

Financial Stability Report 2013

SCHWEIZERISCHE NATIONALBANK
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Financial Stability Report 2013

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Overall assessment

CHALLENGING ENVIRONMENT

Economic and financial conditions for the Swiss banking sector continue to be challenging. A number of decisions and measures taken by governments and central banks since June 2012 have relieved tensions in financial markets considerably, as reflected, for example, in risk premia on European sovereign bonds. However, this easing of tensions in the financial markets should not be overinterpreted. The structural and institutional reforms undertaken need time to take effect. Moreover, developments in the real economy to date contrast sharply with the improvement on the financial markets. Economic growth in the US has been moderate, and the euro area has remained in recession.

In Switzerland, too, economic growth has been fairly modest, owing to the weak international environment. However, overall economic conditions have remained comparatively benign. This, together with historically low interest rates, further supported the strong momentum on the mortgage and real estate markets. Against this background, the Federal Council decided in February 2013 to activate the countercyclical capital buffer, at the proposal of the SNB. This step supplemented the measures for reducing risks in the mortgage and real estate markets, which were announced in June 2012 and have since entered into force.

As regards the outlook for the economic environment over the next 12 months, the SNB is assuming that, under its baseline scenario, economic conditions will gradually improve both globally and in Switzerland. Under this scenario, the relatively healthy state of the domestic economy and the low level of interest rates mean that, despite the measures already implemented, the risk of a further build-up of imbalances on the Swiss mortgage and real estate markets remains. This would increase both the likelihood and the magnitude of a potential price correction in residential real estate in the medium term.

Given the currently challenging environment, the risk of unfavourable economic developments persists and a substantial deterioration of economic conditions over the next 12 months cannot be ruled out. For this reason, the SNB, in its assessment of the banking sector's resilience, also uses a very adverse scenario. This scenario is based on a renewed escalation of the European debt crisis. The euro area enters a deep recession, which spills over to the US and Switzerland, and weighs heavily on economic activity in the emerging markets. The international banking sector is hit by a serious crisis, further

exacerbating the economic situation. Under this scenario, prices for shares and real estate fall sharply in the majority of countries – including Switzerland.

BIG BANKS: STRENGTHENING OF RESILIENCE

Over the past year, the Swiss big banks have substantially increased their risk-weighted capital ratios. In this respect, both banks are now very well placed in an international peer comparison. At Credit Suisse, the ratio of fully implemented loss-absorbing capital¹ to risk-weighted assets (RWA) nearly doubled from 5.2% in the first quarter of 2012 to 10.0%² in the first quarter of 2013, while at UBS it rose from 7.5% to 10.3% over the same period. Under the regulations for systemically important banks in Switzerland (the 'too big to fail' regulations), as of 2019 – after the transition period expires – the big banks will be required to hold loss-absorbing capital amounting to 13% of RWA. According to their published plans on strategy and capital-building, both big banks are likely to have already met this requirement by the end of 2014.

With its capital-building last year, Credit Suisse also raised its leverage ratio considerably; UBS increased its leverage ratio moderately. The ratio of loss-absorbing capital to total exposure³ at both big banks was 2.3% at the end of the first quarter of 2013.⁴ The published plans on strategy and capital-building are likely to result in a substantial improvement in their leverage ratios by the end of 2014. This is all the more crucial since this indicator is growing in importance as a measure of banks' resilience.

Given the prevailing risks in the environment and the losses incurred in the recent financial market crisis, the SNB still considers current leverage ratios at the Swiss big banks to be low. For instance, during the recent crisis, UBS suffered losses amounting to around 2% of its total exposure.⁵ In addition, a number of comparative studies imply that the two big banks' leverage ratios are still below the international average.

The risk assessment for the big banks is based on the scenario analyses described above. Under the baseline scenario, which assumes a global improvement in economic conditions, no losses are to be expected overall. By contrast, under the adverse scenario, the loss potential for

1 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 In its quarterly report for Q1 2013, Credit Suisse published a figure of 11.0% (p. 48). In addition to fully implemented loss-absorbing capital as defined in the *Financial Stability Report*, Credit Suisse's figure also comprises securities, which FINMA advised may be included until end-2018 at the latest (p. 43).

3 Total exposure according to the Swiss 'too big to fail' regulations, which are based on Basel III, is the sum of on and off-balance-sheet positions and is comparable across banks, irrespective of their accounting standards. In the 2012 *Financial Stability Report*, this figure was not yet available, and the leverage ratio was defined as loss-absorbing capital relative to net balance sheet total.

4 In the presentation of its Q1 2013 results, Credit Suisse published a figure of 2.5% (slide 41). In addition to fully implemented loss-absorbing capital as defined in the *Financial Stability Report*, Credit Suisse's figure also comprises securities, which FINMA advised may be included until end-2018 at the latest (quarterly report for Q1 2013, p.43).

5 SNB calculations based on UBS quarterly reports.

the big banks would be substantial, owing to the size of their loan and trading portfolios. Both big banks continue to have relatively low exposures to the smaller peripheral euro area economies. However, an escalation of the euro crisis, as assumed in the adverse scenario, would trigger a European banking crisis and a deterioration in credit quality of counterparties in all European countries. In view of the Swiss big banks' significant degree of inter-connectedness with European counterparties, the loss potential on such exposures is thus to be considered substantial overall. Further significant losses under this adverse scenario would occur due to deteriorating credit quality in Switzerland and the US, as well as to the global stock market slump. Irrespective of the scenario, losses stemming from operational and legal risks cannot be excluded.

The SNB acknowledges the big banks' progress to date and recommends that they consistently and fully implement their published plans on strategy and capital-building, in order to further strengthen their resilience and, in particular, improve their leverage ratios. According to these plans, by the end of 2014, Credit Suisse and UBS are likely to have already met the risk-weighted regulatory requirements applicable from 2019 and to substantially increase their leverage ratios, each in terms of loss-absorbing capital.

Increasing the credibility of model-based risk-weighted assets

The credibility of RWA based on banks' internal models is increasingly being called into question by market participants, analysts and authorities worldwide. The SNB already addressed this topic in its previous *Financial Stability Report*. Since then, the subject of model-based RWA has attracted even more attention.

Risk-based capital requirements have the advantage that they can take into account the risks inherent in individual positions when calculating required capital. It is widely accepted that these risks can, in principle, be more accurately quantified using banks' internal models than using the standardised approach, which prescribes standardised risk weights for specific asset classes. Yet understanding individual banks' models, and comparing models between banks, is very difficult. Different internal model assumptions can result in different capital requirements for two banks with a similar asset structure. Moreover, it cannot be ruled out that models might tend to underestimate the risks.

In order for the model-based approach to prevail in the long term, the credibility of model-based RWA calculations needs to be improved. In-depth analyses need to be carried out to determine whether and to what extent the model-based approach and the standardised approach lead to differences in RWA.

Differences must be well explained and have a sound economic rationale. If the analysis does not reveal any

substantial inexplicable differences, this will 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, appropriate measures should be considered. These could, for instance, entail setting a floor for some model-based RWA, as implemented in the US by the Collins Amendment to the Dodd-Frank Act; or introducing a multiplier on model-based risk weights for specific positions, as recently imposed by FINMA for some mortgage loans. In this regard, efforts are underway at FINMA, supported by the SNB, to analyse potential differences between the two approaches.

In this context, the SNB recommends that the big banks increase transparency with regard to their risks. Specifically, this recommendation consists of three elements. First, banks should publish a quantitative assessment of their total risk. Second, they should calculate and disclose RWA according to both the model-based and the standardised approach. And third, they should increase transparency with regard to changes in RWA by publishing a breakdown of changes in RWA by their causes – as advocated in a report by a broad-based private sector initiative (the Enhanced Disclosure Task Force).⁶ These measures, some of which have already been implemented by the big banks, contribute to a better understanding of the level of and changes in RWA, thereby increasing the credibility of the model-based approach.

DOMESTICALLY FOCUSED BANKS: HIGH RESILIENCE AND CONSERVATIVE APPROACH TO RISK NEEDED

Measured against the regulatory minimum requirements in place at end-2012, average regulatory capitalisation at domestically focused banks is high, and has even improved slightly year-on-year. The ratio of Tier 1 capital to RWA has risen from 13.6% to 14.3%. However, figures on regulatory capital may overestimate the true resilience of these banks. For one thing, the growing risks in connection with the Swiss mortgage and real estate markets are only partly taken into account in the regulatory capital requirements. 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.⁷

Overall, domestically focused banks have further increased their already high exposure to a combination of price corrections on the real estate market and rising interest rates. This is evidenced by the renewed narrowing of

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

7 Under art. 45 of the Ordinance on Capital and Risk Diversification for Banks and Securities Dealers (Capital Adequacy Ordinance), FINMA may impose additional capital requirements. Alongside size and complexity, which determine the general level of the additional capital buffer stipulated in FINMA Circular 2011/2, FINMA also makes explicit provision for individually tailored additional requirements, for example if an institution exhibits a high concentration of risk, or specific refinancing and liquidity risks. As a general rule, individual capital buffer requirements, which take account of the importance of a bank for the Swiss economy and the special risks posed by that bank, make sense from a financial stability perspective.

interest rate margins and the ongoing high level of interest rate risk in the banking book. For this last factor, there are indications that the assumptions applied by the banks with regard to repricing maturities for customer deposits could result in the actual level of risk being underestimated (cf. chapter 3). The growth in mortgage lending – which has remained unsustainably high despite decreasing significantly compared to 2011 – as well as banks' persistently high risk appetite in lending also point to an increase in exposure, as mentioned above. For example, the proportion of new loans with a high loan-to-value (LTV) ratio or stretched affordability remains considerable.

Under the adverse scenario, domestically focused banks would probably face substantial losses on both mortgages and corporate loans. The SNB estimates that, thanks to the capital surpluses currently maintained by banks, the cumulative market share of banks falling below the regulatory minimum would be relatively small, however. Nevertheless, the losses would use up most of the domestically focused banks' capital surpluses, thus weakening the banking sector as a whole. Experience shows that such situations can pose a challenge for financial stability and curtail banks' lending activity, which in turn would have serious repercussions for the economy.

Alongside the adverse scenario, there is the risk that, despite the measures taken to reduce risks in the Swiss mortgage and real estate markets,⁸ imbalances will continue to build up in the medium term. This would increase both the likelihood and the consequences of a price correction. A decline in real estate prices to the extent experienced in the 1990s – triggered, for example, by a sharp increase in interest rates – would result in considerable losses for domestically focused banks, with a correspondingly negative impact on the real economy.

Given these risks, the SNB welcomes the fact that most banks already meet FINMA's additional buffer requirements, which go beyond Basel III. Going forward, domestically focused banks should continue to ensure that their resilience is sufficiently high to absorb potential losses from the risks assumed, irrespective of the regulatory requirements. In particular, domestically focused banks should make sure that the currently high direct interest rate risk is assessed and managed using conservative assumptions. In an environment in which the historically narrow interest rate margins are curtailing banks' ability to use current earnings to absorb credit and interest rate risk-related losses, this recommendation is all the more important.

In addition, domestically focused commercial banks should exercise greater caution in residential mortgage lending. This is important, on the one hand, for the banks themselves, to reduce their loss potential in view of the

prevailing risks in this market. On the other, it would help to counter a further build-up of these risks. As a precaution, therefore, when determining and applying their lending criteria with respect to LTV ratios, banks should bear in mind that there are already signs that the level of real estate prices is unsustainably high. Moreover, when assessing the affordability for their borrowers, banks should be aware that mortgage rates can rise rapidly. In the past, mortgage rates have been above their long-term average of almost 5% for long periods.

From a financial stability perspective, in the event of a further build-up of risks in the Swiss mortgage and real estate markets, it might prove necessary to take further regulatory measures. The SNB, for its part, will regularly assess whether an adjustment of the countercyclical capital buffer is required.

⁸ These measures include stricter capital requirements for high-LTV mortgage loans, the revision of the self-regulation rules for mortgage lending, and the activation of the countercyclical capital buffer.

