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snb@snb.ch

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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

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2008 Financial Stability Report

Foreword

In accordance with the National Bank Act (art. 5 para. 2 (e) NBA), the Swiss National Bank is required to contribute to financial stability. This report highlights the main trends in the Swiss banking sector with respect to their impact on financial stability. A stable financial system can be defined as a system where the various components fulfil their functions and are able to withstand the shocks to which they are exposed.

The report presents the SNB's evaluation of the stability of the banking sector and provides the general public with relevant information and indicators. The report gives the SNB the opportunity to highlight tensions or imbalances that could jeopardise this stability. It is not the purpose of this report to analyse the solvency of individual financial institutions. Individual banks are only considered if this is deemed relevant for obtaining an overall picture.

Overall assessment

Deterioration in the global economic climate

After several years of rapid economic growth and low risk premia in the financial markets, 2007 saw the onset of global financial turmoil. Given that a number of macroeconomic and financial market imbalances had built up over the last few years, the deterioration of financial conditions did not come as a total surprise. Yet the global dimension and suddenness of these developments surprised many observers and market participants. In particular, the fact that liquidity dried up in a number of markets was unexpected.

The first signs of weakness in the US housing market emerged as early as 2006, when growth in US property prices began to slow. At the same time, delinquency rates increased among sub-prime mortgage borrowers. In August 2007, market conditions deteriorated dramatically. The risk premia increased in the financial markets and the prices for securities closely linked to the US sub-prime market began to drop sharply.

Despite these negative developments, key indicators show that the overall macroeconomic conditions in which the Swiss banking sector operates remain relatively robust. With the exception of the US, where economic growth almost petered out in the final quarter of 2007, most economies continue to report relatively high growth rates. More-

over, the default rate among borrowers – excluding sub-prime mortgages in the US – continues to be low in historical terms. In Switzerland in particular, the economy remains in relatively good shape. However, the speed of expansion has slowed since the beginning of the year and uncertainty surrounding the outlook has increased.

Results vary for different bank categories

Against this backdrop, the Swiss banking sector should be assessed from two different perspectives. On the one hand, the two big banks – UBS in particular – were severely affected by the financial turmoil in the second half of the year. Losses from trading operations were only partially offset by good results in other business areas. As a consequence, profitability decreased markedly. On the other hand, most of the remaining banks and, in particular, those with a domestic business focus, such as cantonal, regional and Raiffeisen banks, benefited from the favourable state of the Swiss economy and were able to surpass their good results of the previous year.

Banks' varied earnings performances are also reflected in the development of their capital base. While the capital base at banks with a domestic business focus further improved, risk-weighted capital ratios of the big banks dropped significantly in 2007. Recent steps taken to raise new capital and reduce risk taking should ensure that the big banks' risk-weighted capital ratios remain well above the regulatory minimum and at high levels by international standards. At the same time, the leverage of Swiss big banks remains very high, despite recent efforts to reduce it. While leverage may be an attractive way for banks to increase return on equity, it is also a source of vulnerability. As the current turmoil has shown, one consequence of high leverage is that losses which are small in comparison to a bank's assets can deplete a significant portion of its capital.

The contrasting results of the different bank categories are also reflected in market indicators. For instance, in the case of banks with a domestic business focus, credit spreads have only edged up modestly. In contrast, credit default swap (CDS) prices for the two big banks have increased significantly. Despite easing down markedly after peaking in March 2008, they remain high by historical standards.

Higher level of stress in the Swiss banking sector

The developments outlined above are reflected in the SNB Stress Index (cf. chart 1 and box 6, p. 38), which combines comprehensive information on potential symptoms of stress in the Swiss banking sector in order to indicate the industry's current stress levels. According to this index, the situation in the Swiss banking sector worsened sharply in 2007. The rise in the Stress Index in the second half of 2007 constituted the most substantial six-month climb ever observed in the data series at our disposal (since 1987). Judging by the index level, the situation in the Swiss banking sector during the current turmoil has been as difficult as it was during the domestic housing market crisis at the beginning of the 1990s or the Russian crisis in 1998.

Outlook

The outlook regarding price developments in the US housing market and potential consequences for the rest of the economy remains highly uncertain. The most likely outcome is that global economic growth will slow moderately in 2008 before recovering in 2009. For Switzerland, the Swiss National Bank (SNB) expects that real GDP growth in 2008 should range between 1.5% and 2%, as compared to 3.1% in 2007.

Under this scenario, the outlook for the Swiss banks with a domestic focus is mostly positive; for

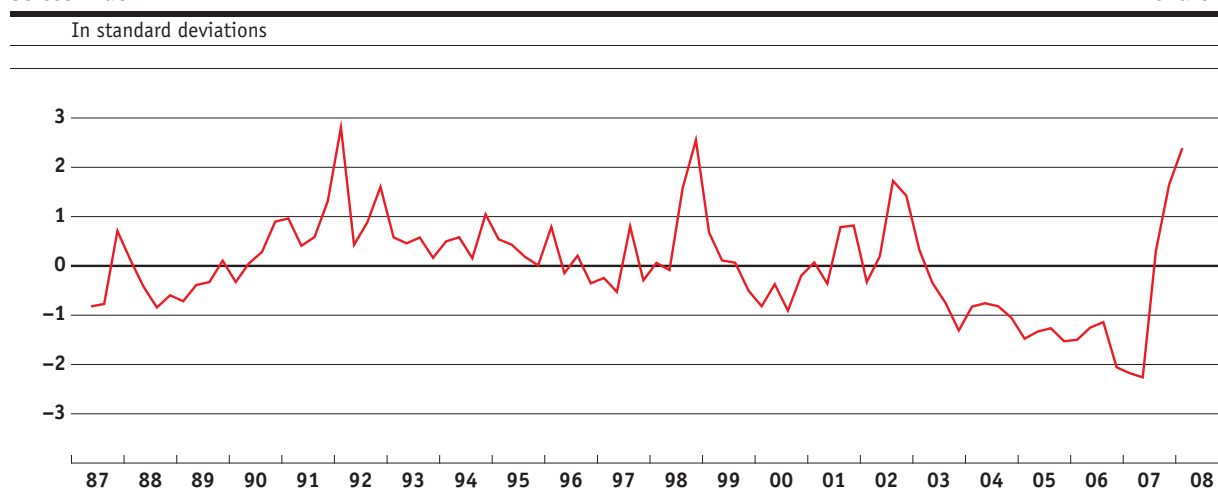
the big banks, the outlook is cautiously positive. This does not mean that a slowdown in global macroeconomic growth would leave banks unaffected. So far, the financial turmoil has primarily affected the big banks' trading portfolios. Loan portfolios, and hence the banks' banking books, have remained more or less unaffected. As a result, non-performing loans in the portfolios of Switzerland's banks, including the big banks, are still at a very low level in historical terms. This situation might deteriorate if delinquency rates increase further due to slowing economic growth in the US and other key markets.

Furthermore, although a moderate slowdown is the most likely scenario, market participants in general – and banks in particular – should take account of the fact that risks to the outlook are relatively large and tilted to the downside. For instance, a contraction of economic activity in the US with a knock-on effect for many of the world's other economies remains a possibility. Under such a scenario, house price corrections would become more likely in other countries. Unlike in Switzerland, property prices in certain European markets have been rising at a similar or higher rate than they did in the US before the onset of the real estate crisis.

