

Financial Stability Report 2014

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK



Financial Stability Report 2014

Contents

1	Overall assessment	4
2	Macroeconomic environment	7
2.1	Key risks	7
2.2	Scenarios	12
3	Exposures and resilience	14
3.1	Big banks	14
3.2	Domestically focused commercial banks	19

1

Overall assessment

MACROECONOMIC ENVIRONMENT

Economic and financial conditions for the Swiss banking system have improved, but substantial risks remain. On the positive side, over the last 12 months, the recovery in the US has continued and the recession in the euro area has ended. Furthermore, the euro area has taken important steps towards banking union. On the negative side, growth in the euro area remains sluggish and its banking sector is still perceived as relatively fragile. More generally, the prolonged period of globally low interest rates carries risks for financial stability. A continuation of this period could contribute to a further build-up of existing imbalances and even to the formation of new ones, for example on stock and real estate markets. Meanwhile, a sudden normalisation could trigger renewed financial stress.

In Switzerland, economic growth has remained favourable and unemployment has been stable. Imbalances on the mortgage and real estate markets built up further, thereby justifying the increase in the level of the countercyclical capital buffer (CCB), decided by the Federal Council in January 2014. Compared to 2012, the imbalances increased at a somewhat slower pace in 2013. During the first quarter of 2014, they were even largely unchanged. This suggests that measures such as the revision of the self-regulation rules in 2012 and the activation of the CCB in early 2013 may have helped contain market momentum.

Under its baseline scenario, the SNB is assuming that growth accelerates in the US and the recovery in the euro area continues, while growth in Switzerland remains favourable. Hence, under this scenario, economic conditions gradually improve for the Swiss banking sector. In this context, however, the risk of a further build-up of imbalances on the Swiss mortgage and real estate markets persists.

In addition to the baseline scenario, the SNB uses four different adverse scenarios to assess banking sector resilience. They are designed to test the resilience of the Swiss banking sector against unlikely, highly unfavourable but coherent developments in economic and financial conditions. They focus on developments that would be of particular relevance for the Swiss banking sector. Under the first adverse scenario, the euro area debt crisis re-escalates, causing widespread financial and banking stress. The second scenario assumes a major crisis in emerging markets, comparable to the emerging market crises of the 1990s. Under the third scenario, the US enters a deep recession, which is transmitted to the rest of the world. The fourth scenario assumes falling real estate and share prices coupled with an increase in interest rates, an

inverted yield curve and economic stagnation in Switzerland; the scenario parameters have been calibrated to reflect the severity of events observed in the 1990s. While the first two adverse scenarios focus on currently existing risks, the third and fourth scenarios include combinations of stress events which are based on historical experience.

BIG BANKS

Strengthening resilience

Over the past year, the Swiss big banks have further improved their capital situation. Their ratio of going-concern loss-absorbing capital to risk-weighted assets (RWA) either already exceeds or is close to the 13% set down in the 'too big to fail' capital requirements that will apply from 2019.¹ They also meet or are very close to meeting the corresponding leverage ratio requirement of 3.1%. In terms of total capital, both big banks have also substantially improved their ratios, although they have yet to meet the corresponding requirements applicable from 2019.²

The SNB welcomes the significant progress made by the big banks in improving their capital situation, as well as their compliance with some of the requirements applicable from 2019. The SNB recommends that they continue to improve their resilience and, in particular, their leverage ratios. This is important for two reasons.

First, the loss potential for the Swiss big banks – estimated under the different adverse scenarios considered – continues to be substantial relative to their capitalisation. For financial stability in Switzerland, it is important that the big banks remain adequately capitalised in the event of such scenarios occurring. In addition, irrespective of the scenario considered, losses can also result from operational and legal risks.

Second, an international comparison reveals an uneven picture of the Swiss big banks' capitalisation, depending on which capital measure one examines. Although their risk-weighted ratios are above average for large globally active banks, the same cannot be said for their leverage ratios, as calculated according to various common definitions. Leverage ratios are gaining in importance as a measure of banks' resilience, and experience shows that they quickly become the focus of market attention during a crisis. Moreover, the international requirement, effective from the beginning of 2015, to disclose the Basel III leverage ratio will enable a direct comparison between large globally active banks. This is why it is essential for banks to have a solid leverage ratio.

1 Going-concern loss-absorbing capital comprises Common Equity Tier 1 (CET1), using the definition of the fully implemented Basel III framework, plus high-trigger contingent capital instruments as set out in the Swiss 'too big to fail' regulations. It thus represents capital which will absorb losses in a going concern.

2 Total capital comprises going-concern loss-absorbing capital and low-trigger contingent capital instruments. The latter are primarily aimed at ensuring the maintenance of systemically important functions and the orderly resolution of the residual bank, and are therefore important in a 'gone concern' perspective.

Increasing the credibility of model-based RWA

Increasing the credibility of RWA based on banks' internal models remains an important goal. As discussed in the 2013 *Financial Stability Report*, model-based RWA are being called into question by market participants, analysts and authorities worldwide. This is particularly significant as RWA are at the heart of the capital regulations for banks. It is widely accepted that a bank's risks can, in principle, be more accurately quantified using the model-based approach than using the standardised approach. Yet banks' internal models are highly complex and can vary widely between institutions, thus making it difficult to accurately assess a bank's resilience and compare one bank with another.

The SNB welcomes the efforts by the Swiss big banks to increase transparency with regard to their risks, in line with the recommendations of the Enhanced Disclosure Task Force – a broad-based private sector initiative.³ For example, both institutions recently started to disclose changes in their RWA, broken down by cause. Of particular interest is the proportion of the reduction in RWA which is attributable to model adjustments. In addition, Credit Suisse has been publishing a statistical measure of total loss potential for some time now, and UBS recently started to publish a statistical measure of loss potential by business division and a scenario-based post-stress capital ratio.⁴ The SNB encourages the big banks to further increase transparency with regard to their risks. It continues to recommend that the big banks disclose RWA according to both the model-based approach and the model-independent standardised approach. Disclosing RWA according to the standardised approach would provide market participants with additional information for assessing the level of, and changes in, model-based RWA.

In this context, the analysis of RWA being carried out by the Swiss Financial Market Supervisory Authority (FINMA) with the support of the SNB will play an important role. Now that the big banks have provided the necessary data by calculating RWA based on the standardised approach, the analysis will focus on the question of whether, and why, RWA based on banks' internal models differ from those based on the model-independent standardised approach. Differences must be well explained and have a sound economic rationale. If the analysis does not reveal any substantial and inexplicable differences, this would strengthen the credibility of the model-based approach. Conversely, if substantial differences cannot be explained, corrective measures would need to be considered.

3 'Enhancing the Risk Disclosure of Banks', Report of the Enhanced Disclosure Task Force, 29 October 2012.

4 Post-stress capital ratio: Cf. UBS *Investor Update*, 'Capital strength and cost efficiency', 6 May 2014, pp. 4 et seq. Risk-based capital: Cf. UBS *Annual Report* 2013, p. 161; UBS quarterly report for Q1 2014, p. 52. Neither the post-stress CET1 ratio nor risk-based capital are estimates for the adverse scenarios described in this report.

DOMESTICALLY FOCUSED COMMERCIAL BANKS

High resilience and conservative approach to risk needed

In 2013, domestically focused commercial banks further increased their already high exposure to mortgage and real estate market risk. First, growth in domestically focused banks' mortgage lending was almost unchanged from the previous year, whereas the big banks' lending growth decreased significantly in 2013. Second, domestically focused banks' risk appetite in mortgage lending remained high overall. While there has been a decline in the share of new mortgage loans with a high loan-to-value (LTV) ratio since the last *Financial Stability Report*, no trend towards lower affordability risks is discernible. Third, these banks continued to carry a historically high level of interest rate risk in the banking book.

With respect to capitalisation, the available capital of domestically focused banks moved broadly in line with developments in balance sheets and mortgage loans in 2013. The average leverage ratio⁵ remained high by historical standards. The increase in capital was largely the result of profit retention, although capital issuance – some of it prompted by the activation of the CCB – also made a significant contribution.

As regards risk-weighted capital requirements, domestically focused banks hold substantial surplus capital. All of these banks already comply with the additional capital requirements associated with the recent increase⁶ in the CCB, effective from end-June 2014, and almost all of them also meet the specific capital buffer requirements set by FINMA according to their supervisory category.⁷ The latter go beyond the Basel III requirements⁸ and are applicable from end-2016.

From an economic perspective, however, capital ratios may overstate the effective resilience of these banks in the current environment. For one thing, the risk weights only partially account for the imbalances that have been building up for a number of years on the Swiss mortgage and real estate markets. Through their impact on LTV ratios, rising real estate prices can even lead to lower capital requirements. The higher these prices rise above levels justified by fundamentals, the more the regulatory capital ratios can overestimate the resilience of these banks. For another, the high level of interest rate risk in the banking book and the low diversification of domestically focused banks are largely disregarded by the capital requirements.

5 The leverage ratio is defined as the ratio of capital to balance sheet total. This definition differs from the one under Basel III. The latter incorporates a bank's total exposure in the denominator, which for example also includes off-balance-sheet positions.

6 In January 2014, acting on a proposal by the SNB, the Federal Council increased the sectoral CCB from 1% to 2% of risk-weighted positions financing residential property in Switzerland.

7 For supervisory purposes, FINMA classifies banks into five categories, each of them having a comparable risk profile. The categorisation is based on criteria related to a bank's size as well as on an indicator of a bank's risk exposure (cf. FINMA Circular 2011/2). While category 1 currently refers to the two big banks, categories 2 to 5 include banks in descending order of size and/or risk exposure.

8 This holds for all banks except those in supervisory category 5.

When assessing domestically focused banks' capital adequacy from an economic standpoint, two adverse scenarios are of particular relevance: the euro area debt crisis scenario and the interest rate shock scenario. According to estimates by the SNB, the interest rate shock scenario would result in substantial losses for domestically focused banks, considerably exceeding those under the euro area debt crisis scenario. For a number of banks making up a significant share of the domestic credit market, the losses could deplete a large proportion of their surplus capital. Owing to the surplus capital currently held by banks, the cumulative market share of domestically focused banks that fall below the regulatory minimum would be relatively small. However, the depletion of a large proportion of banks' surplus capital and the fact that some larger banks' capital ratios might come close to the regulatory minimum would lead to a general weakening of the banking sector. Experience in Switzerland and abroad suggests that this could present a major challenge for financial stability and significantly affect banks' ability to lend, with corresponding negative repercussions for the real economy.

These results highlight the importance of banks holding significant capital surpluses relative to the regulatory minimum requirements. Furthermore, the current situation – with banks' high exposure to interest rate risk and the Swiss real estate market, coupled with the imbalances on this market – calls for a prudent lending policy, both to limit banks' future loss potential and to help prevent a further build-up of imbalances.

Steps should be taken to keep risks for financial stability in check

Overall, the pace at which the imbalances on the Swiss mortgage and real estate markets grow has slowed recently. From a financial stability perspective, this is a positive development. Experience shows, however, that short-term changes in momentum do not necessarily imply a change in trend. Given the persistence of the low interest rate environment, banks and authorities should remain alert and take the necessary steps to keep risks for financial stability in check.

First, measures that give banks stronger incentives to pursue a more cautious mortgage lending policy should be considered. Such measures should target both the owner-occupied residential property and the residential investment property segments. Efforts should now be directed towards preparing regulatory measures that could be implemented swiftly should momentum pick up again on the mortgage and residential real estate markets.

Second, interest rate risk exposure in the banking book should be appropriately backed with capital. Under the aegis of the Basel Committee on Banking Supervision, international standards on capital requirements for interest rate risk are currently being developed. Given the significance of this risk factor, banks should ensure that they adopt a prudent stance towards measuring and

managing this risk. In this context, the SNB fully supports FINMA's efforts to ensure that risk-taking by individual banks is reduced or backed by specific capital charges whenever the risk exposure is deemed exceptionally large by historical or industry standards.

In parallel with these measures, the SNB will continue to monitor developments on the mortgage and real estate markets closely, and will reassess the need for an adjustment to the CCB on a regular basis.

2 Macroeconomic environment

Economic and financial conditions for the Swiss banking system have improved, but substantial risks remain. On the positive side, over the last 12 months, the recovery in the US has continued and the recession in the euro area has ended (cf. chart 1). Against the background of persistently low interest rates and low volatility, share prices in most advanced economies have continued to rise. Furthermore, corporate credit quality in the euro area has improved overall. Credit risk premia for euro area banks have declined and important steps have been taken towards banking union. In Switzerland, economic growth has remained favourable and unemployment has been stable.

On the negative side, growth in the euro area remains sluggish and, while fiscal deficits have shrunk overall, public debt relative to GDP has risen further in many European countries. Despite some progress, the euro area banking sector is still perceived as relatively fragile and the credit quality of corporates and households in southern member states of the euro area continues to be low. In Switzerland, imbalances on mortgage and real estate markets have increased further.

More generally, the prolonged period of globally low interest rates carries risks for financial stability. A continuation of this period could contribute to a further build-up of existing imbalances, and even to the formation of new ones, for example on stock and real estate markets.

Meanwhile, a sudden normalisation could trigger renewed financial stress in countries with already existing imbalances, as illustrated by the stress episode that affected emerging markets in summer 2013.

