators such as non-performing loan ratios are at a historical low continues to indicate high levels of corporate and household credit quality. Furthermore, corporate spreads have remained tight, in line with global developments. However, household indebtedness relative to GDP and affordability risks in mortgage lending are high (cf. chapter 3). Both factors increase the vulnerability of households to adverse macroeconomic and upward interest rate shocks.

Stock price rally with abrupt ending: After rising strongly in the second half of 2017, stock prices dipped in February 2018 and stagnated thereafter. Stock market volatility, which was low until February 2018, has remained at higher levels since then (cf. chart 5). The cyclically adjusted price/earnings ratio, a measure of stock valuation, is currently above its long-term average for the US and close to it for the euro area and Switzerland.³

¹ The series for Europe has been corrected for a large number of government-supported UK entities that were downgraded because of the UK sovereign downgrade in September 2017.

² Cf., for example, IMF, *Global Financial Stability Report*, October 2017.

³ Based on a 40-year average of the ratio. For the US, the deviation of the price/earnings ratio from its long-term average is significantly larger when long-term data covering more than 100 years are used.

Euro area banking sector under renewed market scrutiny:

The euro area banking sector has recently come under renewed market scrutiny. Bank CDS premia (a market indicator for bank resilience) jumped for euro area banks in May 2018, reversing the improvements observed over the rest of the past 12 months (cf. chart 6). The increase was particularly marked for Italian banks, reflecting turbulence in the sovereign debt market and political uncertainty. Euro area stock prices were affected as well, with bank stocks underperforming the market as a whole over the last 12 months.

Interest rates have increased slightly, but remain low:

Over the last 12 months, interest rates have increased slightly overall, but are still at low levels in the majority of regions (cf. chart 7). The US and the UK recorded the strongest rises. Overall, however, the level of interest rates remains historically low. The prolonged period of very low interest rates might lead investors to underestimate the possibility of sudden interest rate hikes. Historical

experience shows that interest rates can increase abruptly and significantly overshoot their equilibrium levels.

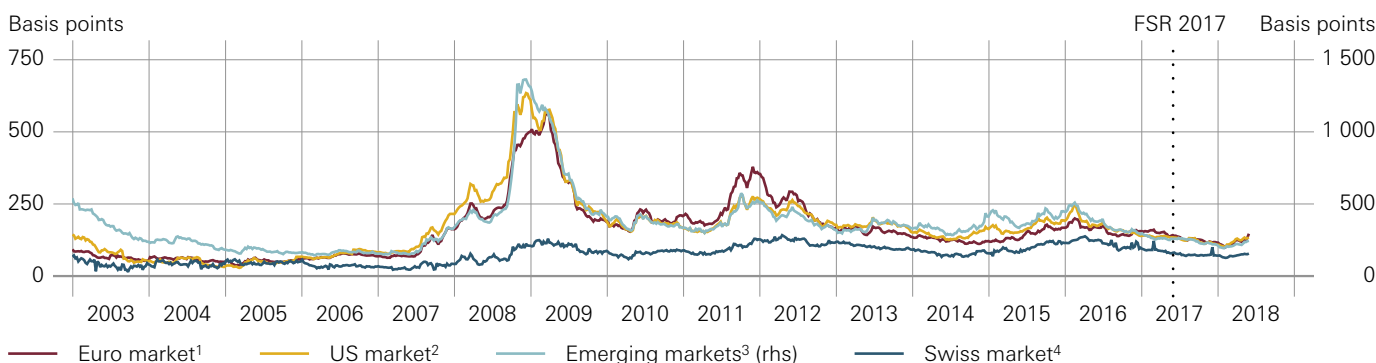
Imbalances on real estate markets: Real estate prices in the US and Europe have increased further across most segments over the last 12 months (cf. chart 8). In the US, residential real estate prices have continued to rise slightly faster than rents; as a result, the price-to-rent ratio has gradually climbed and departed from its long-term average over recent years (cf. chart 9). US investment real estate prices have continued to outpace rents over the last 12 months. In Europe, price-to-rent ratios point to growing imbalances on the residential markets in the UK and France. Moreover, there are signs of stretched valuations in some segments of the investment real estate markets in the aggregate euro area and the UK.⁴ In Switzerland,

⁴ Cf. European Central Bank, *Financial Stability Review*, November 2017, p. 7; and Bank of England, *Financial Stability Report*, November 2017, p. 28.

BOND SPREADS

Yield spread between corporate and government bonds

Chart 2

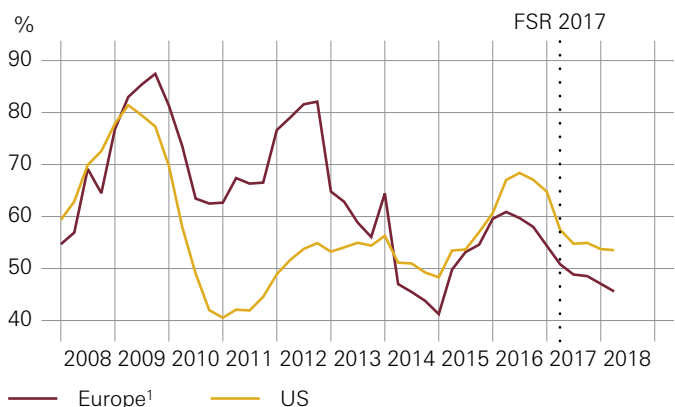


¹ Euro-Aggregate Corporate (investment grade, 7–10 year maturity, EUR-denominated) and German Government (7–10 year maturity), Bank of America Merrill Lynch.
² US Corporate (investment grade, 7–10 year maturity, USD-denominated) and US Treasury (7–10 year maturity), Bank of America Merrill Lynch.
³ Emerging Market Corporate (USD and EUR-denominated), option-adjusted spread, Bank of America Merrill Lynch.
⁴ Yields for Swiss investment grade corporate bonds and for Swiss Confederation bonds (10-year maturity), calculated by the SNB.
 Sources: SNB, Thomson Reuters Eikon

RATING DOWNGRADES RATIO

Number of downgrades relative to total number of rating changes in non-financial sector, moving average over four quarters

Chart 3

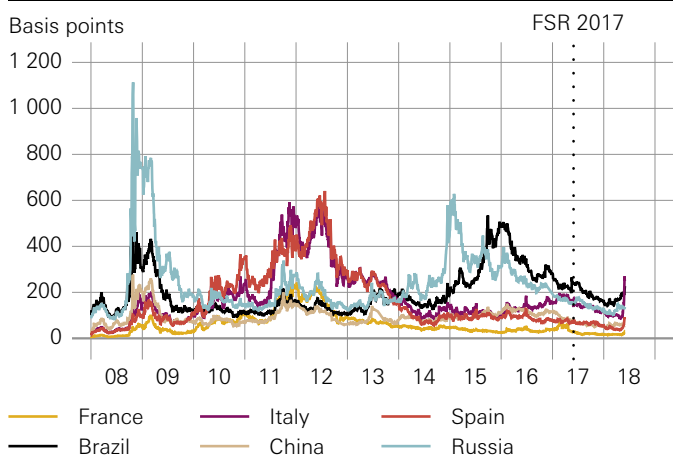


¹ EU-17 countries plus Switzerland, Norway and Iceland.
 Sources: Bloomberg, Moody's

SOVEREIGN CREDIT DEFAULT SWAP PREMIA

Premia for credit protection (five-year senior)

Chart 4



Source: Bloomberg

imbalances on the residential real estate market have increased (cf. chapter 3).

2.2 SCENARIOS

To capture the different sources of risk to the Swiss banking sector, the SNB considers a baseline scenario and four adverse scenarios for developments in the economic environment and in financial market conditions. The baseline scenario describes the most likely outcome given currently available information. By contrast, the adverse scenarios are designed to assess the resilience of the Swiss banking sector against highly unfavourable, unlikely but possible developments in economic and financial conditions. All four adverse scenarios concentrate on macroeconomic and financial risks, but exclude operational and legal risks for banks. This is because the materialisation of operational and legal risks is largely independent of the underlying economic scenario. The impact of the different

scenarios on the Swiss banking sector as regards banks' loss potential and resilience is examined in chapter 3.

Baseline scenario

Under the baseline scenario, international and domestic economic conditions for the Swiss banking sector continue to improve. In the US, the economic expansion persists and monetary policy is gradually normalised. In the euro area, growth remains solid, while monetary policy continues to be expansionary due to the moderate inflation dynamic. In emerging markets, there is ongoing solid growth overall, although growth in China slows in line with declining potential GDP growth. In Switzerland, growth remains above average and the economy operates under full employment conditions.

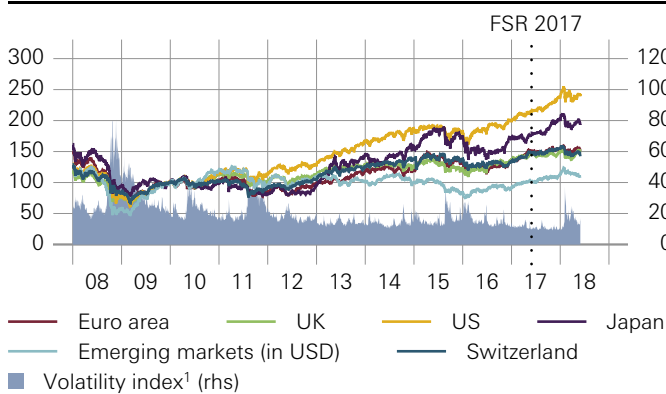
Adverse scenarios

Protracted euro area recession: Amid an unexpected economic slowdown, renewed concerns arise about the sustainability of public finances and the soundness

STOCK MARKET INDICES

Datastream global indices (indexed to 1 Jan 2010 = 100) and volatility

Chart 5

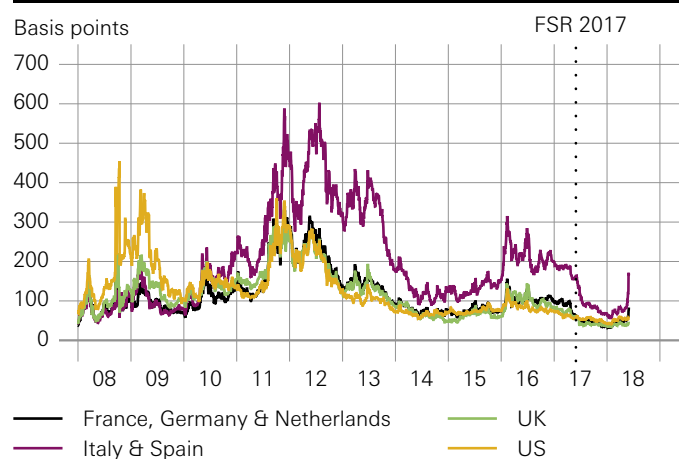


¹ The index used is the Chicago Board Options Exchange Market Volatility Index (VIX), which measures the implied volatility of index options on the S&P 500 (in %). Source: Thomson Reuters Eikon

BANK CREDIT DEFAULT SWAP PREMIA

Average of biggest banks (five-year senior)

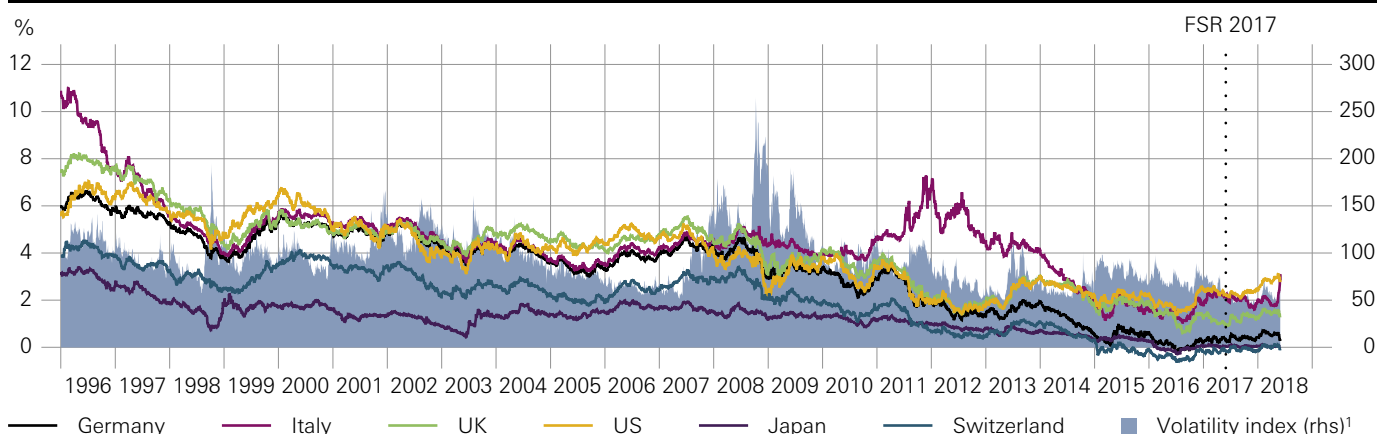
Chart 6



Sources: Bloomberg, SNB calculations

LONG-TERM INTEREST RATES: TEN-YEAR GOVERNMENT BONDS

Chart 7



¹ The index used is the MOVE Index, which measures the implied volatility of US Treasury options. Sources: Bloomberg, Thomson Reuters Eikon

of the banking system. There is widespread financial and banking stress, resulting in increased risk premia for euro area banks and southern member states. Confidence declines and the euro area dips into recession. The recession spills over to the US and Switzerland, triggering a fall in share prices and a widening of corporate spreads. In many countries, including Switzerland, real estate prices drop sharply. The recession in the euro area and Switzerland is protracted and followed by only a weak recovery. Interest rates in these jurisdictions remain negative for an extended period.

US recession: There is a severe recession in the US, which spreads to the rest of the world. US unemployment surges to historically high levels. Financial stress rises significantly, and US real estate and share prices drop sharply. As short-term interest rates decrease and term premia increase, the yield curve steepens. Switzerland, Europe and Japan fall into a recession and there is a slowdown in emerging markets. This scenario specification is similar to the ‘severely adverse scenario’ of the US Federal Reserve’s 2018 stress test.⁵

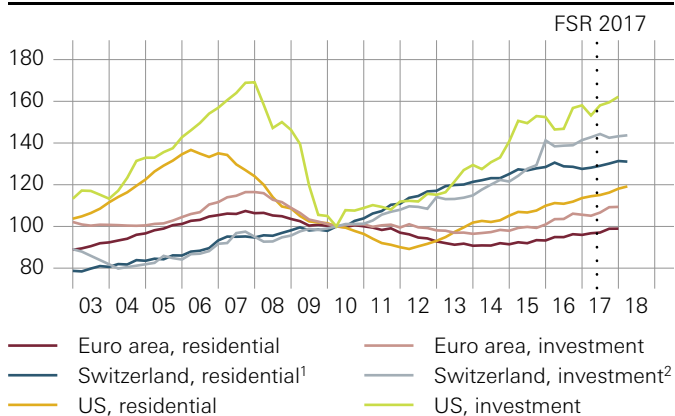
Emerging market crisis: A major crisis erupts in emerging markets, comparable to those during the second half of the 1990s. There are heavy capital outflows, emerging market bond spreads rise abruptly and stock markets collapse. The severe deterioration in financial conditions causes economic growth in these countries to decline sharply, and default rates on corporate and household debt to increase substantially, leading to a pullback in bank lending. Financial stress is transmitted to advanced economies, including Switzerland, and stock markets fall sharply. Short-term financing conditions for banks are impaired. Advanced economies experience a mild recession.

5 www.federalreserve.gov/newsevents/pressreleases/bcreg20180201a.htm.

Interest rate shock: Global potential output is overestimated and inflationary pressures start to build. As firms hit capacity constraints and labour market conditions tighten, inflation expectations suddenly jump. Central banks raise interest rates quickly in an effort to reduce inflationary pressures and re-anchor inflation expectations. Longer-term interest rates overshoot as term premia surge on the back of soaring inflation risk premia. Economic growth subsequently slows significantly. Real estate prices fall because of both the interest rate hikes and the drop in income growth. While this is a rather severe scenario, events of a similar or even greater magnitude have been observed in the past (e.g. in the UK in the 1970s, in the Netherlands around 1980, or in Japan and Switzerland in the 1990s).