2 Key risks to the Swiss banking system

Overall economic and financial conditions for the Swiss banking sector remain challenging. While the situation on global financial markets has eased substantially, progress has been slower in terms of real economic growth (cf. chart 1) and the implementation of necessary institutional and structural reforms. The contrast between real and financial developments casts some doubt on the sustainability of the recent upswing in financial markets, which has been triggered by important policy measures, notably in the euro area. These measures include the European Central Bank's (ECB) commitment to conditional purchases of short-term sovereign bonds (Outright Monetary Transactions programme) and an agreement on a more unified EU banking policy. Despite the progress achieved so far, many of the imbalances that contributed to financial stress in the first half of 2012 persist, making the global economy vulnerable to changes in investors' risk perception and increases in market volatility. In this context, the combination of poor growth prospects and fiscal imbalances in the euro area remains of particular concern. Meanwhile, long-term interest rates are at historically low levels. The concurrent re-emergence of risk appetite has led investors to search for higher yielding assets, such as high-yield corporate and emerging market bonds. This development bears risks, as historical experience indicates that long-term interest rate rebounds can occur unexpectedly and entail a repricing of risky assets.

CREDIT RISK

Reduced credit risk premia in sovereign and corporate bond markets stand in contrast to the continued weakness of fundamental credit quality indicators, particularly in Europe. In countries with sluggish economic growth, household credit quality has deteriorated.

As a result of various policy measures, *sovereign* risk premia in the euro area have declined substantially since summer 2012 (cf. chart 2). CDS premia on Italian and Spanish bonds, for example, have fallen back to levels last seen in early 2011. Economies with high levels of public debt, however, remain vulnerable to changes in market confidence. The weak growth environment complicates fiscal consolidation plans, and doubts about debt sustainability may re-emerge. In Japan, the UK and the US, CDS premia on sovereign debt have remained low, despite public debt levels similar to or above those of euro area countries in distress. In the US, Congress was able to avoid a large fiscal contraction ('fiscal cliff') at the end of 2012. Yet, due to difficult ongoing budget negotiations, uncertainty persists about the medium-term fiscal strategy for reducing high public debt levels.

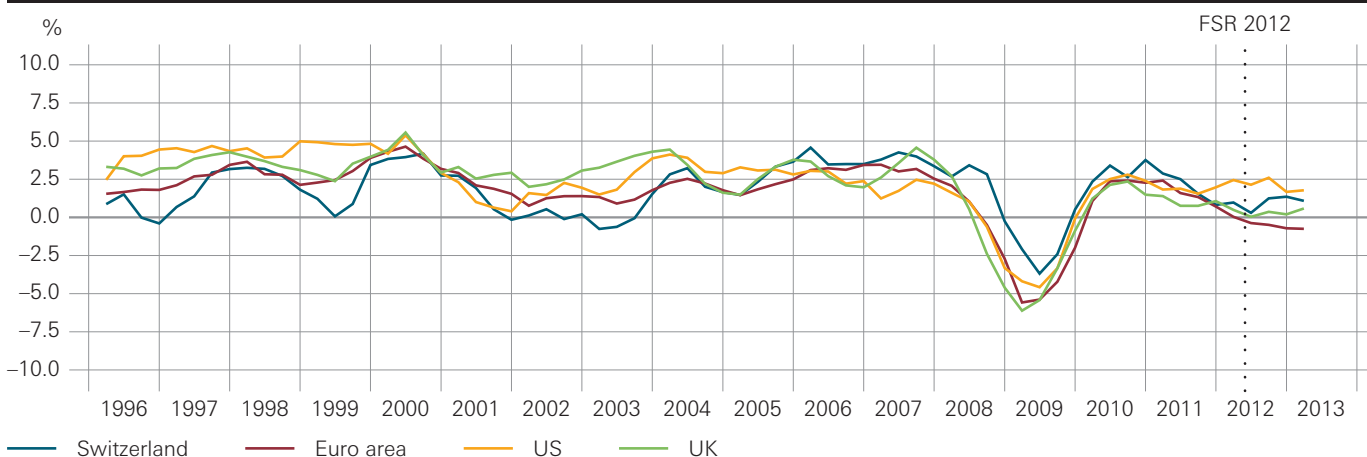
Corporate credit quality in Europe has suffered from the weak growth environment, as reflected in the high ratio of rating downgrades to upgrades (cf. chart 3). Write-off rates on corporate debt in the euro area as a whole have also risen, with non-performing loan data indicating substantial variation across member states. Nonetheless, corporate spreads in the euro area have declined (cf. chart 4). In the light of the weak credit quality indicators, this decline was probably driven by falling sovereign interest rates in southern member states¹ and a search for yield.

¹ In markets' assessment of corporate credit quality, the credit quality of the respective sovereign is an important factor. Therefore, a decline in perceived sovereign credit risk generally leads to a decline in perceived corporate credit risk, and consequently to a narrowing of the spread between yields on corporate bonds and risk-free sovereign bonds (approximated by Germany).

GDP GROWTH

Year-on-year real GDP growth rates

Chart 1



Source: SNB

In the US, signs of an improvement in corporate credit quality dominate. Over the last 12 months, corporate spreads have declined and delinquency rates on corporate debt have fallen (cf. chart 5). Although the ratio of rating downgrades to upgrades has increased slightly, it remains at a historically low level.

In Switzerland, the fairly modest economic momentum since the beginning of 2011 has so far had little effect on corporate credit quality, with corporate defaults and bond spreads remaining largely unchanged over the past 12 months. Nevertheless, recent developments in credit ratings (Moody's and SBI Composite Rating) for listed Swiss companies suggest a slight decline in corporate credit quality.

High and rising unemployment as well as falling real estate prices have weighed on the credit quality of *households* in many European countries. While write-offs on household loans for the euro area as a whole have

been stable since the 2012 *Financial Stability Report*, ECB analysis indicates that this might partially reflect forbearance of banks, in which case the clean-up of banks' balance sheets might be delayed to some extent.²

Household credit quality in the US has improved slightly over the last 12 months, on the back of better conditions in the labour and housing markets. Delinquency rates on consumer loans have fallen substantially and are now back at pre-crisis levels. Unemployment, however, persists at a high level. Accordingly, despite the recent fall, delinquency rates on real estate loans remain considerably above historical averages.

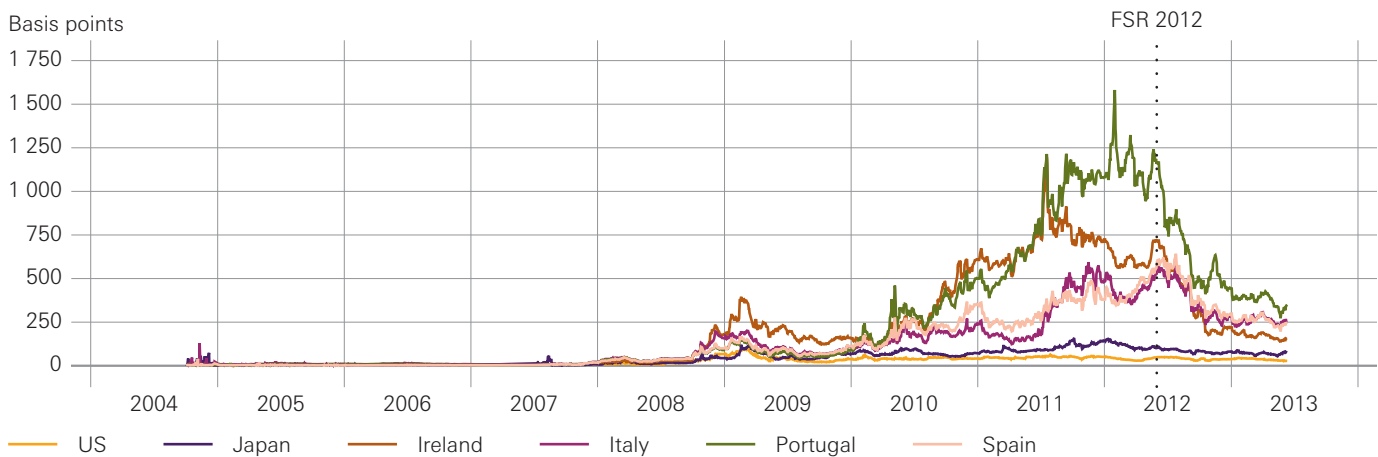
According to backward-looking indicators, household credit quality in Switzerland has remained strong in an international comparison, but has slightly deteriorated

² ECB *Financial Stability Review*, May 2013, p. 63.

SOVEREIGN CREDIT DEFAULT SWAP PREMIA

Premia for credit protection (five-year senior)

Chart 2

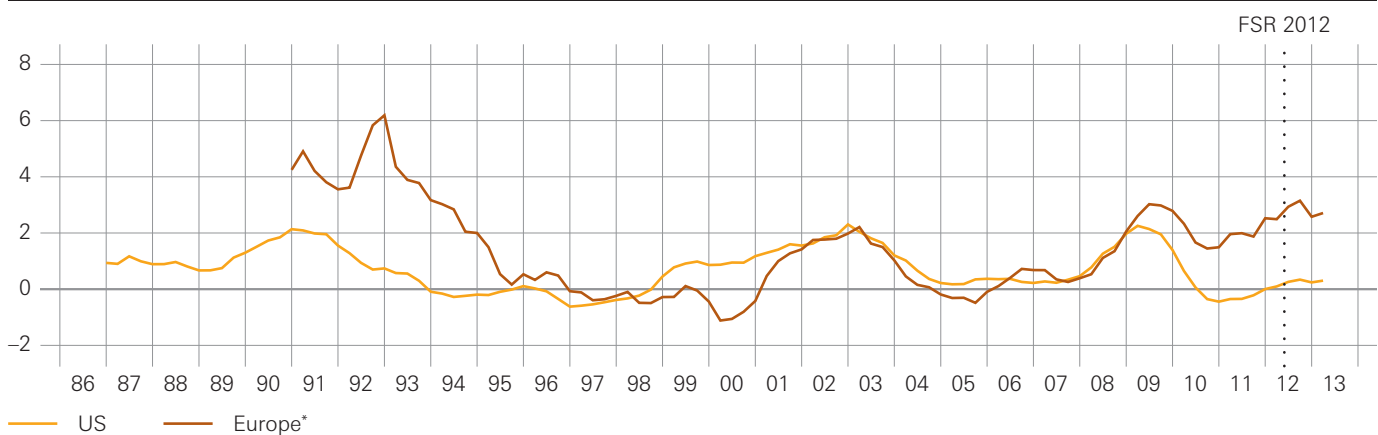


Source: Bloomberg

RATING DOWNGRADE-TO-UPGRADE RATIO

Moving average over four quarters, logarithmic scale with base 2

Chart 3



Source: Moody's

*EU-17 countries plus Switzerland, Norway and Iceland.

over the last 12 months. Private insolvencies have risen, in line with weaker labour market conditions. Moreover, owing to strong mortgage credit growth, households' overall indebtedness has increased, which raises the vulnerability of the household sector to adverse macroeconomic shocks.

REAL ESTATE MARKETS

Corrections of housing imbalances are at different stages in Europe and the US. In Europe, house prices are still relatively high compared to rents, particularly in France, Spain and the UK (cf. chart 6).³ In the US, meanwhile, price corrections seem to have eliminated imbalances. In 2012, the US real estate market showed signs of recovery, with prices rising since then.

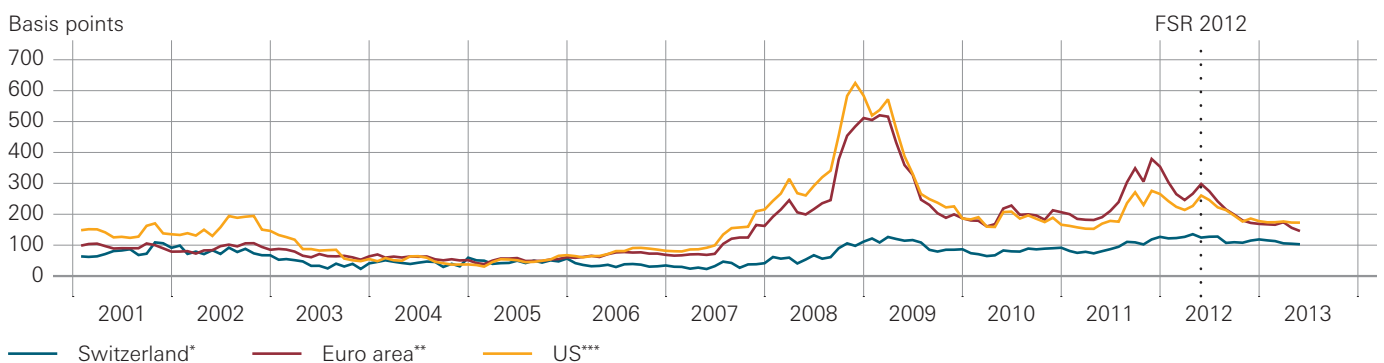
In Switzerland, a strong dynamic has prevailed in the residential real estate market over the past several years. In the context of historically low interest rates, apartment and single-family house price growth has been persistently stronger than what can be explained by fundamental factors, such as income and population growth. Countrywide imbalances in the apartment segment – already highlighted in the 2012 *Financial Stability Report* – have continued to develop. The risk of a significant price correction in the Swiss residential real estate market has therefore increased.