2.1 KEY RISKS

In its analysis of key economic and financial risks to the Swiss banking sector, the SNB tracks international and domestic developments in credit quality, in real estate and stock markets, in banks' funding conditions, and in interest rates.

CREDIT QUALITY

Over the last 12 months, developments in credit quality have varied across countries. Sovereign risk premia have generally fallen in the euro area over the entire period, whereas they have temporarily increased in major emerging markets. Private sector credit quality in the US has improved further, but weak growth is still weighing on the credit quality of corporates and households in the southern member states of the euro area.

Sovereign credit quality

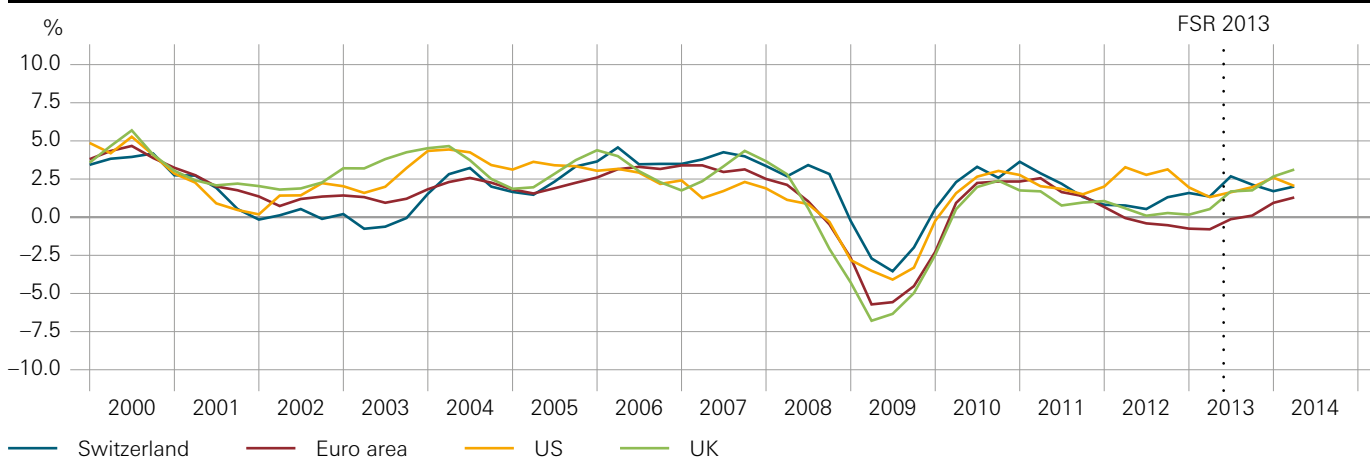
Sovereign risk premia for southern euro area member states have continued to fall over the last 12 months, to well below the peaks observed in 2011 and 2012 (cf. chart 2). Yet risk premia remain close to the levels reached during the financial stress episode of 2008/2009. Fiscal deficits have shrunk overall, but public debt relative to GDP has continued to rise from already high levels. High debt levels leave countries vulnerable to interest rate increases, particularly if the weak growth environment persists.

In the US, the UK and Japan, sovereign risk premia have stayed low, despite public debt levels that are comparable to or above those of southern euro area member states. The extension of the US debt ceiling until March 2015 has

GDP GROWTH

Year-on-year real GDP growth rates

Chart 1



Source: SNB

reduced short-term uncertainty about fiscal policy in the US. Nonetheless, the challenges associated with ensuring the longer-term sustainability of debt remain.

Sovereign risk premia for major emerging markets increased in early summer 2013, coinciding with a rapid rise in US long-term interest rates. They have since declined, but to a lesser extent than in the major southern member states of the euro area. For the first time since the beginning of 2010, sovereign risk premia are now higher for Brazil and Russia than for Spain and Italy. In absolute terms, however, they are still substantially below their stress levels observed in 2008/2009.

Corporate credit quality

Overall, corporate credit quality has improved in Europe over the last 12 months, but remains low in the southern member states of the euro area. The ratio of credit rating downgrades to total rating changes has fallen substantially (cf. chart 3) and is now close to historical averages. The number of firms downgraded is currently only slightly higher than the number of firms upgraded. Similarly, corporate spreads have decreased, although they remain above historical averages (cf. chart 4). While write-off rates have fallen for the euro area as a whole,¹ data on non-performing corporate loans indicate that corporate credit quality has continued to deteriorate in large southern member states.

In the US, most indicators suggest that corporate credit quality is relatively high and has improved further. Over the last 12 months, the ratio of rating downgrades to total rating changes has stayed at levels comparable to those observed before the crisis. Delinquency rates on corporate debt have continued to fall and are at a historical low. Corporate spreads, however, are still relatively elevated by

historical standards. An exception is the high-yield sector, where bond spreads are now close to pre-crisis levels. Against the background of low interest rates, issuance in this sector has grown sharply, and concerns have been raised about declining lending standards in some segments.²

Corporate debt in many emerging markets has grown strongly over the last few years and the leverage of firms has increased.³ High leverage makes firms more sensitive to a deterioration in economic and financial conditions, such as weaker economic growth or higher interest rates. Spreads on emerging market corporate debt widened in the second half of 2013, but have declined since then and are now at levels similar to 12 months ago.

In Switzerland, corporate credit quality is within historical norms and there has been no sign of major changes over the last 12 months. Default rates have remained roughly constant over the same period, and corporate spreads have decreased slightly. Data on rating downgrades and upgrades indicate relatively stable credit quality (cf. Moody's ratings for SMI listed companies, SBI composite rating).

Household credit quality

In the euro area, high unemployment and falling real estate prices continue to impair the credit quality of households in the southern member states. Non-performing loan indicators suggest a further deterioration of household credit quality in Spain and Italy. Write-off rates on household debt for the entire euro area have been broadly stable. The European Central Bank (ECB) notes, however, that uncertainty remains regarding the scope and extent of loan forbearance towards borrowers with low creditworthiness.⁴ The harmonisation of loan valuation practices is an important component of the comprehensive

1 The interpretation of current euro area write-off rates is complicated by the creation of Spanish bad bank SAREB and associated outliers.

2 IMF *Global Financial Stability Report*, April 2014; FSO *Annual Report*, 2013.

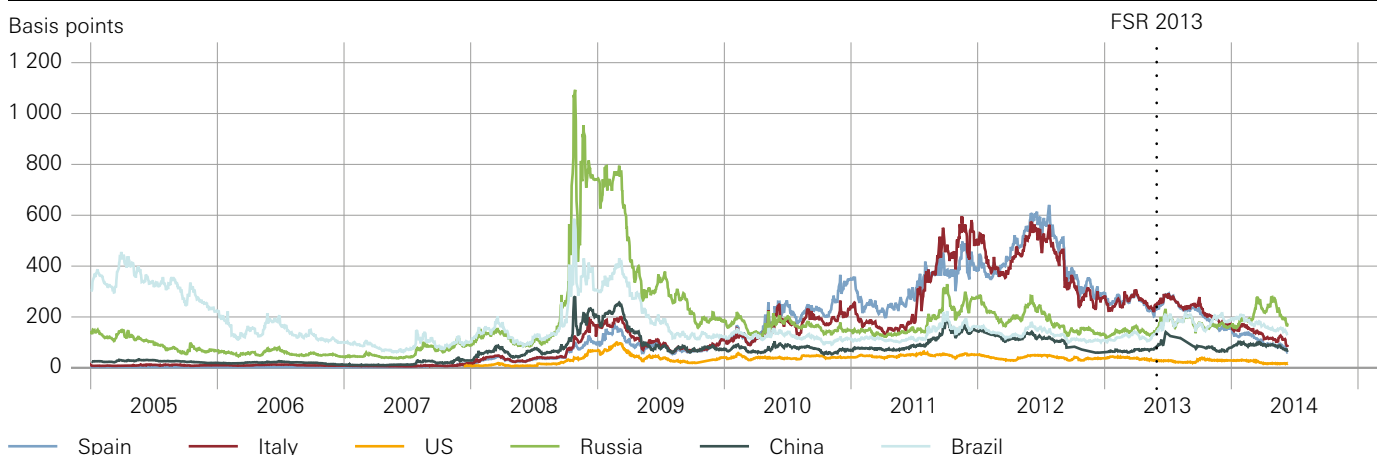
3 BIS *Quarterly Review*, March 2014, p. 2.

4 ECB *Financial Stability Review*, November 2013, p. 76.

SOVEREIGN CREDIT DEFAULT SWAP PREMIA

Premia for credit protection (five-year senior)

Chart 2



Source: Bloomberg

assessment that the ECB is currently conducting, ahead of assuming its supervisory role.

In the US, household credit quality has improved, along with generally brightening economic prospects and a recovery in the housing market. Delinquency rates on consumer loans are at a historical low. Delinquency rates on real estate loans have been falling, but are still substantially above pre-crisis levels.

In Switzerland, household credit quality has deteriorated slightly, but has remained strong by historical standards. While unemployment has been stable, private insolvencies have risen over the last 12 months, partially reflecting prior increases in unemployment. Household indebtedness relative to GDP has risen further. High indebtedness increases the vulnerability of households to adverse macroeconomic shocks and changes in interest rates.

REAL ESTATE MARKETS

Real estate markets are at different stages of their cycles across Europe. House prices remain high compared to rents in several countries, notably France and the UK⁵ (cf. chart 5). After having stagnated for a number of years, house prices in the UK have started to rise again over the last 12 months. Conversely, over the same period, house prices have fallen further in most southern euro area member states, including Italy and Spain.

In the US, the real estate market has recovered and prices have risen markedly over the last 12 months. The price-to-rent ratio is now at roughly its long-term average. Meanwhile, in a number of major emerging markets such

as China (large cities) and Brazil, house prices have continued to rise, albeit at a more moderate pace.

In Switzerland, residential real estate price growth has continued at a slower pace over the last 12 months. At national level, this has resulted in a moderate increase in imbalances since the last *Financial Stability Report*. For instance, residential real estate prices have risen only slightly faster than rents since the beginning of the second quarter of 2013 (cf. chart 5). Yet they have increased significantly faster than can be explained by a wider set of fundamental factors, such as GDP, population growth or construction activity. At regional level, developments have been heterogeneous. Price growth has slowed or even stopped in many regions characterised by exceptionally large price increases over the last 15 years (hot-spot regions). Meanwhile, there are a number of other regions where prices recorded modest growth up to 2010, but have risen strongly since. While positive from a financial stability perspective, the weaker price dynamics observed over the last 12 months at national level do not necessarily imply a trend reversal. Short periods with lower growth or even decreasing prices have been observed repeatedly, even during phases characterised by strong overall price dynamics, such as the last 15 years.

STOCK MARKETS

While stock markets have rallied in most advanced economies, prices in emerging markets are at roughly the same level as 12 months ago.

Stock market volatility has remained relatively low over this period (cf. chart 6). Notable exceptions were May and June 2013, which were characterised by substantial increases in interest rates, and January 2014, which coincided with financial stress in some emerging markets.

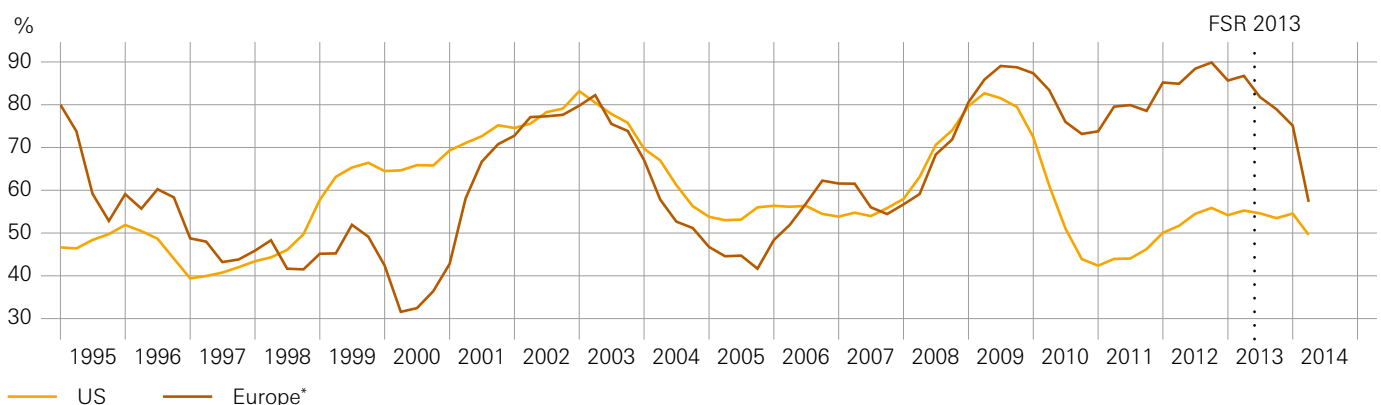
Against the background of low volatility and persistently low interest rates, the stock market rally has continued in most advanced economies over the last 12 months. While

⁵ In the UK, the strength of the correction measured since 2008 varies according to the data source. Data from Halifax, for example, imply a sharp correction which brought prices back into line with fundamentals, while data from the Office for National Statistics indicate a smaller correction which did not eliminate the imbalances.