REAL ESTATE PRICES

In real terms (deflated by total CPI), Q1 2010 = 100 Chart 8



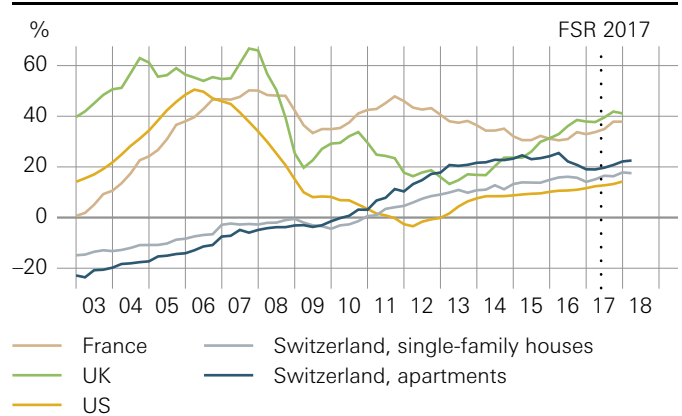
¹ Weighted average of transaction prices for single-family houses and apartments.

² Weighted average of transaction prices for commercial and apartment buildings.

Sources: BIS, SFSO, Thomson Reuters Eikon, Wüest Partner

RESIDENTIAL REAL ESTATE: PRICE-TO-RENT RATIOS

Deviation from long-term average¹ Chart 9



¹ The average is calculated over the period from 1970 to 2018, or over the period for which data are available. For Switzerland, transaction prices are used.

Sources: BIS, OECD, SFSO, Thomson Reuters Eikon, Wüest Partner

The SNB assesses big banks and domestically focused commercial banks in separate chapters due to the differences in their size and business models. The big banks category consists of Credit Suisse and UBS, which are internationally active universal banks that conduct substantial investment banking activities and play a prominent role in the international wealth management business. Due to their international focus, roughly 70% of their balance sheet comprises foreign assets. Credit Suisse and UBS have both been identified as global systemically important banks (G-SIBs) by the Financial Stability Board (FSB). In addition to their global importance, they are also highly relevant for financial stability in Switzerland and have hence been designated as systemically important by the SNB. Each big bank has a market share in both domestic credit and deposit business of between roughly 15% and 20%, and a ratio of total exposure¹ to GDP of more than 130%.

Domestically focused commercial banks are banks with a share of domestic loans to total assets exceeding 50% or with a prominent role in the domestic deposit market. The cumulative market share of these banks (of which there are currently around 100) is approximately 65% in the domestic credit market and 50% in the domestic deposit market. These banks also include the three domestically focused systemically important banks (DF-SIBs)² PostFinance, Raiffeisen Group and Zürcher Kantonalbank (ZKB). Due to their domestic focus, the DF-SIBs are analysed together with the other domestically focused banks in this chapter. However, due to their particular relevance for financial stability, these three banks are discussed individually wherever deemed relevant and where confidentiality constraints allow.

The assessment of banks is based on a comparison of the loss potential estimated under the scenarios described in chapter 2.2 with banks' capital and, in the case of the big banks, takes into account market indicators and resolvability aspects.

¹ Total exposure as defined by the TBTF regulations.

² According to art. 8 of the Banking Act, the SNB designates systemically important banks in Switzerland without making a formal distinction between domestic systemically important banks (D-SIBs) and global systemically important banks (G-SIBs). In this report, 'DF-SIBs' is used to refer to the systemically important banks that belong to the group of domestically focused banks (PostFinance, Raiffeisen Group and ZKB).

3.1 BIG BANKS

Since the last financial crisis ten years ago, the two Swiss big banks have implemented a number of measures in line with the Swiss 'too big to fail' (TBTF) regulations and the revised international standards. This has strengthened their resilience and reduced the risks to the Swiss economy that would arise if they got into financial distress. In particular, since the peak of the crisis Credit Suisse and UBS have built up substantial amounts of capital, as well as considerably reducing their exposures. Between 2006 and 2017, the balance sheet total of both banks taken together was more than halved. This significant reduction in exposures stems primarily from downsizing investment banking activities and reducing legacy assets from the financial crisis. In addition, both big banks have adjusted their business models to focus more on wealth management while still maintaining substantial investment banking activities, and have implemented structural adjustments to strengthen their resolvability in a crisis. Moreover, in recent years, the global economic environment and conditions on the financial markets have improved. The impact of these improvements both at the banks and in the economic environment is reflected in more stable operating earnings and better market indicators such as CDS spreads, which are low compared to the average of the last ten years for both banks.

Against this positive background, Credit Suisse and UBS's focus is gradually shifting, away from downsizing and reducing legacy assets from the financial crisis, and towards growth strategies and new business initiatives. Credit Suisse and UBS are looking again at growing their business and taking on more risk. For instance, by 2020 UBS expects a growth-driven rise in risk-weighted assets (RWA) of around CHF 20 billion, and an increase in its total exposure in the order of CHF 80 billion – an expansion of about 10%.³ The big banks also want to increase shareholder remuneration over the next few years – they have announced a rise in dividends and share buybacks.⁴

At the same time, from a financial stability perspective, it is important to complete the implementation of all regulatory measures foreseen by the revised 'too big to fail' regulations (TBTF2). Given the size of the big banks relative to the size of the Swiss economy, full implementation is necessary in order to resolve the 'too big to fail' issue in Switzerland and remove the de facto obligation by the state to provide assistance. Their total exposures,⁵ as a measure of bank size, still each represent over 130% of Swiss GDP (cf. 'Ten years on: What are the lessons of the financial crisis for Switzerland?', p. 22).

³ Source: UBS, *Full year and fourth quarter 2017 results*, 22 January 2018.

⁴ Sources: Big banks' annual reports for 2017.

⁵ Total exposure as defined by the TBTF regulations.

The TBTF regulations rest on two complementary pillars. First, higher requirements for, in particular, going-concern capital are intended to strengthen the resilience of a systemically important bank, thereby reducing the likelihood of it getting into financial distress. Second, if a systemically important bank nevertheless gets into distress, the regulations provide for orderly resolution without the use of public funds. To this end, the regulations stipulate requirements both for loss-absorbing capacity in a going-concern perspective and for resolution planning.

Since publication of the last *Financial Stability Report*, the two Swiss big banks have further improved their compliance with these regulatory requirements. However, progress is still necessary, particularly as regards resolution planning. The next two subchapters discuss the two TBTF pillars in more detail.

3.1.1 RESILIENCE

In sum, the capital situation at the Swiss big banks has improved slightly overall since the last *Financial Stability Report*. Thus, as regards compliance with the look-through capital requirements under TBTF2 – i.e. the requirements that will apply once all transitional arrangements have expired – both big banks are on track. Further improvement is needed as regards their leverage ratios. The loss potential analyses based on the adverse scenarios considered by the SNB, as well as historical loss experience during the last financial crisis, show that the requirements are necessary to ensure adequate resilience of the two institutions.

In the sections below, the main elements of the resilience assessment – regulatory capital figures, estimation of loss potential under the scenarios presented in chapter 2.2, and the market's assessment – are described in more detail.

Slight improvement in overall capital situation – banks on track to meet requirements

Since publication of the last *Financial Stability Report*, the capital situation at the Swiss big banks has improved slightly overall. At Credit Suisse, this was due to the capital increase in the second quarter of 2017. There was little change in the capital situation at UBS. This assessment is based on both the look-through and the grandfathering perspectives. The latter takes account of transitional provisions which permit the temporary inclusion of lower-quality capital instruments as going-concern capital.

In the look-through perspective, eligible going-concern instruments are defined according to the final quality requirements set down in TBTF2, i.e. after expiry of grandfathering and all other transitional provisions. These final quality requirements are the appropriate benchmark for assessing the banks' resilience, as they reflect the loss-absorbing capacity of the various instruments. In this perspective, going-concern capital is made up of Common Equity Tier 1 (CET1) capital and high-trigger contingent capital instruments (HT CoCos) that qualify as additional Tier 1 (AT1) capital.

Based on this look-through perspective, between the first quarter of 2017 and the first quarter of 2018, Credit Suisse's going-concern leverage ratio rose from 4.1% to 4.6%, and its risk-weighted going-concern capital ratio from 14.5% to 15.6% (cf. table 1). At UBS, the going-concern leverage ratio improved from 4.3% to 4.7% during that period, and its risk-weighted ratio declined from 17.1% to 16.4%. The increase in going-concern capital at UBS was more than offset by the rise in RWA.

In the grandfathering perspective, eligible going-concern instruments are defined according to the regulations that will apply from 1 January 2020. This perspective forms the basis for the figures published by the big banks,⁶ and permits an assessment of the degree to which they will meet the quantitative requirements of 5% (leverage ratio) and 14.3% (risk-weighted) that will apply as from that date. Under the grandfathering clause applicable from the beginning of 2020, the banks can temporarily include instruments that are not eligible as going-concern capital under the final TBTF2 requirements. Specifically, the banks can use low-trigger contingent capital instruments (LT CoCos) with AT1 capital quality up to their first call date – provided their first call date is after 1 January 2020 – in order to comply with the going-concern capital requirements that will apply from 2020.⁷

Based on this perspective, between the first quarter of 2017 and the first quarter of 2018, Credit Suisse's going-concern leverage ratio rose from 4.6% to 5.0%, and its risk-weighted going-concern capital ratio from 16.3% to 17.2%. Over the same period, UBS's going-concern leverage ratio improved from 4.6% to 5.0%, while its risk-weighted ratio declined from 18.2% to 17.3%.

As far as compliance with the going-concern requirements under TBTF2 is concerned, the two big banks are on track. In both the look-through and grandfathering perspectives, both big banks already meet all risk-weighted capital requirements. However, further improvement is needed as regards the look-through leverage ratio requirements.

As at the end of the first quarter of 2018, the two big banks satisfy the look-through requirements under the Basel III international capital framework applicable from the beginning of 2019. This applies to both risk-weighted and leverage ratios. In an international comparison, both big banks' risk-weighted Basel III Tier 1 capital ratios are above the average for global systemically important banks (G-SIBs), while their Basel III Tier 1 leverage ratios are below the corresponding average (cf. chart 10).

6 In their disclosure reports, the big banks use different terms when referring to the grandfathering perspective. UBS refers to 'Swiss SRB as of 1.1.20', and Credit Suisse's grandfathering perspective is called 'look-through'. However, in Credit Suisse's reports, LT AT1 CoCos with a first call date before 1 January 2020 are also counted towards going-concern capital.

7 As at Q1 2018, the two big banks have disclosed such instruments with first call dates in 2024 (Credit Suisse) and 2025 (UBS) at the latest.

GOING-CONCERN CAPITAL RATIOS AND REQUIREMENTS

Table 1

	Credit Suisse			UBS		Requirement ¹
	Q1 2017	Q1 2017 (pro forma) ²	Q1 2018	Q1 2017	Q1 2018	
TBTF2 ratios (look-through, in percent)³						
TBTF2 CET1 capital ratio	11.6	13.3	12.9	14.1	13.1	10.0
TBTF2 going-concern capital ratio	14.5	16.2	15.6	17.1	16.4	14.3
TBTF2 CET1 leverage ratio	3.3	3.8	3.7	3.6	3.8	3.5
TBTF2 going-concern leverage ratio	4.1	4.6	4.6	4.3	4.7	5.0
TBTF2 ratios (with grandfathering as at 1 January 2020, in percent)⁴						
TBTF2 CET1 capital ratio	11.6	13.3	12.9	14.1	13.1	10.0
TBTF2 going-concern capital ratio	16.3	17.9	17.2	18.2	17.3	14.3
TBTF2 CET1 leverage ratio	3.3	3.8	3.7	3.6	3.8	3.5
TBTF2 going-concern leverage ratio	4.6	5.1	5.0	4.6	5.0	5.0
Basel III ratios (look-through, in percent)⁵						
Basel III CET1 capital ratio	11.7	13.4	12.9	14.1	13.1	8.0
Basel III Tier 1 capital ratio	16.5	18.1	17.4	18.2	17.3	9.5
Basel III Tier 1 leverage ratio	4.6	5.1	5.1	4.6	5.0	3.0
Levels (look-through, in CHF billions)						
TBTF CET1 capital	30.8	35.3	34.9	31.3	33.2	–
High-trigger additional Tier 1 contingent capital (HT AT1 CoCos)	7.6	7.6	7.5	6.7	8.5	–
Low-trigger additional Tier 1 contingent capital (LT AT1 CoCos) ⁶	4.7	4.7	4.4	2.3	2.3	–
TBTF RWA	264	265	272	222	254	–
TBTF total exposure	936	940	932	881	882	–

1 The requirements do not include a countercyclical buffer requirement.

2 SNB calculations taking into account the capital increase of more than CHF 4 billion (cf. Credit Suisse, press release, 26 April 2017).

3 The ratios are calculated based on the final requirements – i.e. the requirements after expiry of grandfathering and all other transitional provisions. As such, going-concern capital consists of CET1 capital and HT CoCos with AT1 capital quality.

4 The ratios are calculated taking into account the grandfathering clause applicable from January 2020: LT CoCos with AT1 capital quality and a first call date after 1 January 2020 are counted as going-concern capital.

5 The requirement for the Basel III CET1 capital ratio comprises the minimum of 4.5%, the capital conservation buffer of 2.5% and the surcharge for global systemically important banks of 1% for both banks. The requirement for the Basel III Tier 1 capital ratio comprises, in addition, a minimum of 1.5% to be met with capital of at least AT1 capital quality.

6 Qualified for grandfathering as at 1 January 2020.

Sources: Big banks' quarterly reports/presentations, SNB calculations

In December 2017, the Basel Committee on Banking Supervision agreed on new measures to finalise the Basel III reform package. A key objective of these measures is to reduce unwarranted variability in RWA across banks and thus improve consistency and comparability in bank capital ratios. Equally, the revised set of rules is intended to ensure that the model-based capital requirements do not fall below prudent levels.⁸ With a view to achieving these objectives, the standardised approach for calculating RWA was completely revised, adjustments were made to the calculation of model-based RWA, and a floor for model-based RWA was introduced which replaces the earlier lower limit set under Basel II.⁹ The newly agreed measures need to be transcribed into national legislation by 1 January 2022. For the new floor, a transition period will apply until 1 January 2027.

Based on current information, the impact of these measures on the Swiss big banks' RWA density (ratio of RWA to total exposure) seems to be in line with the estimates underlying the calibration of the TBTF2 capital requirements.¹⁰ Due to the long transition period until 2027, however, a precise quantification of the impact is not yet possible.

8 Cf. SNB, *Financial Stability Report*, 2013 to 2015, on the issues related to model-based RWA.

9 Cf. Basel Committee on Banking Supervision, *High-level summary of Basel III reforms*, December 2017.

10 For more information about the calibration of the TBTF2 capital requirements, cf. FDF, *Erläuterungsbericht zu Änderungen der Eigenmittelverordnung und zur Bankenverordnung*, 13 May 2016 (not available in English).

Loss potential under adverse scenarios

The assessment of loss potential is based on the big banks' risk exposures and on the analysis of these exposures' sensitivity to the shocks assumed in each scenario. The results are described in qualitative terms and illustrated with publicly available exposure and balance sheet data. This takes into account, in particular, the fact that risk exposures and sensitivities can be measured in a number of different ways. The risk exposures and sensitivities used to calculate the loss potential cannot be disclosed, as they are based on banks' confidential internal data.