Even though they substantially reduced their level of exposure to the US housing market, the Swiss big banks continue to be exposed to international credit and market risks through both their

Stress index*

Chart 1



Sources: Swiss Federal Banking Commission (SFBC), Swiss National Bank (SNB), Thomson Datastream

*The higher the level of the index, the higher the level of stress in the Swiss banking sector. The index is expressed in terms of standard deviations from its 1987–2007 average. A value above (below) zero indicates that the stress is above (below) its historical average. The stress index for the first quarter of 2008 has been computed with provisional data. For a description of the underlying variables and the methodology see box 6, p. 38

banking and trading books.¹ In this situation, the steps taken – notably by UBS – to strengthen their capital base and reduce their risk taking are important and welcome from the perspective of financial stability.

Lessons learned

The market turmoil has revealed various weaknesses in some parts of the Swiss banking sector which need to be addressed (cf. box 1, p. 8). In this respect, the SNB believes that simply making further regulatory and supervisory refinements represents an insufficient course of action. Refinements not only make regulation and oversight more granular, they also make it more complex and costly. It is also very difficult for the authorities to make regulatory adjustments in good time. The authorities are, by nature, almost always a step behind the latest developments. What is more, the limitations of complex regulations and models have become apparent during the current turmoil. Although improvements can be expected, risk measurement will continue to be an incomplete and imperfect science.

The SNB therefore believes that the financial system needs to be made more resilient to shocks. This is consistent with the recommendations which the Financial Stability Forum (FSF) has issued as part of its analysis of the current turmoil.² Above all, this means that the size of capital and liquidity buffers in the financial system has to be increased during good times.

– As regards **capital**, the SNB first considers that the risk-weighted capital requirements should be tightened for the Swiss big banks. Second, the introduction of a floor for the capital-to-assets ratio, as a complement to tighter risk-weighted capital requirements, would be an effective means of further strengthening the resilience of the two big banks to shocks. In the US, where banks are subject to such a limit on leverage, this floor is often referred to as a ‘leverage ratio’.

Both the Swiss Federal Banking Commission (SFBC)³ and the IMF⁴ mention a combination of tighter risk-weighted requirements and a leverage ratio as a way to enhance banks’ capacity to absorb shocks.

– As regards **liquidity**, the existing regulations need to be updated. A joint reform project launched by the SNB and the SFBC aims to ensure that the big banks have sufficient liquidity to continue operating, even in the event of a severe liquidity shock.

As was highlighted by the FSF in its recently published report, large international banks themselves need to address a number of weaknesses. In particular, banks should take steps to become more transparent and increase the focus of their risk management on extreme events.

– **Transparency** of banks is crucial for the functioning of financial markets. Only if sufficient information on bank exposures and risks is available, can financial markets function effectively. In the view of the SNB, the Swiss big banks should put more emphasis on risk indicators relating to stress situations when publishing their financial reports. In addition, they should publish indicators that provide a more comprehensive view of their risk profiles and capital adequacy.

– Banks’ risk management should increasingly take the impact of relatively rare, but very large shocks – referred to as tail events – into consideration by further developing their **stress testing** framework. In the future, the SFBC and the SNB will be increasingly involved in the stress tests of the Swiss big banks. The results of these stress tests will in particular be used by the SFBC to monitor capital adequacy and to help ensure that the banks’ capital base is solid enough to absorb severe but realistic stress events.

1 The trading book covers positions held for either trading or hedging purposes. These positions must be valued frequently and precisely, and the portfolio must be managed actively. The banking book covers all other bank positions.

2 *Report of the Financial Stability Forum on enhancing market and institutional resilience*, April 2008; available at www.fsforum.org/publications/FSF_Report_to_G7_11_April.pdf.

3 Cf. ‘Globalised credit crisis – consequences for banking supervision’, SFBC annual media conference, 1 April 2008; available at www.ebk.admin.ch.

4 Cf. IMF (www.imf.org), ‘Switzerland: 2008 Article IV Consultation Concluding Statement of the IMF Mission’, March 2008.

Box 1. Lessons learned

The current financial turmoil is probably the most severe of the past few decades. Lessons need to be drawn from this crisis, in order to enhance the resilience of the Swiss banking sector as a whole (for details of how events unfolded, cf. box 2, p. 18). This also applies to the Swiss National Bank (SNB), since it has a legal mandate to contribute to the stability of the financial system. In this box, the SNB first summarises the causes and catalysts of the current crisis, and then describes the most important lessons from its perspective.

The causes:

high risk appetite and misjudgements

The crisis was rooted in an increasingly high risk appetite on the part of market participants. The current financial turmoil was preceded by a long period of stable macro-economic conditions and high liquidity. Against such a favourable background, many investors took on ever greater risks, as evidenced by the low level of risk premia observed in many markets. Another indication of the greater appetite for risk was the unusually high rates of growth in trading and lending activities. With hindsight, certain risks were clearly underestimated. This led to developments in individual markets which have now been revealed as excesses – inter alia on the US real estate market.

Three catalysts of the crisis

The disruptions on the US real estate market that led to such severe international market turbulence were a result of three key factors.

First, the high leverage of large international banks proved to be a source of vulnerability. As a rule, these banks hold relatively low levels of capital compared to their total assets. This applies in particular to the Swiss big banks: over the last few years, they have steadily expanded their business activities without making a concomitant increase in their capital. Thus in this crisis, for some large international banks, losses that were small in comparison to their balance sheets depleted a significant portion of their capital. As a consequence, they had to resort to recapitalisation measures.

Second, the limitations of risk management have become clear. In particular, in the current crisis, it has become evident that banks have failed to give sufficient consideration to the risks of extreme events. In the area of market risk, events occurred which, in the models being used, should not have been possible (or at least would have been considered extremely unlikely). Likewise, with regard to liquidity risk, many market participants have not taken a sufficiently conservative approach when setting the size of their liquidity cushions.

Third, the lack of transparency turned out to be a handicap. For outsiders, the business conducted by large international banks represents, in many ways, a black box. Generally speaking, banks do not disclose enough information about their risk positions and have difficulty providing comprehensible assessments of their risks. Consequently, market participants had problems gauging the creditworthiness of their counterparties quickly and with sufficient accuracy during the turmoil. The lack of transparency com-

bined with the high leverage proved to be a dangerous mix. It was a cocktail that, from the market's perspective, cast doubt on the solvency of a number of banks. It resulted in a sustained crisis of confidence on the interbank market such as had never been experienced before.

Lessons at the international level: the FSF's recommendations

In international bodies such as the Financial Stability Forum (FSF) and the Basel Committee on Banking Supervision, the authorities are working hard at the international level to find solutions. Recent efforts by the FSF are particularly noteworthy in this regard. In October 2007, in the wake of the crisis, the G7 finance ministers and central banks commissioned the FSF to formulate specific policy recommendations in response to the financial turmoil. In April 2008, the FSF published its final report.⁵ Switzerland was involved in drawing it up. The report examines the causes of the turmoil and makes wide-ranging recommendations for authorities in general and banking supervisors in particular, as well as for market participants.