RATING DOWNGRADES RATIO

Number of downgrades relative to total number of rating changes, moving average over four quarters

Chart 3



Source: Moody's
*EU-17 countries plus Switzerland, Norway and Iceland.

the cyclically adjusted price/earnings ratio in the euro area is still below its 30-year average, it is close to that average in both the US and Switzerland (cf. chart 7).⁶

Overall, there is no clear evidence of imbalances on stock markets in most advanced economies. However, experience shows that, even in such a situation, investors' perception of uncertainty can change quickly and lead to a renewed increase in volatility and substantial price drops. Furthermore, a normalisation of interest rates could also negatively affect share prices.

Against the background of a lower growth outlook for emerging markets and rising US long-term interest rates, stock markets in emerging markets have not kept pace with those in most advanced economies. Currently, share

⁶ Long-term data for the US, which cover more than 100 years, even indicate that current price/earnings ratios are substantially above their historical average.

prices in emerging markets are at roughly the same level as 12 months ago and price/earnings ratios are below long-term averages.

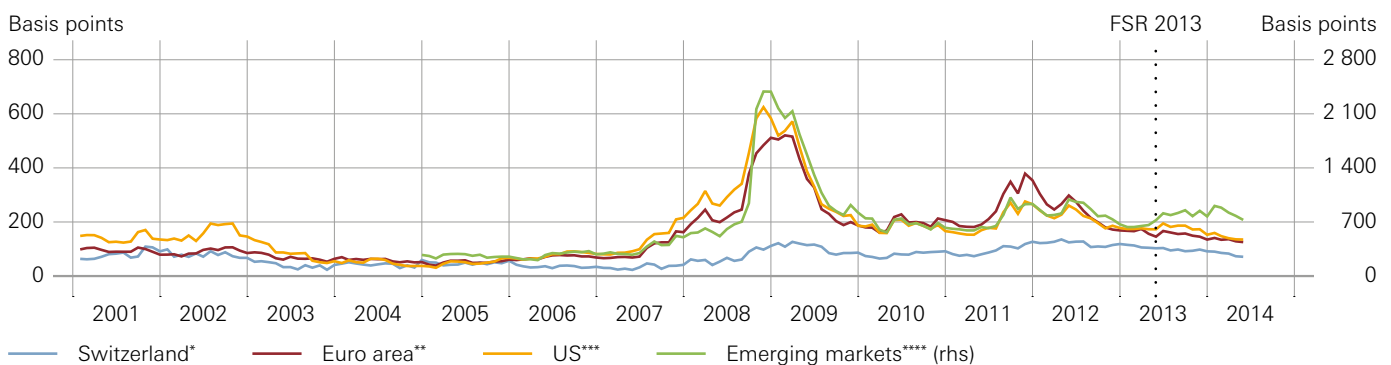
FUNDING

Short-term funding conditions for banks, measured by three month Libor-OIS spreads, have stayed favourable for all major currencies, although they recently increased slightly in the euro area. Meanwhile, CDS premia on banks' medium-term bonds remain well above pre-crisis levels (cf. chart 8). In addition, considerable differences across countries persist. Average credit risk premia for banks in large southern euro area member states have fallen substantially, but are still higher than in other advanced economies. Credit ratings for these banks also continue to be lower than those for banks in other countries. The recent fall in credit risk premia coincides with lower sovereign risk premia. Given the large sovereign bond holdings of many European banks, there remains a strong link between the two sectors, and stress in

BOND SPREADS

Yield spread between corporate and government bonds

Chart 4

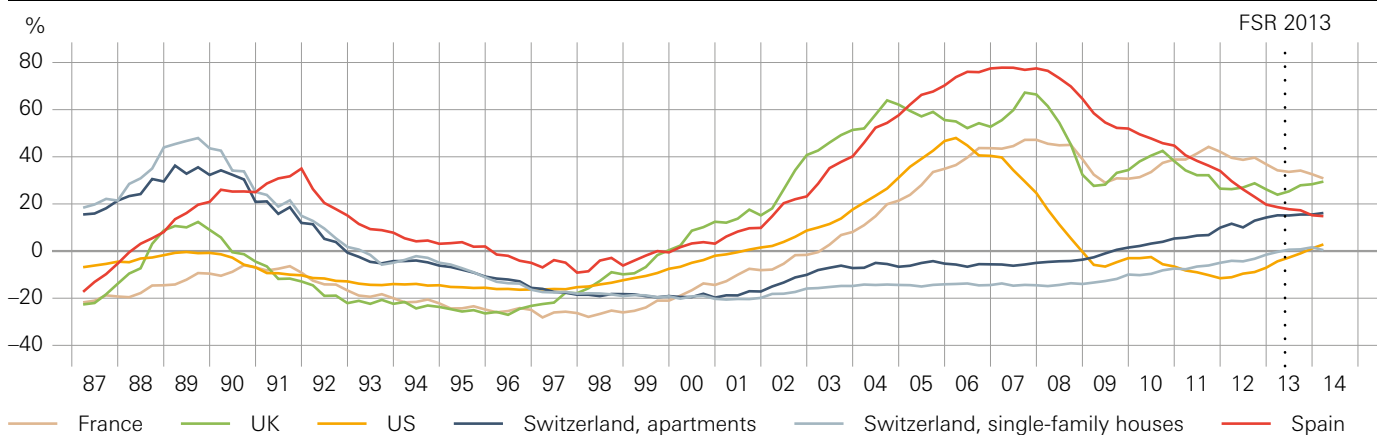


Sources: SNB, Thomson Datastream

* Yields (spot rates) for Swiss investment grade corporate bonds and for Swiss Confederation bonds (10 year maturity), calculated by the SNB.
 ** Euro-Aggregate Corporate (investment grade, 7–10 year maturity, EUR-denominated) and German Government (7–10 year maturity), Bank of America Merrill Lynch.
 *** US Corporate (investment grade, 7–10 year maturity, USD-denominated) and US Treasury (7–10 year maturity), Bank of America Merrill Lynch.
 **** Emerging market Corporate debt (USD-denominated) and US Treasury (7–10 year maturity), Bank of America Merrill Lynch.

PRICE-TO-RENT RATIO: DEVIATION FROM AVERAGE*

Chart 5



Sources: BIS, OECD, SFSO, Thomson Reuters Datastream, Wüest & Partner

*The average is calculated over the period 1970 to 2014, or over the period for which data are available.

one may spill over to the other. If the ECB's comprehensive assessment were to reveal large capital shortfalls, this too might trigger renewed stress in funding costs.

INTEREST RATES

The global interest rate level continues to be extremely low from a historical perspective. Short-term interest rates have remained at record lows in all major currencies as a result of the continued expansionary monetary policy stance. In the medium term, as economic conditions improve, monetary policy should become less accommodative and interest rates should revert to higher levels.

An eventual increase of interest rates does not necessarily need to happen simultaneously for different maturities, as there is also the possibility of long-term interest rates moving independently of short-term rates. For example, US long-term interest rates increased rapidly in summer 2013 (cf. chart 9) because of changes in investors' expectations regarding the US Federal Reserve's exit

from asset purchases. In less than four months, ten-year bond yields expanded by about 140 basis points. Long-term interest rates also rose in Germany and Switzerland, albeit to a lesser extent and only temporarily. The rise was accompanied by a substantial increase in interest rate volatility measures, such as the MOVE index.

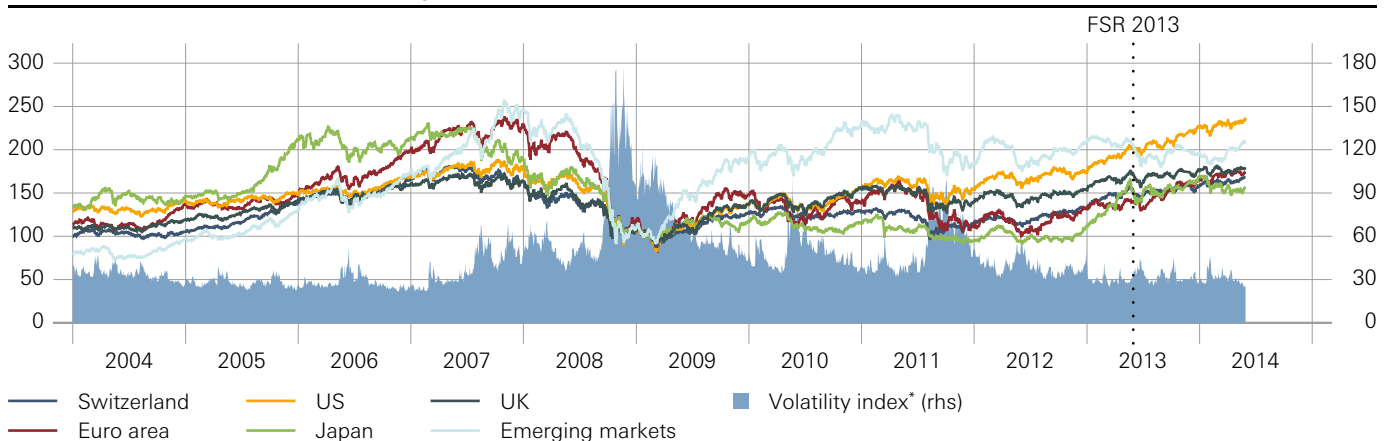
Possible reasons for a rise in long-term interest rates are changes in expectations about future short-term rates or changes in the term premium – which compensates investors for holding a long-term bond instead of a series of short-term bonds. A number of analyses have concluded that the recent rise in US rates was mainly due to higher term premia.⁷ Despite this correction, term premia remain substantially below the historical average, indicating the potential for further increases.

7 Cf., for example, IMF *Global Financial Stability Report*, October 2013, p. 7.

STOCK MARKET INDICES

Datastream Global Indices (indexed to trough in 2009 = 100)

Chart 6

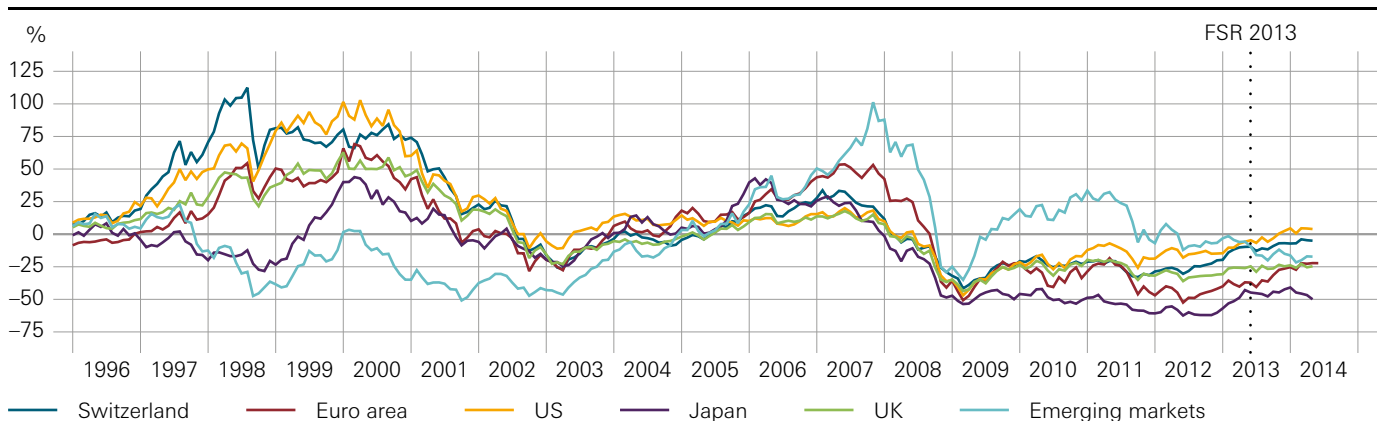


Source: Thomson Reuters Datastream

*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.

RATIO OF SHARE PRICES TO LONG-TERM AVERAGE EARNINGS: DEVIATION FROM AVERAGE*

Chart 7



Source: Thomson Reuters Datastream

*The average of earnings is calculated using a ten-year moving average. The average of the price/earnings ratio is calculated over the period 1985 to 2013, or over the period for which data are available.

2.2 SCENARIOS

To capture the different sources of risk to the 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 test the resilience of the Swiss banking sector against unlikely, highly unfavourable but coherent developments in economic and financial conditions. They focus on developments that would be of particular relevance for the Swiss banking sector.

The first two scenarios (euro area debt crisis and emerging market crisis) focus on currently existing risks, as identified in the previous section. The third and fourth scenarios (US recession and interest rate shock) include combinations of stress events based on historical experience. All four adverse scenarios focus 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.