³ 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.

BOND SPREADS

Yield spread between corporate and government bonds

Chart 4



Sources: SNB, Thomson Datastream

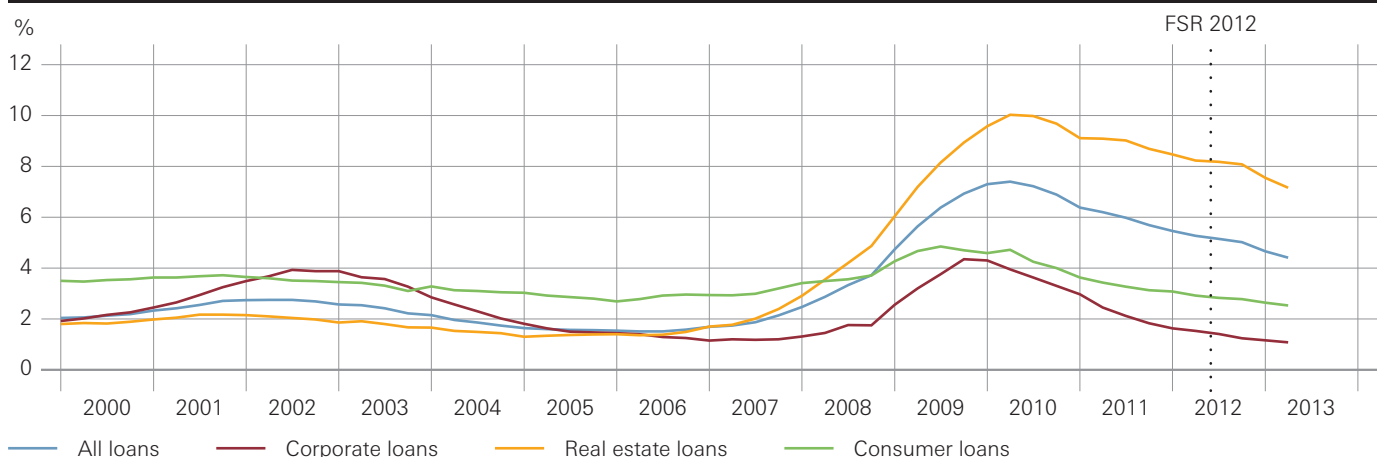
* Switzerland: Yields (spot rates) for Swiss investment grade corporate bonds and for Swiss Confederation bonds (10 year maturity), calculated by the SNB.

** Euro area: Euro-Aggregate Corporate (investment grade, 7–10 year maturity, EUR-denominated) and German Government (7–10 year maturity), Bank of America Merrill Lynch.

***United States: US Corporate (investment grade, 7–10 year maturity, USD-denominated) and US Treasury (7–10 year maturity), Bank of America Merrill Lynch.

US DELINQUENCY RATES

Chart 5



Source: Federal Reserve

MARKET RISK

Stock market volatility has decreased over the past 12 months (cf. chart 7). Policy measures have calmed financial markets and led to a decline in implied volatility measures such as the VIX index, which in March fell to its lowest level since the beginning of the crisis.

In the light of lower volatility in financial markets and low interest rates, global stock markets have rallied. In the US and the UK, share prices have already climbed back to their 2007 levels, although in other markets they remain below their pre-crisis highs. Despite the recent increases, ratios of share prices to long-term earnings do not indicate an overvaluation, with current values still below the average of the last 30 years (cf. chart 8).⁴ The assessment,

⁴ The reference period in the chart is approximately the last 30 years for advanced economies and 20 years for emerging markets.

however, depends on the time horizon considered: Long-term data for the US which cover more than 100 years indicate that current price/earnings ratios are above their historical average.

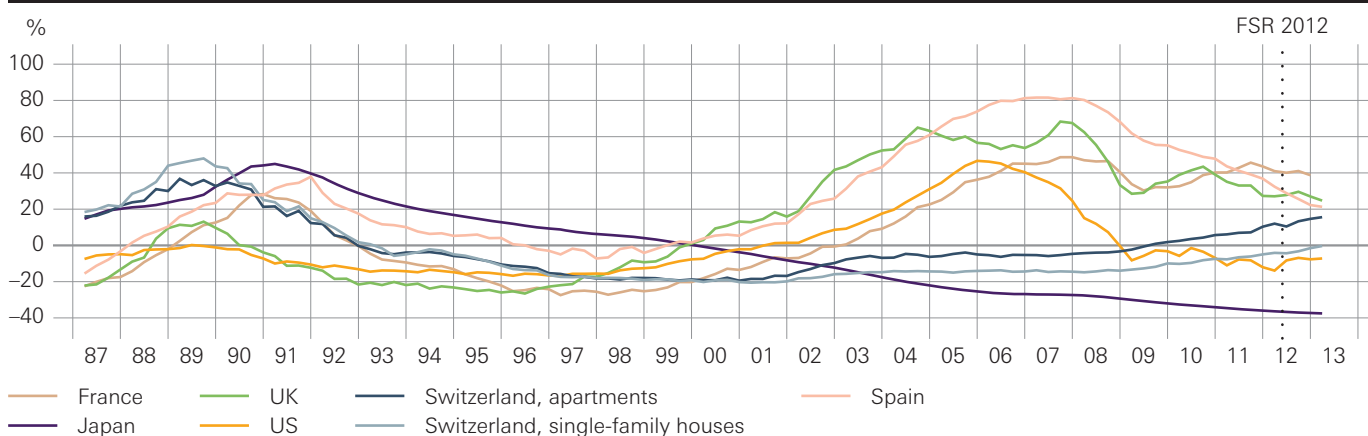
The recent decrease in volatility and the associated stock market rally should be interpreted with care. Some of the fundamental uncertainties regarding fiscal consolidation strategies and euro area reforms, which contributed to the previous rise in market volatility and fall in share prices, remain. Investors' perceptions of uncertainty can change quickly and provoke a renewed increase in market risk. Furthermore, a normalisation of interest rate levels could also negatively affect share prices.

FUNDING CONDITIONS

In a tense environment, policy measures have eased funding conditions in the last 12 months. The markets' perception of interbank counterparty risk has improved,

PRICE-TO-RENT RATIO: DEVIATION FROM AVERAGE*

Chart 6

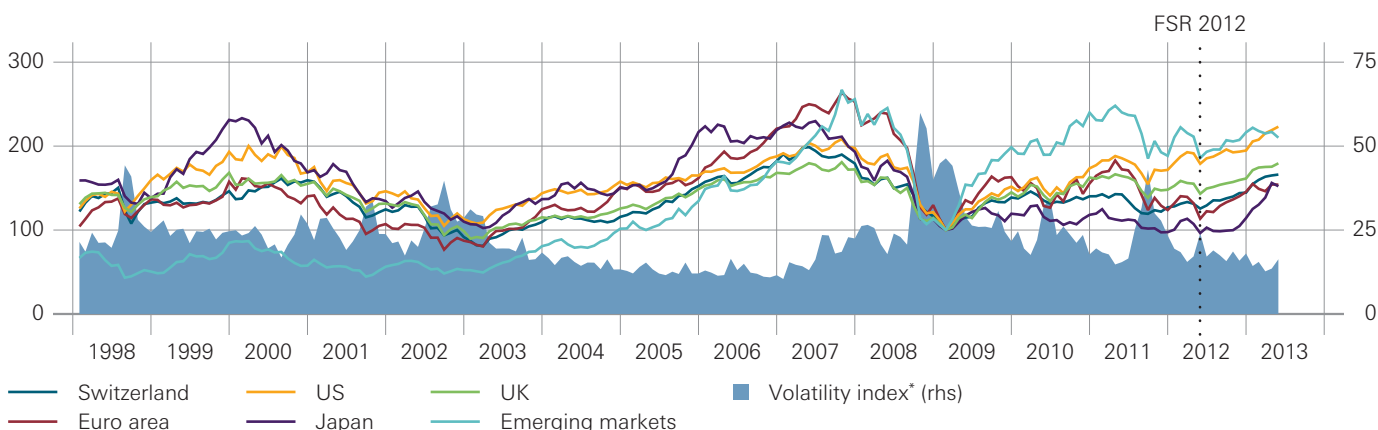


Sources: BIS, OECD, Thomson Datastream, SFSO, Wüest & Partner
*The average is calculated over the period 1970 to 2013, or over the period for which data are available.

STOCK MARKET INDICES

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

Chart 7



Source: Thomson 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.

leading to a decline in bank CDS premia. Accordingly, conditions in unsecured funding have also improved, as indicated by narrowing Libor-OIS spreads (cf. chart 9). Furthermore, better access to market liquidity enabled banks to repay part of the liquidity from the ECB's three-year longer-term refinancing operations (LTRO) in the first half of 2013. The ECB reported that over one-quarter of the gross financing raised through LTROs had been repaid, with some banks repaying in full, and attributed this to increased confidence.⁵

Despite the easing observed in funding markets, the situation remains fragile. Notwithstanding recent reductions, banks are still holding large amounts of sovereign bonds from southern member states, making them vulnerable to fiscal tensions. Given this close

link between sovereigns and banks, a renewed escalation of the sovereign debt crisis could quickly translate into stress on interbank markets.

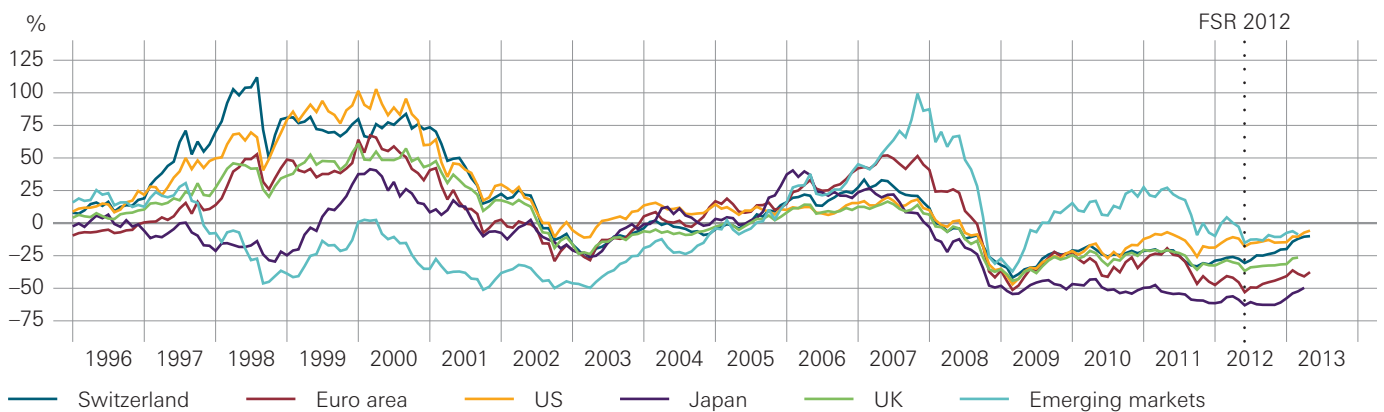
INTEREST RATES

Interest rates have generally declined or remained at historically low levels over the last 12 months. In the euro area, the UK and the US, short-term interest rates decreased even further in the second half of 2012, as a result of expansionary monetary policy. In euro area countries with sovereign debt problems, long-term interest rates fell from their peaks in the second half of 2012. Given the expansionary monetary policy measures and high demand for safe assets, long-term interest rates have remained low in highly rated advanced economies, such as Germany, the US and Switzerland (cf. chart 10). As regards the US, research by the International Monetary Fund (IMF) has found long-term interest rates well below fundamentals – explaining the phenomenon through safe-haven flows –