A key recommendation is that authorities should communicate to firms' boards and senior management at an early stage their concerns about the quality of risk management, and should discuss possible remedial action. The report also recommends that authorities strengthen cross-border cooperation in the oversight of large international banks and in crisis management. Moreover, authorities should make further improvements to operational processes for liquidity management.

On banking supervision, the FSF regards the prompt implementation, but also adaptation, of the new capital adequacy framework (Basel II) as a key aspect. For instance, the FSF considers it important to increase the risk weights for complex structured financial instruments and event risks in the trading book. Banks' exposure to off-balance sheet entities should also be taken into account in cases where there is no contractual obligation to provide support (legal recourse) although de facto support can be assumed on reputational grounds (moral recourse). The FSF sees a need for action, not just on capital but also on liquidity. In general, the FSF calls for larger and more robust liquidity cushions. In this regard, it proposes a number of modifications in the management and supervision of liquidity. In addition, the FSF recommends that banks' risk management – in particular stress testing – be more rigorously monitored. Finally, the Forum calls for all off-balance sheet exposures to be included in risk reporting.

As regards market participants, the FSF sees a particular need for action on the part of banks and rating agencies. Banks are urged to increase transparency. In the short term, it is important that the banks disclose their positions in those market segments affected by the crisis. In the medium term, they should also disclose their main risks regularly and in standardised form. Rating agencies are urged to optimise the rating process. In particular, they should improve quality and reduce conflicts of interest. Finally, the FSF recommends that rating agencies introduce a specific rating for complex structured products.

⁵ *Report of the Financial Stability Forum on enhancing market and institutional resilience*, April 2008; available at www.fsforum.org/publications/FSF_Report_to_G7_11_April.pdf.

The SNB's conclusions: larger buffers...

At the international level, the main focus so far has been on further refining the existing approaches to regulation and oversight. It is doubtless necessary and sensible to introduce more detailed regulations in some areas. However, from the SNB perspective, more complexity in regulation and oversight provides only a partial response to the growing complexity in the financial markets. Indeed, refinements not only make regulation and oversight more granular; they also make it increasingly complex. The effort and the costs are constantly increasing, both for the banks and for the authorities. Moreover, it is very difficult for the authorities to make adjustments in good time. The authorities are, by nature, almost always one step behind the latest developments. What is more, the limitations of complex regulations and models have become apparent during the current crisis. The authorities must accept that risk measurement will always be incomplete, despite the planned improvements. Even the most complex models will never be infallible.

The SNB therefore believes that the financial system needs to be made more resilient to shocks. This is consistent with the recommendations which the Financial Stability Forum (FSF) has issued as part of its analysis of the current turmoil.⁶ Increasing the resilience to shocks is especially important for a country like Switzerland for two reasons: (i) the Swiss economy is heavily dependent on the banking sector, which is responsible for around 10% of GDP; (ii) in relation to the economy, the Swiss big banks are very large – the size of their assets is about seven times Switzerland's annual GDP (cf. box 3, p. 22). As a consequence, the Swiss authorities have to exercise particular care and caution in the area of financial stability.

Above all, making the financial system more resilient to shocks means that the size of capital and liquidity buffers in the system has to be increased. First, as regards capital, the risk-weighted capital requirements for the Swiss big banks need to be tightened. According to the Swiss Federal Banking Commission (SFBC), the best insurance against the unacceptable risk of a failure of a big bank is to have a capital base far in excess of the international minimum requirements.⁷ One way of achieving this would be by using an appropriate multiplier to increase the capital requirements under Basel II.

Second, the introduction of a floor for the capital-to-assets ratio as a complement to the risk-weighted regulations would represent a suitable instrument for further strengthening the two big banks' resilience to shocks.⁸ In the US, banks are subject to a 'leverage ratio' of this kind. They have to comply with a capital-to-assets ratio of at least 5% in order to be considered as well capitalised under the current legislation.

The risk-based requirements ensure the best possible risk-sensitivity for capital adequacy purposes. In addition, such a floor or 'leverage ratio' would guarantee a minimum safety buffer which is in proportion with the size of the bank and does not depend on risk weights that are complex and almost impossible to verify. As such, a leverage ratio offers protection against unexpected shocks that are not, or not sufficiently, covered by the risk-weighted capital ratio.⁹ The SFBC¹⁰ and the IMF¹¹ also mention a combination

of risk-weighted requirements and a leverage ratio as a way to enhance banks' capacity to absorb shocks.

As regards liquidity, the existing regulations need to be updated. For the big banks in particular, the existing regulations are no longer appropriate. In this context, the joint SNB/SFBC reform project needs to be vigorously pursued. The aim is that banks have sufficient liquidity to continue operating, even in serious liquidity crises. This is in line with the FSF recommendations. The Forum has also come to the conclusion that more comprehensive and robust liquidity cushions are needed.

Finally, monitoring of the big banks must be strengthened. The current crisis has shown that the SNB can only react in good time and appropriately if it is accurately informed about the big banks' potential vulnerabilities – already in periods of calm. For this reason, monitoring of the big banks by the SNB should be strengthened, in coordination with the SFBC. In particular, detailed knowledge of big banks' exposures and risks is necessary. This includes information about the concentration of all exposures to important risk factors, such as those in the real estate market or individual countries.

... and improvements by the banks

Banks themselves clearly need to improve, at least in two respects. First, they need to become more transparent. Second, they should increasingly focus their risk management on extreme shocks.

Transparency of banks is crucial for the functioning of financial markets. Only if sufficient information on exposures and risks of banks is available, can trust be established between market participants. In the view of the SNB, the Swiss big banks should put more emphasis on risk indicators pointing to stress situations when publishing their financial reports. In addition, they should publish indicators which render it possible to gain a broader view of their risk profiles and the adequacy of their capital. This is in line with the FSF recommendations on increased transparency. One of the main points to emerge from the FSF report on the financial crisis is that market participants must improve their transparency to the market as regards risk exposures, risk management and accounting.

For the SFBC and the SNB, it is very important that the banks also take relatively rare but very large shocks – so-called 'tail events' – into consideration. In this regard, the stress tests to be developed in collaboration with the authorities should in future also be used to monitor capital adequacy and to help ensure that the banks' capital base is solid enough to absorb severe but realistic stress events. The FSF also comes to the conclusion that it is imperative for banks to improve the analysis and control of tail risks. In this regard, supervisors are urged to monitor banks' stress testing practices more rigorously.

6 Ibid.

7 Cf. 'Globalised credit crisis – consequences for banking supervision', SFBC annual media conference, 1 April 2008; available at www.ebk.admin.ch.

8 The Basel Committee's revised capital adequacy framework ('Basel II') sets minimum standards which explicitly make provision for accommodating country-specific solutions. For further information, cf. Bank for International Settlements, *Basel II: revised international capital framework*, June 2006; available at www.bis.org.

9 Cf. 'Capital regulation of banks: where do we stand and where are we going?', Robert Bichsel and Jürg Blum, *Quarterly Bulletin* 4/2005, Swiss National Bank; available at www.snb.ch.