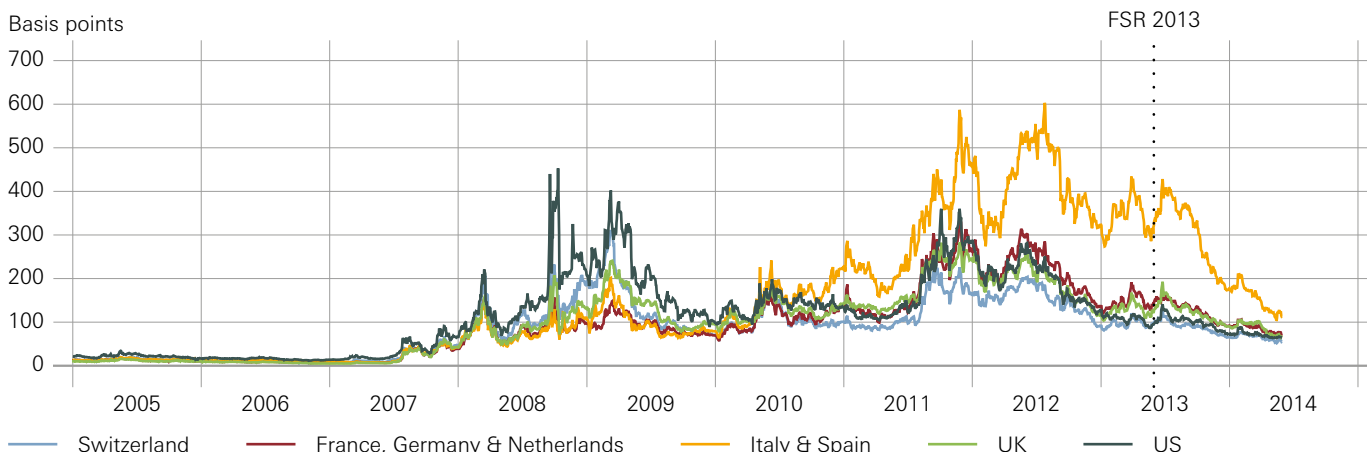
BASELINE SCENARIO

Under the baseline scenario, economic conditions for the Swiss banking sector continue to improve gradually. Economic growth accelerates in the US and the recovery in the euro area continues. Emerging markets experience sub-par growth and an easing of financial tensions. In Switzerland, growth remains favourable and unemployment declines moderately. The risk of a further build-up of imbalances on Swiss mortgage and real estate markets persists.

CREDIT DEFAULT SWAP AVERAGES

Average of biggest banks (five-year senior)

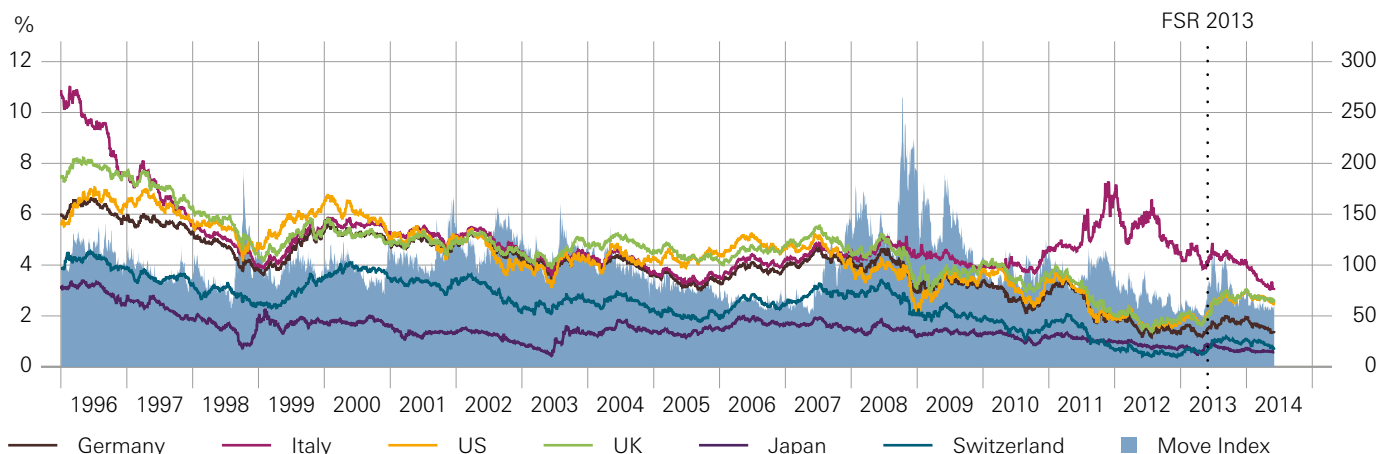
Chart 8



Sources: Bloomberg, SNB calculations

LONG-TERM INTEREST RATES: TEN-YEAR GOVERNMENT BONDS

Chart 9



Sources: Bloomberg, Thomson Reuters Datastream

ADVERSE SCENARIOS

Euro area debt crisis: The debt crisis in the euro area re-escalates. Sovereign risk premia for southern euro area member states rise abruptly, resulting in widespread financial and banking stress. Confidence declines and a deep recession spreads across Europe, originating from the southern member states. Stress in the European banking sector and financial markets also spills over to the US and Switzerland, triggering a fall in share prices and a rise in corporate spreads. The severity of the scenario is guided by the global financial crisis in 2008/2009, but is centred on acute banking stress in the euro area, with a recession in Switzerland which is more persistent than in 2009 and which leads to a sharp drop in Swiss real estate prices.

Emerging market crisis: A major crisis erupts in emerging markets, comparable to the emerging market crises of the 1990s. Emerging market bond spreads rise sharply and stock markets fall. The severe deterioration in financial conditions causes economic growth in these countries to decline rapidly, and default rates on corporate and household debt increase substantially. Financial stress is transmitted to advanced economies, including Switzerland, and stock markets fall sharply. Liquidity conditions for banks are impaired. The effect on real economic growth in advanced economies is limited. Short-term interest rates remain low.

US recession: There is a severe recession in the US, which spreads to the rest of the world. The deep recession causes US unemployment to surge to historically high levels. There is a significant increase in financial stress, and US real estate and share prices drop sharply. There are also major consequences for the rest of the world. Switzerland, Europe and Japan fall into recession and there is a sharp slowdown in emerging markets. The scenario specification is similar to the ‘severely adverse scenario’ of the Federal Reserve’s 2014 stress test.⁸

Interest rate shock: Switzerland undergoes falling real estate and share prices, coupled with a sudden and substantial increase in interest rates, an inverted yield curve and economic stagnation. The scenario parameters have been calibrated to reflect the severity of events observed in the 1990s.

⁸ ‘2014 supervisory scenarios for annual stress test required under the Dodd-Frank Act stress testing rules and the capital plan rule’, Board of Governors of the Federal Reserve System.

3

Exposures and resilience

The activities of banks as intermediaries involve risks. These risks can materialise in particular when the economic environment and financial market conditions deteriorate. The ensuing loss potential depends on the scenario assumed and on banks' exposures. From a financial stability perspective, it is essential that banks hold sufficient capital to absorb potential losses resulting from their activities, even under a very adverse scenario.

The SNB analyses the resilience of the Swiss banking sector by estimating the loss potential under the scenarios listed in chapter 2.2 and then comparing this loss potential to banks' capital. The analysis is performed separately for big banks and domestically focused commercial banks.

3.1 BIG BANKS

The big banks' loss potential – estimated under the different adverse scenarios considered – remains substantial. The euro area debt crisis scenario results in the highest overall loss potential and is followed closely by the US recession scenario and emerging market crisis scenario. In general, the loss potential stems primarily from write-downs and losses on loans in Switzerland and the US, from exposures to counterparties, and from positions in equities. Irrespective of the scenario considered, losses can also result from operational and legal risks.

With respect to capitalisation, the big banks have further improved both their risk-weighted capital ratios and their leverage ratios over the past year and already meet some of the requirements applicable from 2019. The SNB recommends, for two reasons, that both institutions continue to improve their resilience and, in particular, their leverage ratios: First, their above mentioned loss potential continues to be substantial relative to their capitalisation. Second, although their risk-weighted capital ratios are above average for large globally active banks, the same cannot be said for their leverage ratios.

In addition to strengthening resilience, the SNB encourages the big banks to further increase transparency with regard to their risks. In so doing, they would also contribute to improving the credibility of risk-weighted assets (RWA) based on banks' internal models. Moreover, the SNB continues to recommend that the big banks disclose their RWA according to both the model-based approach and the standardised approach.

3.1.1 EXPOSURES AND IMPACT OF SCENARIOS

The assessment of loss potential is based on an inventory of banks' risk exposures, and on the analysis of these exposures' sensitivity to a combination of shocks implied by each adverse scenario. The results are described in qualitative terms and illustrated with exposure and balance sheet data. This takes into account, in particular, that risk exposures and sensitivities can be measured in a number of different ways. In addition, the size of hedged net positions and sensitivities to shocks cannot be disclosed due to confidentiality considerations.

Both big banks publish their own estimates of risk which can be interpreted as measures of loss potential. These measures cannot be compared with the SNB's estimates of loss potential – either because the banks' published measures are not scenario-based but statistical measures, or because no information is provided about the severity of the stress scenario applied. Credit Suisse regularly reports total position risk as a statistical measure of loss potential. At end-March, the position risk was CHF 20 billion, or CHF 25 billion if operational risk is included.¹ UBS recently started to publish risk-based capital as statistical measures of loss potential. The measures are reported by business division, which is why a figure for the group as a whole is not mentioned in this report. Moreover, UBS recently started to publish a scenario-based Basel III post-stress CET1 ratio.² UBS does not provide information about the severity of the stress scenario applied.

SUBSTANTIAL LOSS POTENTIAL ON LOANS

Switzerland

A deterioration of credit quality in Switzerland, as implied by the interest rate shock and euro area debt crisis scenarios, could lead to substantial loss potential for the two big banks, owing to write-downs and credit defaults. At the end of 2013, they had outstanding loans totalling CHF 323 billion against domestic clients, CHF 258 billion of which was in the form of mortgage loans.³ Over the past few years, the big banks' mortgage portfolio has grown less than the overall market. Around half of their mortgage loans are linked to real estate in cantons which experienced substantial real estate price increases. Yet the regional diversification of their mortgage portfolios is well above the average for the rest of the Swiss banks.

United States

A deterioration of credit quality in the US along the lines of the US recession and euro area debt crisis scenarios would lead to substantial losses for the big banks in connection

1 Source: Quarterly report for Q1 2014. Credit Suisse bases the 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 will not be exceeded is 99.97%. This is not an estimate for the adverse scenarios described in this report.

2 Post-stress capital ratio: Cf. UBS *Investor Update*, 'Capital strength and cost efficiency', 6 May 2014, pp. 4 et seq. Risk-based capital: Cf. UBS *Annual Report* 2013, p. 161; UBS quarterly report for Q1 2014, p. 52. Neither the post-stress CET1 ratio nor risk-based capital are estimates for the adverse scenarios described in this report.

3 Source: SNB.

with corporate loans. At end-2013, the big banks had unsecured claims outstanding against the private sector (excluding financial institutions) totalling around CHF 57 billion.⁴ In the case of Credit Suisse, additional losses would materialise from its exposure to real estate and structured assets, if these investments were to lose value due to a renewed decline in real estate prices. As an indication of loss potential, Credit Suisse reports a position risk on such instruments of over 14% of its total position risk.⁵

SUBSTANTIAL LOSS POTENTIAL ON COUNTERPARTY EXPOSURES

Financial stress affecting the big banks' counterparties, as described in the three international adverse scenarios, could lead to substantial losses for the Swiss big banks. The main reason lies in their global interconnectedness. At end-2013, their combined regulatory gross counterparty credit risk exposure amounted to CHF 188 billion, not counting hedges and collateral.⁶

SUBSTANTIAL LOSS POTENTIAL ON EQUITIES

A sharp decrease in share prices around the world could lead to substantial losses, depending on the effectiveness of hedging. At end-March 2014, the big banks' gross trading portfolios in equities were large, amounting to CHF 83 billion at Credit Suisse and CHF 54 billion at UBS.⁷ These holdings are partly hedged with derivatives positions. As an indication of loss potential, Credit Suisse reports a position risk for equities of about 11% of its total position risk.⁸

3.1.2 RESILIENCE

The analysis of the big banks' resilience is based on loss-absorbing capital in a 'going concern' perspective on the one hand, and total capital on the other. Going-concern loss-absorbing capital comprises Common Equity Tier 1 (CET1), using the definition of the fully implemented Basel III framework, plus high-trigger contingent capital instruments as set out in the Swiss 'too big to fail' regulations. The Swiss regulations also define a requirement in the form of low-trigger contingent capital instruments. According to the Federal Council's 'too big to fail' dispatch, these low-trigger contingent capital instruments are primarily aimed at ensuring the maintenance of systemically important functions and the orderly resolution of the residual bank, and are therefore important in a 'gone concern' perspective. The sum of CET1 and the two types of contingent capital instruments constitutes total capital.

4 Source: SNB. Alongside claims against companies, this includes claims against private households. Unsecured claims may include trading and other liquid assets with comparatively low risk.

5 Source: Quarterly report for Q1 2014. Since Credit Suisse does not disclose any breakdown of position risk based on a confidence interval of 99.97%, to which the discussion of total loss potential refers, the breakdown of position risk published by Credit Suisse (which is based on a confidence interval of 99%) is used here.

6 Sources: UBS *Annual Report 2013*; Credit Suisse Basel III Pillar 3 disclosures for 2013. Regulatory gross counterparty credit risk exposure comprises derivatives and securities financing transactions.