5 ECB Financial Stability Review, May 2013, p. 36.

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

Chart 8



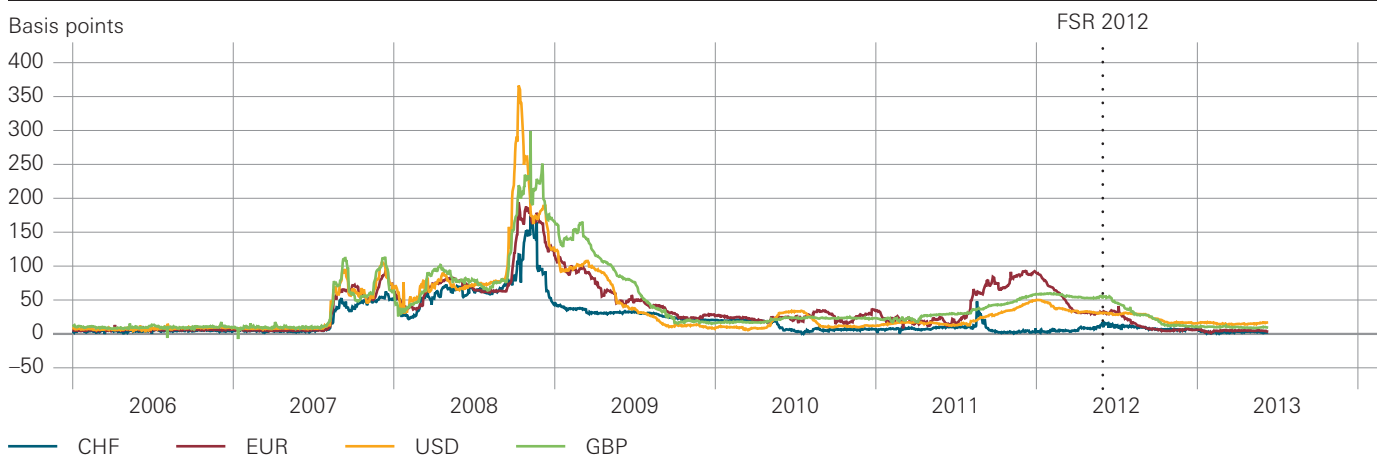
Source: Thomson Datastream

*The average of earnings is calculated using a 10-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.

LIBOR-OIS SPREADS

Spreads between three-month Libor and three-month overnight indexed swap rates

Chart 9



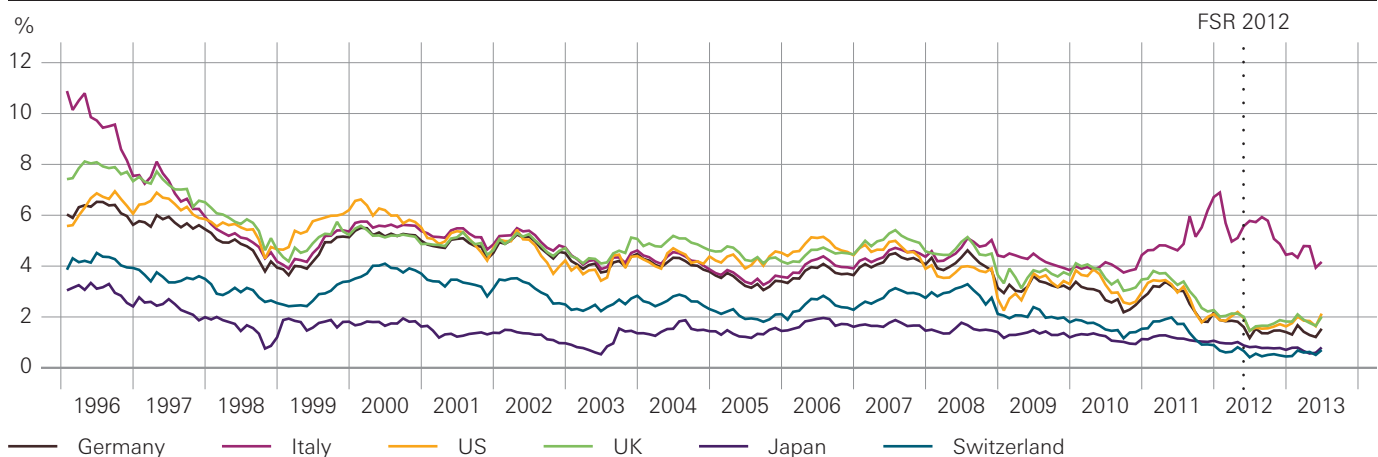
Sources: Bloomberg, Reuters

as well as higher private sector savings in the context of deleveraging.⁶ In the medium term, as economic conditions improve and monetary policy becomes less accommodative, interest rates should revert to higher levels. Historical experience shows that interest rates can normalise rapidly and unexpectedly. In 1994, for example, US long-term interest rates increased by more than 200 basis points in less than a year. Moreover, interest rates may significantly overshoot long-term averages during the normalisation process.

6 IMF *Global Financial Stability Report*, October 2012, p. 45.

LONG-TERM INTEREST RATES: 10-YEAR GOVERNMENT BONDS

Chart 10



Source: Thomson Datastream

3

Scenarios, exposures and impact on banks

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.

In view of the risk factors discussed in chapter 2, we present two scenarios for developments in the economic environment and in financial market conditions, and examine the impact of these scenarios on the Swiss banking sector with regard to the related loss potential. Given the current environment, the baseline scenario reflects the most likely outcome over the next 12 months (cf. section 3.1). By contrast, the adverse scenario describes highly unfavourable yet possible developments (cf. section 3.2). As an addition to the baseline scenario, we examine medium-term risks – extending beyond the scenario's 12-month horizon – in connection with the growing imbalances on the Swiss mortgage and real estate markets (cf. section 3.3).

From a financial stability perspective, it is essential that banks hold sufficient capital to absorb potential losses resulting from their activities, even under a highly unfavourable scenario. The associated assessment of banks' resilience is presented in chapter 4.

3.1 NO SIGNIFICANT LOSSES EXPECTED UNDER BASELINE SCENARIO

Under the baseline scenario, economic conditions for the Swiss banking sector improve over the next 12 months. The global economy recovers and economic growth in Switzerland is fairly robust. The risk of a further build-up of imbalances on the Swiss mortgage and real estate markets persists (cf. section 3.3).

In the euro area, a further escalation of the debt crisis is avoided. However, in the context of ongoing fiscal consolidation efforts and slow progress in the resolution of structural problems, business and household confidence remains subdued. The economy experiences a moderate recovery, and monetary policy remains accommodative. The pace of recovery differs significantly across member states. In Germany, activity picks up and credit quality remains stable. In the southern member states, meanwhile, the recovery remains comparatively sluggish.

In the US, the economic recovery continues and strengthens somewhat as fiscal drag fades. However, with

unemployment declining only slowly from its currently elevated levels, monetary policy remains very accommodative. Real estate prices continue to rise moderately. Credit quality improves gradually.

In most emerging markets, economic activity continues to recover from the recent slowdown. Sovereign and corporate spreads remain low.

In Switzerland, economic growth strengthens. In addition to domestic demand, the economy is also increasingly supported by recovering foreign demand. As a result, the rise in unemployment slows to a halt. Credit quality stabilises and remains at a comparatively high level. In the context of historically low interest rates and strong competition in the banking sector, the risk of a further build-up of imbalances on the Swiss mortgage and real estate markets persists. Should the strong dynamic of the past several years continue, countrywide imbalances would develop further and spread to all segments of the residential property market, thereby increasing the risk of large price corrections in the medium term.

Under the baseline scenario, the SNB considers that the loss potential related to economic and financial market developments for Swiss banks over the next 12 months is not significant. Based on the assumptions made regarding developments in the economic environment and in financial market conditions, neither loan nor trading portfolios are likely to suffer substantial losses. This does not rule out the possibility, however, that operational and legal risks could materialise for some banks.

3.2 SUBSTANTIAL LOSS POTENTIAL UNDER ADVERSE SCENARIO

Under the adverse scenario, economic and financial conditions for the Swiss banking sector deteriorate sharply. The European debt crisis escalates and causes widespread financial stress. A severe recession originates in the euro area and spills over to Switzerland, the US and emerging markets. The global monetary policy stance eases further.

In the euro area, activity continues to weaken and a number of member states miss their deficit targets. They have to take additional austerity measures and are forced to seek further assistance. Confidence plunges and the deep recession which originated in the southern member states spreads across the euro area. In the euro area banking system, stress rises considerably and banks deleverage by cutting credits to households and corporates. This further impairs growth, pushes up unemployment, and leads to a renewed rise in the rate of household and corporate defaults. Share prices and real estate prices fall sharply.

Stress in the European banking sector and financial markets also spills over to the US, leading to a drop in share prices and a rise in corporate spreads. This puts US banks under deleveraging pressure. As banks cut credits to households and corporates, the US economy enters a recession and real estate prices drop. Credit quality deteriorates considerably.

The crisis spills over to emerging markets via significant capital outflows and a slump in international trade. As a consequence, these markets also experience a fall in share prices and a rise in sovereign and corporate spreads.

The collapse in foreign demand drags the Swiss economy into recession. Rising unemployment and declining confidence pull down domestic demand. As risk appetite vanishes and demand for real estate weakens, share and real estate prices fall. The rate of household and corporate defaults soars.

Both domestically focused banks and big banks would suffer substantial losses under the adverse scenario. These losses could accrue over several years – especially losses on loan portfolios. The following sections discuss the asset classes that would be particularly affected under the adverse scenario and would therefore be likely to incur losses.

BIG BANKS

The loss potential for Switzerland's two big banks is substantial under the adverse scenario. It stems primarily from write-downs and losses on exposures to European counterparties, loans in Switzerland and the US, as well as positions in equities. In addition, operational risk could materialise under the adverse scenario, too.

The assessment of loss potential described here is based on an inventory of banks' risk exposures, and on various analyses of these exposures' sensitivity to shocks as defined under the scenario. The results are described in qualitative terms, which takes into account, in particular, the fact that risk exposures and sensitivities can be measured in a number of different ways and that the size of hedged net positions is often not public information. In addition, there are restrictions imposed by confidentiality considerations.

Neither big bank publishes scenario-based estimates of loss potential. However, Credit Suisse reports total position risk as a statistical measure; at end-March 2013, this was CHF 20.7 billion, or CHF 24.6 billion if operational risk is included.¹ As in the past, UBS does not publish any internal measure of total risk.

1 Source: Quarterly report for Q1 2013. 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 scenario described in this report.

Escalation of euro crisis as source of largest loss potential under adverse scenario

The big banks have relatively low exposures to the smaller peripheral euro area economies. An escalation of the euro crisis as depicted in the adverse scenario would therefore be likely to result in no more than moderate direct losses.² It would, however, trigger a European banking crisis and a deterioration in credit quality of counterparties in all European countries. As Switzerland's big banks are strongly interconnected with European counterparties, the indirect loss potential could be substantial, depending on the effectiveness of hedging. The big banks have outstanding gross claims against European counterparties totalling around CHF 383 billion, equivalent to about 30% of their total outstanding gross foreign claims. At least 40% of these claims are secured.³

Substantial loss potential on loans in Switzerland ...

The deterioration of credit quality in Switzerland under the adverse scenario leads to a substantial loss potential for the country's big banks owing to write-downs and credit defaults. At the end of 2012, the big banks had loans outstanding against domestic clients totalling CHF 300 billion, CHF 249 billion of which were in the form of mortgage loans.⁴ Almost half of these mortgage loans are linked to real estate in cantons with particularly marked signs of imbalances on the real estate market. Yet the regional diversification of their mortgage portfolios is well above the average for the rest of the Swiss banks.