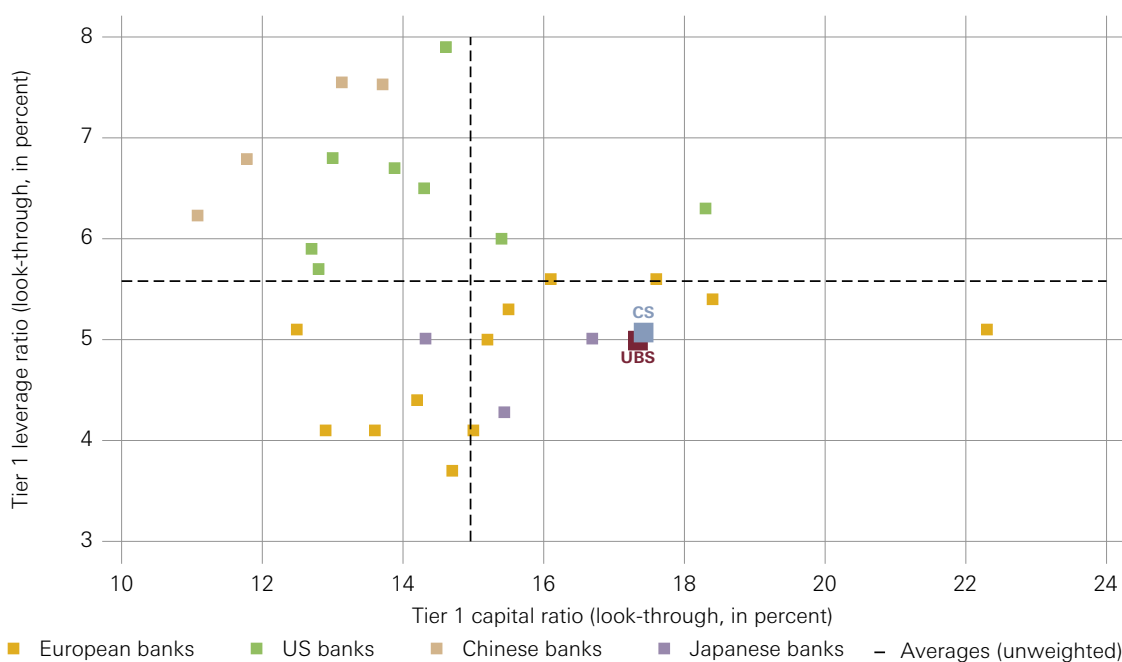
The loss potential under all four of the scenarios described in chapter 2 is substantial. The US recession scenario results in the highest loss potential. The adverse scenarios of an interest rate shock, a protracted euro area recession and an emerging market crisis all exhibit loss potentials of a similar magnitude, albeit somewhat lower than under the US recession scenario. Under all four scenarios, the loss potential stems primarily from loans in Switzerland and the US, counterparty exposure from derivatives and securities financing transactions, and equity and bond positions. Irrespective of the scenarios considered, losses can also result from operational and legal risks.

Loans in Switzerland: A deterioration of credit quality in Switzerland, as described in the interest rate shock, US recession and protracted euro area recession scenarios, could lead to substantial losses at Switzerland's two big banks, owing to write-downs and credit defaults. At end-2017, they had loans outstanding against domestic

INTERNATIONAL COMPARISON OF TIER 1 CAPITAL

Global systemically important banks (G-SIBs), Q1 2018

Chart 10



Sources: Bank disclosures

clients totalling CHF 308 billion, of which CHF 260 billion were in the form of mortgage loans.¹¹

Loans in the US: A deterioration of credit quality in the US, as described in the US recession scenario, could lead to substantial losses for the big banks in connection with corporate loans. At end-2017, the big banks together had unsecured claims outstanding against the private sector in the US (excluding banks) totalling around CHF 65 billion.¹²

Derivatives and securities financing transactions: Both the protracted euro area recession scenario and the US recession scenario could lead to substantial losses from counterparty exposures arising out of derivatives and securities financing transactions, largely with financial institutions. At end-2017, the big banks' regulatory counterparty credit risk exposures amounted to CHF 180 billion.¹³

Equities and bonds: A sharp decrease in share prices around the world and a sharp increase in corporate bond spreads could lead to substantial losses, depending on the effectiveness of hedging. At end-2017, the big banks' gross trading portfolios in equities and corporate bonds totalled CHF 156 billion.¹⁴ These holdings are partly hedged with derivatives positions.

Both big banks publish their own risk assessments. However, these cannot be directly compared with the SNB's loss potential estimates, either because they provide statistical measures that are not based on

scenarios, or because the big banks do not publish information on the severity of the stress scenario applied.

As regards statistical measures of loss potential, Credit Suisse reported a position risk of CHF 21 billion,¹⁵ or CHF 31 billion if operational and other risks are included, and UBS reported risk-based capital of CHF 34 billion, including operational risks.¹⁶ Owing to different methodologies, these two statistical measures are not directly comparable.

Market assessment

Market prices (e.g. CDS premia¹⁷) and ratings reflect the market's or rating agencies' assessment of a bank's resilience. The big banks' CDS premia are at levels comparable to those observed 12 months ago. As at end-May 2018, the market assesses the resilience of Credit Suisse as slightly below, and that of UBS as slightly above the median of large globally active banks (cf. chart 11).

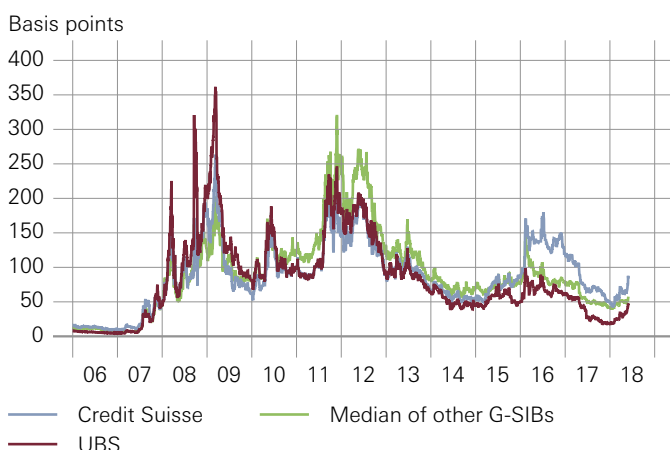
The rating agencies' assessment of banks' resilience is reflected in stand-alone ratings, which evaluate the intrinsic financial strength of the banks, assuming no extraordinary external support. The resilience of Credit Suisse is rated as unchanged, and that of UBS as higher compared to last year's *Financial Stability Report*.¹⁸ The stand-alone ratings of both Swiss big banks are comparable to those of other large globally active banks (cf. chart 12 for an international comparison based on Moody's stand-alone ratings).

In addition to stand-alone ratings, the agencies issue long-term credit ratings, which explicitly factor in the possibility of extraordinary government support (government support uplift) in the event of a crisis. At holding company level, all three major rating agencies (Moody's, S&P and Fitch) removed the government support uplift a few years ago. At the level of the operating company, S&P and Fitch have also removed government support, while Moody's continues to assume that Credit Suisse and UBS – alongside most other G-SIBs in Europe and the US – benefit from a 'too big to fail' rating uplift (1 notch).

11 Source: SNB.
12 Source: SNB. Alongside claims against companies, this also includes claims against households. Unsecured claims may include trading and other liquid assets with comparatively low risk.
13 Sources: UBS, *Basel III Pillar 3*, 2017; Credit Suisse, *Basel III – Pillar 3 and regulatory disclosures*, 2017.
14 Sources: annual reports for 2017.

INTERNATIONAL COMPARISON OF CDS PREMIA

Premia for credit protection (five-year senior) Chart 11



Source: Bloomberg

15 Source: Credit Suisse, quarterly report for Q1 2018. Credit Suisse bases its calculation of position risk on its Economic Capital Model. The position risk figures used here correspond to the statistical loss potential over a one-year horizon. The probability that this level of losses for position risk will not be exceeded is 99.97%.

16 Source: UBS, *Annual Report*, 2017. UBS bases its calculation of risk-based capital on its statistical risk framework. The risk-based capital figures correspond to the statistical loss potential over a one-year horizon. The probability that this level of losses will not be exceeded is 99.90%.

17 The greater the credit risk and the lower the assessment of resilience, the higher the premium on a given CDS. However, market prices include market expectations of government support in a crisis ('too big to fail' issue). CDS premia thus reflect the market's view of the likelihood that the underlying credit will be repaid. It is irrelevant who repays the investment – the bank or a third party, such as the government.

18 Credit Suisse: Moody's, S&P and Fitch rate the resilience of Credit Suisse as unchanged compared to last year's *Financial Stability Report*. UBS: Moody's and Fitch rate the resilience of UBS as higher (+1 notch) compared to last year's *Financial Stability Report*, while S&P rates it as unchanged.

Rating agencies justified the removal of the government support uplift with reference to the stricter conditions on governments' use of public funds for bank rescues and improved resolvability at banks. However, they did not rule out the possibility of changing their assessments regarding the likelihood of government support and reintroducing this uplift in the future.¹⁹ Historical evidence shows that rating agencies can quickly increase the uplift in periods of crisis, if they judge that the likelihood of government intervention has grown (cf. *Financial Stability Report*, 2016, for an illustration).

3.1.2 RESOLUTION

Since publication of the last *Financial Stability Report*, the two Swiss big banks have made further progress in the area of resolution, in particular with respect to their gone-concern loss-absorbing capacity. Taking into account rebates granted by FINMA as a result of banks' efforts to improve resolvability, both banks are already fully compliant with the look-through requirements for gone-concern instruments under the TBTF2 regulations. Moreover, they have established separate service companies aimed at ensuring that the services necessary for maintaining critical business activities are not impeded by the failure of one or more group entities.

19 Cf., for example, S&P, 'Most European Bank Ratings Affirmed Following Government Support And ALAC Review', December 2015, p. 5: "That said, if a systemic bank came under stress and we saw clear evidence that government support would be forthcoming, we could still reflect this 'additional short-term support' in the ratings on the bank." Or, Moody's, 'FAQ: European Resolution Regime Tested by Proposed Montepaschi Bail-Out', 9 January 2017, p. 1: "However, should such a bail-out be replicated, we would likely revisit our determination of the BRRD [Bank Recovery and Resolution Directive] as an effective operational resolution regime, and consider whether government support for European banks could be more widespread than we currently anticipate."

Nonetheless, further progress is needed in three areas in particular. First, in accordance with FSB guidelines, FINMA, as the home resolution authority, is currently developing resolution funding plans that set out the strategy, key actions and measures that would be employed to address liquidity stress in resolution. Second, it must be ensured that loss-absorbing capacity is adequate not only at a consolidated group level, but also on a stand-alone basis at the level of the individual group entities. In this context, the FSB's recently published guidelines on internal TLAC need to be put into practice. Third, the big banks must further reduce the financial and operational dependencies within the group.

In the next two sections, the main elements of the resolvability assessment are described in more detail. These are gone-concern loss-absorbing capacity and resolution planning.

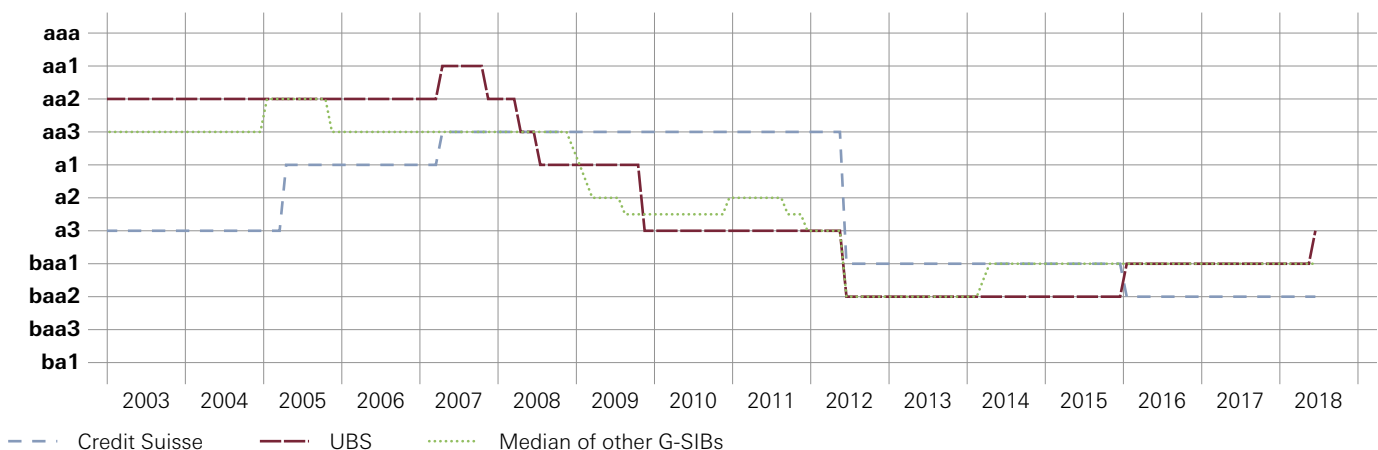
Further improvement in gone-concern loss-absorbing capacity

Since publication of the last *Financial Stability Report*, the two Swiss big banks have further improved their gone-concern loss-absorbing capacity overall (cf. table 2). The improvement in gone-concern loss-absorbing capacity is due to the continued issuance of bail-in instruments. These are debt securities, rather than equity, and are used to recapitalise a bank in the event of impending insolvency, without recourse to government support. This is achieved by writing off creditors' claims from these bail-in instruments and converting them to equity.

INTERNATIONAL COMPARISON OF STAND-ALONE RATINGS

Moody's, baseline credit assessment

Chart 12



Sources: Bloomberg, Moody's

Based on the look-through perspective, between the first quarter of 2017 and the first quarter of 2018, Credit Suisse's gone-concern leverage ratio rose from 3.7% to 4.4%, and its risk-weighted gone-concern ratio from 13.1% to 15.0%. Over the same period, UBS's gone-concern leverage ratio rose from 4.0% to 4.3%, whereas its risk-weighted gone-concern ratio declined from 16.1% to 14.8% (cf. table 2).²⁰

Both big banks now satisfy the requirements for gone-concern instruments according to the look-through perspective of the TBTF2 regulations. These requirements take into account reductions on the original look-through requirements of 5% (leverage ratio) and 14.3% (risk-weighted) due to rebates granted by FINMA on the basis of improvements in these banks' global resolvability. On a look-through basis, these rebates amount to 0.7 percentage points (leverage ratio) and 2.0 percentage points (risk-weighted).²¹ As a result, the gone-concern requirements taking FINMA rebates into account are 4.3% (leverage ratio) and 12.3% (risk-weighted).

Further progress needed in resolution planning

Since the TBTF regulations came into force, the big banks have implemented key organisational measures. These aim to ensure the maintenance, during a crisis, of the functions that are systemically important for the Swiss economy (under the 'emergency plan'), and to improve the resolvability of the bank as a whole.²² Both big banks have a non-operational holding company heading the group. This structure facilitates a 'single point of entry' bail-in, in accordance with the FSB standard.²³ Moreover, both banks have set up Swiss subsidiaries that provide systemically important functions.²⁴ In addition, they have established separate service companies aimed at ensuring that the services necessary for maintaining critical

business activities are not impeded by the failure of one or more group entities.²⁵

Nonetheless, further progress is needed in three areas in particular. First, in accordance with FSB guidelines, resolution funding plans are being developed that set out the strategy, key actions and measures that would be employed to address liquidity stress in resolution. FINMA, as the home resolution authority, is leading this project and is working together with the banks, the SNB and foreign host resolution authorities. An important condition for a credible plan is that the funding needs in resolution are adequately estimated – not only for the group, but also for its material operating entities. In particular, the assumptions made in the liquidity stress scenarios need to be appropriate, and the banks need to acquire the capability to monitor and report liquidity resources and funding needs in a timely manner.²⁶

Second, it must be ensured that loss-absorbing capacity is adequate not only at a consolidated group level, but also on a stand-alone basis at the level of the individual group entities. From the Swiss perspective, this principle is important for subsidiaries with systemically important functions, as well as for the parent companies of the two big banks (Credit Suisse AG and UBS AG). These parents are domiciled in Switzerland and contain key business divisions, such as the investment bank or foreign wealth management. Moreover, they perform liquidity management for the whole group and source a considerable portion of the group's funding from the market. Thus, both their size and their function mean that they are of central importance for the whole group.²⁷ As a result, it must be ensured that sufficient loss-absorbing capacity is committed both to the parent's material subsidiaries and to the parent company itself. In this context, the FSB's recently published guidelines on internal TLAC for material sub-groups need to be put into practice by 1 January 2019.²⁸

20 Based on the grandfathering perspective, between the first quarter of 2017 and the first quarter of 2018, Credit Suisse's gone-concern leverage ratio rose from 3.2% to 3.9%, and its risk-weighted gone-concern ratio from 11.4% to 13.4%. Over the same period, UBS's gone-concern leverage ratio rose from 3.8% to 4.0%, whereas its risk-weighted gone-concern ratio declined from 15.0% to 13.9% (cf. table 2). The relevant gone-concern ratios are lower than in the look-through perspective because LT CoCos with AT1 capital quality and a first call date after 1 January 2020 are eligible for inclusion as going-concern capital in the grandfathering perspective, and can therefore not simultaneously be used to meet the requirements on gone-concern loss-absorbing capacity.