7 Sources: Quarterly reports for Q1 2014.

8 Source: Quarterly report for Q1 2014.

CAPITAL SITUATION IMPROVED FURTHER

Since the first quarter of 2013, the Swiss big banks have further improved their capital situation (cf. table 1).⁹ Both big banks have continued to increase their risk-weighted capital ratios. The going-concern loss-absorbing capital ratio at Credit Suisse rose from 10.0% in the first quarter of 2013 to 12.2% in the first quarter of 2014, while at UBS it increased from 10.3% to 13.6% in the same period. UBS thus already complies with the requirement, applicable from 2019, to hold going-concern loss-absorbing capital amounting to 13% of RWA, while Credit Suisse is close to the future limit. In terms of total capital, both big banks also substantially improved their ratios between the first quarter of 2013 and the first quarter of 2014 – from 10.0% to 14.4% at Credit Suisse and from 11.8% to 16.8% at UBS.¹⁰ However, they have yet to meet the corresponding risk-weighted requirements applicable from 2019.¹¹

As regards the risk-weighted CET1 ratio, the big banks have also made further improvements. At Credit Suisse, the fully implemented CET1 ratio increased from 8.6% in the first quarter of 2013 to 9.3% in the first quarter of 2014; at UBS, it rose from 10.1% to 13.2% during the same period. Thus, both big banks already comply with the international requirement of 8.5%, which will apply from 2019.¹²

The improvement in the big banks' risk-weighted ratios is attributable, on the one hand, to capital accumulation in the form of both going-concern loss-absorbing capital and low-trigger contingent capital instruments and, on the other, to a further reduction in their RWA.

Both banks have also further improved their leverage ratios. At Credit Suisse, the going-concern loss-absorbing leverage ratio¹³ increased from 2.3% in the first quarter of 2013 to 3.0% in the first quarter of 2014; at UBS, it rose from 2.3% to 3.1%. UBS thus already complies with the requirement, applicable from 2019, to hold going-concern loss-absorbing capital amounting to a minimum of 3.1% of total exposure, while Credit Suisse is slightly below the future limit. In terms of total capital, both big banks have yet to meet the leverage

9 For Credit Suisse, the charge arising from the settlement regarding US cross-border matters is taken into account and data for Q1 2014 are presented on a pro forma basis.

10 In May 2014, UBS issued low-trigger contingent capital instruments in the amount of USD 2.5 billion. On a pro forma basis, this would increase UBS's total capital ratio to 17.7% as of Q1 2014.

11 Total capital requirements depend on the size and market share of the big banks. Accordingly, these requirements may change over time. Based on currently available data and assuming that size and market share remain constant, the corresponding total capital ratio requirements applicable from 2019 are 16.7% of RWA for Credit Suisse and 19.2% of RWA for UBS. Sources: Quarterly reports for Q1 2014; FINMA press release of 7 May 2014.

12 Under Basel III, the Swiss big banks are required to hold CET1 totalling 8.5% of their RWA. This 8.5% comprises the minimum of 4.5%, the capital conservation buffer of 2.5% and the surcharge for global systemically important banks of 1.5% for the two Swiss big banks.

13 The going-concern loss-absorbing leverage ratio is defined as the ratio of loss-absorbing capital to 'too big to fail' total exposure. The latter corresponds to total exposure under Basel III as defined in December 2010. The changes made to this definition in January 2014 have not yet been taken into account.

ratio requirement applicable from 2019.¹⁴ Between the first quarter of 2013 and the first quarter of 2014, the corresponding ratios rose from 2.3% to 3.6% at Credit Suisse and from 2.6% to 3.8% at UBS.¹⁵ The improvement in the leverage ratios reflects both capital accumulation and a reduction in total exposure.

RESILIENCE TO BE STRENGTHENED FURTHER

The SNB welcomes the significant improvements made in the big banks' capital situation and their compliance with some of the requirements applicable from 2019. The SNB

recommends that the big banks continue to improve their resilience and, in particular, their leverage ratios. This is important for two reasons.

First, the risks in the environment remain considerable and the potential losses for the Swiss big banks relative to their capitalisation continue to be substantial, as estimated under the different adverse scenarios (cf. chapter 3.1.1). For financial stability in Switzerland, it is important that the big banks remain adequately capitalised also in the event of such losses occurring. The scenarios considered describe unlikely, highly unfavourable but coherent developments in economic and financial conditions that are of particular relevance for the Swiss banking sector. Moreover, in the light of the losses incurred during the recent financial market crisis, a further strengthening of resilience – particularly in the form of improved leverage ratios – is necessary.

14 In the 'too big to fail' regulations, the leverage ratio is defined relative to the risk-weighted requirements. The 3.1% corresponds to the risk-weighted 13% requirement for loss-absorbing capital. With regard to the 16.7% (Credit Suisse) and 19.2% (UBS) total capital requirement, the corresponding leverage ratio requirements are 4.0% and 4.6% respectively. As mentioned in footnote 11, the requirements in terms of total capital may change over time. Source: FINMA press release of 7 May 2014.

15 Taking into account UBS's issuance of low-trigger contingent capital instruments in the amount of USD 2.5 billion in May 2014, the bank's total leverage ratio as of Q1 2014 would increase to 4.1% on a pro forma basis.

REGULATORY CAPITAL RATIOS AND REQUIREMENTS

Table 1

In percent

	Credit Suisse			UBS		
	Q1 2013**	Q1 2014 on a pro forma***	Requirement from 2019	Q1 2013	Q1 2014	Requirement from 2019
Basel III CET1 capital ratio	8.6	9.3	8.5	10.1	13.2	8.5
Going-concern loss-absorbing capital ratio (TBTF)	10.0	12.2	13.0	10.3	13.6	13.0
Total capital ratio (TBTF)*	10.0	14.4	16.7	11.8	16.8	19.2
Going-concern loss-absorbing leverage ratio (TBTF)	2.3	3.0	3.1	2.3	3.1	3.1
Total leverage ratio (TBTF)*	2.3	3.6	4.0	2.6	3.8	4.6

Sources: Quarterly reports of Credit Suisse and UBS, FINMA press release of 7 May 2014

* Requirement from 2019 according to currently available data (cf. footnotes 11 and 14).

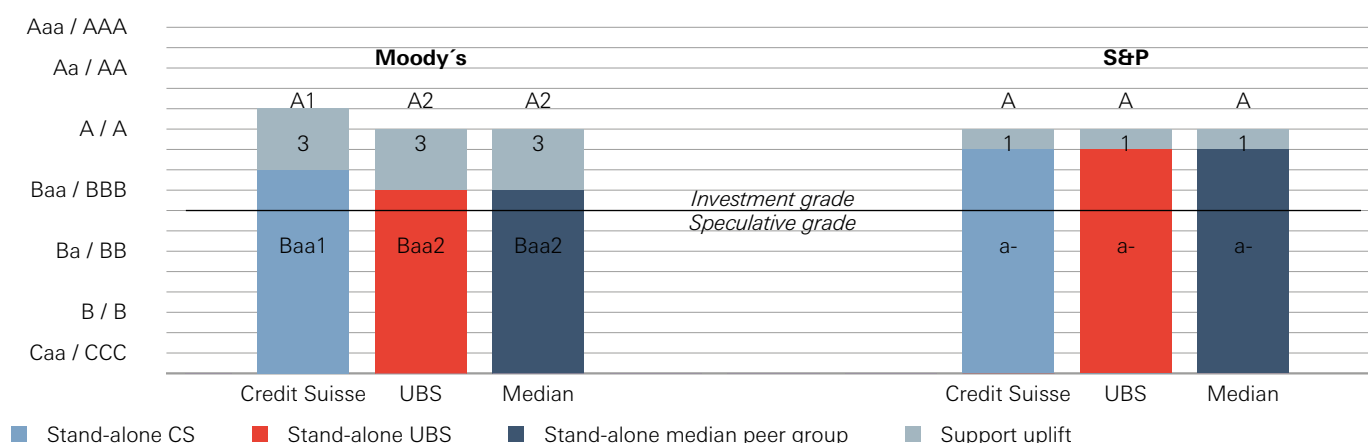
** In its quarterly report for Q1 2013, Credit Suisse published capital figures that – in addition to going-concern loss-absorbing capital as defined in the *Financial Stability Report* – also comprises securities, which FINMA advised may be included until end-2018 at the latest. The corresponding capital ratios published by Credit Suisse for Q1 2013 are therefore higher than those published in this report. Cf. also 2013 *Financial Stability Report*.

*** Taking into account the charge arising from the settlement regarding US cross-border matters. According to its press release of 20 May 2014, Credit Suisse's look-through Basel III CET1 ratio would have been 9.3% at the end of Q1 2014 had this charge been applied at that time. The other pro forma capital ratios in table 1 are derived from this pro forma Basel III CET1 ratio.

INTERNATIONAL COMPARISON OF RATINGS

Credit Suisse, UBS & G-SIBs

Chart 10



Sources: Moody's, S&P

Second, an international comparison of the regulatory capital ratios of the two Swiss big banks reveals an uneven picture with regard to resilience. Although their risk-weighted capital ratios are above average for large globally active banks, the same cannot be said for their leverage ratios. This assessment is irrespective of the ratio definition applied and has been documented by a number of comparative studies. For instance, within the context of its annual country report, the International Monetary Fund (IMF) recommends that leverage ratios be quickly brought into line with those of other large globally active banks (peer banks).¹⁶

Improving the leverage ratio, including in an international comparison, is of particular significance given that the ratio is gaining in importance as a measure of banks' resilience and that, as experience has shown, it can quickly become the focus of market attention during a crisis. The requirement – effective from the beginning of 2015 – to disclose leverage ratios under Basel III will enable a direct international comparison.

MARKET ASSESSMENT OF BIG BANKS' RESILIENCE

Ratings and CDS premia provide information about the market's assessment of banks' resilience. Stand-alone ratings reflect the intrinsic financial strength of the banks, assuming no external support is forthcoming. According to Standard & Poor's (S&P), both Swiss big banks currently have a stand-alone rating of 'a-', while according to Moody's, the stand-alone ratings are 'Baa1' for Credit Suisse and 'Baa2' for UBS (cf. chart 10).¹⁷ These ratings are comparable to those of other large globally active banks.

16 Cf. the IMF's 2014 Article IV Consultation report for Switzerland. Examples of other comparative studies: 'Results of the Basel III monitoring exercise as of June 2013', Basel Committee on Banking Supervision; Moody's credit opinion, Moody's, 30 December 2013; 'Not quite so simple – European banks and the leverage ratio', Barclays Capital Research, September 2013.

17 The stand-alone ratings refer to S&P's stand-alone credit profile and Moody's baseline credit assessment.

A difference remains between the big banks' stand-alone rating and their long-term credit rating, which indicates that both banks continue to benefit from a 'too big to fail' rating uplift. In contrast to stand-alone ratings, long-term credit ratings also factor in the possibility of state support in the event of a crisis.¹⁸ The difference that still remains between these two ratings shows that the market continues to expect state support measures in a crisis.¹⁹

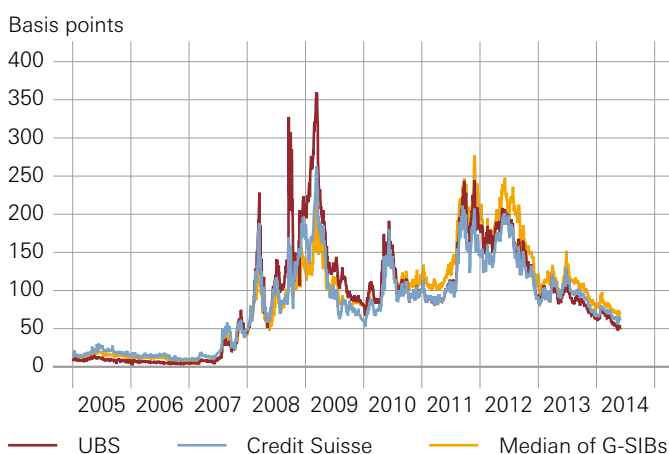
CDS premia provide additional information about the market's assessment of banks' resilience. The higher the credit risk or the lower the assessment of resilience, the higher the premium of the corresponding CDS. According to CDS premia, the market assesses the resilience of the Swiss big banks as above average in an international comparison. Yet these premia are significantly higher than at the onset of the financial market crisis in mid-2007 (cf. chart 11), when the vulnerability of the two big banks and the overestimation of banks' resilience became evident. Furthermore, unlike with stand-alone ratings, the market's expectation as regards state support in the event of a crisis is factored into the valuation of CDS premia. The higher this expectation, the lower the corresponding CDS premia will be, and the more the intrinsic resilience of banks will be overestimated.

18 On 29 April 2014, S&P revised Credit Suisse's and UBS's outlooks – and those of other European banks – to negative. The negative outlooks reflect the possibility that the long-term credit rating may be lowered due to a potential reduction in government support and that the 'too big to fail' rating uplift may diminish accordingly. Cf. S&P, 'Credit Suisse Outlook Revised To Negative On Potential Government Support Reduction; 'A/A-1' Ratings Affirmed', *RatingsDirect*, 29 April 2014; and 'Outlook on Swiss Bank UBS Revised To Negative On Potential Government Support Reduction; 'A/A-1' Ratings Affirmed', *RatingsDirect*, 29 April 2014.

19 Cf. also IMF, 'How big is the implicit subsidy for banks seen as too-important-to-fail?', *Global Financial Stability Report*, April 2014.

INTERNATIONAL COMPARISON OF CDS SPREADS

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



Source: Bloomberg

**PROGRESS REGARDING RISK TRANSPARENCY;
CREDIBILITY OF MODEL-BASED RWA CONTINUES
TO BE CHALLENGED**

In its 2013 *Financial Stability Report*, the SNB addressed the credibility issue concerning model-based RWA and, in this context, recommended that the big banks increase transparency with regard to their risks.²⁰ Over the past year, the two Swiss big banks have made some progress in this area, in line with the recommendations of the Enhanced Disclosure Task Force – a broad-based private sector initiative.²¹ For example, both institutions recently started to disclose changes in their RWA, broken down by cause. Of particular interest is the proportion of the reduction in RWA which is attributable to model adjustments. Such information helps in assessing the degree to which a reduction in model-based RWA is accompanied by an actual reduction in economic risk. There is no information for the period between 2009 and 2012, during which large decreases in the big banks’ RWA occurred.