... and on loans in the US

The deterioration of credit quality in the US as described in the adverse scenario would lead to a substantial loss potential for the big banks in connection with both mortgage-backed securities and corporate loans. The big banks would have to make write-downs on their mortgage-backed securities, since these investments would 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 15% of its total position risk.⁵ Moreover, the global recession outlined in the adverse scenario would lead to an increase in write-downs on US corporate loans, and therefore to losses for the big banks. At the end of 2012, the big banks had unsecured claims outstanding against the private sector (excluding banks) totalling around CHF 150 billion.⁶

2 Source: Quarterly reports for Q1 2013. Gross claims of Credit Suisse and UBS amounted to CHF 4.6 billion and CHF 3.7 billion, respectively, against Spain; CHF 4.5 billion and CHF 1.3 billion against Ireland; CHF 0.5 billion and CHF 0.2 billion against Portugal; and CHF 1.0 billion and CHF 0.1 billion against Greece. These gross claims comprise all sectors, including sovereigns and banks.

3 Source: SNB. Figures at end-2012. Hedging based on derivatives is not included in these statistics. Unsecured claims may include trading and other liquid assets with comparatively low risk.

4 Source: SNB.

5 Source: Quarterly report for Q1 2013. Since Credit Suisse does not disclose any breakdown of position risk based on a confidence interval of 99.97%, to which the discussion of the total loss potential refers, the breakdown of position risk published by Credit Suisse based on a confidence interval of 99% is used here.

6 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.

Substantial loss potential on equities

The sharp decrease in share prices around the world described in the adverse scenario could lead to substantial losses, depending on the effectiveness of hedging. At end-March 2013, the big banks' gross trading portfolios in equities were large, amounting to CHF 85 billion at Credit Suisse and CHF 54 billion at UBS.⁷ These holdings are partly used as hedging instruments for derivatives positions. As an indication of loss potential, Credit Suisse reports a position risk for equities of about 15% of its total position risk.⁸

DOMESTICALLY FOCUSED COMMERCIAL BANKS

Under the adverse scenario, losses by domestically focused commercial banks would stem almost exclusively from the lending business. Write-downs on both mortgage loans and corporate loans would be substantial.

Increase in write-downs on corporate lending

Due to the deep recession extending over several quarters assumed in the adverse scenario, a sharp increase in write-downs on corporate lending would be expected. As a result, banks would scale back their lending activity. At the end of 2012, loans from domestically focused banks to corporations (excluding mortgages) amounted to around CHF 65 billion, with over 90% of these loans being granted to firms based in Switzerland.

Substantial loss potential on mortgage lending

Under the adverse scenario, with the severe economic downturn and the correction of real estate prices, both default rates and loss given default on domestic mortgage loans would rise. According to historical experience, write-downs would increase, mainly driven by the significant rise in unemployment and the consequent increase in household defaults, and would remain high over several years. Banks whose mortgage portfolios focus heavily on regions showing particularly pronounced signs of overvaluation in the residential property segment would be especially hard hit. In addition, as the situation for companies worsens, the default rates on mortgages to finance commercial real estate would rise. As experience from the last crisis shows, the resulting losses could be considerable. Mortgage loans constitute the largest component of domestically focused banks' balance sheets. Aggregated over all domestically focused banks, they amount to around CHF 565 billion, which is equivalent to approximately two-thirds of these banks' balance sheet totals.

Limited loss potential on trading positions

Owing to low exposures, the loss potential on trading positions would be limited for most banks. Trading portfolios aggregated over all domestically focused commercial banks amounted to around CHF 17 billion at end-2012, which is equivalent to approximately 2% of these banks' balance sheet totals. On average, risk-weighted assets for market risk made up 2.5% of total risk-weighted assets at the end of the same year.

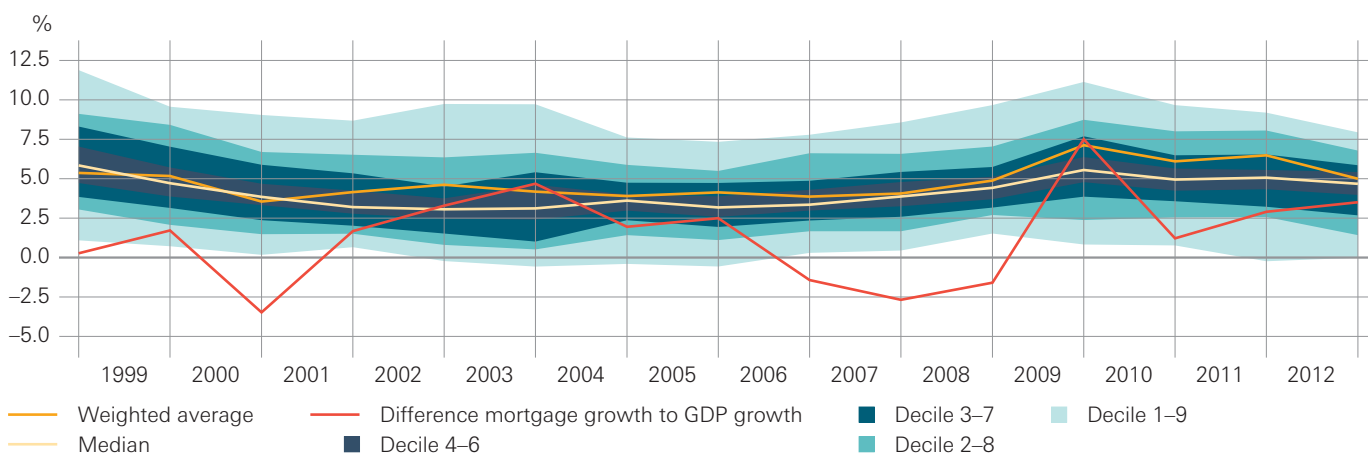
⁷ Source: Quarterly reports for Q1 2013.

⁸ Source: Quarterly report for Q1 2013.

DOMESTIC MORTGAGE GROWTH

Annual nominal growth rates, deciles of domestically focused commercial banks

Chart 11



Source: SNB

3.3 MEDIUM-TERM RISKS OF FURTHER BUILD-UP OF IMBALANCES ON SWISS MORTGAGE AND REAL ESTATE MARKETS

In an environment of historically low interest rates, there is the risk that, despite the measures taken to reduce risks in the Swiss mortgage and real estate markets,⁹ imbalances will continue to build up beyond the baseline scenario.

The greater the imbalances, the greater the likelihood of a substantial price correction, triggered for instance by a rapid normalisation of interest rates. The further prices move away from fundamental values and the greater the magnitude of any possible interest rate rise, the larger the potential price correction and increase in borrower defaults. Lower collateralisation and higher default rates would lead to a sharp increase in losses on mortgage lending for both domestically focused commercial banks and big banks. However, due to their activities being centred on the mortgage market, domestically focused banks would be more severely affected. What is more, the net earnings situation of these banks would be impaired, were the high direct interest rate risk to materialise. Overall, domestically focused banks would accrue substantial losses.

The following factors indicate that domestically focused banks are highly exposed to the combined risk of price corrections in the real estate market and rising interest rates, and that their exposure has increased further since the last *Financial Stability Report*.

Further significant growth in mortgage claims

The exposure of domestically focused commercial banks to the Swiss mortgage market continued to grow in 2012, as a result of the still significant volume growth in mortgage lending and the increase in average risk density of new loans.

The volume of domestically focused banks' outstanding mortgage claims increased again significantly (+5%) in 2012, despite a marked decline in growth rates year-on-year. Due to the large market share of these banks in the mortgage business (approximately 65%) and the subdued growth of the Swiss economy, this has led to a renewed strong increase in the ratio of mortgage loans to GDP. The rising leverage is making households more vulnerable to negative macroeconomic shocks. Combined with prices that increasingly lie above the level justified by fundamentals, this means that, even though banks do not appear to have relaxed their lending conditions on average (cf. below), new mortgage claims are becoming more risky.

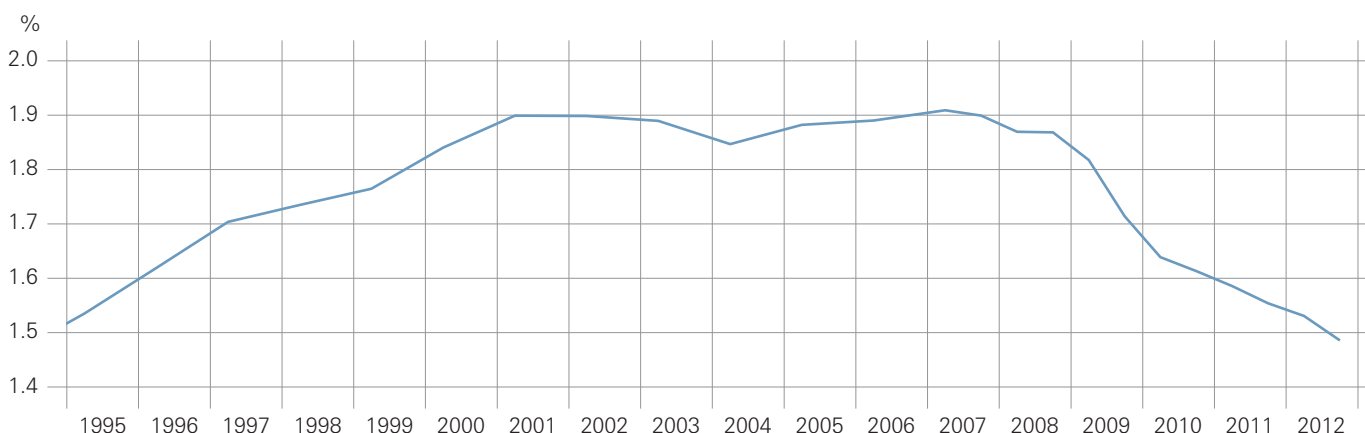
From a financial stability perspective, a positive development is that some larger domestically focused banks have significantly slowed their growth compared to last year. This can be seen in the convergence of the weighted average and median in chart 11. Differences in growth rates across banks remain considerable, however. Excluding banks below the first and above the ninth deciles, in 2012 domestically focused banks reported growth rates between 0.0% (2011: -0.2%) and 7.9% (2011: 9.2%).

⁹ These measures include stricter capital requirements for high-LTV mortgage loans, the revision of the self-regulation rules for mortgage lending, and the activation of the countercyclical capital buffer.

INTEREST RATE MARGIN

Weighted average of domestically focused commercial banks

Chart 12



Sources: FINMA, SNB

Persistently high risk appetite in lending

According to the SNB's mortgage lending survey,¹⁰ the proportion of new loans with a high loan-to-value (LTV) ratio or stretched affordability remained almost unchanged from the previous year. Although the risk of a price correction has increased, about 20% of new mortgages granted for owner-occupied residential property have an LTV ratio of over 80%, computed on a gross basis.¹¹ This figure decreases to around 15% when taking into account additional collateral such as the pledging of pension fund savings (net perspective).¹² For new mortgages granted to commercial borrowers for residential investment property, some 20% have an LTV ratio of over 80%, while for residential investment property held by private individuals the share is just under 15%. This latter figure has decreased slightly year-on-year.

With regard to affordability as measured by the loan-to-income (LTI) ratio, the survey shows that in the case of approximately 40% of new mortgages granted for the financing of owner-occupied residential property, the imputed costs would exceed one-third of gross income from employment or pension income at an interest rate of 5%.¹³ For 15% of new mortgages in this segment, the

threshold would be breached at an interest rate of just 3%.¹⁴ Similarly high levels of affordability risk can be observed for residential investment properties held by private individuals, and slightly lower levels for those held by commercial borrowers. At an interest rate of 5% or 3%, respectively, the imputed costs would no longer be covered by net rents for one-third or nearly 10% of the new mortgage volume for residential investment property held by commercial borrowers.

As the SNB's survey comprises only new lending,¹⁵ the results are not indicative of the share of outstanding loans with a high LTV or stretched affordability. However, as a volume corresponding to around 10% of holdings is newly issued each year, a continuation of current LTV and LTI policies for new loans would impact significantly on the credit quality of all outstanding loans in the medium term.

Further narrowing of interest rate margins

In 2012, the average interest rate margin on outstanding loans of domestically focused commercial banks went down by another 6 basis points. It has declined by slightly more than 40 basis points or one-fifth since 2007 (cf. chart 12).¹⁶ At the same time, interest rate risk has risen sharply. Combined, these developments point to increased

10 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 (2012: CHF 31 billion) and residential investment property held by commercial borrowers (CHF 8 billion) or private individuals (CHF 11 billion).

11 The 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 the LTVs based on internal bank mortgage lending values.

12 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.

13 The imputed costs used for this estimate comprise the imputed interest rate (5% or 3%) plus the maintenance and amortisation costs (1% each). The average mortgage rate over the last 50 years is almost 5%.