10 Cf. footnote 7.

11 Cf. IMF, *Switzerland: 2008 Article IV Consultation Concluding Statement of the IMF Mission*, March 2008; available at www.imf.org.

1 General economic and financial conditions

After several years of rapid economic growth and low risk premia in the financial markets, 2007 saw the onset of pronounced global financial turmoil (cf. box 2, p. 18). Decreasing house prices and increasing default rates among non-prime borrowers in the US led to a fall in prices of unexpected magnitude for many real estate-related securities like mortgage-backed securities (MBS), asset-backed commercial paper (ABCP) and collateralised debt obligations (CDO). As a consequence, many financial institutions with exposures to these products suffered substantial trading losses. Increasing uncertainty and risk aversion led to a fall in liquidity and a general deterioration in conditions on credit markets. Moreover, stock price indices declined worldwide and economic growth weakened in some countries, even though it remained robust in others, including the EU and Switzerland.

After peaking in March 2008, credit spreads and the price of credit default swaps (CDS) have decreased markedly, even though they remain high by historical standards. Similarly, the prices of higher rated US real estate-related securities recovered significantly during the last couple of months. Regarding the macroeconomic outlook, the uncertainty as to the future trend of the US housing market and potential consequences for the rest of the economy is high. The most likely outcome is that

overall, economic growth will slow moderately in 2008 before recovering in 2009. However, the possibility of a severe recession in the US spreading to other countries cannot be ruled out.

Economic slowdown

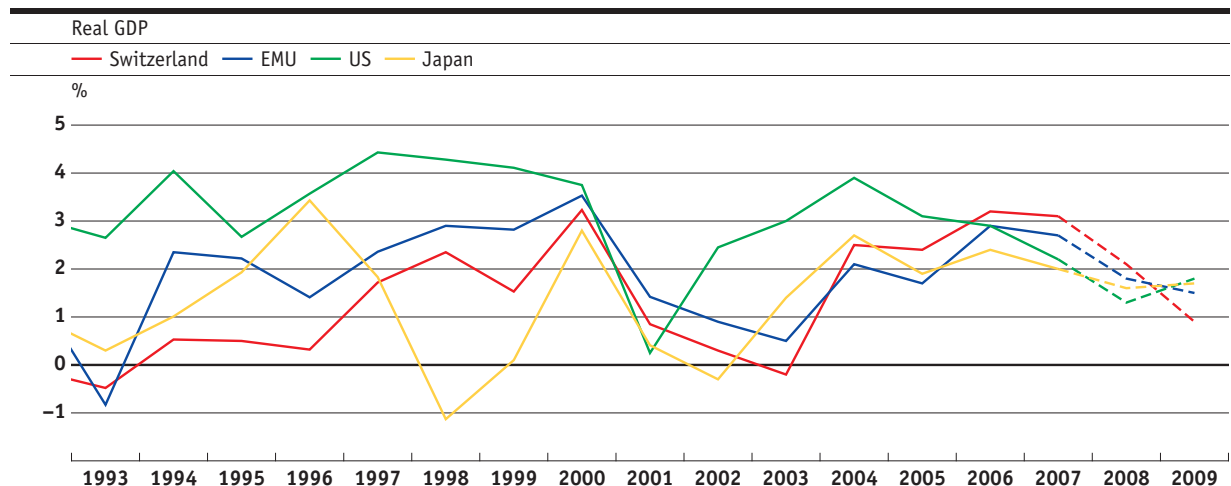
In the US, real GDP growth has been losing momentum since 2006, and came to a near standstill in the last quarter of 2007. Meanwhile, real GDP growth softened moderately in the EU and Japan. In spite of the worsening global macroeconomic and financial market conditions in 2007, emerging markets continued to grow at a robust pace. This also applies to Switzerland, where real GDP growth reached an annual rate of 3.1% and was thus above its long-term average for the fourth year in a row (cf. chart 2).

Adverse real effects of the financial market turmoil and high commodity prices are expected to intensify in 2008. As a consequence, the Swiss National Bank (SNB) anticipates weaker economic growth in the US as well as in the EU and Switzerland for 2008, while in 2009 growth rates are expected to increase again, though only gradually. The IMF outlook for emerging markets¹² indicates that growth will continue at relatively high but slightly declining rates.

The uncertainty relating to downside risks to global growth as well as to Swiss economic activity is high, as US house prices continue to decline and the end of the global credit market turmoil is not

Growth in GDP

Chart 2



Source: SNB

12 Cf. International Monetary Fund (IMF, www.imf.org), *World Economic Outlook*, April 2008.

clearly in sight, as yet. Furthermore, there are signs that banks are tightening credit conditions significantly in the US and the EU.¹³ A self-reinforcing feedback mechanism between financial markets and the real economy is therefore a genuine risk, even though banks do not appear to have tightened their credit conditions in Switzerland.

Tighter funding conditions for banks

Since our last *FSR*, the funding conditions for banks on the money markets have deteriorated significantly. Concerns regarding the soundness of counterparties and the value of collateral, uncertainty regarding financial institutions' own liquidity needs and increased risk aversion on the part of investors have led to a generalised reduction in market-supplied liquidity. As a consequence, unsecured borrowing on the wholesale market at maturities beyond three months has become unusually expensive, if not impossible. The repeated interventions by central banks, aimed at easing conditions on the interbank market, alleviated the situation only partially. For a lasting effect, it is necessary for market participants to regain confidence in the liquidity and solvency of banks.

Various indicators illustrate this tightening in funding conditions. For example, both the IMF Funding and Market Liquidity Index¹⁴ and a liquidity index calculated by the Bank of England¹⁵ indicate that the fall in liquidity in summer 2007 was very severe. According to the IMF Index, market liqui-

ty conditions became tighter than at their previous troughs around 1998. Another indicator is the spread between the three-month Libor and a three-month overnight indexed swap – also known as OIS or TOIS. This indicator reflects the risk and liquidity premia that banks have to pay to obtain liquidity through unsecured borrowing. As can be seen in chart 3, this measure shows that funding conditions deteriorated considerably for all major currencies.

As regards short-term interest rates, developments differ from one country to another, reflecting the different reactions by central banks to the worsening economic outlook and declining liquidity in money markets. While, after July 2007, three-month Libors declined substantially in the US and to a lesser extent in the UK, they remained almost unchanged in the euro area, Switzerland and Japan (cf. chart 4).