21 The TBTF2 regulations stipulate that in the case of gone-concern requirements FINMA can grant rebates in light of measures taken to improve overall resolvability, provided that strict requirements are met (cf. art. 133 Capital Adequacy Ordinance). Moreover, art. 132 states that gone-concern requirements can be reduced if the banks' eligible instruments include certain LT CoCos. However, applying these two types of reductions must not cause the gone-concern requirements to fall below international requirements. In this report, reductions due to the use of LT CoCos to meet these requirements are not included.

22 For an overview of the state of progress and the requirements in the area of resolution, cf. SNB, *Financial Stability Report*, 2017.

23 Cf. FSB, *Recovery and Resolution Planning for Systemically Important Financial Institutions: Guidance on Developing Effective Resolution Strategies*, 2013. In the Swiss context, in a 'single point of entry' bail-in, certain debt securities are converted to equity at holding company level following the issuance of an order by FINMA. In this way, the entire group, in particular the entities affected by the losses, are recapitalised.

24 Systemically important functions comprise, in particular, domestic deposit and lending business as well as domestic payment transactions. Cf. Banking Act, art. 8 para. 1.

25 Cf. FINMA Annual Report 2017, pp. 92–97 for more information on resolution planning.

26 Cf. FSB, *Funding Strategy Elements of an Implementable Resolution Plan, Consultative Document*, 30 November 2017.

27 Cf. FDF, *Erläuternder Bericht zur Änderung der Eigenmittelverordnung*, February 2018 (not available in English).

28 Cf. FSB, *Guiding Principles on the Internal Total Loss-absorbing Capacity of G-SIBs (internal TLAC)*, 6 July 2017.

GONE-CONCERN CAPACITY RATIOS AND REQUIREMENTS

Table 2

	Credit Suisse		UBS		Requirement ¹
	Q1 2017	Q1 2018	Q1 2017	Q1 2018	
TBTF2 ratios (look-through, in percent)²					
TBTF2 gone-concern capacity ratio	13.1	15.0	16.1	14.8	12.3
TBTF2 gone-concern leverage ratio	3.7	4.4	4.0	4.3	4.3
TBTF2 ratios (with grandfathering as at 1 January 2020, in percent)³					
TBTF2 gone-concern capacity ratio	11.4	13.4	15.0	13.9	12.3
TBTF2 gone-concern leverage ratio	3.2	3.9	3.8	4.0	4.3
Levels (look-through, in CHF billions)					
High-trigger Tier 2 contingent capital (HT T2 CoCos)	–	–	0.2	–	–
Low-trigger contingent capital (LT CoCos)	9.1	8.7	10.6	10.4	–
Of which additional Tier 1 (LT AT1 CoCos)	5.0	4.7	2.3	2.3	–
Of which Tier 2 (LT T2 CoCos)	4.1	4.0	8.2	8.1	–
Bail-in instruments	25.6	32.0	24.9 ⁴	27.1 ⁴	–
TBTF RWA	264	272	222	254	–
TBTF total exposure	936	932	881	882	–

1 The gone-concern requirements take into account rebates granted by FINMA as a result of banks' efforts to improve resolvability. On a look-through basis, these rebates amount to 0.7 percentage points (leverage ratio) and 2.0 percentage points (risk-weighted). Further reductions due to the use of LT CoCos to meet these requirements are not included.

2 The ratios are calculated based on the final requirements – i.e. the requirements after expiry of grandfathering and all other transitional provisions. As such, gone-concern capacity consists of HT CoCos with Tier 2 capital quality, LT CoCos and bail-in instruments.

3 The ratios are calculated taking into account the grandfathering clause applicable from January 2020: LT CoCos with Tier 1 capital quality and a first call date after 1 January 2020 are counted as going-concern capital, whereas LT CoCos with Tier 1 capital quality and a first call date before 1 January 2020 and Tier 2 CoCos are counted as gone-concern instruments.

4 Including non-Basel III-compliant capital instruments of CHF 1.3 billion in Q1 2017 and CHF 0.7 billion in Q1 2018.

Sources: Big banks' quarterly reports/presentations, SNB calculations

Third, the big banks must further reduce the financial and operational dependencies within the group.²⁹ This is an important prerequisite for credible and workable emergency plans. For example, the relevant Swiss subsidiaries with systemically important functions would currently assume part of the liabilities of their parent company in the event of the latter's default. UBS Switzerland AG, for instance, reports that it has assumed joint liability for obligations at UBS AG. As of end-2017, this joint liability amounted to CHF 69 billion. By comparison, UBS Switzerland AG's total loss-absorbing capacity comes to CHF 22 billion.³⁰

Experience shows that the resolution of a bank, especially a large globally active bank, is highly complex. Therefore, resolution planning needs to be carried out in a thorough and prudent manner. In this context, each big bank must demonstrate to FINMA by end-2019 that it has a credible and workable emergency plan for maintaining the systemically important functions in Switzerland in a crisis.³¹ For the group as a whole, FINMA will draw up a global resolution plan. Owing to the financial and operational dependencies within the group, there are important overlaps between the emergency plan and the global resolution plan. Thus, in order to successfully resolve either big bank, both plans need to be credible and workable.

As the big banks are active internationally, they have to comply with the requirements of foreign authorities. In the US, for instance, they have to improve their resolution planning in line with the guidance issued by the US regulators; the deadline for doing so is mid-2018.³² In the UK, the Bank of England is conducting a consultation on required holdings of loss-absorbing instruments by group entities operating in its jurisdiction.³³ When formulating the requirements, the Bank plans to, inter alia, consider the credibility of resolution planning at the level of the whole banking group.

29 Cf. FINMA press release, 'Large banks: new capital adequacy treatment of holdings in subsidiaries, and update on recovery and resolution planning', 27 October 2017.

30 Cf. UBS, *Annual Report*, 2017, p. 192 and *Basel III Pillar 3*, 2017, p. 106. In June 2015, upon transfer of certain businesses from UBS AG to UBS Switzerland AG, UBS Switzerland AG assumed joint liability for existing obligations at UBS AG. The joint liability amounts declined as obligations matured, terminated or were novated after the transfer date. UBS notes that under certain circumstances, the Swiss Banking Act and FINMA's Banking Insolvency Ordinance authorise FINMA to modify, extinguish or convert to common equity liabilities of a bank in connection with a resolution or insolvency of such bank.

31 The criteria by which FINMA assesses the Swiss emergency plans are defined in art. 61 Banking Ordinance. They specify, for example, that the legal and economic relationships within the financial group concerned must be structured in a way that does not impede the continuation of systemically important functions. In order to operate these functions, the bank must set up suitable processes and the necessary infrastructure. Access to required resources must be guaranteed at all times, independently of the bank's non-systemically important units. In addition, the bank must demonstrate that its emergency plan makes adequate provision for the capital and liquidity needed to implement the plan. The mere creation of a separate legal entity comprising the systemically important functions does not mean that the criteria in art. 61 Banking Ordinance are automatically met.

32 Cf. the joint press release of the Board of Governors of the Federal Reserve System and the Federal Deposit Insurance Corporation of 24 March 2017, as well as the guidance included therein.

33 Cf. Bank of England consultation paper, *Internal MREL – the Bank of England's approach to setting a minimum requirement for own funds and eligible liabilities (MREL) within groups, and further issues*, October 2017.

Ten years on: What are the lessons of the financial crisis for Switzerland?

It is now ten years since the Federal Council, FINMA (formerly the Swiss Federal Banking Commission) and the SNB decided to implement a package of measures to strengthen the Swiss financial system. On 16 October 2008, the authorities announced the transfer of a maximum of USD 60 billion in illiquid UBS assets to a special purpose vehicle at the SNB (the 'stabilisation fund') as well as the strengthening of UBS's capital base by the Confederation in the amount of CHF 6 billion.¹ These measures were needed during the global financial crisis as the possibility of UBS suffering a deeper crisis of confidence could not be ruled out.

A package of measures of this magnitude posed a high financial risk for Switzerland. The transfer of up to USD 60 billion of illiquid assets from UBS to the SNB stabilisation fund represented some 10% of GDP, and the CHF 6 billion recapitalisation of UBS by the Confederation some 10% of federal receipts. The authorities accepted these risks since the collapse of UBS would have severely impaired the functioning of the Swiss financial system and the Swiss economy. In the end, an amount of USD 39 billion was transferred and the risks did not materialise: The Confederation and the SNB even made profits. Although the package of measures involved a loss protection mechanism, this was by no means a foregone conclusion.² In the early months, the transferred assets lost so much value that the stabilisation fund was temporarily over-indebted.³

Drawing on the experience of the last financial crisis, policymakers worldwide agreed and put in place numerous measures. The ongoing implementation of these measures has considerably improved banks' resilience both in Switzerland and abroad.⁴ Moreover, in recent years, the global economic environment and conditions on the financial markets have developed favourably.

History has shown that memories of the costs and risks of crises can rapidly fade. As good times return, risks are often underestimated and the benefits of the measures put in place are often overlooked.⁵ Measures which are considered essential in the throes of a crisis tend to be perceived as over-regulation in calmer times. Although certain aspects of the revised banking regulations may appear complex, the core elements of the current regulations, including the measures agreed after the crisis, are essential. It is important to take advantage of today's positive environment to fully implement the planned measures and thereby prepare for any crisis that may arise in the future.

Dilution of banking regulations before the crisis

As is evident from the pre-crisis period, an underestimation of the magnitude of risks is often linked with an overestimation of the controllability and predictability of risks. Banking regulations increasingly relied on ever more sophisticated bank models for estimating risks. Banks and authorities were confident that the interplay between complex financial market products, developments on the financial markets and the behaviour of financial market participants could be accurately replicated in models. Against this backdrop, the authorities gave banks more and more freedom to determine their capital requirements, using internal bank models. Furthermore, banking regulations permitted recognition of certain hybrid capital instruments that subsequently proved to be non-loss-absorbing during the crisis. All these developments impacted on the large globally active banks in particular; their balance sheets expanded steadily while the effective loss-absorbing capital buffer became proportionately smaller.⁶

At the same time, the authorities had no credible instruments available for the resolution of these large globally active banks. For example, it was practically impossible to hold creditors, even subordinated creditors, liable for any of the banks' losses.

The consequences are well known: Authorities worldwide were forced to enact major government support measures to prevent the collapse of the banking and financial system, with corresponding risks for the economy as a whole (TBTF issue). It was taxpayers who incurred the risks and costs associated with these support measures.

1 Cf. press releases of the Federal Council, SNB and SFBC (now FINMA) of 16 October 2008.

2 When the stabilisation fund was set up, a mechanism was agreed whereby the SNB would be covered against losses up to a certain level. Loss protection came, first, in the form of an equity contribution from UBS for 10% of the assets transferred and, second, as a warrant for the SNB to purchase 100 million UBS shares. In its accountability report for 2008 (p. 81), the SNB wrote: "It is not possible from a current perspective to gauge how well this arrangement will protect the SNB against losses. This will depend in particular on how the asset classes in the portfolio acquired will perform." Cf. SNB, *Accountability report for the Federal Assembly*, 2008.

3 Cf. SNB presentation at the news conference of 8 November 2013, p. 32. Altogether, in the first nine months following transfer, the assets lost some USD 7 billion in value. The loss protection mechanism for the SNB was still effective, however.

4 Cf., in this regard, the speech 'Comments on monetary policy and banking regulation' given by Thomas J. Jordan at the Ordinary Annual General Meeting of Shareholders of the Swiss National Bank held on 27 April 2018.

5 Cf. Carmen M. Reinhart and Kenneth S. Rogoff, *This Time is Different: Eight Centuries of Financial Folly*, Princeton University Press, 2009; and Xavier Freixas et al., *Systemic Risk, Crises and Macroprudential Regulation*, MIT Press, 2015.

6 Cf. 'Lessons learned' (*Financial Stability Report*, 2008, p. 8), 'Regulatory and loss-absorbing capital' (*Financial Stability Report*, 2011, p. 32) and *Financial Stability Report*, 2012 to 2015, on the issues related to model-based RWA.

Regulatory measures address the shortcomings identified in the crisis ...

Banking regulation measures taken at both international and national level in recent years are aimed at remedying the shortcomings identified in the financial crisis.

At international level, the Basel Committee on Banking Supervision and the Financial Stability Board (FSB) adopted a large number of measures to strengthen bank resilience and resolve the TBTF issue. For instance, the Basel Committee thoroughly reviewed the calculation of RWA with the goal of restricting banks' freedom to determine capital requirements. In addition, a leverage ratio was introduced. Its purpose is to serve as a backstop, to provide a capital floor in the case of an underestimation of risks. Finally, the Basel Committee increased the requirements regarding capital quality, in order to restore the going-concern loss-absorbing capacity of eligible instruments. The FSB measures, by contrast, are aimed at improving the resolvability of banks. A resolution regime was set up which contains, inter alia, requirements for resolution planning (including sufficient funding in resolution) and the strengthening of gone-concern loss-absorbing capacity in a crisis.

The approach taken in Switzerland is consistent with the measures adopted at international level and comprises two pillars with special requirements for systemically important banks. The first pillar includes capital and liquidity requirements aimed at strengthening bank resilience. Nevertheless, future bank crises cannot be ruled out. The second pillar is therefore aimed at delivering workable plans, including sufficient funding and a strengthening of gone-concern loss-absorbing capacity, to facilitate the resolution of a systemically important bank.⁷ All systemically important banks in Switzerland, namely the two big banks Credit Suisse and UBS, and the domestically focused banks PostFinance, Raiffeisen Group and Zürcher Kantonalbank, are subject to these special requirements.

The banks, in particular the big banks, contributed to the design of these measures at various levels. At national level, Credit Suisse and UBS were closely involved in preparing both the first TBTF regulations (TBTF1) and the revised regulations (TBTF2). The current regulations reflect a compromise between the authorities and the banks. At international level (Basel Committee, FSB), the banks were regularly consulted on the individual reform plans.

7 Cf. 'Resolution as an important pillar of the 'too big to fail' regulations: an overview', *Financial Stability Report*, 2017, pp. 17–19.

... and are compatible with competitiveness and credit availability

With the TBTF regulations, Switzerland has opted for a streamlined regulatory approach. This approach refrains from actively intervening in the business models or organisational structures of the banks. Instead, it focuses on improving banks' resilience by imposing relatively high capital requirements. High resilience is in the interest of financial stability, and also in the long-term interest of the banks themselves. It is a key competitive factor in attracting customers – especially for banks with a focus on wealth management.

Moreover, good bank capitalisation does not come at the expense of maintaining an adequate supply of credit to the economy. The majority of empirical studies indicate that the capital requirements revised in the wake of the financial crisis do not limit credit availability, and that the benefits in the form of lower likelihood of a crisis considerably outweigh any costs associated with the regulations.⁸ Experience at international level and in Switzerland supports these findings. Those countries which acted quickly to address identified shortcomings (e.g. the US) have tended to grow faster since the financial crisis.⁹ In Switzerland too, experience since the TBTF package came into force in 2012 indicates that the new regulations have not restricted total domestic lending. Thus, the steps taken by the Swiss big banks to reduce their balance sheets and strengthen their capital base had no adverse effect on credit supply in Switzerland. Instead, there are even signs of imbalances in some credit segments. Furthermore, most credit in Switzerland is supplied by domestically focused banks that hold capital levels significantly above requirements. Well capitalised banks are better able to absorb losses without having to scale back their lending; this is beneficial to both the economy and the banks themselves, as the latter can gain market share.

Taking advantage of the improved environment to fully implement the regulatory measures

A large proportion of the regulatory measures agreed in the aftermath of the crisis have already been implemented in Switzerland, but further progress is still needed. First, banks must complete the strengthening of their going-concern loss-absorbing capacity as stipulated in the TBTF2 regulations. Second, further measures have to be taken and implemented to ensure the orderly resolution of

8 For an example of a study on the impact of increased capital requirements on credit growth, cf. Stephen Cecchetti, *The jury is in*, Centre for Economic Policy Research, Policy Insight No. 76, 2014. For an analysis of the costs and benefits of higher capital requirements, cf. also FSB, *Summary of Findings from the TLAC Impact Assessment Studies*, Overview Report, 9 November 2015; and FDF, *Regulierungsfolgenabschätzung zu Änderungen der Eigenmittelverordnung und der Bankenverordnung (Eigenmittelanforderungen Banken – Rekalibrierung TBTF und Kategorisierung)*, May 2016.

9 Cf. FDF (2016).

systemically relevant banks. In particular, the FSB's guidelines on internal TLAC need to be put into practice, and credible and workable resolution plans that also ensure sufficient funding in resolution need to be drawn up (cf. chapter 3.1.2). Experience shows that the orderly resolution of a bank, especially a large globally active bank, is highly complex. Therefore, resolution planning needs to be carried out in a thorough and prudent manner.

The current favourable environment should be used to fully implement the national and international regulatory measures. This is particularly important for Switzerland because the size of the systemically important banks relative to the size of the Swiss economy continues to be very large. The leverage ratio exposures of the two Swiss big banks are both still larger than the country's GDP. By way of comparison: At end-2017, the corresponding exposures of the biggest US banks, JPMorgan Chase and Bank of America, represented only about 17% and 14% respectively of US GDP. The exposures of DF-SIBs relative to domestic GDP are also large by international comparison.¹⁰ A government rescue package therefore might not be financially sustainable for Switzerland.¹¹

In view of Switzerland's special situation, the full implementation of national and international regulatory measures is no luxury. It is vital both to reduce the likelihood of a banking crisis and to resolve the TBTF issue and thereby protect taxpayers.

3.2 DOMESTICALLY FOCUSED COMMERCIAL BANKS

In 2017, domestically focused banks further increased their exposure to the Swiss mortgage and real estate markets. Mortgage growth at these banks has remained strong. Moreover, affordability risks as measured by the loan-to-income (LTI) ratio are at a historical high, and have risen further for the residential investment segment. This segment is also showing signs of an accumulation of loan-to-value (LTV) risks and affordability risks. Meanwhile, interest rate risk from maturity transformation has remained high. These developments occurred against the backdrop of persistent imbalances on the mortgage and real estate markets. Imbalances have decreased somewhat on the mortgage market, but they have increased on the residential real estate market.

Despite the ongoing pressure on profitability exerted by low interest margins, domestically focused banks' capital situation is broadly unchanged and remains adequate for most banks. First, their available capital has increased broadly in step with the size of their balance sheets and slightly faster than their RWA. Both the leverage ratio and the risk-weighted ratio for these banks lie significantly above the regulatory minimum requirements.

Second, stress test results suggest that most domestically focused banks' capital surpluses, relative to the regulatory minimum requirements, are large enough to absorb the losses under the relevant adverse scenarios. However, such adverse scenarios would lead to the depletion of a sizeable proportion of these surpluses; in addition, there is inherent uncertainty in the output of stress tests. These capital surpluses should be preserved going forward, to help ensure that banks are able to fulfil their role as credit providers to the real economy even under adverse conditions. Both regulatory requirements and the prudent stance of many banks towards capital adequacy play a key role in maintaining these surpluses.

The next section examines the exposures of domestically focused banks and the impact of adverse scenarios. Chapter 3.2.2 provides an assessment of these banks' resilience, focusing on the development of regulatory capital figures and an appraisal of the banks' capital situation from an economic point of view. The chapter includes a separate discussion of the TBTF requirements for DF-SIBs (going-concern and planned gone-concern) and their compliance.

3.2.1 EXPOSURES AND IMPACT OF SCENARIOS

Low mortgage growth in the banking sector as a whole, increasing momentum on the residential real estate market

In contrast to the persistently strong mortgage growth at domestically focused banks, mortgage growth in the banking sector as a whole has remained low and is

10 Raiffeisen and ZKB relative to Swiss GDP are roughly double the size of JPMorgan Chase or Citigroup relative to US GDP. The proportions of national GDP represented by the Swiss big banks' leverage ratio exposures are even eight times bigger than their US counterparts. Share of leverage ratio exposure relative to Swiss and US GDP respectively as at end-2017: ZKB 27%; Raiffeisen 35%; UBS 134%; Credit Suisse 139%; JPMorgan Chase 17%; Bank of America 14%; Citigroup 13%.

11 Cf. Federal Council dispatch on the amendment to the Banking Act ('Strengthening the stability of the financial sector; too big to fail') of 20 April 2011 (p. 4726).

unchanged. Year-on-year mortgage growth was 2.7% at end-2017 (2.7% at end-2016).³⁴

Meanwhile, transaction prices for single-family houses and apartments suggest that momentum on the owner-occupied residential real estate market increased in 2017. Between end-2016 and end-2017, growth in transaction prices increased from 0.5% to 4.0% for single-family houses, and from -3.1% to 3.3% for apartments, although there is some heterogeneity across 2017 price indices. For apartments in particular, asking prices are signalling a slight decline. In the residential investment segment, transaction prices for apartment buildings have increased slightly, by 1.2% (end-2017); this offset the previous year's decrease of 1.2%.

Imbalances persist on mortgage and residential real estate markets

Since the onset of the period of low interest rates in 2008, several years of strong growth in both bank credit and real estate prices have resulted in imbalances on the mortgage and residential real estate markets, which persisted in 2017. Imbalances have decreased somewhat on the mortgage market, but they have increased on the residential real estate market.

On the mortgage market, the difference between the mortgage-to-trend GDP ratio and its long-term trend has decreased somewhat. This reflects low mortgage volume growth, robust GDP growth and an upward revision of previous GDP estimates.

By contrast, developments in the apartments segment suggest that imbalances in the owner-occupied residential real estate segment have increased. Transaction prices for

apartments have risen faster than can be explained by fundamental factors such as rents, GDP or population growth.

In the residential investment segment, the risk of substantial future price corrections is high, and rose further in 2017. Since the beginning of the period of low interest rates in 2008, transaction prices for apartment buildings have grown much more than rents (cf. chart 13); this already resulted in historically low initial yields³⁵ at end-2016. If interest rates increase, investment property will only be sought at higher initial yields, which will put pressure on prices. Sustained construction of rental apartments over the last few years, including in 2017, has increased the risk of price corrections further, as it could lead to oversupply. Signs of this can already be observed in rising vacancy rates.

An eventual rise in initial yields is likely to materialise through falling prices, rather than increasing rents. While, in principle, rental law establishes a close link between rents and interest rates, lower interest rates have not resulted in decreasing rents since 2008. This will impede rent hikes in the case of increasing interest rates as, according to rental law, earlier declines in interest rates have to be taken into account. Moreover, market forces could push rents down in the context of an oversupply of rental apartments.

As a consequence, even a return of interest rates and yields to moderate levels could result in significant price declines in the residential investment segment. Assuming, for illustrative purposes, that rents remain constant, transaction prices would have to decline by about one-third in order to return initial yields for apartment buildings to the levels observed in 2008.

In the commercial investment segment, there are no conclusive signs of imbalances, but prices might nevertheless decline if interest rates increase. Since 2008, transaction prices for office and retail space have also risen (cf. chart 13), and initial yields for commercial real estate are likewise at very low levels. As a result, these transaction prices might also come under pressure in the event of an interest rate increase. However, developments in this segment since 2008 appear moderate compared to those in residential investment.

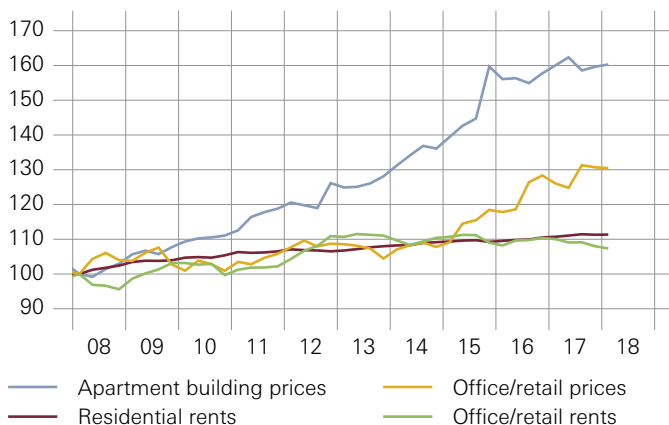
Strong mortgage growth at domestically focused banks
Mortgage growth at domestically focused banks continues to be strong and was almost unchanged at 4.0% at end-2017 (4.1% at end-2016). As such, it remained well above the mortgage growth of big banks and of the banking sector as a whole. Mortgage volume at domestically focused banks has been growing significantly faster than at big banks since the onset of the global financial crisis in 2007.

34 According to provisional numbers, mortgage growth at insurers (excluding reinsurers) amounted to 6.5% in 2017. Mortgage growth at pension funds, for which the latest available figures are for the year 2016, was at 4.9%. The overall market share of non-banks, i.e. insurers and pension funds, in the domestic mortgage market remains low.

INVESTMENT REAL ESTATE: PRICES AND RENTS¹

In nominal terms, Q1 2008 = 100

Chart 13



¹ Transaction prices and existing rents (residential) / asking rents (office/retail). Sources: BFS, Wüest Partner

35 The initial yield of an investment in real estate is the ratio of rental return to transaction price.

Affordability risks at a historical high

According to the revised ‘Survey on new mortgages’ conducted by the SNB,³⁶ affordability risks as measured by the LTI ratio were at a historical high in 2017 (cf. chart 14). Compared to 2016, affordability risks have risen in the residential investment segment, with a particularly marked increase in the segment of residential investment property held by commercial borrowers. LTI ratios also appear to have risen in 2017 for the owner-occupied segment. However, in contrast to residential investment, the increase in this segment is due to a structural break, rather than greater risk-taking.³⁷

From 2016 to 2017, the share of new mortgages where imputed costs would no longer be covered by net rents at an interest rate of 5% rose from 49% to 54% in the segment of residential investment property held by private individuals, and jumped from 37% to 51% in the segment of residential investment property held by commercial

borrowers. In the owner-occupied residential property segment, the share of new mortgages where imputed costs³⁸ would exceed one-third of gross wage or pension income at an interest rate of 5% was 49% in 2017.³⁹

Against the backdrop of rising affordability risks, it is important to note that a change in the general level of interest rates would lead to an interest rate adjustment for a very high proportion of the outstanding mortgage volume in the short or medium term. The segment of residential investment property held by commercial borrowers would be particularly exposed. This is evidenced by the high share of new mortgages with an average repricing maturity shorter than 12 months (45%, cf. chart 15).

Affordability risks may materialise not only in the event of an interest rate rise, but also in the event of a price correction on the real estate market. Banks may react to a fall in real estate prices by demanding additional collateral from borrowers or by including a higher risk

36 The quarterly survey covers the 26 largest banks in the mortgage market (including the two big banks), with a cumulative market share of almost 90%. Banks report information on newly approved mortgage loans financing real estate in Switzerland for three types of business transactions: (i) financing the purchase of real estate; (ii) refinancing an existing loan from another lender; or (iii) financing the construction of real estate. Information is collected at the loan level (e.g. type of borrower, type of business transaction, credit limit and usage, type of collateral, income), at the loan tranche level (e.g. interest rate product, interest rate level, interest rate and capital commitment) and at the real estate level (e.g. type, location, value, net rent). Based on these data, LTV and LTI ratios are calculated in the segments of owner-occupied residential property (2017: CHF 30.9 billion) and residential investment property held by private individuals (CHF 11.2 billion) or commercial borrowers (CHF 9.8 billion). The values shown in the chart are aggregated over the calendar year according to mortgage lending volume. This survey has been conducted since Q1 2017 as a regular SNB survey. It is based on a predecessor mortgage survey launched by the SNB in 2011. In comparison to its predecessor, the revised survey collects data on a loan-by-loan basis for a wider range of characteristics and requires banks to comply with higher data quality standards.

37 Due to the revision of the mortgage survey, there is a structural break in the data for LTI ratios. Nevertheless, as banks reported data for both the revised and predecessor surveys for one quarter, it is possible to assess the relevance of this structural break. For residential investment property held by commercial borrowers and private individuals, changes between 2016 and 2017 can be interpreted as changes in risk-taking, since the relevance of the structural break is negligible. In the owner-occupied residential property segment, by contrast, changes between 2016 and 2017 should not be interpreted as changes in risk-taking, because the share of new mortgages with high LTI ratios was underestimated in the predecessor survey due to data limitations.

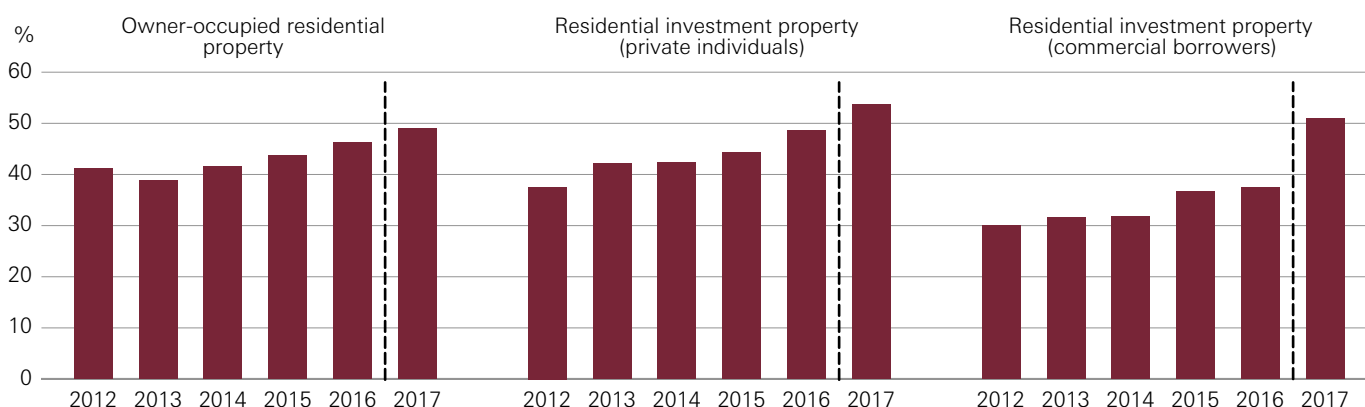
38 The imputed costs used for this estimate comprise the imputed interest rate (5%) plus maintenance and amortisation costs (1% each). The average mortgage rate between 1960 and 2008 (i.e. prior to the beginning of the low interest rate period) is almost 5%. When interpreting these figures, it should be borne in mind that they are based on a standardised definition of income and hence can deviate from a bank’s internal measure of affordability risk based on its internal definitions. The standardised definition of income uses only the borrower’s employment or pension income. Other elements which have a positive impact on affordability (e.g. bonuses and investment income), as well as those which have a negative impact (e.g. leasing or interest payments on other bank loans), are not taken into consideration. On average, eligible income according to internal bank guidelines exceeds standardised income by 15–20%; however, differences between banks are considerable. As banks apply different credit policies, the income calculated according to internal bank guidelines – as opposed to standardised income – is neither directly comparable between banks, nor can it be used for calculating aggregate LTI values.

39 The figures reported for these three segments are also confirmed by an affordability measure using refined assumptions on maintenance and amortisation costs. The refined assumptions are that maintenance costs amount to 1% of the house value (based on banks’ internal valuations of the pledged property), rather than 1% of the loan. Moreover, this measure assumes that amortisation costs are in line with the Swiss Bankers Association’s self-regulation guidelines, rather than 1% of the loan. Accordingly, mortgagors are required to amortise their loans (to an LTV of two-thirds) within 15 years, making annual and linear amortisation payments.

LOAN-TO-INCOME OF NEW MORTGAGE LOANS¹

Proportion where imputed costs exceed one-third of income (owner-occ.) or rents (inv. prop.) at an interest rate of 5%

Chart 14



¹ The dashed line denotes the beginning of the revised ‘Survey on new mortgages’. Source: SNB

premium in the lending rate. In principle, leveraged investors in all segments of the real estate market may face such margin calls. However, banks are more likely to adopt a strict margin call policy for loans to firms in the residential investment property segment.

High share of new mortgage loans with high LTV ratios

In 2017, the share of new mortgage loans with an LTV ratio⁴⁰ of more than 80% was similar to that in 2016 (cf. chart 16). Depending on the segment considered, loans with an LTV ratio of more than 80% ranged between 7% and 17%. Since 2012, this share has decreased significantly.

By contrast, there was a substantial increase in the share of new mortgages with an LTV ratio of between 75% and 80% over the same period. This suggests that credit risk is higher than might be inferred from the share of mortgage loans with an LTV ratio of more than 80% alone. The share of new mortgages with an LTV ratio of more than 75% amounts to 30% in the residential investment segment held by private individuals and to around 40% in the owner-occupied residential property segment (around 30% in net⁴¹ terms) and the residential investment segment held by commercial borrowers.⁴² More than half of the loans in this LTV bucket are concentrated between 79% and 80%.

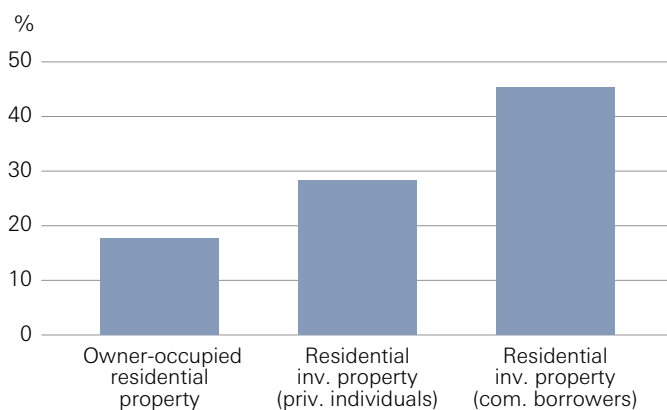
40 The reported LTV is the ratio between the mortgage and the value of the pledged property. The mortgage is the credit limit approved by the bank. The value of the pledged property is the market value. At most banks, LTVs calculated in this manner differ only slightly from reported LTVs based on banks' internal valuations of the pledged property.

41 Net figures include pledges from pillar 2 and 3a pension funds (used as part of the scheme to encourage home ownership) as additional collateral in the LTV calculation. It should, however, be noted that the effectiveness of the protection provided by such additional collateral against credit losses in the banking sector in the event of a major price correction in the Swiss real estate market remains untested. Considering additional collateral (readily realisable collateral and other additional collateral) with haircuts reduces the corresponding share further, from 30% to 5%. For the residential investment property segments, the gross and net perspective result in similar shares of new mortgages with a high LTV ratio.

42 As with the share of new mortgages with high LTI ratios (cf. footnote 37), there is a structural break in the data for LTV ratios due to the revision of the mortgage survey. Changes in the share of new mortgages with an LTV ratio of more than 75% should not be interpreted as changes in risk-taking, because this share was underestimated in the predecessor mortgage survey due to data limitations.

PROPORTION OF NEW MORTGAGE LOANS WITH AN AVERAGE REPRICING MATURITY SHORTER THAN 12 MONTHS

Chart 15



Source: SNB

When interpreting these LTV figures, it should be borne in mind that they apply to new mortgages and are not representative of the LTV for the stock of outstanding mortgages. Due to amortisation, the share of outstanding mortgages with a high LTV ratio is clearly lower. While there are no data on the exact distribution of LTVs for outstanding mortgages, refinanced⁴³ mortgages can give an indication of the distribution of LTVs within outstanding mortgages. These data suggest that the share of refinanced mortgages with an LTV ratio above 75% is half the corresponding share of new mortgages. This finding emphasises the importance of amortisation requirements for new mortgages with high LTV ratios. Such requirements were included in the Swiss Bankers Association's self-regulation guidelines⁴⁴ in 2012 and tightened in 2014. These guidelines contribute to reducing the vulnerability of both mortgagors and banks to price shocks.

Significant accumulation of risks in residential investment property segment

Evidence from the revised 'Survey on new mortgages' shows that, in the residential investment property segment, a large share of new mortgages (around 25%) were characterised by both high LTV and high LTI risks ('high-LTV/high-LTI loans'). These high-LTV/high-LTI loans also account for a material share of all new mortgages granted in 2017 (almost 10%). This accumulation of risks related to LTI and LTV ratios in the residential investment property segment increases the likelihood that banks will incur outright losses on these mortgage loans in the event of an interest rate shock. Hence, a widespread use of this lending practice would be a source of concern for financial stability.

In the residential investment property segment, the share of new mortgages with a high LTV ratio is significantly larger among mortgages with high LTI ratios than among those with low LTI ratios (cf. chart 17, centre and right-hand panels).⁴⁵ For example, almost 60% of the high-LTI loans granted to commercial borrowers had an LTV ratio, measured in net terms, exceeding 75%, while this share was only about 25% for the lower-LTI loans. By contrast, there is no accumulation of high-LTV/high-LTI loans in the owner-occupied residential property segment (cf. chart 17, left-hand panel).

The high-LTV/high-LTI loans in the investment property segment may be particularly vulnerable to interest rate shocks. First, a large share of new mortgages in the residential investment property segment are characterised by short repricing maturities (cf. 'Affordability risks at

43 Refinanced mortgages denote existing loans which are refinanced by another lender.

44 According to the Swiss Bankers Association's self-regulation guidelines, mortgagors are required to amortise their new loans to an LTV of two-thirds within 15 years. The amortisation should be annual and linear.

45 Due to the concentration of new mortgages with an LTV of slightly below 80%, high LTV figures refer to an LTV of more than 75%. There is also a high-LTV/high-LTI risk accumulation if an LTV of more than 80% is considered, as chart 17 shows.

a historical high' on p. 26, and chart 15). This also holds for the high-LTV/high-LTI loans.

Second, an increase in interest rates might result in significant price declines for investment property (cf. 'Imbalances persist on mortgage and residential real estate markets' on p. 25). Hence, LTV and LTI risks will tend to materialise simultaneously.

Loss rates on the most recent mortgage vintages could be substantial even under moderately adverse conditions, such as a return of interest rates back to levels prevailing in 2008. At that time, just before the onset of the current prolonged period of exceptionally low interest rates, mortgage rates typically ranged between 4% and 4.5%, depending on maturities. Assuming, for illustrative purposes, that rents remain constant, transaction prices would have to decline by about one-third in order to accommodate initial yields for apartment buildings at the levels observed in 2008 (cf. 'Imbalances persist on mortgage and residential real estate markets' on p. 25). Under such conditions, for many of these high-LTV/high-LTI loans, debt servicing costs would exceed rental incomes, potentially leading to default. As the value of the collateral would no longer cover the value of the loan, banks might then incur credit losses. Furthermore, loss rates on such loans would increase significantly under more adverse market conditions.

Given the vulnerability of these high-LTV/high-LTI loans, it is important from a financial stability point of view that banks carefully monitor them, adopt a conservative stance towards such lending practices and make sure that they are able to bear the associated credit risks even under adverse market conditions.

Further narrowing of interest rate margins and stable return on assets

The average interest rate margin⁴⁶ on outstanding claims decreased by 3 basis points in 2017 to 1.21% (cf. chart 18). The decrease illustrates the ongoing pressure on profitability faced by domestically focused banks in their core business as a result of exceptionally low interest rates.

The decline in the average interest rate margin is mainly attributable to a further decline in the average interest rate on outstanding loans to 1.53% in 2017 (2016: 1.64%). Average lending rates have continued to fall as loans taken out in the past are renewed at lower rates. Moreover, interest rates on new fixed rate mortgages with medium to long-term maturities remained almost unchanged at historically low levels in 2017, despite the slight increase in capital market interest rates with the same maturity. Consequently, asset margins⁴⁷ on newly extended mortgage loans decreased. By contrast, interest rates on sight and savings deposits of retail customers have remained almost constant at levels close to zero. Thus, liability margins have remained at negative levels.

Despite the decline in the interest rate margin, in 2017 domestically focused banks maintained their net interest income (NII) at similar levels to 2016. This is mainly because the volume of interest-bearing positions (approximated as the sum of mortgage claims, claims against customers and financial claims) increased by 2.9%, thereby offsetting the decrease of similar magnitude in the interest rate margin. NII – the difference between

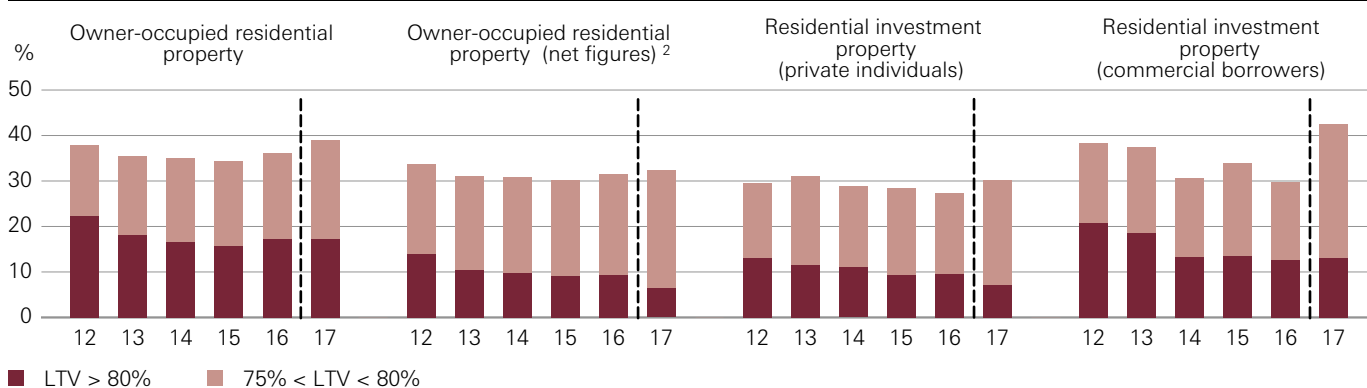
46 Interest rate margins are approximated as net interest income divided by the sum of mortgage claims, claims against customers and financial claims.

47 The interest rate margin has three components: the asset margin, the liability margin and the structural margin (margin from maturity transformation). The asset margin is the difference between the interest on the asset and that on the alternative asset with the same maturity on the capital market. For new mortgages, the asset margin is approximated as the difference between the mortgage rate and the swap rate for the same maturity (cf. SNB, *Financial Stability Report*, 2016, pp. 26–30).

LOAN-TO-VALUE OF NEW MORTGAGE LOANS¹

Proportion of new loans with LTV over 80% and between 75% and 80%

Chart 16



¹ The dashed line denotes the beginning of the revised 'Survey on new mortgages'.

² When calculating net figures, pledges from pillar 2 and 3a pension funds used as part of the scheme to encourage home ownership are counted as additional collateral in the LTV calculation.

Source: SNB

interest income and expenses – represents around two-thirds of these banks’ earnings.

In 2017, domestically focused banks maintained their average return on assets⁴⁸ – an indicator of banks’ total profitability – at a very similar level (0.42%) to that in 2016 (0.43%). Indeed, after having declined by more than one-third between 2007 and 2013, these banks’ return on assets has remained roughly constant since 2013, despite the continued decrease in the interest rate margin (cf. chart 18). This is mainly due to increased cost efficiency and a reduction in credit losses, value adjustments and provisions (cf. chart 19).

At the three DF-SIBs – Zürcher Kantonalbank (ZKB), Raiffeisen Group and PostFinance – the return on assets evolved rather heterogeneously. Despite declining interest

rate margins, return on assets at ZKB increased to 0.48% (2017) from 0.44% (2016), while at Raiffeisen Group it increased to 0.40% (2017) from 0.34% (2016).⁴⁹ As in the case of the return on assets of domestically focused banks, this evolution was mainly due to increased cost efficiency and a reduction in credit losses, value adjustments and provisions. The current level of return on assets at both ZKB and Raiffeisen Group remains close to the average for all domestically focused banks (0.42%). In contrast, the return on assets at PostFinance decreased significantly to 0.11% in 2017 (2016: 0.26%), reaching its lowest level since 2013.⁵⁰ This was mainly driven by a decline in the profitability of the interest income business, coupled with an increase in credit losses, value adjustments and provisions, and reduced cost efficiency. The current level of return on assets remains significantly below the

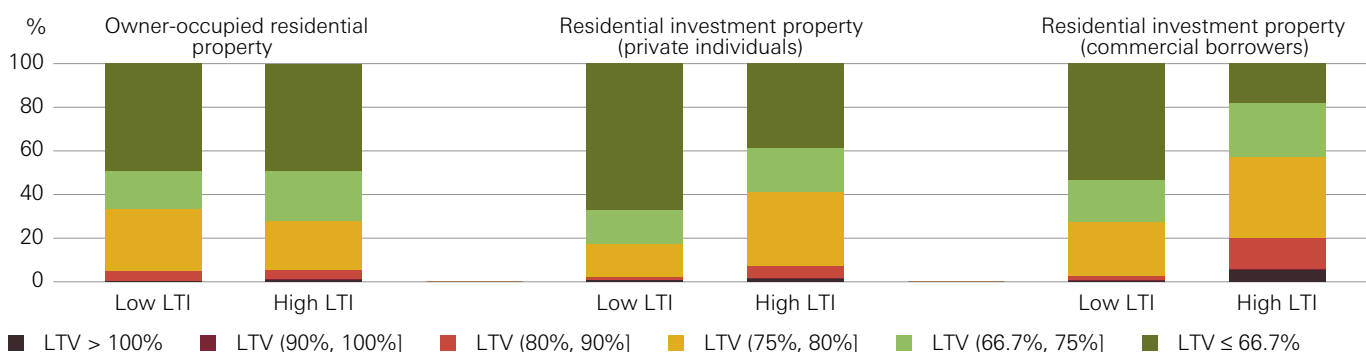
48 Annual profits or losses divided by total assets.

49 DF-SIBs’ return on assets: cf. banks’ annual reports and own calculations.
50 PostFinance obtained a banking licence in 2013 and, from then on, started reporting according to Swiss banking accounting standards.

LTV BREAKDOWN (IN NET TERMS¹) AS A FUNCTION OF LTI OF NEW MORTGAGE LOANS²

Proportion of new loans (2017) with low (left) and high (right) LTI, scaled to 100%

Chart 17



¹ When calculating net figures, pledges from pillar 2 and 3a pension funds used as part of the scheme to encourage home ownership, as well as other forms of collateral sources, are taken into account in the LTV calculation.

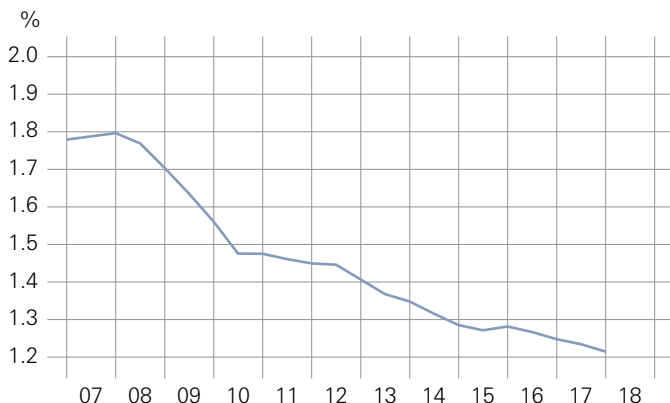
² The left-hand (right-hand) bar shows the proportion of mortgages where imputed costs are less (more) than one-third of income (owner-occupied residential property) or net rents (residential investment property) at an interest rate of 5%.