14 When interpreting these figures, it should be borne in mind that they are based on a standardised definition of income which only uses the borrower's income from 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 according to this definition by 15–20%; however, differences between the 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.

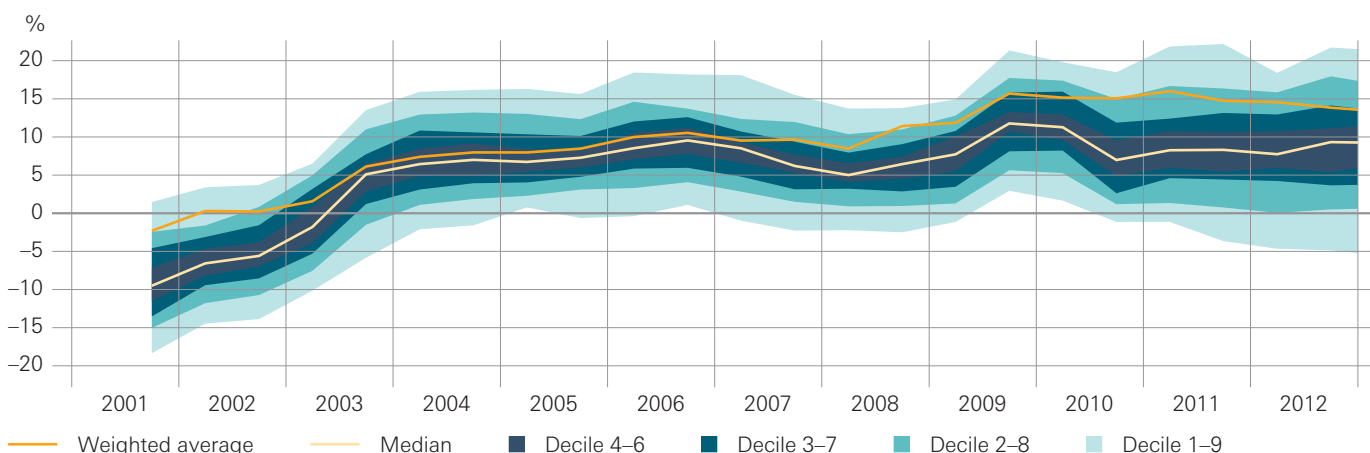
15 For the purpose of the survey, new lending comprises both refinancing of an existing mortgage from another lender and newly granted loans for the purchase or construction of real estate.

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

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 13



Sources: FINMA, SNB

competition among banks. While competition is an important prerequisite for a market economy to function efficiently, pressure on interest rate margins can restrict the ability of banks to cover expected future losses from credit and interest rate risk out of current earnings.

High and possibly underestimated 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 value¹⁷ of assets more substantially than the present value of liabilities.

According to the interest rate risk measure¹⁸ shown in chart 13, the interest rate risk in the banking books of domestically focused commercial banks has fallen slightly, from a high level, since the end of 2011. 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 13.3% of their Tier 1 capital (2011: 14.6%).¹⁹ The variation in interest rate risk among these banks is still considerable. Excluding banks below the first and above the ninth deciles, the impact ranges from an increase in net present value of 5.6% of their Tier 1 capital (2011: 4.7%) to a decline of 21.3% (2011: 18.4%). As in 2011, larger domestically focused banks generally have higher interest rate risk than smaller ones, as can be seen

in chart 13 from the weighted average, which lies above the median.

In this context, it is important to stress that the measurement of interest rate risk is subject to uncertainty. The measure shown in chart 13 could underestimate the actual level of interest rate risk in the current low interest rate environment. For positions with repricing maturities that are not contractually defined,²⁰ the interest rate risk measure is based on banks’ own assumptions with regard to the repricing maturity of these positions – so-called replication assumptions. These assumptions may differ across banks and evolve over time. Chart 14 shows that the interest rate risk calculated using this method has deviated in recent years from the level of interest rate risk calculated on the basis of fixed replications, i.e. using assumptions that are fixed over time and are the same for all banks.

The widening of the gap between the interest rate risk measured by these calculation methods is particularly marked between the red and blue curves in chart 14, and has two causes. First, banks have seen strong volume growth in liabilities for which banks apply a repricing maturity exceeding the fixed replication assumptions.²¹ Second, many banks have adjusted their assumptions over the last few years, assuming a longer repricing maturity on savings deposits in particular. The rationale for this is that savings deposits have been very stable over the past few years.

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

18 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.

19 In terms of total eligible capital, the net present value of these banks would decline by 12.6% (2011: 13.9%).

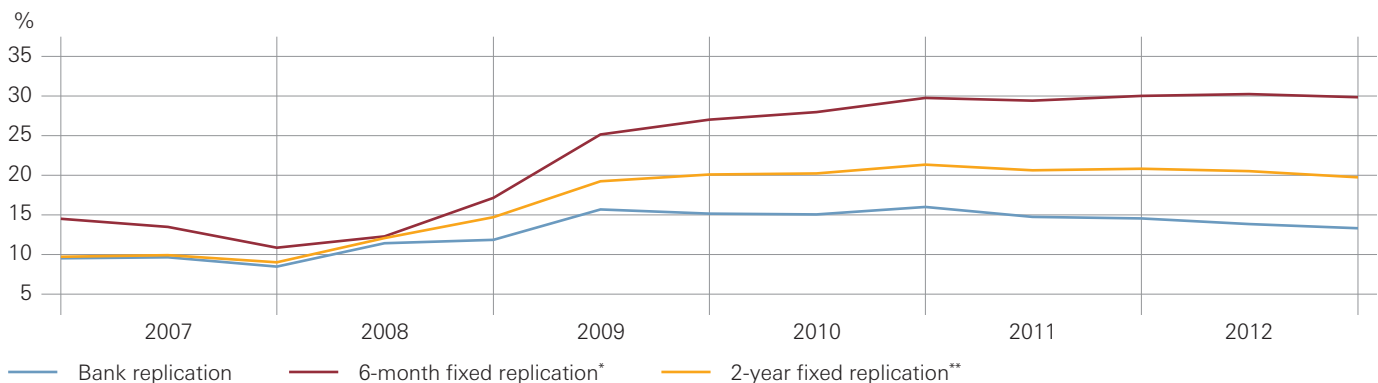
20 Positions with undefined repricing maturities include: on the assets side, sight claims, claims against customers and variable rate mortgage claims; on the liabilities side, sight liabilities and savings deposits.

21 For instance, in the six-month (two-year) fixed replication, a repricing maturity of six months (two years) is assumed for savings deposits and one month for sight deposits. In their own calculations, the banks currently assume average repricing maturities slightly in excess of two years for savings deposits and one year for sight deposits.

INTEREST RATE RISK OF DOMESTICALLY FOCUSED COMMERCIAL BANKS

Losses in net present value as a percentage of Tier 1 capital under different replication assumptions for positions with undefined interest rate repricing maturities

Chart 14



Source: SNB

* Assumed repricing maturity of 6 months for savings deposits and variable rate mortgage claims.

** Assumed repricing maturity of 2 years for savings deposits and variable rate mortgage claims.

Even though savings and sight deposits have actually proven to be very stable sources of financing in recent years, the SNB considers that, from an interest rate risk perspective, the average repricing maturity of these liability categories has tended to decline compared to the pre-2007 period. Since the onset of the financial crisis in 2007 and the start of the low interest rate environment, domestically focused banks have recorded heavy inflows of savings and sight deposits. For instance, sight deposits have more than doubled in volume since 2007. Part of these inflows were motivated by safety considerations and a lack of alternative investment opportunities. Were the general level of interest rates to rise, a substantial part of these funds could quickly be shifted into longer-term liabilities or other forms of investment. Such developments would increase banks' funding costs even if the interest rates on savings and sight deposits remained comparatively low. Thus, a portion of savings and sight deposits might not prove to be so stable after all, and the actual negative impact of an interest rate rise on net interest income and net present value might prove to be significantly greater than the average bank currently assumes.

4

Resilience of banks

The SNB acknowledges the big banks' progress to date and recommends that they consistently and fully implement their published plans on strategy and capital-building, in order to further strengthen their resilience and, in particular, to improve their leverage ratios. Moreover, the big banks should increase transparency with regard to their risks. In so doing, they also contribute to improving the credibility of the calculations of risk-weighted assets (RWA) based on banks' internal models, and in turn strengthen market confidence in these calculations.

With regard to domestically focused commercial banks, the SNB recommends, first, that they continue to ensure that their resilience is sufficiently high to absorb potential losses from the risks assumed, irrespective of the regulatory requirements. It is particularly important that banks assess and manage their interest rate risk using conservative assumptions. Second, domestically focused banks should exercise greater caution in residential mortgage lending. This applies to the assessment of both the LTV ratios for the residential property being financed and the affordability for borrowers. A prudent lending policy is important, on the one hand, as a precautionary measure for the banks themselves, in view of the prevailing risks in this market. On the other, it would help to counter a further build-up of these risks.

4.1 RESILIENCE OF THE BIG BANKS

When assessing the big banks' resilience, the SNB focuses on loss-absorbing capital in a 'going concern' perspective.¹ This 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 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.

The SNB's assessment of resilience looks at consolidated bank group level. Beyond that, it is important that – in line

with capital adequacy requirements – the banks ensure sufficient resilience of the various legal entities in their group, particularly those with systemically important functions.

Risk-weighted capital ratios significantly higher

Since the first quarter of 2012, both big banks have significantly increased their risk-weighted capital ratios and, in this respect, are now very well placed in an international peer comparison. The loss-absorbing capital ratio nearly doubled at Credit Suisse, from 5.2% in the first quarter of 2012 to 10.0%² in the first quarter of 2013, while at UBS it rose from 7.5% to 10.3% in the same period. According to the 'too big to fail' regulations, as of 2019 – after the transition period expires – the big banks will be required to hold loss-absorbing capital amounting to 13% of RWA. In terms of total capital, risk-weighted ratios amounted to 10.0%³ for Credit Suisse and 11.8% for UBS at the end of the first quarter of 2013.⁴

As regards the risk-weighted CET1 ratio, the big banks have also improved significantly. At Credit Suisse, the fully implemented CET1 ratio increased from 4.4% in the first quarter of 2012 to 8.6% in the first quarter of 2013; at UBS it rose from 7.5% to 10.1% during the same period. Thus, both big banks already comply with the international requirement of 8.5%, which will apply from 2019.⁵

At Credit Suisse, the improvement in risk-weighted ratios is largely attributable to the capital measures taken last summer. Since the first quarter of 2012, its loss-absorbing capital has almost doubled, while RWA have remained practically unchanged. At UBS, the improvement is mainly due to a reduction in RWA.

Leverage ratio low

In terms of the leverage ratio – the unweighted capital ratio – Credit Suisse has improved significantly, and UBS's leverage ratio has increased moderately. In the first quarter of 2013, leverage ratios, calculated as loss-absorbing capital relative to total exposure,⁶ came to 2.3%⁷ at both banks. From 2019, these leverage ratios are required to be at least 3.1% under the provisions of the 'too big to fail' regulations.⁸ In terms of total capital, the leverage ratio

2 Cf. footnote 2 in chapter 1.

3 Ibid.

4 In the first quarter of 2013, UBS reported CHF 3.8 billion of low-trigger contingent capital instruments (Q1 2012: CHF 1.8 billion). Credit Suisse has so far not issued such instruments. The requirement with regard to total capital depends on a bank's size and share in the domestic market. When the 'too big to fail' commission of experts was in operation, this requirement was set at 19%. According to banks' estimates, which take expected future changes in size and market share into account, the requirement as of 2019 will be 17.9% for Credit Suisse and 17.5% for UBS (quarterly reports for Q1 2013).

5 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, which is likely to come to 1.5% for the two Swiss big banks.

6 Cf. footnote 3 in chapter 1.

7 Cf. footnote 4 in chapter 1.

8 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 19% total capital requirement, the leverage ratio is 4.56%.