The question regarding the credibility of RWA based on banks’ internal models has not yet been resolved. The ability of such RWA to capture actual risk exposure is being called into question by a large number of analysts, investors, academics and supervisory authorities.

The question of whether model-based RWA adequately reflect the risks taken is important in two respects. First, RWA are at the heart of capital requirements. RWA should not only correctly differentiate between risk types, they should also adequately reflect the overall level of risk. Second, the appropriateness of RWA is important when comparing the resilience of banks. It must be ensured that

20 Cf. 2013 *Financial Stability Report*, pp. 21–23.
21 ‘Enhancing the Risk Disclosures of Banks’, Report of the Enhanced Disclosure Task Force, 29 October 2012.

banks with similar risk profiles also meet similar capital requirements.

It is widely accepted that a bank’s risks can, in principle, be more accurately quantified using the model-based approach than using the standardised approach. Yet banks’ internal models are highly complex and can vary widely between institutions, thus making it difficult to accurately assess a bank’s resilience and to compare one bank with another.

**FURTHER PROGRESS NEEDED REGARDING
RISK TRANSPARENCY**

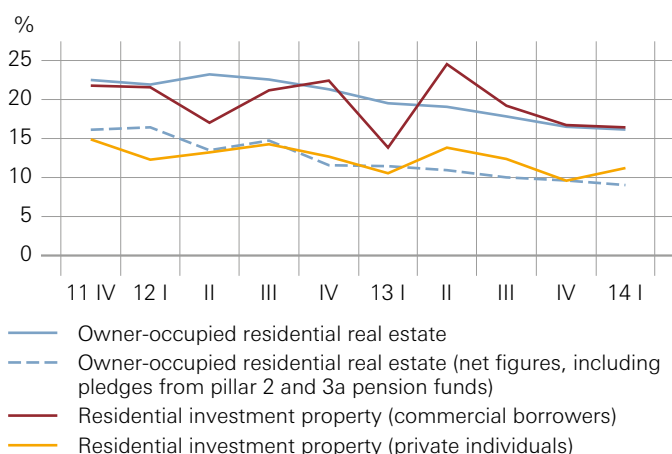
The SNB welcomes the efforts by the Swiss big banks to increase transparency with regard to their risks. Further progress is needed, however, to allow markets to make an adequate assessment with regard to risk incurred by banks and, in particular, to increase the credibility of model-based RWA.²²

The regular publication of a quantitative measure of total risk is important in helping market participants to assess banks’ resilience. This information also helps to assess the degree to which a reduction in model-based RWA is accompanied by a reduction in economic risk. Accordingly, the SNB welcomes the fact that UBS recently started to publish a statistical measure of loss potential by business division and a scenario-based Basel III post-stress CET1 ratio.²³ More detailed information about the results and the underlying methodology would improve market participants’ ability to adequately use these indicators in their assessment of UBS’s economic risk. For some time

22 Cf. also the IMF’s 2014 Article IV Consultation concluding statement for Switzerland of 24 March 2014, which includes the following recommendation: “Put Switzerland at the cutting edge of financial sector transparency, including for instance as regards risk weights in banks’ internal models, so as to enhance understanding of, and credibility in, the banks’ soundness and strategies.”
23 Cf. chapter 3.1.1.

LOAN-TO-VALUE: NEW MORTGAGES

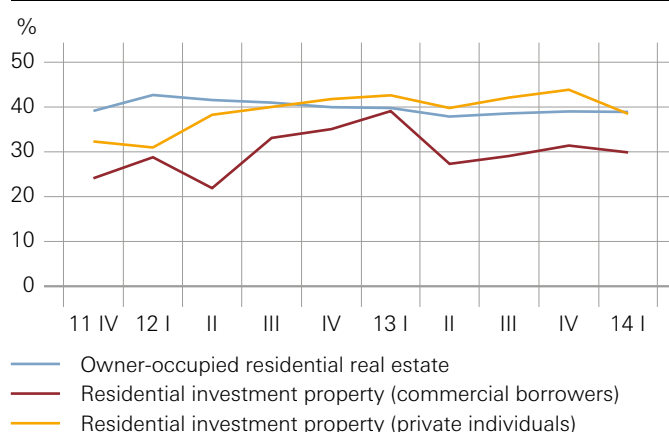
Proportion of new loans with LTV over 80% Chart 12



Source: SNB

LOAN-TO-INCOME: NEW MORTGAGES

Proportion where imputed costs exceed 1/3 of income (owner occ.) or rents (inv. prop.) at an interest rate of 5% Chart 13



Source: SNB

now, Credit Suisse has been publishing a statistical measure of total loss potential, so-called economic capital. Such a measure, although not scenario-based, can go some way towards explaining the evolution of its economic risk.

In this context, the SNB continues to recommend that the big banks disclose their RWA according to both the model-based approach and the standardised approach. Since the standardised approach is independent of bank-specific model assumptions, it provides market participants with an additional point of reference for assessing both the level of and changes in model-based RWA. The SNB's recommendation on the parallel publication of RWA according to the standardised approach is in line with efforts being made at international level.²⁴

In connection with the assessment of model-based RWA, the analysis of RWA being carried out by FINMA with the support of the SNB will play an important role. Now that the big banks have provided the necessary data by calculating RWA based on the standardised approach, the analysis will focus on the question of whether, and why, RWA based on banks' internal models differ from those based on the model-independent standardised approach. Differences must be well explained and have a sound economic rationale. If the analysis does not reveal any substantial and inexplicable differences, this would strengthen market confidence in model-based RWA. If the model-based approach systematically results in RWA which are inexplicably lower than under the standardised approach, corrective measures would need to be considered. These could, for instance, entail setting a floor for some model-based RWA, similar to in the US, where systemically important banks have to comply with both the standardised and model-based approaches; or introducing a multiplier on model-based risk weights for specific positions, as imposed by FINMA for some mortgage loans.

3.2 DOMESTICALLY FOCUSED COMMERCIAL BANKS

In 2013, domestically focused commercial banks further increased their already high exposure to mortgage and real estate market risk. According to SNB estimates, a repeat of the events observed in the 1990s – falling real estate and share prices coupled with a sudden and substantial increase in interest rates, an inverted yield curve and economic stagnation (cf. interest rate shock scenario, chapter 2.2) – would generate substantial losses for domestically focused banks.

With respect to capitalisation, domestically focused commercial banks' risk-weighted capital ratios are significantly above regulatory minimum requirements overall. From an economic perspective, however, risk-

weighted capital ratios may overstate the economic resilience of these banks in the current environment. This is because RWA only partly reflect the growing risks on Swiss mortgage and real estate markets. Hence, when defining their capital plans and target values for mortgage lending or interest rate risk, banks should ensure that they are able to withstand the potential losses associated with a combination of a sudden and substantial increase in interest rates and a price correction on the real estate market.

3.2.1 EXPOSURES AND IMPACT OF SCENARIOS

FURTHER INCREASE IN EXPOSURE TO MORTGAGE AND REAL ESTATE MARKET RISK

As a result of the strong volume growth in mortgage lending, the exposure of domestically focused banks to the Swiss mortgage market continued to grow in 2013. At the same time, interest rate risk exposure remained high.

Strong mortgage lending growth

At 4.9%, growth in the mortgage volume of domestically focused commercial banks²⁵ in 2013 was almost unchanged from the previous year (5.0%), remaining well above the growth of GDP. Due to these banks' large aggregate market share in the domestic mortgage business (approximately 65%), this has led to a renewed increase in the ratio of mortgage loans to GDP. However, the pace of the increase has been slowing gradually compared to 2012. This reflects somewhat higher GDP growth and a decrease in mortgage growth at the big banks in 2013, as well as a broader-based slowdown in mortgage lending during the first quarter of 2014. This reduced momentum is also reflected in indicators of imbalances on the mortgage market, such as the difference between the mortgage-to-trend GDP ratio and its long-term trend. According to this indicator, imbalances stabilised in the first quarter of 2014. From a financial stability perspective, this is a positive development. Experience shows, however, that short-term changes in momentum do not necessarily imply a change in trend.

Lower share of new mortgage loans with high LTV – persistently high affordability risks

The strong growth in mortgage lending continues to be associated with a high risk appetite overall among these banks. On the positive side, according to the survey of mortgage lending conducted by the SNB,²⁶ the share of new mortgage loans with a high loan-to-value (LTV) ratio has declined since the last *Financial Stability Report*, particularly for owner-occupied residential property. On the negative side, as regards the affordability criteria for new mortgage borrowers, no trend towards lower risks is discernible.

24 For instance, the fundamental review of the trading book set out revised standardised and advanced approaches for market risk, and will require banks using the advanced approach to also publish risk-weighted assets under the revised standardised approach. Cf. Basel Committee on Banking Supervision, 'Fundamental review of the trading book: A revised market risk framework', Consultative Document, October 2013.

25 Aggregate domestic mortgage growth in the banking sector as a whole amounted to 4.3% in 2013 compared to 4.5% in 2012.

26 The survey covers the 25 largest banks with a cumulative market share in the domestic mortgage market of over 80%. LTV and LTI data are collected for new mortgages in the segments of owner-occupied residential property (2013: CHF 30.6 billion) and residential investment property held by commercial borrowers (CHF 8.4 billion) or private individuals (CHF 9.8 billion).

Since the launch of the SNB survey in 2011, the share of new mortgage loans for owner-occupied residential property with an LTV ratio²⁷ of more than 80% has fallen, from around 22% to around 16% in gross terms, or from about 15% to about 9% in net terms²⁸ (cf. chart 12).²⁹ For residential investment property, the data exhibit a much higher volatility, but they also indicate a certain decline in the proportion of new mortgages with a high LTV ratio. These developments are positive from a financial stability perspective. However, it should be emphasised that the decrease in the share of high-LTV loans has been partly offset by the growing imbalances on the residential real estate market during that same period.

As regards affordability (loan-to-income ratios; LTI), no trend towards lower risks can be observed, either for owner-occupied residential property or for residential investment property. The SNB survey indicates that, as in previous years, for around 40% of new mortgages granted for financing owner-occupied residential property, the imputed costs³⁰ would exceed one-third of gross wage or pension income at an interest rate of 5% (cf. chart 13). 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 own measure of affordability risk based on internal definitions.³¹ In

residential investment property, similar levels of affordability risk are discernible for properties held by private individuals, while affordability risk appears slightly lower for properties held by commercial borrowers. At an interest rate of 5%, the imputed costs would no longer be covered by net rents for nearly 40% of the new mortgage volume for private individuals and around 30% for commercial borrowers. Over the last two years, LTI ratios for residential investment property have tended to rise. However, LTI ratios for residential investment property – just like LTV ratios – are characterised by high volatility.

As the SNB's survey comprises only new lending³² since the fourth quarter of 2011, the results are not indicative of the share of outstanding mortgage loans with a high LTV or stretched affordability. However, as a volume corresponding to around 10% of outstanding mortgage loans is newly issued each year, and as the high appetite for risk has persisted for some years now, the LTV and LTI policy pursued by banks since end-2011 is likely to have already had a significant effect on the quality of outstanding loans.

Against this background, it should be noted that the affordability risk as measured by LTI ratios remains relevant, despite the trend towards a higher proportion of loans with medium-term repricing maturities, which offer some protection to borrowers against the effects of rising interest rates. Based on figures for end-2013, 75% of the mortgage volume has a repricing maturity that

27 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.

28 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. 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.

29 The first two sets of survey figures, from Q2 and Q3 2011, were excluded on quality grounds.

30 The imputed costs used for this estimate comprise the imputed interest rate (5%) plus the maintenance and amortisation costs (1% each). The average mortgage rate over the last 50 years is almost 5%.

31 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

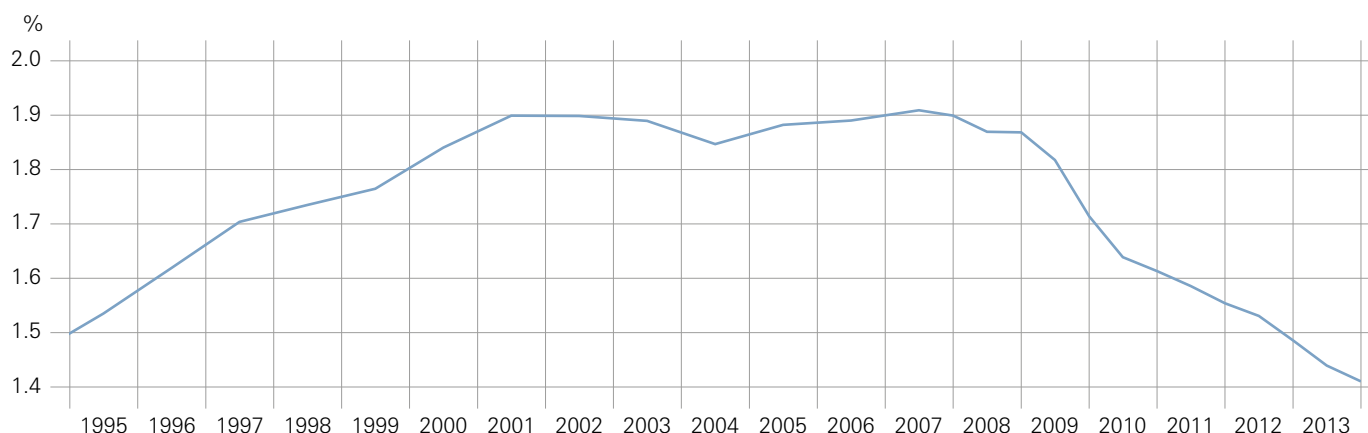
impact (e.g. leasing or interest payments on other bank loans), are not taken into consideration. On average, eligible income according to internal bank guidelines exceeds standardised income by 15–20%; however, differences between individual banks are considerable. As banks apply different credit policies, the income calculated according to banks' internal guidelines – in contrast to standardised income – is neither directly comparable between banks, nor can it be used for calculating aggregate LTI values.