Source: SNB

INTEREST RATE MARGIN OF DOMESTICALLY FOCUSED BANKS

Weighted average

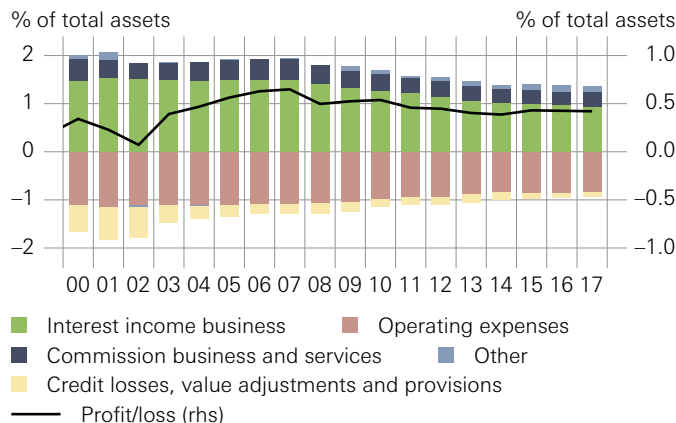
Chart 18



Sources: FINMA, SNB

RETURN ON ASSETS OF DOMESTICALLY FOCUSED BANKS

Chart 19



Sources: FINMA, SNB

average for domestically focused banks (0.42%), as well as below PostFinance's average over the last five years (0.19%).

High pressure on banks' margins and profitability likely to persist

Downward pressure on banks' margins and profitability will remain high should the current low interest rate environment persist. This applies, in particular, to banks' asset margins on new mortgages. Asset margins for new mortgages with medium to long-term maturities decreased significantly in 2017. This development may reflect the competitive pressure on the mortgage market. For instance, in 2017, the spread between the published average rates for ten-year fixed rate mortgages of larger banks and insurers returned to an average level after having increased temporarily at end-2016. The normalisation of this spread in 2017, driven by a decrease in banks' rates, is indicative of this competitive pressure (cf. chart 20, and *Financial Stability Report*, 2017).

Moreover, assuming unchanged repricing maturities on the assets and liabilities sides, the positive contribution of maturity transformation to the interest rate margin will decrease in an environment of persistently low interest rates as mortgages and other loans taken out in the past are renewed at a lower interest rate. Given the length of the low interest rate period, a large share of the banks' mortgage portfolio has already been rolled over at lower rates. The potential for further decreases, however, remains significant. At end-2017, the average interest rate of outstanding mortgages was 1.53%. A substantial share of outstanding loans could thus still be renewed at a lower rate, given that, in 2017, new mortgages were extended at an average rate of 1.24%.

High level of maturity transformation exposes domestically focused banks to large upward interest rate shocks

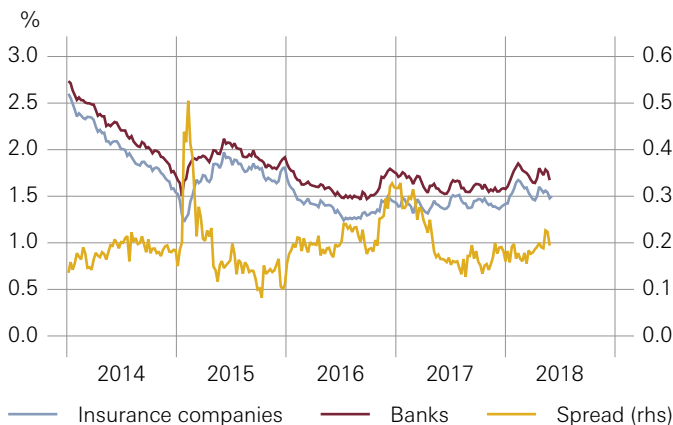
Interest rate risk can result from a mismatch between the repricing maturities of a bank's assets and liabilities. Banks typically use short-term liabilities to refinance long-term loans. Because of such maturity transformations, interest rates on assets are locked in for longer than interest rates on liabilities. If a bank is in this position, a rise in the interest rate level will reduce the present value of assets more substantially than the present value of liabilities, thereby reducing the NPV (net present value) of the bank.

In 2017, the interest rate risk from maturity transformation of domestically focused banks – as measured by the impact of an upward interest rate shock on the banks' NPV to Tier 1 capital – decreased slightly from a historically high level (cf. chart 21). This observation is valid irrespective of whether banks' internal assumptions or fixed replications for positions without contractually defined repricing maturities (non-maturity) are used.⁵¹ Using banks' internal assumptions, at end-2017 the NPV of domestically focused commercial banks would have declined by 14.1% of their Tier 1 capital if the general level of interest rates had risen by 200 basis points (end-2016: 15.2%).

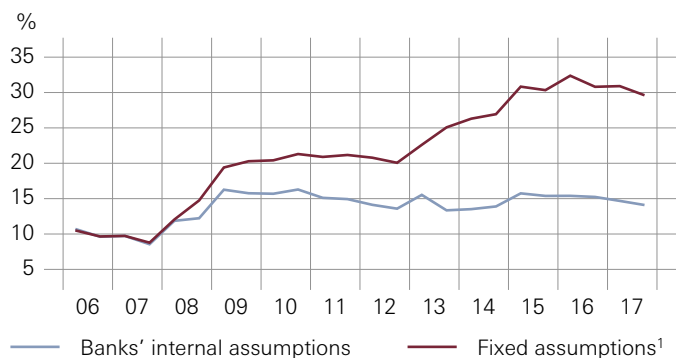
It is important to stress that uncertainty regarding the banks' actual exposure to direct interest rate risk is high. In fact, the NPV analysis using banks' internal assumptions may significantly underestimate the actual level of risk in the current low interest rate environment. In this context, assumptions about the behaviour of sight and savings

⁵¹ For positions without contractually defined maturities, the interest rate risk measure is based on banks' own assumptions with regard to the repricing maturity of these positions. On the assets side, positions with undefined repricing maturities include sight claims, claims against customers and variable rate mortgage claims. On the liabilities side, they include sight liabilities and savings deposits.

AVERAGE MORTGAGE RATES OF BANKS AND INSURANCE COMPANIES
Fixed rate mortgages, ten-year maturity Chart 20



INTEREST RATE RISK OF DOMESTICALLY FOCUSED BANKS
Losses in NPV with 200 bp interest rate rise and different replication assumptions, as a percentage of Tier 1 capital Chart 21



¹ Assumed repricing maturities of 1.5 years for savings deposits and variable rate mortgage claims, and 15 days for sight deposits. Sources: FINMA, SNB

deposits are particularly relevant. Domestically focused banks have recorded heavy inflows of non-maturity deposits during the low interest rate period. These deposits have proved to be a very stable source of financing in recent years and many banks have therefore adjusted their assumptions based on the expectation that this stability would also prevail amid sharply rising interest rates. However, were interest rates to rise, a substantial portion of these funds could quickly migrate to fixed-term deposits or longer-term bank liabilities with typically higher interest rates, or even flow out rapidly as interest rates on alternative investments rise. Thus, a significant portion of savings and sight deposits might not prove to be so stable after all, and the actual negative impact of an interest rate rise on the NPV might prove to be significantly greater than the average bank currently assumes.

Chart 21 illustrates an NPV metric based on alternative, conservative assumptions that are fixed over time and that are the same for all banks (red line). The chart highlights a considerably higher level of interest rate risk than that calculated using banks' internal assumptions (blue line). The difference is largely because banks, on average, apply a repricing maturity that exceeds the fixed assumption for non-maturity deposits.

This uncertainty and potential for underestimation is substantial for domestically focused banks on average. Therefore, banks should adopt a conservative approach when making their assumptions, defining their risk strategy and assessing the adequacy of their capital relative to their interest rate risk exposure. In this context, the SNB supports FINMA's efforts to ensure that risk-taking by individual banks is reduced, or backed by specific capital charges within the Pillar 2 framework of capital requirements, whenever the risk exposure is deemed exceptionally large by historical or industry standards.

While the NPV analysis shown in chart 21 highlights banks' substantial exposure to large upward interest rate shocks, it does not reflect the full impact of interest rate shocks on their net interest income (cf. *Financial Stability Report*, 2016, pp. 26–30). The analysis suggests that the positive contribution to net interest income stemming from the banks' structural margin from maturity transformation would decline significantly if interest rates increased suddenly, even turning negative in the event of a large upward shock. Nonetheless, in the current environment banks would benefit from the restoration of liability margins⁵² when interest rates rise, something that is not fully accounted for in the NPV analysis. In the case of larger shocks, however, the reduction in the structural margin would outweigh the impact of the restored liability margin and lead to a significant decline in net interest income.

52 The liability margin is the difference between alternative funding costs for the same maturity on the capital market and the interest paid on the liability.

Substantial losses under interest rate shock scenario

Two of the scenarios discussed in chapter 2.2 are of particular relevance for domestically focused banks: the interest rate shock scenario and the protracted euro area recession scenario.

Under the interest rate shock scenario, most domestically focused banks would experience substantial losses: aggregate cumulative earnings would be negative. A sharp increase in mortgage interest rates combined with a pronounced drop in real estate prices would lead to a surge in write-downs on domestic mortgages. Moreover, due to their high level of maturity transformation, banks would suffer a decline in net interest income, despite the restoration of their liability margins.

The protracted euro area recession scenario would also lead to losses at many domestically focused banks. First, earnings would decrease significantly, mainly reflecting an erosion of interest margins due to a period of persistently negative interest rates. Second, a severe recession extending over several quarters would result in a considerable increase in default rates on claims against corporates and financial institutions. As interest rates remain low under this scenario, however, the need for write-downs on residential and commercial mortgage loans would be moderate. Overall, and for most banks, the negative impact of this scenario would be smaller than that of the interest rate shock scenario.

3.2.2 RESILIENCE

Capital ratios significantly above regulatory minima

Overall, the regulatory capital situation of domestically focused banks has remained broadly unchanged compared to last year. In 2017, their available capital increased broadly in step with the size of their balance sheets and slightly faster than their RWA. Hence, despite pressure on profitability from historically low interest rate margins, and the continued expansion of their balance sheets, these banks' average Tier 1 leverage ratio was practically unchanged at 7.0% at end-2017 (2016: 6.9%; cf. chart 22) and has remained high by historical standards. The growth in the capital base was mainly the result of profit retention, although a few banks issued capital instruments. The risk-weighted capital ratio increased slightly in terms of total eligible capital (2016: 17.5%; 2017: 17.9%) and in terms of Tier 1 capital (2016: 16.6%; 2017: 17.0%).

Measured against the regulatory minimum requirements, these banks are holding substantial capital surpluses. At end-2017, all domestically focused banks met the Basel III minimum requirement of 8% for the risk-weighted total capital ratio, and already complied with the Basel III minimum leverage ratio requirement of 3% applicable from 2018. They all had a capital surplus of more than 5 percentage points over the 8% risk-weighted minimum and a surplus of more than 1 percentage point over the 3% leverage ratio minimum. For the risk-weighted 8% minimum, the capital surplus exceeded 10 percentage points for domestically focused banks with a cumulative

market share of 37% (cf. chart 23). For the leverage ratio 3% minimum, the capital surplus exceeded 5 percentage points for domestically focused banks with a cumulative market share of 26% (cf. chart 24).

At end-2017, all domestically focused banks also complied with the additional capital requirements associated with the countercyclical capital buffer (CCyB) and the institution-specific capital buffer target levels set by the Capital Adequacy Ordinance (CAO).⁵³ Depending on the bank, these additional capital buffer requirements effectively range between 3.1% and 7.6% of RWA.

In this context, it should be stressed that these banks' capital requirements will undergo changes over the coming years as the finalised Basel III package of reforms is implemented in Switzerland. Both the design and calibration of capital requirements for residential mortgages under the standardised approach will be revised in this process, thus affecting capital requirements for a core business of most domestically focused banks. First, under the new rules, income-producing real estate (IPRE) mortgages will be subject to higher risk weights than owner-occupied mortgage lending, reflecting differences in riskiness. Second, the risk sensitivity of capital requirements for residential mortgages (owner-occupied and IPRE) will be increased as regards LTV ratios.⁵⁴ The intended impact of these new rules is to enhance the risk sensitivity of capital requirements. Therefore, capital requirements might increase for some banks and decrease for others, depending on the composition of their assets. From a financial stability perspective, it is important

53 These include the capital buffer target levels set according to supervisory category (applicable from July 2016, cf. CAO) as well as the institution-specific capital buffer requirements applying to systemically important banks (with effect from July 2016). These requirements go beyond the Basel III requirements for all banks, except those pertaining to supervisory category 5, which includes the smallest banks and the banks with the lowest risk exposure. Some banks have Pillar 2 capital surcharges for specific risks; these are not taken into account here.

54 Cf. Basel Committee on Banking Supervision, *Basel III: Finalising post-crisis reforms*, December 2017.

to preserve the capitalisation of the banking sector at its current, adequate level.

DF-SIBs also comply with TBTF going-concern requirements

In addition to all other requirements, DF-SIBs are subject to TBTF going-concern requirements. Furthermore, in the context of resolvability, gone-concern requirements for these banks are planned. A concrete proposal was issued for consultation by the Federal Council between February and May 2018. Going-concern capital is loss-absorbing under regular operating conditions, whereas gone-concern instruments contribute to recapitalising or resolving a bank in the event of impending insolvency. As with the two big banks (cf. chapter 3.1.1), the assessment focuses on the look-through perspective (i.e. the final requirements without transitional provisions).

Overall, all DF-SIBs meet the going-concern requirements. At end-2017, based on this look-through perspective, the going-concern risk-weighted capital ratios of all DF-SIBs are well above TBTF2 requirements including buffers (cf. table 3). For ZKB and Raiffeisen Group, this is also true for their going-concern leverage ratios. PostFinance's leverage ratio complies with the TBTF2 requirement including buffers (4.7% vs. 4.5% required). DF-SIBs' leverage ratios exceed the 3% minimum requirement by between 1.7 percentage points (PostFinance) and 3.9 percentage points (Raiffeisen Group).

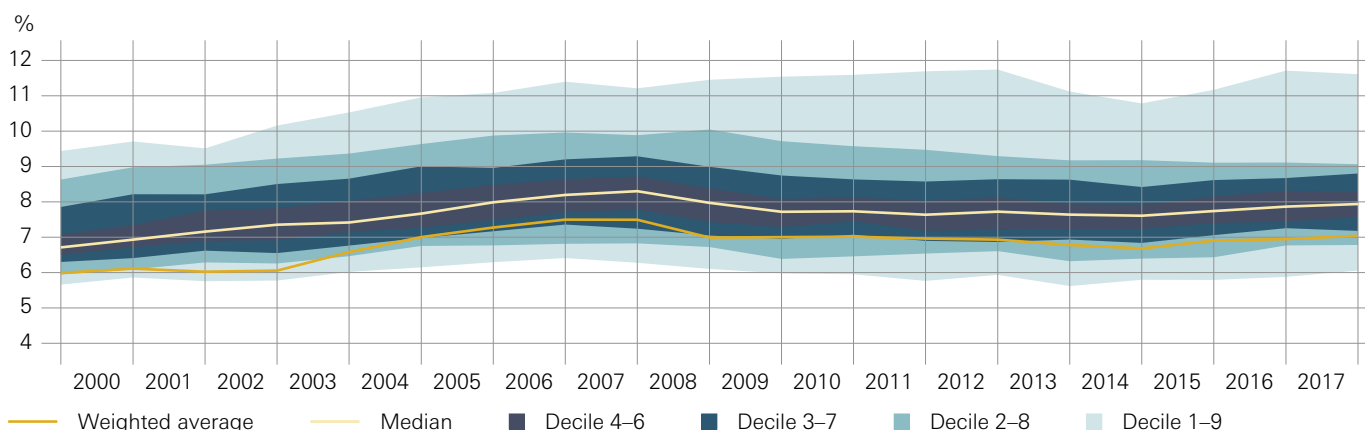
Compared to 2016, the going-concern risk-weighted capital ratios of Raiffeisen Group and ZKB have increased, while PostFinance's has remained constant. For ZKB, part of this increase is due to changes in the bank's methodology for computing its RWA, from the standardised approach to foundation IRB (F-IRB).⁵⁵

55 Cf. ZKB's annual report for 2017, p. 19.

TIER 1 LEVERAGE RATIO OF DOMESTICALLY FOCUSED BANKS

Distribution of Tier 1 capital to leverage ratio exposures¹

Chart 22



¹ Until 2013, Tier 1 divided by total assets. From 2014, Tier 1 divided by Basel III leverage ratio exposure.

Sources: FINMA, SNB

GOING-CONCERN CAPITAL RATIOS AND REQUIREMENTS

Look-through

Table 3

	PostFinance			Raiffeisen Group			ZKB ¹		
	2017	2016	Requirement	2017	2016	Requirement ²	2017	2016	Requirement ²
TBTF2 ratios (look-through, in percent)³									
TBTF2 going-concern capital ratio	17.1	17.1	12.9	16.5	15.9	14.4	17.6	16.4	13.5
TBTF2 going-concern leverage ratio	4.7	4.5	4.5	6.8	6.6	4.6	6.4	6.3	4.5
Basel III ratios (look-through, in percent)⁴									
Basel III Tier 1 capital ratio	17.1	17.1	8.5	17.0	16.5	9.7	17.6	16.4	9.1
Basel III Tier 1 leverage ratio	4.7	4.5	3.0	7.1	6.8	3.0	6.4	6.3	3.0
Levels (in CHF billions)									
Tier 1 capital TBTF	5.7	5.5	–	15.9	14.5	–	11.3	10.8	–
Tier 1 capital Basel III	5.7	5.5	–	16.4	15.1	–	11.3	10.8	–
TBTF RWA	33.2	32.0	–	96.3	91.4	–	63.8	66.0	–
TBTF total exposure	121.8	120.7	–	231.7	220.9	–	177.2	171.6	–

1 As at end-2017, ZKB changed to internal models to calculate RWA (F-IRB).

2 Including the CCyB for the risk-weighted requirements.

3 The ratios are calculated based on the final requirements as at 2020 – i.e. no transitional provisions are taken into account – according to the CAO (excluding institution-specific Pillar 2 surcharges for specific risks). These figures differ from the requirements currently applicable for these banks.

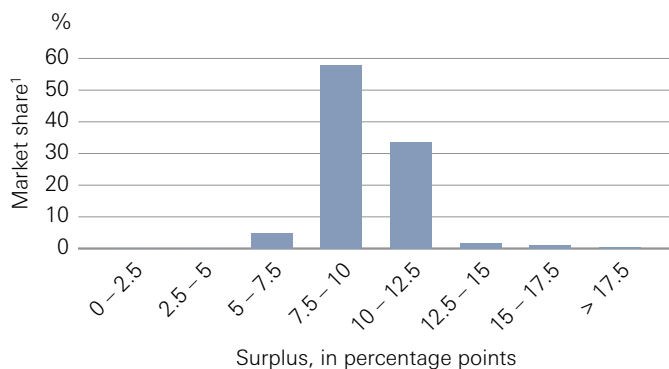
4 The requirement for the Basel III Tier 1 capital ratio comprises the minimum of 4.5% (CET1), the minimum of 1.5% (AT1) and the capital conservation buffer of 2.5% (CET1).

Sources: DF-SIBs' regulatory disclosures

RISK-WEIGHTED SURPLUS CAPITAL OF DOMESTICALLY FOCUSED BANKS

Capital surplus with respect to the Basel III 8% minimum requirement for risk-weighted total capital ratios

Chart 23

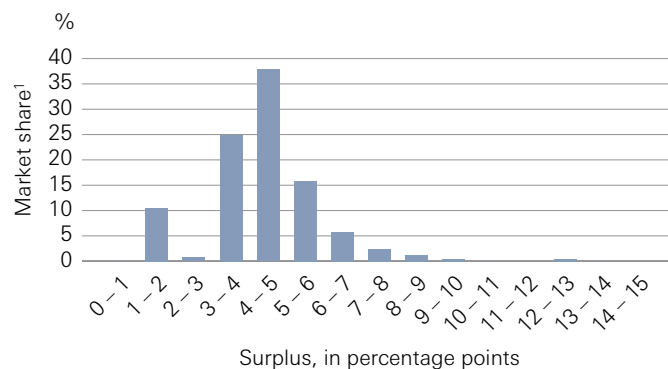


¹ Share of domestically focused banks' total leverage ratio exposure.
Sources: FINMA, SNB

LEVERAGE RATIO SURPLUS CAPITAL OF DOMESTICALLY FOCUSED BANKS

Capital surplus with respect to the Basel III 3% minimum requirement for leverage ratios applicable as of 2018

Chart 24



¹ Share of domestically focused banks' total leverage ratio exposure.
Sources: FINMA, SNB

Gone-concern requirements for DF-SIBs to be finalised

In 2017, the Federal Council defined the key principles of gone-concern requirements for DF-SIBs.⁵⁶ However, the finalisation of these requirements is still pending. According to the key principles, first, the gone-concern requirements should be calibrated at 40% of going-concern requirements (risk-weighted and leverage ratio). Thus, the gone-concern risk-weighted requirements for PostFinance and ZKB should be 5.1%, and those for Raiffeisen Group 5.3%; the leverage ratio requirement for PostFinance and ZKB should be 1.8%, and that for Raiffeisen Group 1.9%.⁵⁷ Second, excess Tier 1 capital not used to cover going-concern requirements may be used with preferential treatment for gone-concern purposes.⁵⁸ To avoid double-counting, such capital will have to be deducted from Tier 1 going-concern capital ratios. Third, explicit cantonal state guarantees or similar mechanisms are eligible for covering up to half of gone-concern requirements – or even all of them, subject to additional conditions.

Gone-concern requirements are necessary to enable an orderly recapitalisation or transfer of systemically important functions into a viable unit in the event of impending insolvency, without financial risk to the taxpayer. The SNB supports the Federal Council's key principles and regards these requirements as necessary, given the high costs of recapitalisation or resolution observed in banking crises both domestically and abroad.⁵⁹

According to the consultation paper published on 23 February 2018, the three DF-SIBs already held eligible instruments – contingent capital and bail-in instruments, excess Tier 1 capital, cantonal state guarantees or similar mechanisms – but not all of them in sufficient amounts to cover the gone-concern capital requirements.⁶⁰ At the aggregate level, these requirements could be met with about CHF 4.2 billion of additional eligible instruments without Tier 1 quality, or alternatively about CHF 2.8 billion of Tier 1 capital – which benefits from preferential treatment. The need for adjustment would primarily concern PostFinance.⁶¹ Note that for this bank, the effective need for adjustment would also depend on the extent to which it meets these gone-concern requirements through a capitalisation commitment from the Confederation.⁶²

Stress test results highlight importance of large capital surpluses

Regulatory capital ratios may overestimate the actual resilience of domestically focused banks in the current environment, as they do not fully capture risks associated with exposures to the mortgage and real estate markets and to movements in interest rates. In particular, risk-weighted capital ratios only partially account for the imbalances on Swiss mortgage and real estate markets (cf. *Financial Stability Report*, 2012 to 2016). For this reason, the adequacy of domestically focused banks' capital buffers is also assessed by means of stress tests, with a focus on the interest rate shock scenario and the protracted euro area recession scenario.

Under the interest rate shock scenario, domestically focused banks' losses would lead to the depletion of a sizeable proportion of their surplus capital. Many banks would fall below the specific capital buffer target levels set by the CAO. Moreover, a number of banks with a significant cumulative market share are projected to fall near or below the regulatory minima, unless they take counteracting measures. By contrast, the protracted euro area recession scenario would only deplete a small proportion of these banks' surplus capital. Under this scenario, a few banks would fall below the specific capital buffer target levels set by the CAO or below the regulatory minima, unless they take counteracting measures.

Overall, these results suggest that, owing to the size of their capital surpluses, most banks should be able to continue fulfilling their role as credit providers to the real economy even under such adverse scenarios. This highlights the importance of banks' existing capital surpluses relative to the regulatory minimum requirements. The CCyB, the capital surcharge for systemically important banks and the prudent stance of many banks towards capital adequacy are all elements that play a key role in maintaining these surpluses. More generally, the current levels of capital adequacy in Switzerland should be preserved going forward, in particular in the context of the implementation of Basel III (cf. 'Capital ratios significantly above regulatory minima', p. 31).

56 Cf. Federal Council, *Bericht des Bundesrates zu den systemrelevanten Banken*, June 2017 (not available in English).

57 Cf. FDF, *Erläuternder Bericht zur Änderung der Eigenmittelverordnung*, February 2018 (not available in English).

58 As a result, depending on the amount of excess Tier 1 capital, the gone-concern risk-weighted requirement of 5.1% (5.3% Raiffeisen) and leverage ratio requirement of 1.8% (1.9% Raiffeisen) are reduced by up to one-third of the requirement.

59 Cf. Federal Council, *Bericht des Bundesrates zu den systemrelevanten Banken*, June 2017 (not available in English), p.9, 'Relevante Verusterfahrung'.

60 Cf. FDF, *Erläuternder Bericht zur Änderung der Eigenmittelverordnung*, February 2018 (not available in English). The cumulative shortfalls are based on data as at December 2016.

61 Cf. regulatory disclosures of DF-SIBs and own calculations.

62 Cf. art. 132a in FDF, *Erläuternder Bericht zur Änderung der Eigenmittelverordnung*, February 2018 (not available in English).

Growing concerns about residential investment property, targeted measures appear necessary

Nominal interest rates have been exceptionally low in Switzerland for almost a decade. Low rates have softened the impact of the global financial crisis and stabilised inflation, but favoured the build-up of risks to financial stability. Strong growth in both bank credit and real estate prices over several years has resulted in imbalances on the mortgage and residential real estate markets.

Measures taken between 2012 and 2014⁶³ have helped to contain the further build-up of imbalances in the owner-occupied segment. At the same time, however, affordability risks in mortgage lending have continued to increase, particularly in the residential investment segment. Furthermore, the risk of a price correction in residential investment property has risen substantially. The most recent vintages of new mortgages in the residential investment segment appear particularly vulnerable, due to the accumulation of LTV and affordability risks.

Should interest rates remain low, these risks might accumulate further. Incentives to increase risk-taking in the domestic credit and real estate markets will remain substantial for banks, commercial investors and households. Banks, in particular, have strong incentives to take on more risk in mortgage lending, given the pressure on their margins and profitability. More generally, increased risk-taking might also lead to a further build-up of imbalances on the mortgage and real estate markets.

In this context, targeted measures for residential investment property lending should be considered. Such measures could be implemented via a renewed revision of the self-regulation guidelines or by regulatory changes, as a complement to intensified supervision of particularly exposed banks. As regards the latter measure, FINMA highlighted in its annual report that it will step up its supervision of domestically focused banks⁶⁴ which are particularly exposed in the investment property area. For these banks, FINMA will order measures to reduce risks or require an appropriate capital add-on to hedge heightened risk.⁶⁵

The SNB will continue to monitor developments on the mortgage and real estate markets closely, paying particular attention to developments in the residential investment property segment and to banks' risk-taking in mortgage lending. In parallel, the SNB will regularly reassess the need for an adjustment of the CCyB.

63 These measures include stricter capital requirements for high-LTV mortgage loans, revisions of the self-regulation guidelines for mortgage lending in 2012 and 2014, and the activation and subsequent increase of the CCyB.

64 FINMA uses the term 'domestically oriented banks'.

65 Cf. FINMA, *Annual Report 2017*, March 2018, p. 48.

Abbreviations

AT1	Additional Tier 1
Basel III	International regulatory framework for banks developed by the BCBS
BCBS	Basel Committee on Banking Supervision
CAO	Capital Adequacy Ordinance
CCyB	Countercyclical capital buffer
CDS	Credit default swap
CET1	Common Equity Tier 1
CHF	Swiss francs
D-SIB	Domestic systemically important bank
DF-SIB	Domestically focused systemically important bank
FDF	Federal Department of Finance
FINMA	Swiss Financial Market Supervisory Authority
FSB	Financial Stability Board
G-SIB	Global systemically important bank
GDP	Gross domestic product
HT CoCos	High-trigger contingent capital
IPRE	Income-producing real estate
IRB	Internal ratings-based approach
LT CoCos	Low-trigger contingent capital
LTI	Loan-to-income
LTV	Loan-to-value
NBA	National Bank Act
NII	Net interest income
NPV	Net present value
RWA	Risk-weighted assets
SNB	Swiss National Bank
TBTF	Too big to fail
TBTF2	Revised Swiss TBTF regulations
TLAC	Total loss-absorbing capacity
ZKB	Zürcher Kantonalbank

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**Data and data sources**

The banking statistics used in this report are based on official data submitted and/or on data reported by individual banks. The analysis covers big banks and domestically focused commercial banks. The latter comprise banks (currently around 100) with a share of domestic loans to total assets exceeding 50% or with a prominent role in the domestic deposit market. Data on the big banks are analysed on a consolidated basis. This document is based on data as at 31 May 2018.

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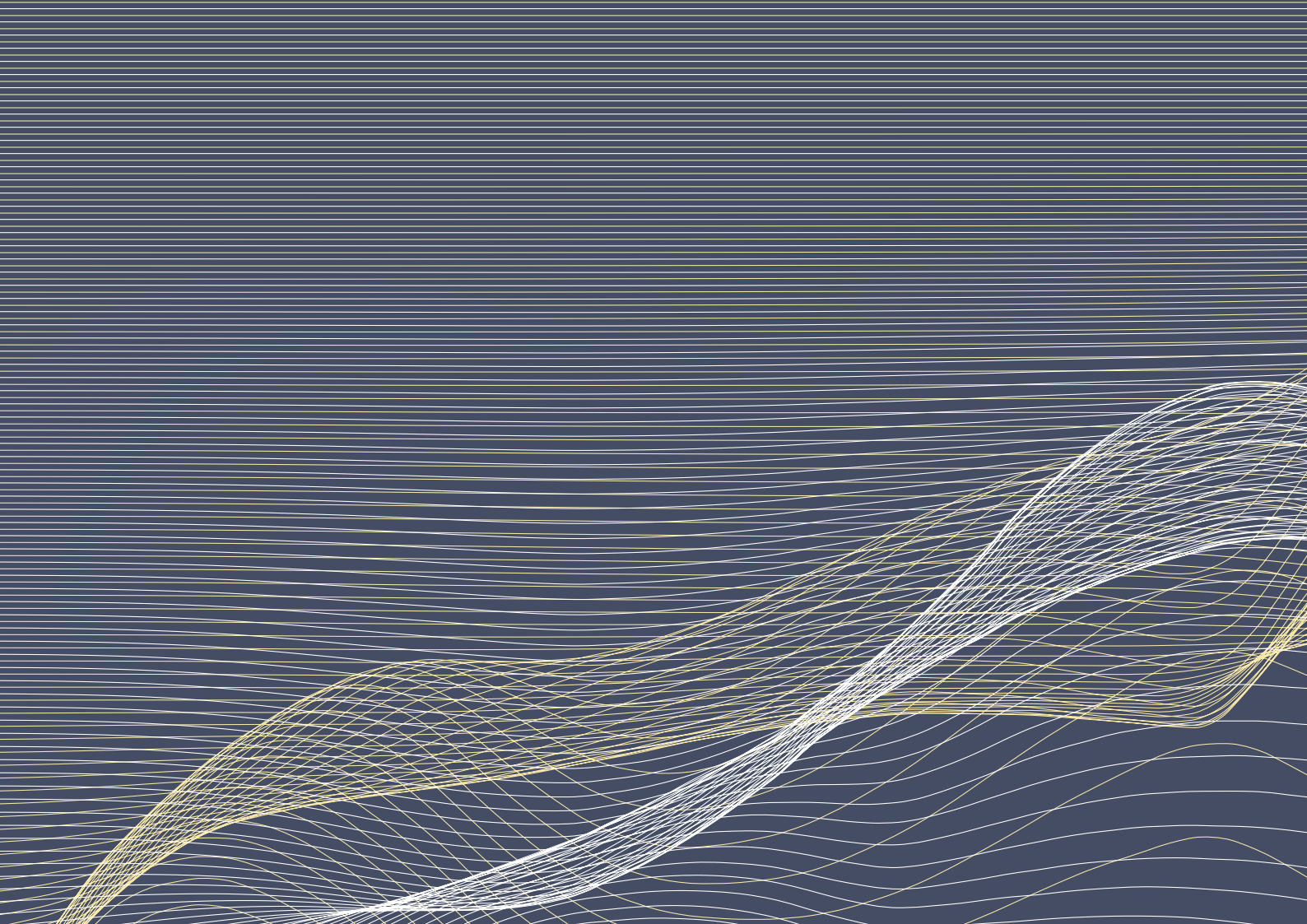
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