1 The SNB already applied this approach in the 2012 *Financial Stability Report*.

came to 2.3%⁹ at Credit Suisse and 2.6% at UBS in the first quarter of 2013.¹⁰

Given the prevailing risks in the environment and the losses incurred in the recent financial market crisis, the SNB still considers current leverage ratios at the Swiss big banks to be low. For instance, during the recent crisis, UBS suffered losses amounting to around 2% of its total exposure.¹¹ In addition, a number of comparative studies imply that, in terms of leverage ratios, the two big banks are currently below the international average.¹² These studies include publications of the IMF, the Basel Committee and bank analysts.¹³

Credibility of model-based RWA increasingly challenged

The credibility of RWA based on banks' internal models is increasingly being called into question by market participants, analysts and authorities worldwide. The SNB already addressed this topic in its previous *Financial Stability Report*. Since then, the subject of model-based RWA has attracted even more attention.

Risk-based capital requirements have the advantage that they can take into account the risks inherent in individual positions when calculating required capital. It is widely accepted that these risks can, in principle, be more accurately quantified using banks' internal models than using the standardised approach, which prescribes standardised risk weights for specific asset classes. Yet, due to banks' internal model choices and model assumptions, understanding individual banks' models and comparing them between banks is very difficult. From the SNB's perspective, three observations concerning model-based RWA calculations are particularly important.

First, international studies have shown significant differences in RWA between banks using model-based approaches. These can only be partially explained by differences in the level of risk taken by the banks.¹⁴ In some of the studies, the participating banks were asked to calculate the RWA for identical hypothetical portfolios, using their models. The highest values of RWA calculated in this manner were more than twice as high as the lowest

values. This shows that model choice and model assumptions have a major impact on RWA calculations.

Second, while the reduction of model-based RWA has in some cases been very substantial, that of total exposure, balance sheet total and banks' own risk measures has been significantly lower. Based on estimates by the two big banks, the 'too big to fail' commission of experts¹⁵ assumed RWA according to Basel III of around CHF 400 billion per bank as of end-2009. Big banks' RWA have since contracted by around 30%. Total exposure,¹⁶ by contrast, declined by approximately 20%, and balance sheet totals by roughly 10%. At Credit Suisse, total risk measured in terms of utilised economic capital¹⁷ for position risk and operational risk decreased by about 5% during the same period. The observed decline in RWA reflects changes in banks' strategies and may be due to a number of factors, including reduced exposures, disposal of risk positions, hedging and model adjustments. Looking at the overall picture, however, it is not entirely clear to what extent these different factors have contributed to the observed decline in RWA since end-2009.

Third, model-based RWA calculations for certain portfolios can lead to significantly lower capital requirements than RWA calculations using the standardised approach. In the case of domestic retail mortgages, for instance, the standardised approach specifies a risk weight of at least 35%, whereas the average risk weight in banks' internal models is about three times lower. In order to reduce discrepancies, at the beginning of 2013, FINMA introduced a multiplier on the risk weight for some domestic retail mortgages for banks using model-based approaches. Conversely, with risky loans and positions in the trading book, for example, model-based RWA are higher than those using the standardised approach. In this regard, it should also be noted that the revision of the capital requirements for market risk in 2009 (Basel 2.5) resulted in a significantly greater increase in RWA based on banks' internal models than in those based on the standardised approach.

In-depth analyses need to be carried out to determine whether and to what extent the model-based approach and the standardised approach lead to differences in RWA. Differences must be well explained and have a sound economic rationale. If the analysis does not reveal any substantial inexplicable differences, this will strengthen market confidence in model-based RWA. If the model-based approach systematically results in RWA which are

9 Cf. footnote 4 in chapter 1.

10 As with risk-weighted requirements, requirements for the leverage ratio in terms of total capital also depend on the size and market share of the banks. According to banks' estimates (cf. footnote 4 in chapter 4), expected total capital requirements for leverage ratios will be 4.3% (Credit Suisse) and 4.2% (UBS) as of 2019.

11 SNB calculations based on UBS's quarterly reports. Corresponding calculations for other international big banks show losses of up to 4% of their total exposure.

12 These studies use several different definitions of leverage ratios. The Basel Committee published a preliminary definition of its leverage ratio in December 2010. It will make a final decision on this definition in the first half of 2017.

13 For instance: 'Switzerland Selected Issues Paper – IMF Country Report 13/129', International Monetary Fund; 'Results of the Basel III monitoring exercise as of June 2012', Basel Committee on Banking Supervision; 'European Investment Banks – Evolving Leverage Ratios', Barclays Equity Research, January 2013.

14 Cf. 'Regulatory consistency assessment programme (RCAP) – Analysis of risk-weighted assets for market risks', Basel Committee on Banking Supervision, January 2013; 'Interim results of the EBA review of the consistency of risk-weighted assets', EBA, 26 February 2013; 'The dog that dug', Barclays, 21 September 2012.

15 'Final report of the Commission of Experts for limiting the economic risks posed by large companies', 30 September 2010.

16 The figure of CHF 1,500 billion assumed by the 'too big to fail' commission of experts may serve as an approximation for total exposure at the beginning of the period.

17 According to Credit Suisse, economic capital "measures risks in terms of economic realities rather than regulatory or accounting rules and is the estimated capital needed to remain solvent and in business, even under extreme market, business and operational conditions, given our target financial strength (our long-term credit rating)". Credit Suisse, *Annual Report*, 2012, p. 125. Figures published in Credit Suisse's financial reports.

inexplicably lower than under the standardised approach, appropriate measures should be considered. These could, for instance, entail setting a floor for some model-based RWA, as implemented in the US by the Collins Amendment to the Dodd-Frank Act; or introducing a multiplier on model-based risk weights for specific positions, as recently imposed by FINMA for some mortgage loans. Finally, the results of such a parallel calculation may also help to identify areas where the standardised approach is not sufficiently conservative or risk sensitive. In this regard, efforts are underway at FINMA, supported by the SNB, to analyse potential differences between the two approaches.

Recommendations for the big banks

The SNB acknowledges the big banks' progress to date and recommends that they consistently and fully implement their published plans on strategy and capital-building, in order to further strengthen their resilience and, in particular, to improve their leverage ratios. According to these plans, by the end of 2014, Credit Suisse and UBS are likely to have already met the risk-weighted regulatory requirements applicable from 2019 and to substantially increase their leverage ratios, each in terms of loss-absorbing capital.

Improving the leverage ratio is all the more crucial given the growing importance of this indicator as a measure of banks' resilience. The Basel Committee's disclosure requirement for the leverage ratio, for instance, applies from 2015.¹⁸ Large banks in the UK are, at the behest of the authorities, already publishing their leverage ratios.

¹⁸ The Basel III rules only require the disclosure of transitional leverage ratios. The look-through leverage ratio, however, can easily be calculated based on other information that must be disclosed.

In addition, the SNB recommends that the banks increase transparency with regard to their risks. Specifically, the recommendation to increase transparency consists of three elements.

First, banks should publish a quantitative assessment of their total risk. Credit Suisse has been doing this for some years by publishing its utilised economic capital. This kind of information can help to show the extent to which a reduction in RWA is being accompanied by a corresponding reduction in economic risk.

Second, the SNB recommends that banks also calculate and publish RWA using the standardised approach. The SNB considers that the effort involved would be justifiable. Parallel calculations of this kind are foreseen as an option under Switzerland's revised Capital Adequacy Ordinance. Since the standardised approach is independent of bank-specific modelling assumptions, it provides market participants with an additional point of reference for assessing both the level of and changes in model-based RWA.

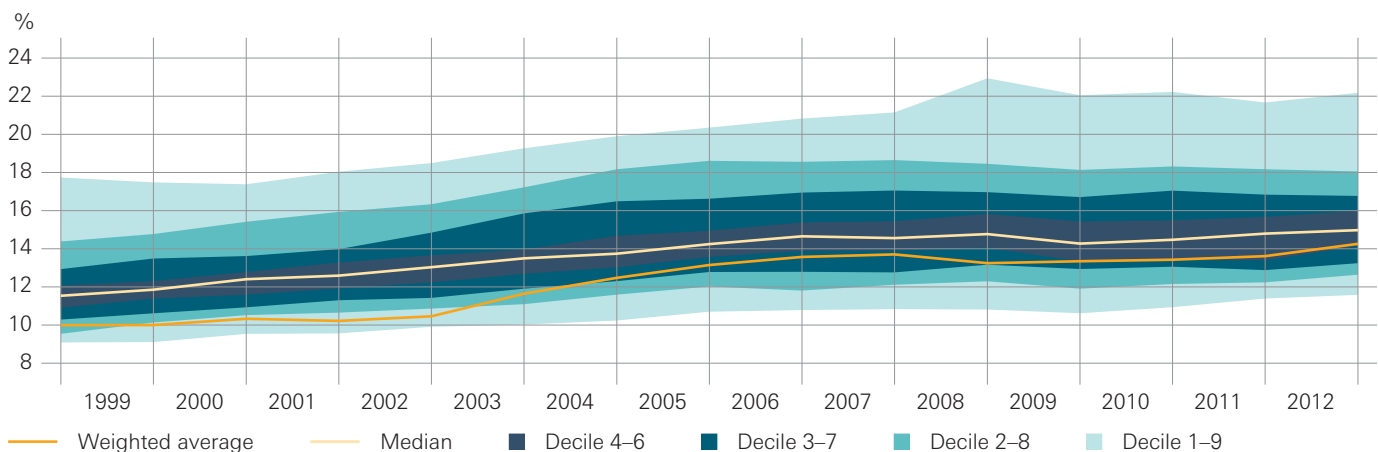
Third, the SNB recommends that the banks increase transparency with regard to the reduction in RWA. To this end, changes in RWA should be broken down by their cause. This was also a recommendation in the final report of the Enhanced Disclosure Task Force, a broad-based private sector initiative launched by the Financial Stability Board.¹⁹ Of particular interest is which proportion of the reduction in RWA is attributable to model adjustments. In the last two quarters, UBS provided this information in its reporting.

¹⁹ 'Enhancing the Risk Disclosures of Banks', Report of the Enhanced Disclosure Task Force, 29 October 2012.

CAPITAL TO RISK-WEIGHTED ASSET RATIOS

Distribution of Tier 1 capital to risk-weighted asset ratios of domestically focused commercial banks

Chart 15



Sources: FINMA, SNB

These measures contribute to improving the credibility of RWA calculations based on banks' internal models, and in turn strengthen market confidence in these calculations.

4.2 RESILIENCE OF DOMESTICALLY FOCUSED COMMERCIAL BANKS

The average regulatory capitalisation of domestically focused commercial banks continues to be high, measured against the minimum requirements. Compared to the previous year, it has even improved slightly, since the increase in capital at these banks was somewhat stronger than that of RWA. However, RWA only partially reflect the growing risks in the Swiss mortgage and real estate markets. This means that, in the current environment, risk-weighted capital ratios may overstate the economic resilience of these banks.

Regulatory capitalisation significantly above minimum requirements

Measured against the regulatory minimum requirements²⁰ in place at end-2012 (Basel II), the average capitalisation of domestically focused commercial banks continues to be high and slightly above the previous year's level. At year-end, the ratio of total eligible capital to RWA was 15.2%; that of Tier 1 capital, 14.3% (2011: 14.6% and 13.6% respectively, cf. chart 15). The average leverage ratio²¹ – in terms of the ratio of total eligible capital or Tier 1 capital to balance sheet total²² – remained broadly unchanged at 7.3% or 6.9% (cf. chart 16). Among other

factors, the divergent movements of the risk-weighted and unweighted capital ratios can be attributed to the fact that many banks sharply increased their stock of cash positions compared to the previous year. While growth in cash positions has a one-to-one impact on assets, there is no increase in RWA due to the zero risk weight assigned to cash positions.

Higher regulatory requirements should be achievable for most banks

Domestically focused commercial banks are now subject to new capital requirements. First, the Basel III capital requirements were introduced at the beginning of 2013, with a gradual phase-in period extending to end-2018.²³ Second, the new requirements comprise the FINMA capital buffer requirements defined according to supervisory categories, which go beyond the Basel III requirements. These requirements already entered into force in July 2011, with a transition period until end-2016.²⁴ Lastly, in February 2013, in view of the risks in the mortgage and real estate markets,²⁵ the countercyclical capital buffer was activated in Switzerland; this must be held in addition to all other capital requirements and will apply from the end of September 2013. The buffer is set at a level of 1% of the risk-weighted mortgage-backed positions secured by domestic residential property. The first two capital

20 Under Basel II, the minimum requirement for the ratio of total eligible capital to RWA was 8%; for the ratio of Tier 1 capital to RWA it was 4%. Under Basel III, the minimum requirement for total eligible capital remains unchanged at 8%, and – with a transition period until end-2014 – the requirement for Tier 1 capital increases to 6%.

21 At end-2012 (Basel II), there was no regulatory requirement for domestically focused banks regarding the leverage ratio.

22 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.

23 First, with the changeover to the Basel III regulatory framework, there are higher requirements regarding the quality of capital. Second, the introduction of capital buffers also results in more stringent requirements as regards the quantity of capital. Finally, it must be expected that, depending on a bank's business model, the impact on RWA will vary. The uncertainty as to the impact on RWA makes it difficult to assess the consequences of the Basel III regulatory framework on the capital situation of domestically focused banks.

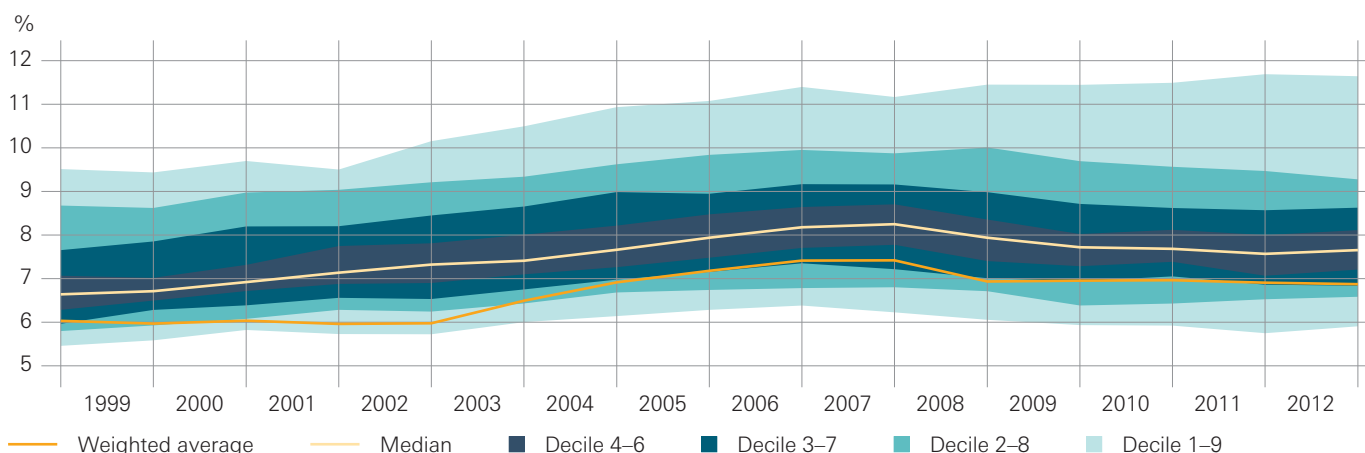
24 Cf. FINMA Circular 2011/2.

25 In June 2012, a revision of the self-regulation rules on mortgage lending and stricter capital requirements for high-LTV mortgage loans were announced in a bid to dampen mortgage and real estate price growth. These measures were phased in by the beginning of 2013.

CAPITAL TO ASSET RATIOS

Distribution of Tier 1 capital to total asset ratios of domestically focused commercial banks

Chart 16



Sources: FINMA, SNB

requirements are of a permanent nature. The countercyclical capital buffer, however, is temporary.

The SNB expects that the future capital requirements should not be too great a challenge for most domestically focused commercial banks under the baseline scenario. This assessment is based on the fact that most banks already meet the capital buffer requirements imposed by FINMA as well as additional capital requirements in connection with the activation of the countercyclical capital buffer. In addition, the last few months have shown that issuing capital in the market did not present any major problems for banks which – for regulatory or strategic reasons – had a certain demand for capital.

From an economic perspective, resilience lower than suggested by regulatory capital ratios

From an economic perspective, domestically focused commercial banks may be less resilient than the regulatory capitalisation suggests.

First, risk-weighted capital ratios only partially account for the build-up of imbalances on Swiss mortgage and real estate markets. Through their impact on LTV ratios, rising real estate prices can even lead to lower risk-weighted requirements. Due to growing imbalances, this problem has worsened compared to the previous year.

Second, capital requirements do not generally take into account the continuing historically high level of interest rate risk²⁶ 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 capital requirements.

High resilience and prudent lending policies needed

According to SNB estimates, potential losses incurred under the adverse scenario would deplete a large part of banks' surplus capital. Owing to the considerable surplus capital currently held by banks, the cumulative market share of banks that would fall below the regulatory minimum would be relatively small. Such a scenario would nevertheless lead to a general weakening of the banking sector. Experience has shown that this can present a challenge for financial stability and curb banks' lending activity. A sharp decline in the credit supply would have substantial consequences for the economy.

Alongside the adverse scenario, there is the risk in the medium term that, despite the measures taken to reduce risks in the Swiss mortgage and real estate markets, imbalances will continue to build up (cf. chapter 3). In this event, a further strengthening of system-wide capital requirements could become necessary.²⁷ Larger imbalances would

increase not only the likelihood of a price correction, but also its consequences. SNB estimates indicate that if real estate prices were to decline to the extent experienced in the 1990s – triggered, for example, by a sharp increase in interest rates – the losses incurred by domestically focused commercial banks would exceed those under the adverse scenario. Losses would not be confined to the mortgage portfolio, as price corrections in the real estate market also have a negative impact for the real economy as a whole, in particular when coupled with rapidly increasing interest rates and borrower defaults. Furthermore, a rise in interest rates would likely lead to some banks experiencing a significant reduction in net earnings, due to their high exposure to direct interest rate risk.

In view of these risks, banks should ensure that their capital base is sufficient to continue being able to maintain their economically important functions, even in the event of a real estate price correction, triggered for instance by sharply rising interest rates. This recommendation is all the more important as the historically narrow interest rate margins are restricting banks' ability to absorb potential credit and interest rate risk-related losses.

In addition, domestically focused banks should exercise greater caution in residential mortgage lending. This is important, on the one hand, for the banks themselves, to limit their loss potential in view of the prevailing risks in this market. On the other hand, this, together with the other measures taken, would contribute to preventing a further build-up of these risks. Consequently, when determining and applying their lending criteria with respect to LTV ratios, banks should – as a precautionary measure – bear in mind that there are already signs that the level of real estate prices is unsustainably high. Moreover, when assessing the affordability for their borrowers, banks should be aware that the level of interest rates can rise rapidly. In the past, mortgage rates have been above their long-term average of almost 5% for long periods. For instance, average mortgage rates climbed above 6% in the third quarter of 1989 and remained at this level for several years.

Need for further regulatory measures assessed regularly

From a financial stability perspective, in the event of a further build-up of risks in the Swiss mortgage and real estate markets, it might prove necessary to take further regulatory measures.

The SNB, for its part, will regularly assess whether an adjustment of the countercyclical capital buffer is necessary to address the cyclical risks which the imbalances on the mortgage and real estate markets have been posing for some time now. The buffer strengthens the entire

²⁶ For a detailed description of interest rate risk, cf. chapter 3.

²⁷ An assessment by Standard & Poor's (S&P) arrives at a similar conclusion. For example, the significant exposure of many Swiss banks to the mortgage and real estate markets prompted S&P to assign a negative outlook to the rating of

nine banks in July 2012. S&P re-affirmed this negative outlook in February 2013 and stated that downgrades could be made should momentum in the real estate market not decelerate (cf. 'Switzerland's Capital Buffer for Banks Alleviates Risks from Rising House Prices', February 2013).

banking sector's resilience to the consequences of excessive lending growth. Moreover, it helps to counter a further build-up of such imbalances, by making it less attractive for banks to grant residential mortgage loans compared to other forms of lending.

The countercyclical capital buffer is, however, not designed to address further risks which are not or only partially covered by regulatory requirements. Specifically, it is not targeted at strengthening the banking sector's resilience to direct interest rate risk. Therefore, it is particularly important that banks assess and manage these risks on the basis of conservative assumptions, also owing to the possibility of a rapid shift from savings and sight deposits into longer-term liabilities or other forms of investment (cf. chapter 3).²⁸

²⁸ If needed, art. 45 of the Capital Adequacy Ordinance provides for institution-specific additional capital requirements aimed at ensuring that banks are able to bear the risks taken.

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**Data and data sources**

The banking statistics used in this report are based on official data submitted and/or on data reported by individual banks. The analysis covers big banks and domestically focused commercial banks. The latter comprise banks 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 2013.

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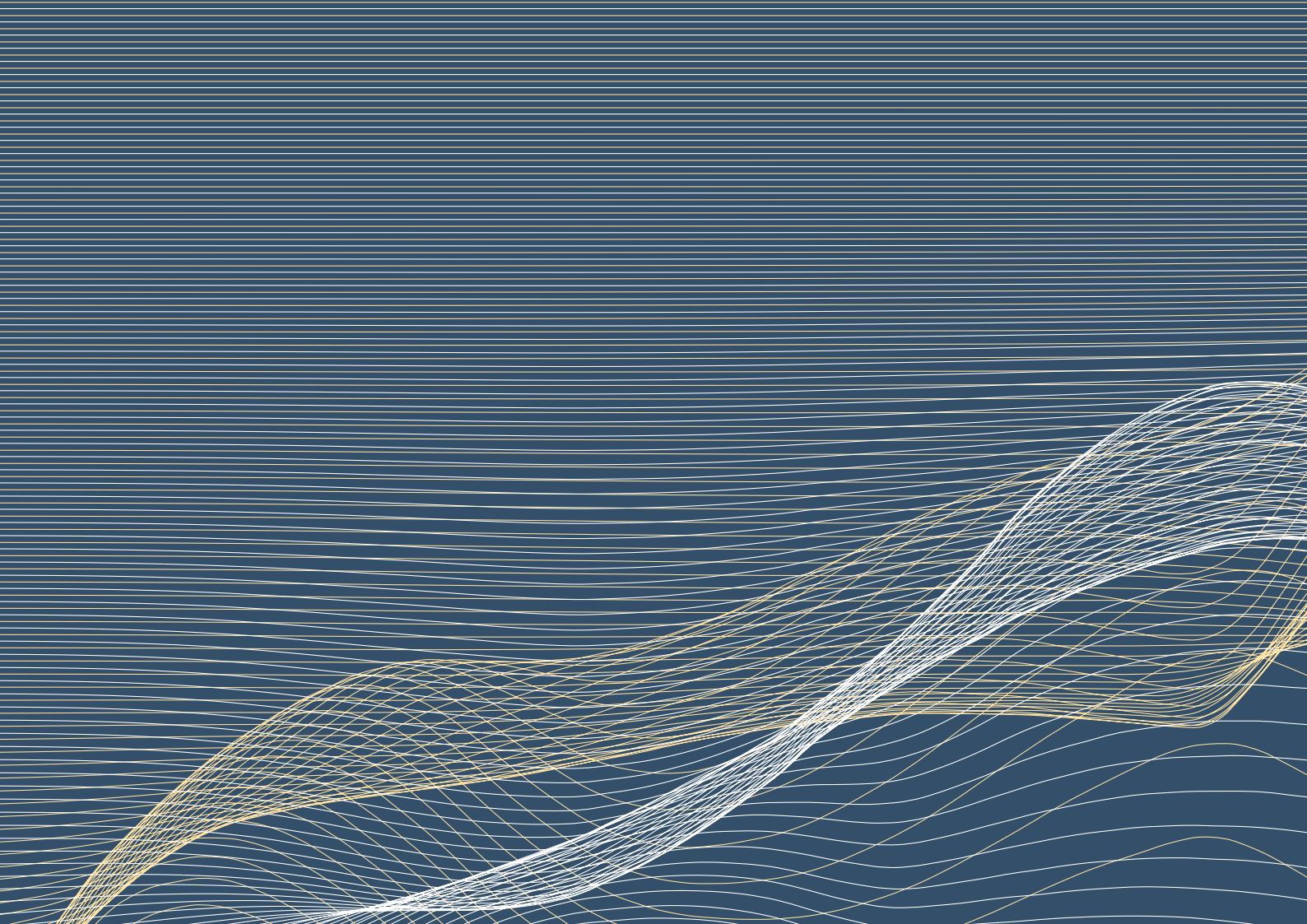
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