32 For the purpose of the survey, new lending comprises both refinancing of an existing mortgage from another lender and newly granted loans for the purchase or construction of real estate.

INTEREST RATE MARGIN OF DOMESTICALLY FOCUSED COMMERCIAL BANKS

Weighted average

Chart 14



Sources: FINMA, SNB

is shorter than five years, i.e. would be affected by an interest rate shock over this time horizon. Roughly 35–45% of the mortgage volume even has a repricing maturity that is shorter than 12 months.³³ A very high proportion of the loan volume would thus be affected by interest rate changes in the short or medium term.

Further narrowing of interest rate margins

In 2013, the average interest rate margin on outstanding loans of domestically focused commercial banks decreased by a further 7 basis points. It has declined by close to 50 basis points or one-quarter since 2007 (cf. chart 14).³⁴ This development, which is homogeneous across banks, is mainly due to the significant decline in the liability margin.³⁵ The fall in the liability margin stems from the fact that banks have not reduced interest rates on deposits in step with the general level of interest rates, i.e. they are constrained by the so-called ‘zero lower bound’ applying to interest rates. Declining margins can create incentives for banks to expand the volume of lending and increase maturity transformation, in order to maintain their income level despite lower margins.

Persistently high interest rate risk

Interest rate risk results 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. As a result 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 value³⁶ of assets more substantially than the present value of liabilities.

According to the interest rate risk measure³⁷ shown in chart 15, the interest rate risk in the banking book of domestically focused commercial banks has increased slightly, from a high level, since the end of 2012. If the general level of interest rates were to rise by 200 basis points, the net present value of these banks would decline on average by 14.0% of their Tier 1 capital (2012: 13.3%).³⁸ The variation in interest rate risk among these banks is considerable. Excluding banks below the first and above the ninth deciles, the impact ranges from an increase in net present value of 5.1% of their Tier 1 capital (2012: 5.6%) to a decline of 19.5% (2012: 21.4%).

The slight rise in the average interest rate risk observed in 2013 contrasts with the fact that a number of banks – including some larger ones – reduced their risk exposure compared to the previous year. This slight rise reflects the impact of the Raiffeisen Group, which increased its interest rate risk exposure substantially year-on-year, from an already high level.³⁹ As Raiffeisen Group makes up around 20% of domestically focused banks’ total assets, it can have a material impact on average figures. However, the average interest rate risk of domestically focused banks remains high, even when disregarding Raiffeisen Group.

In this context, it must be stressed that the uncertainty regarding the banks’ actual exposure to interest rate risk is high. On the one hand, as discussed in detail in last year’s *Financial Stability Report*, the net present value analysis described above may underestimate the actual level of direct interest rate risk. For positions with undefined repricing maturities,⁴⁰ this measure is based on banks’

33 Source: SNB statistics.

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

35 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. The asset margin is the difference between the interest on the asset and on the alternative asset with the same maturity on the capital market.

36 The present value of a balance sheet position corresponds to its expected future cash flow discounted by the relevant risk-free interest rate.

37 The interest rate risk measure includes all positions in the banking book (excluding non-linear derivatives), plus the securities and precious metals trading portfolio, less short securities positions.

38 In terms of total eligible capital, the net present value of these banks would decline by 13.2% (2012: 12.5%).

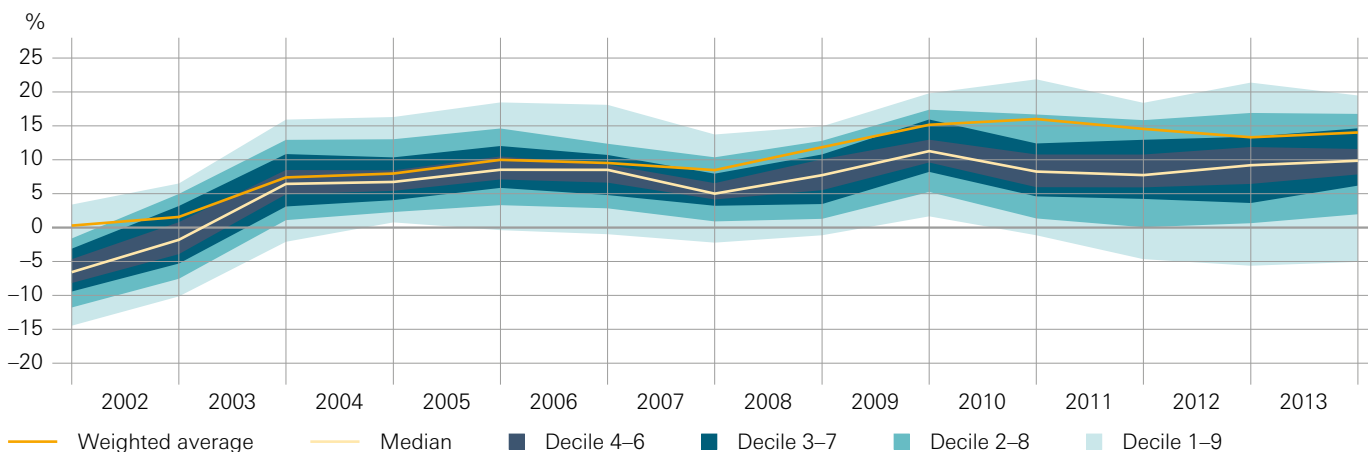
39 Raiffeisen Group *Annual Report* 2013, p. 32.

40 Positions with undefined repricing maturities include: on the assets side, sight claims, claims against customers and variable rate mortgage claims; on the liabilities side, sight liabilities and savings deposits.

INTEREST RATE RISK OF DOMESTICALLY FOCUSED COMMERCIAL BANKS

Losses in net present value as a percentage of Tier 1 capital, assuming a 200 bp interest rate rise

Chart 15



Sources: FINMA, SNB

assumptions about the repricing maturity of such positions. Assumptions about the behaviour of savings and sight deposits are both particularly important, given the size of these positions, and hard to calibrate. In an environment of historically low interest rates, these deposits have proved to be very stable sources of financing in recent years. Many banks' interest rate risk metrics, and hence the figures in chart 15, are based on the assumption that this stability would also prevail in a context of sharply increasing interest rates. However, when interest rates rise, a substantial portion of these funds could quickly be shifted into longer-term bank liabilities or alternative capital market investments. The negative impact of an interest rate rise on the net present value could thus be significantly higher on average than banks are currently assuming.

On the other hand, in the current situation, an interest rate increase might help banks restore their liability margin (cf. section 'Further narrowing of interest rate margins', p. 21). This effect might partly offset the negative impact of an interest rate shock on a bank's net interest income due to maturity transformation. However, this effect – which is not captured by the net present value analysis described above – is likely to be material for relatively small interest rate shocks only.⁴¹

HIGH LOSS POTENTIAL UNDER INTEREST RATE SHOCK SCENARIO

Two of the scenarios discussed in chapter 2.2 are of particular relevance for domestically focused banks: the euro area debt crisis scenario and the interest rate shock scenario.⁴² According to SNB estimates, the interest rate shock scenario results in substantially higher losses, owing to these banks' strong focus on the Swiss mortgage market.⁴³

41 More generally, the net present value analysis cannot be used to draw direct conclusions about the impact of an interest rate shock on net interest income.

42 Irrespective of the scenarios considered, losses can also result from operational and legal risks.

43 The scenarios are defined over a five-year horizon.

Euro area debt crisis scenario

Under this scenario, a severe recession extending over several quarters would result in a considerable increase in write-downs on corporate loans. The mortgage business, too, would incur losses, due to higher delinquency rates resulting primarily from rising unemployment and the real estate price correction. However, as interest rates remain low under this scenario, the loss potential on mortgage loans would be moderate.

While net interest income would suffer from a further decline in the liability margin as a result of the persistently low interest rate level, commission business would mainly be constrained by the weak performance of the stock markets. Net interest income and commission income are key components of domestically focused banks' total income, accounting for around 70% and 20% respectively.

Interest rate shock scenario

Under this scenario, a sudden and substantial rise in interest rates, combined with an inverted yield curve, would lead to a sharp decline in net interest income. Higher interest rates, coupled with a sharp correction in real estate prices, would also lead to a surge in default and loss-given-default rates on domestic residential mortgages. Banks whose mortgage portfolios are heavily concentrated on regions showing particularly pronounced signs of residential property overvaluation would be especially hard hit. Finally, the stagnation of the economy would cause higher default rates on corporate loans, in particular commercial mortgage loans. As experience from the crisis of the 1990s in Switzerland shows, the resulting losses in this loan segment can be considerable.

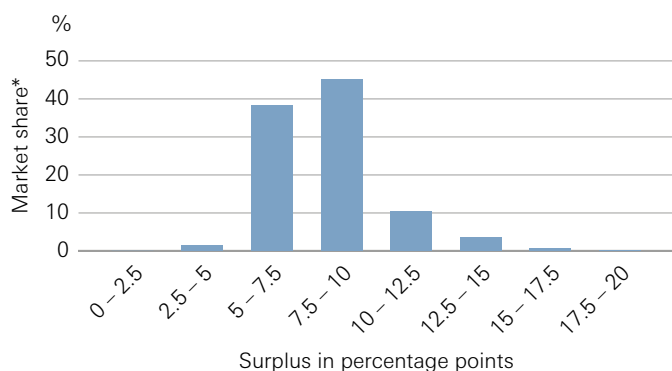
3.2.2 RESILIENCE

Capital ratios significantly above regulatory minimum requirements

Overall, measured against the regulatory minimum requirements, domestically focused banks are holding substantial surplus capital. At end-2013, all domestically

RISK-WEIGHTED CAPITAL RATIOS OF DOMESTICALLY FOCUSED COMMERCIAL BANKS

Capital surplus with respect to the Basel III 8% minimum requirement for risk-weighted total capital ratios Chart 16



Sources: FINMA, SNB

*Share of domestically focused banks' total assets.

focused banks met the Basel III minimum requirement of 8% for the risk-weighted total capital ratio, with most of them exceeding it by a significant margin. Nearly all the banks had a capital surplus of more than 5 percentage points. For around 30% of domestically focused banks, with a cumulative share amounting to some 15% of total assets of these banks, this capital surplus exceeded 10 percentage points (cf. chart 16).

All domestically focused banks already comply with the additional capital requirements associated with the recent increase⁴⁴ in the CCB, effective from end-June 2014, and almost all of them also meet the specific capital buffer requirements set by FINMA according to supervisory category.⁴⁵ The latter go beyond the Basel III requirements⁴⁶ and are applicable from end-2016.

In 2013, domestically focused commercial banks' capital moved more or less in line with developments in balance sheets and mortgage loans. Hence, the average leverage ratio⁴⁷ – in terms of the ratio of Tier 1 capital to balance sheet total⁴⁸ – was broadly unchanged⁴⁹ at 7.1% (cf. chart 17) and has remained high, on average, by historical standards. The increase in capital was largely the result of profit retention, although capital issuance –

some of it prompted by the activation of the CCB – also made a significant contribution.

The risk-weighted capital ratio increased to 16.1% in terms of total eligible capital (2012: 15.3%) and to 15.1% in terms of Tier 1 capital (2012: 14.3%). In 2013, domestically focused banks' capital thus grew faster than their RWA. The latter were, however, influenced by a number of changes to the regulatory framework⁵⁰ introduced in 2013.⁵¹ On balance, the regulatory changes are likely to have contributed positively to the increase in risk-weighted capital ratios. Hence, the increase in the risk-weighted capital ratio does not necessarily mean an improvement in banks' capital adequacy.

Resilience may be lower than suggested by regulatory ratios

From an economic perspective, domestically focused banks' resilience may be lower than suggested by their regulatory capitalisation (cf. also the *Financial Stability Reports* for 2012 and 2013).

First, risk-weighted capital ratios only partially account for the imbalances on Swiss mortgage and real estate markets that have built up over a number of years. Through their impact on LTV ratios, rising real estate prices can even lead

44 In January 2014, acting on a proposal by the SNB, the Federal Council increased the sectoral CCB from 1% to 2% of risk-weighted positions financing residential property in Switzerland. The deadline for compliance with the increased CCB requirements is end-June 2014.

45 For supervisory purposes, FINMA divides banks into five categories, each with a comparable risk profile. The categorisation is based on criteria related to a bank's size as well as on an indicator of a bank's risk exposure (cf. FINMA Circular 2011/2). While category 1 currently refers to the two big banks, categories 2 to 5 include banks in descending order of size and/or risk exposure.

46 This holds for all banks except those in supervisory category 5.

47 The leverage ratio is defined as the ratio of capital to balance sheet total. At end-2013, there was no regulatory requirement for leverage ratios for domestically focused commercial banks.

48 This definition differs from the one under Basel III. The latter incorporates a bank's total exposure in the denominator, which for example also includes off-balance-sheet positions.

49 In 2012, the average leverage ratio – in terms of the ratio of Tier 1 capital to balance sheet total – was 6.9%.

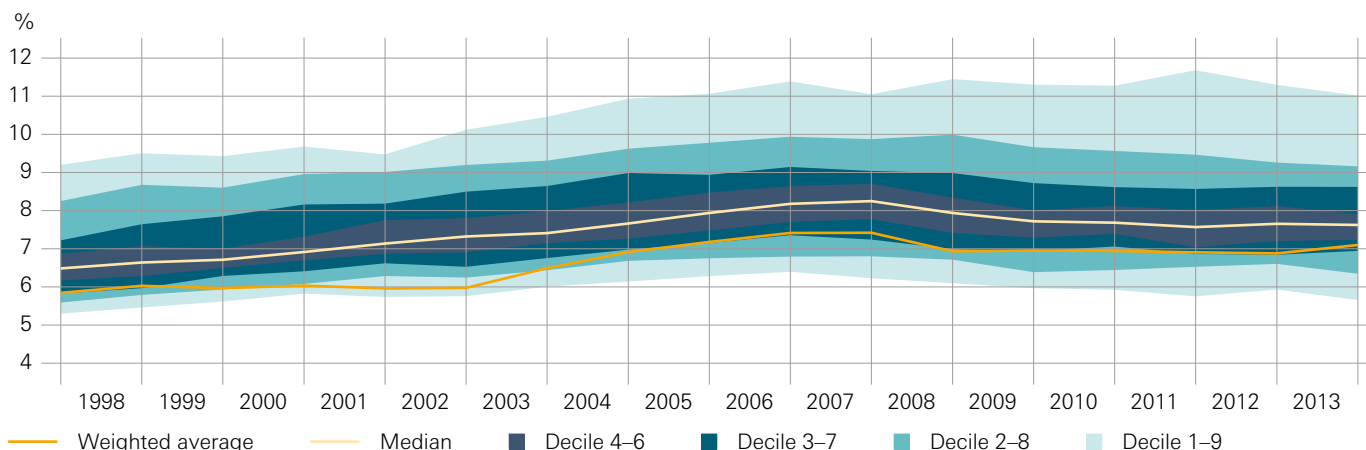
50 These include the changeover to Basel III as of the beginning of 2013, which applies to all banks. As part of the changeover to Basel III, the Swiss standardised approach (Swiss finish) will be phased out by end-2018. Domestically focused commercial banks with a cumulative market share of around 45% have already completed the changeover to the international standardised approach.

51 For instance, under the revised international capital requirements (Basel III) introduced at the beginning of 2013 and being phased in by end-2018, additional balance sheet positions (e.g. derivatives) must now be backed with capital. Moreover, with the discontinuation of the Swiss standardised approach, the capital requirement for non-counterparty risk (e.g. real estate) decreases quite considerably for those banks that had already implemented the changes with effect from the beginning of 2013. The discontinuation of the Swiss finish also means the disappearance of specific multipliers for banks that use internal risk models to calculate their RWA (internal ratings-based approach, or IRB). Also, due to the discontinuation of the Swiss standardised approach, the capital requirement for certain credit positions has been increased. At the same time, it has become possible to reclassify some of these credit positions, thereby partly circumventing the stricter requirements.

TIER 1 LEVERAGE RATIO OF DOMESTICALLY FOCUSED COMMERCIAL BANKS

Distribution of Tier 1 capital to asset ratios

Chart 17



Sources: FINMA, SNB

to lower capital requirements.⁵² The higher these prices rise above levels justified by fundamentals, the more the regulatory capital ratios can overestimate the resilience of these banks. The relevance of this issue is likely to have increased compared to the previous year (cf. chapter 2).

Second, capital requirements do not systematically take into account the historically high level of interest rate risk⁵³ in the banking book carried by many domestically focused banks. Finally, the low level of diversification of most of these banks, reflecting in particular their strong focus on the mortgage market, is largely disregarded by regulatory capital requirements.

High resilience and conservative approach to risk needed

As indicated in chapter 3.2.1, two scenarios prove to be particularly relevant for domestically focused banks: the euro area debt crisis scenario and the interest rate shock scenario.

While the euro area debt crisis scenario would lead to losses at many domestically focused banks, estimated losses would, in most cases, deplete only a small proportion of banks' surplus capital. The cumulative market share of domestically focused banks falling below the regulatory minimum would be negligible and the share of banks no longer meeting the specific capital buffer requirements set by FINMA would be small.

By contrast, under the interest rate shock scenario, the estimated losses for domestically focused banks would be substantial. Owing to the surplus capital currently held by banks, the cumulative market share of domestically focused banks that are estimated to fall below the regulatory minimum would also be relatively small. However, for a number of banks covering a significant share of the domestic credit market, the losses could deplete a large proportion of their surplus capital. As a consequence, these banks would no longer meet the specific capital buffer requirements set by FINMA. The depletion of a large proportion of banks' surplus capital and the fact that some larger banks' capital ratios might come close to the regulatory minimum would lead to a general weakening of the banking sector. Experience in Switzerland and abroad suggests that this could present a major challenge for financial stability and significantly affect banks' ability to lend, with corresponding negative repercussions for the real economy.

These results highlight the importance of banks holding significant capital surpluses relative to the regulatory minimum requirements. Banks should, in particular, ensure

that they are able to withstand the potential losses associated with a combination of a sudden and substantial increase in interest rates and a price correction on the real estate market. The current situation also calls for a prudent lending policy, both to limit banks' future loss potential and to help prevent a further build-up of imbalances.

Steps should be taken to keep risks for financial stability in check

As discussed in chapters 2 and 3.2.1, overall, the pace at which imbalances on the Swiss mortgage and real estate markets develop has slowed recently. From a financial stability perspective, this is a positive development. Experience shows, however, that short-term changes in momentum do not necessarily imply a change in trend. Given the persistence of the low interest rate environment, banks and authorities should remain alert and take the necessary steps to keep risks for financial stability in check.

First, measures that give banks stronger incentives to pursue a more cautious mortgage lending policy should be considered. Such measures should target both the owner-occupied residential property and the residential investment property segments. Efforts should now be directed towards preparing regulatory measures that could be implemented swiftly should momentum pick up again on the mortgage and residential real estate markets.

Second, interest rate risk exposure in the banking book should be appropriately backed with capital. Under the aegis of the Basel Committee on Banking Supervision, international standards on capital requirements for interest rate risk are currently being developed. Given the significance of this risk factor, banks should ensure that they adopt a prudent stance towards measuring and managing this risk. In this context, the SNB fully supports FINMA's efforts to ensure that risk-taking by individual banks is reduced or backed by specific capital charges whenever the risk exposure is deemed exceptionally large by historical or industry standards.

In parallel with these measures, the SNB will continue to monitor developments on the mortgage and real estate markets closely, and will reassess the need for an adjustment to the CCB on a regular basis.

⁵² As set out in the Capital Adequacy Ordinance, capital requirements for mortgage loans depend on the loan's underlying LTV ratio. The higher the LTV of a mortgage loan, the higher the associated capital requirement. Banks' incentives to re-evaluate a mortgage loan with respect to its LTV rise as real estate prices increase, since higher real estate prices translate to lower LTV ratios and thus to lower capital requirements.

⁵³ For a detailed description of interest rate risk, cf. chapter 3.2.1.

Published by

Swiss National Bank
Financial Stability
P.O. Box
CH-8022 Zurich
Telephone +41 44 631 31 11

Languages

English, French and German

Further information

snb@snb.ch

**Subscriptions, individual issues,
change of address**

Swiss National Bank, Library
P.O. Box, CH-8022 Zurich
Telephone +41 44 631 32 84
Fax +41 44 631 81 14
E-mail: library@snb.ch

Website

The publications of the Swiss National Bank
are available at www.snb.ch, *Publications*.

Design

Interbrand Ltd, Zurich

Typeset and printed by

Neidhart + Schön AG, Zurich

Publication date

June 2014

ISSN 1661-7835 (print version)
ISSN 1661-7843 (online version)

Internet

www.snb.ch

**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 whose share of domestic loans to total assets exceeds 50%. Data on the big banks are analysed on a consolidated basis. This document is based on data available as at 31 May 2014.

Copyright ©

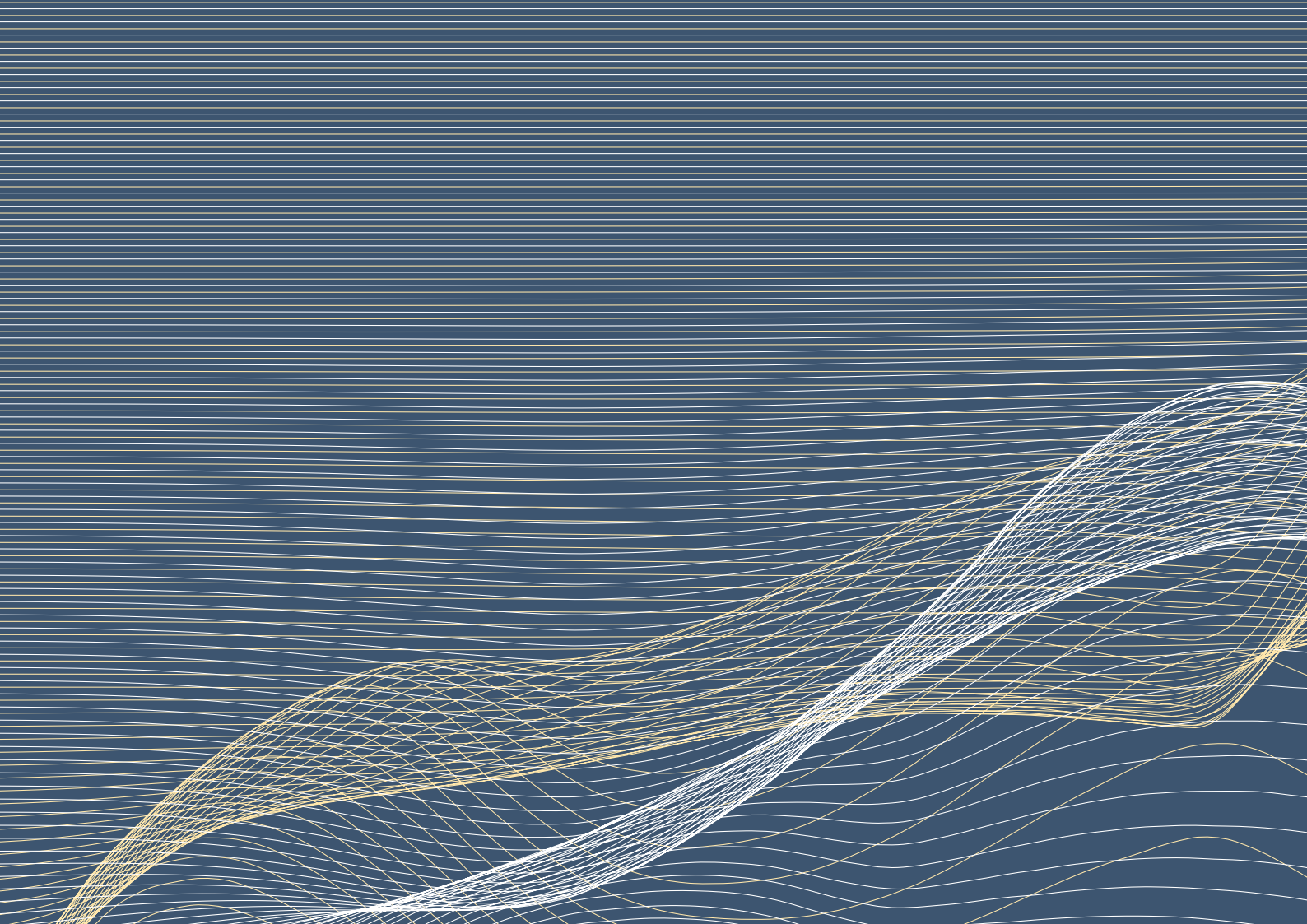
The Swiss National Bank (SNB) respects all third-party rights, in particular rights relating to works protected by copyright (information or data, wordings and depictions, to the extent that these are of an individual character).

SNB publications containing a reference to a copyright (© Swiss National Bank/SNB, Zurich/year, or similar) may, under copyright law, only be used (reproduced, used via the internet, etc.) for non-commercial purposes and provided that the source is mentioned. Their use for commercial purposes is only permitted with the prior express consent of the SNB.

General information and data published without reference to a copyright may be used without mentioning the source. To the extent that the information and data clearly derive from outside sources, the users of such information and data are obliged to respect any existing copyrights and to obtain the right of use from the relevant outside source themselves.

Limitation of liability

The SNB accepts no responsibility for any information it provides. Under no circumstances will it accept any liability for losses or damage which may result from the use of such information. This limitation of liability applies, in particular, to the topicality, accuracy, validity and availability of the information.



SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK