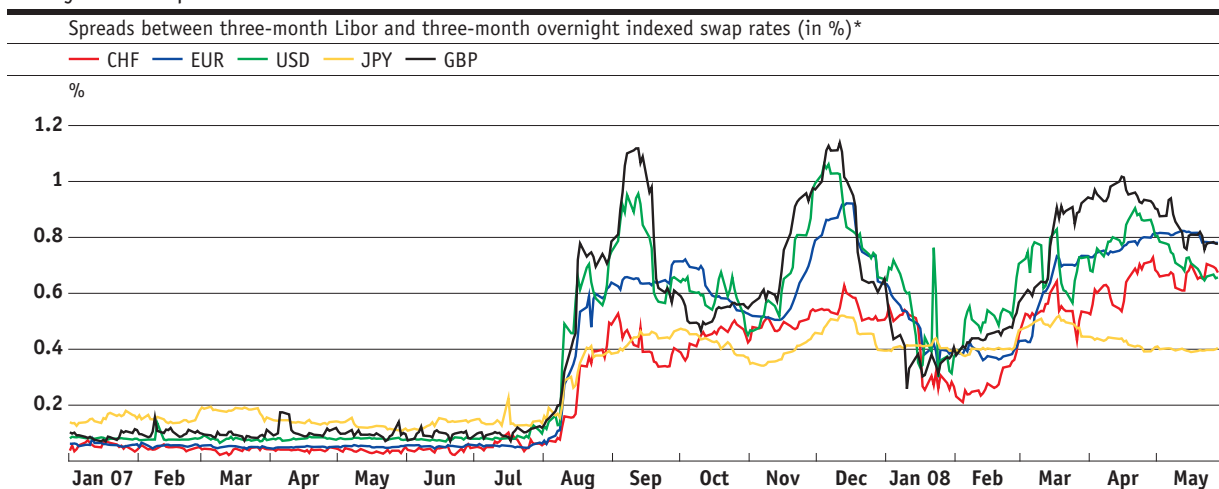
Despite slowing economic growth and declining liquidity on the credit markets, inflation has reached uncomfortable levels in many countries, mainly because of non-core components such as energy prices. This reduces the scope for central bank actions targeted at improving conditions in the money market.

No large-scale disequilibrium on stock markets

Even though all major stock indices dropped after peaking in summer 2007 (cf. chart 5), stock markets have not been at the centre of the turbu-

Money market spreads

Chart 3



Sources: Bloomberg, SNB

* The overnight rates are: TOIS for CHF, EONIA for EUR, OIS for USD, TONAR for JPY, SONIA for GBP.

13 Cf. European Central Bank (ECB, www.ecb.int), 'The Euro Area Bank Lending Survey', January 2008, and Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices, April 2008. Source for Switzerland: SNB.

14 Cf. IMF (www.imf.org), *Global Financial Stability Report*, April 2008.

15 Cf. Bank of England (www.bankofengland.co.uk), *Financial Stability Report*, April 2008.

lence this time, contrary to the situation in many previous financial crises.

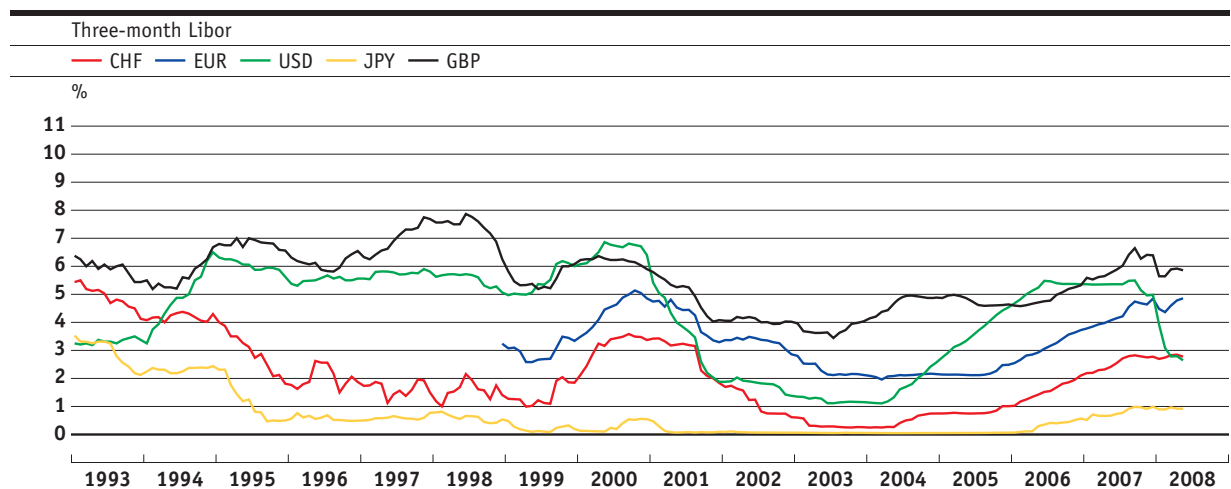
The relative resilience of stock prices, in an environment characterised by increasing uncertainty and risk aversion, can – at least to some extent – be explained by the absence of an apparent build-up of large-scale disequilibrium on stock markets over the past few years. Though rapid, the growth in stock price indices since 2003 has been broadly in line with the development of economic factors – such as earnings, dividends and interest rates –

which can be used as a basis for assessing the fundamental value of stocks.

This is, for example, reflected in the development of the ratio of stock prices to company earnings (P/E ratios). In most countries, P/E ratios were close to their long-term average in July 2007. When stock prices declined after summer 2007, P/E ratios in the US and emerging markets only slightly exceeded long-term average levels, and in the euro area, UK, Japan and Switzerland they even dipped below the long-term averages (cf. chart 6).

Short-term interest rates

Chart 4



Stock market indices

Chart 5

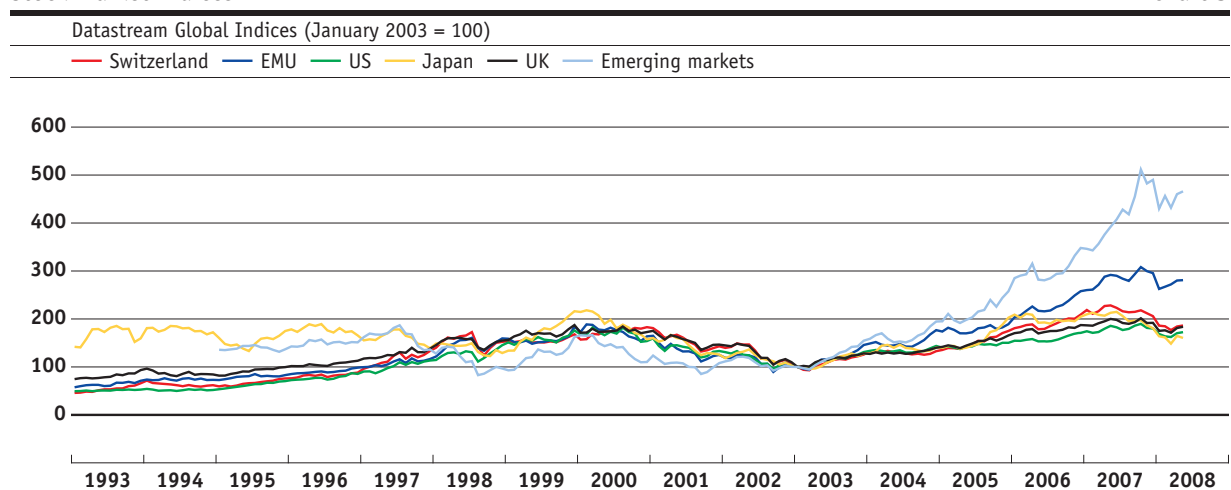


Chart 4: Source: Reuters

Chart 5: Source: Thomson Datastream

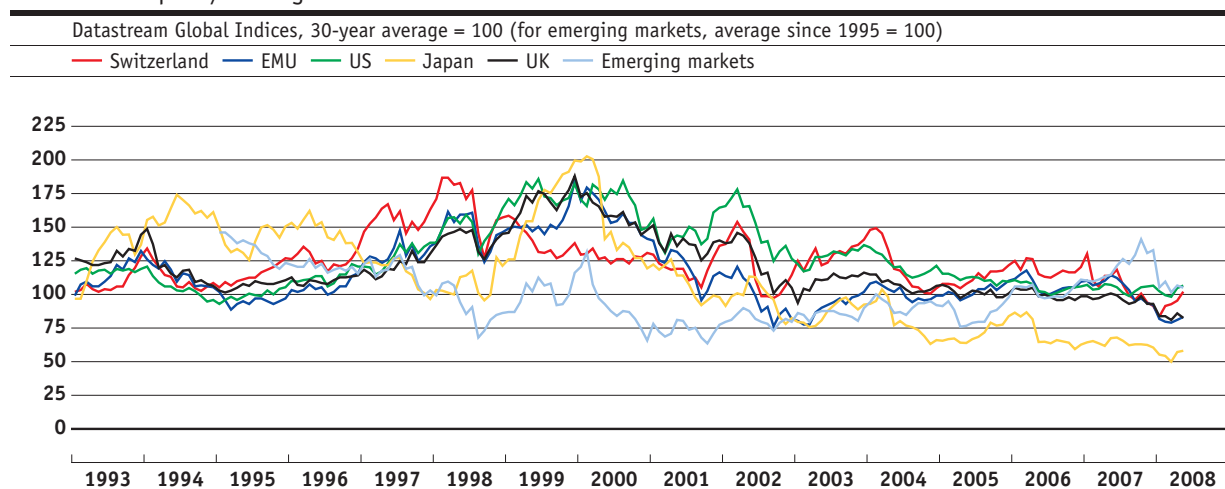
Even though overall stock markets currently appear relatively sound, the situation can change rapidly. Earnings have been above their trend levels in many regions for some time now. Given the unfavourable economic outlook, there is a risk that earnings will fall below their long-term average in the near future, pushing up P/E ratios. In this case, large-scale price corrections in stock markets would become more likely.

Declining house prices in the US

Developments in the US real estate market are at the epicentre of the current turmoil. After many years of rapid growth – at a pace which was not fully in line with economic fundamentals – growth rates for house prices started to decline substantially in 2006. Slowing house price inflation rapidly translated into increasing delinquency rates, especially in the non-prime segment of the market, and into a drop in the value of securities related to mortgages, such as MBS, triggering the current turmoil (cf. next section).

Stock market price/earning ratios*

Chart 6



House prices

Chart 7

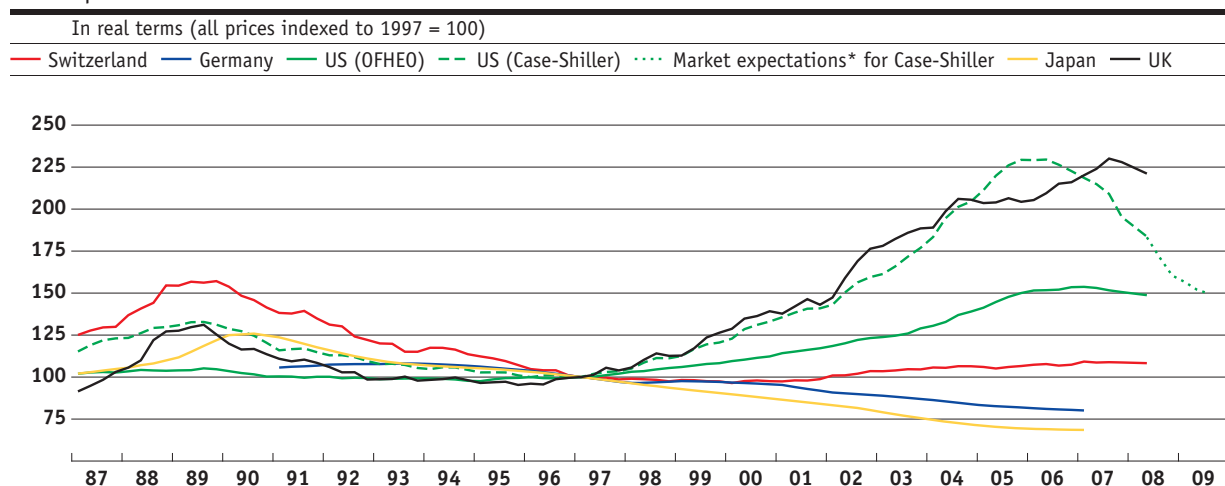


Chart 6: Source: Thomson Datastream

* Earnings are realised earnings per share.

Chart 7: Sources: BIS, Standard & Poor's/Case-Shiller, IMF

* Market expectations for the Case-Shiller Index as reflected by the corresponding futures.

Even though the price decrease in the biggest cities has been substantial, -20% in real terms according to the Case & Shiller Index, the overall OFHEO house price index for the US has fallen by a real amount of only 3% so far. However, US house prices seem likely to drop further in the near future. This is because, first, economic growth in the US is expected to slow down. And, second, house prices still appear to be relatively high when compared to a valuation based on economic fundamentals. For the biggest cities, market participants currently expect a further decrease in real house prices by more than 18% over the next year and a half (cf. chart 7).

In several European countries, real house prices have increased twice as much as in the US during the last decade, which is considerably faster than the development of economic fundamentals might justify.¹⁶ Unlike the US, house prices in most of these countries have not fallen yet. However, in the light of the expected deterioration in economic conditions, downward price corrections in these markets have become more likely.

As opposed to these countries, Swiss house prices have been increasing only moderately in recent years and real house prices are still well below their peak of 1989. Overall, the path of house prices in Switzerland has been broadly in line with economic fundamentals and no apparent large-scale imbalances have been developing. This might, however, not apply to some regions or segments of the

real estate market, where price increases have been well above average during the last decade.

Declining credit quality

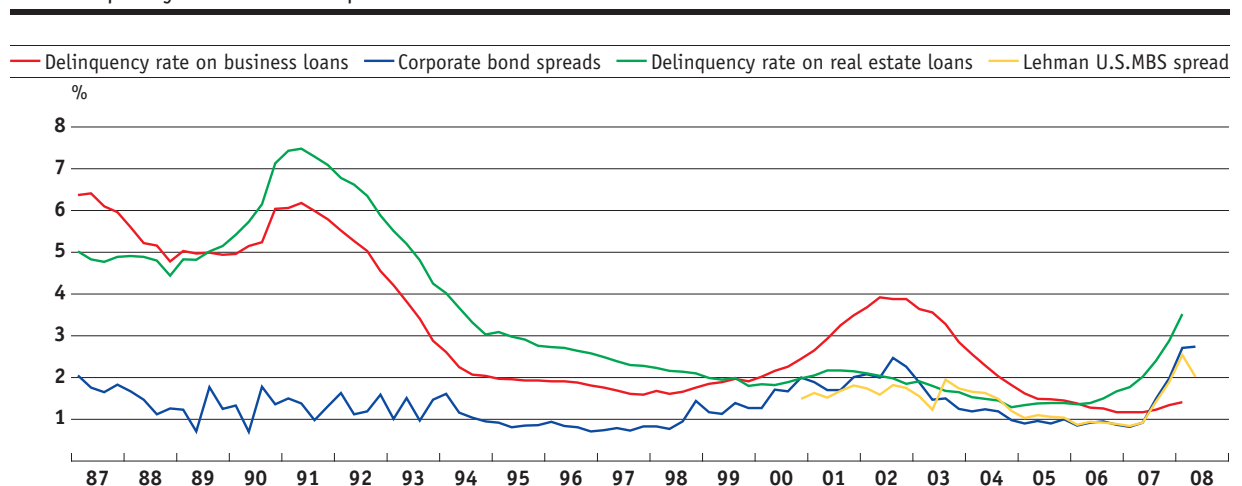
After a three-year phase characterised by very high credit quality, the creditworthiness of borrowers started to decline in 2007. Although default rates are still relatively low, strongly increasing bond spreads indicate that perceived credit risk has increased substantially. This is particularly the case in the US and also in Europe, though to a somewhat lesser extent. In Switzerland, developments have been far less pronounced.

In reaction to decreasing house prices, the worsening economic environment and tightening credit markets, US households and companies have been subject to increasing financial strain. As a consequence, delinquency rates on real estate credit and business credit have increased (the latter to a much smaller extent). The levels reached so far, however, are still relatively low by historical standards (cf. chart 8).

Although the overall increase in delinquency rates in the US economy has been moderate so far, the increase in perceived credit risk – as measured by market-based indicators – has been more pronounced. For instance, US corporate bond spreads as well as spreads on MBS have increased substantially since July 2007. As can be seen in chart 9, the most spectacular developments concern securities that are backed by US sub-prime mortgages.

US delinquency rates vs bond spreads

Chart 8



Sources: Fed, Thomson Datastream

16 This is pointed out by the IMF, in particular (cf. International Monetary Fund (IMF, www.imf.org), World Economic Outlook, April 2008).

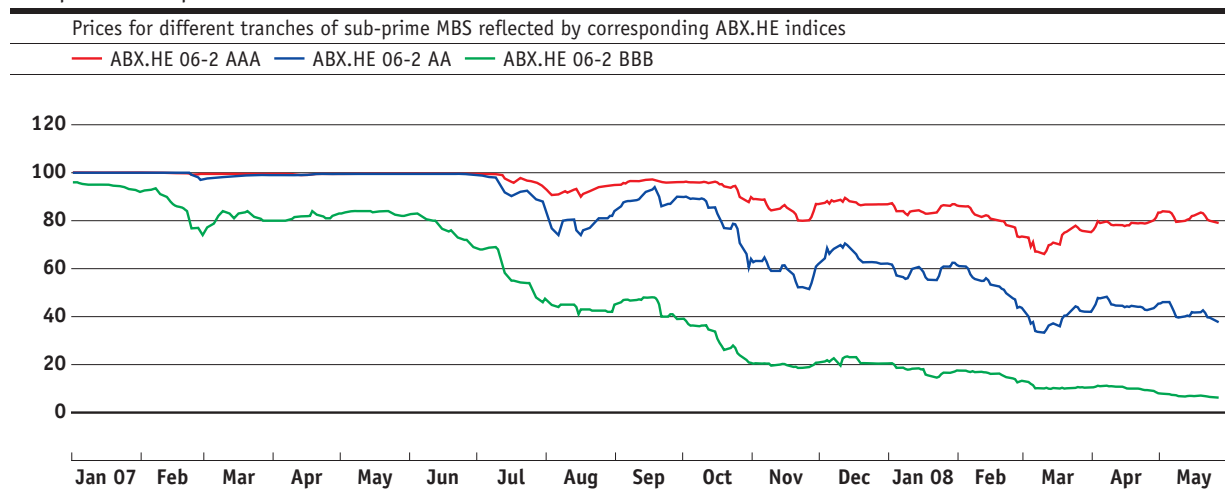
Even after the recent correction, credit spreads remain high by historical standards. Similarly, the prices of higher rated US real estate-related securities have recovered significantly during the last couple of months, without returning to pre-turmoil levels.

According to the European Central Bank and the Bank of England, the overall creditworthiness of European borrowers is still relatively good.¹⁷ In the UK and in Germany, for example, corporate bankruptcies have declined and are at a low level. How-

ever, insolvencies among European households are at a relatively high level. Another negative indicator of credit quality is that the leverage of European companies and households has increased further. This is especially relevant, since the costs of debt have increased and lending standards are getting tighter. In addition there is, at least in some countries, a risk of a correction in the housing market. Accordingly, the spreads on European MBS have increased in recent time, although less than in the US and at a much lower level.

Sub-prime MBS prices

Chart 9



Credit Spreads

Chart 10

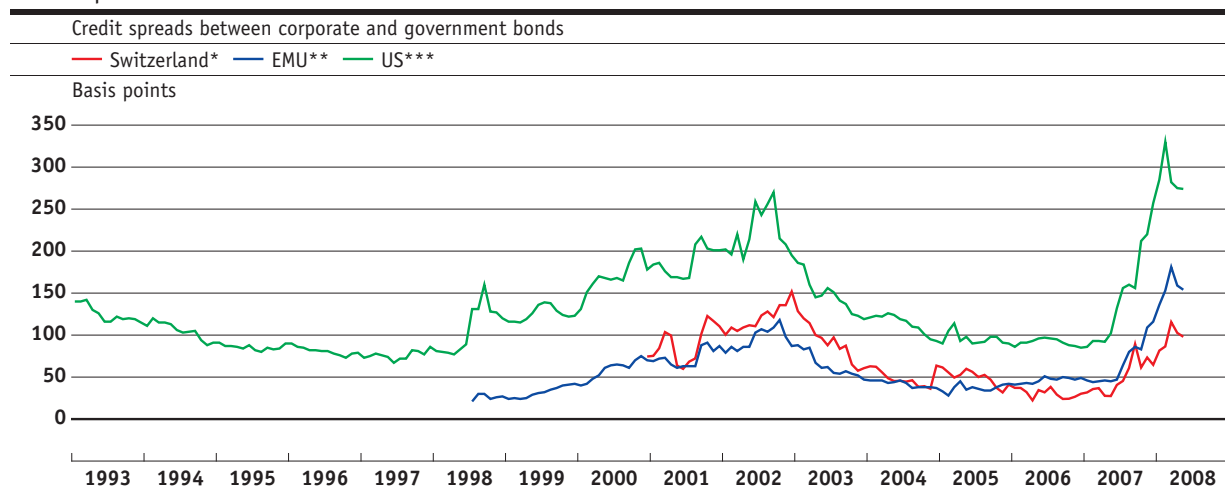


Chart 9: Source: Markit

17 Cf. Bank of England (www.bankofengland.co.uk), *Financial Stability Report*, April 2008.

Chart 10: Source: Thomson Datastream

- * Yields (spot rates) for Swiss investment grade corporate bonds and for Swiss Confederation bonds, calculated by the SNB.
- ** Euro-Aggregate Corporate (investment grade, Euro denominated) and Euro-Aggregate Government AAA indices, Lehman Brothers.
- *** US Corporate (investment grade, USD denominated) and US Treasury indices, Lehman Brothers.

As can be seen from chart 10, corporate bond spreads in the EMU have increased substantially since summer 2007. Similar to the development in the US, bond spreads had exceeded their previous peak, before declining to levels that remain relatively high by historical standards. This indicates that, following market expectations, delinquency rates in the European corporate sector are also likely to increase in the near future.

In Switzerland, there has been a further drop in corporate insolvencies. However, for the first time in five years, there has also been an increase in the average debt-to-assets ratio for large companies. The bond spreads for Swiss companies have recently increased, but the development has been much more moderate than in the US or even the EMU (cf. chart 10). For households, the trend of the past seven years has continued, with the number of insolvencies increasing in 2007 and in the first couple of months of 2008.

International financial institutions affected by the turmoil

The profitability and capital base of international financial institutions have been affected by the deteriorating conditions on the credit markets. As a consequence, various banks have taken steps to strengthen their capital base and reduce their risk positions. Despite these efforts, however, market indicators suggest that, overall, confidence in banks' resilience has not yet been fully restored.

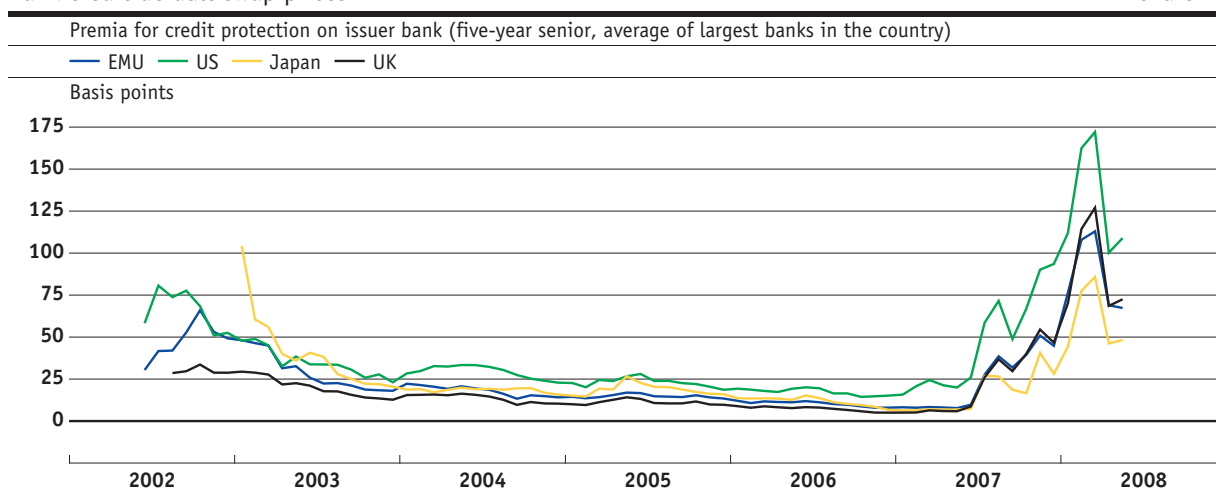
One indicator is the rise in the spread between the three-month Libor and a three-month overnight indexed swap – also known as OIS or TOIS. This increase reflects the fact that, on average, banks have to pay higher risk and liquidity premia on the money markets (cf. chart 3). Another indicator is the prices of credit default swaps (CDS) for large international banks, which have increased substantially since summer 2007. Even though CDS prices have decreased markedly after peaking in March 2008, they remain high by historical standards (cf. chart 11).

No large international financial institution has defaulted on its obligations as a consequence of the turmoil. The explanation for this situation lies in a combination of four factors. First, most large international banks have relatively well diversified income streams. As macroeconomic and financial conditions (apart from those in credit markets) have remained relatively favourable so far, earnings from these income streams have helped to partly offset trading losses resulting from credit market-related securities. Second, most banks had built up a relatively comfortable capital base before the outbreak of the turmoil, and this buffer has enabled them to absorb most of the losses incurred since July 2007.

A third factor is that investors – among them sovereign funds – have been willing to recapitalise most of the large financial institutions that incurred the biggest losses. Citigroup, Merrill Lynch, Morgan

Bank credit default swap prices

Chart 11



Source: Bloomberg

Stanley and UBS, for example, have received capital totalling more than USD 45 billion from sovereign wealth funds and other large investors.¹⁸ Finally, the public sector has played an important role, with some central banks providing the banking sector with more liquidity over longer time horizons and against a broader set of collateral than usual or, as in the case of Bear Stearns in March 2008, through the provision of support to a securities house.

Outlook

The outlook regarding price developments in the US housing market and potential consequences for the rest of the economy remains highly uncertain. The most likely outcome is that global economic growth will slow moderately in 2008 before recovering in 2009. For Switzerland, the SNB expects that real GDP growth in 2008 should range between 1.5% and 2%, as compared to 3.1% in 2007.

Furthermore, although a moderate slowdown is the most likely scenario, market participants in general – and banks in particular – should take

account of the fact that downside risks are relatively large at present.

First, a stronger-than-anticipated decrease in house prices and increase in delinquency rates would make the adverse scenario of a recession in the US spilling over into other countries, including Switzerland, more likely. Second, price corrections might affect the housing markets of some European countries, where prices have been increasing rapidly over the last decade. Such developments in the housing markets would put additional pressure on financial institutions, both through direct exposures and through their impact on economic growth.

Third, some of the world's largest financial institutions are in the process of reducing their risk taking, thereby potentially reducing the supply of credit to the economy. This makes a self-reinforcing feedback mechanism between financial markets and the real economy more likely.

¹⁸ Cf. IMF (www.imf.org), *Global Financial Stability Report*, April 2008.

Box 2. Chronology of the financial turmoil

Phase 1: Prior to 1 January 2007

Several years of highly favourable global financial and macroeconomic conditions.

The years prior to 2007 are characterised by rapid growth in economic activity and asset prices, highly liquid financial markets and low levels of perceived economic and financial risk. Many financial institutions, among them CSG and UBS, increase their risk-taking, leverage and profitability during this phase.

In 2006, house prices in major cities stall and economic growth loses momentum.

Key developments:

- Economic growth between year-end 2003 and 2006 is above the long-term average in many countries, including the US and Switzerland.
- Stock prices grow at high rates in the EU, US and Switzerland between 2003 and 2006.
- House prices grow by more than 50% in the US and more than 100% in the UK between 1996 and 2006.
- The leverage of the Swiss big banks increases from 11 to 40 between 1996 and 2006.

Phase 2: 1 January to 9 August 2007

US house prices fall and delinquency rates in the sub-prime segment of the US mortgage market increase; market participants remain relatively optimistic until early August.

Stalling, and by some measures falling, US house prices in early 2007 lead to an increase in delinquency rates in the sub-prime segment of the US mortgage market in spring and early summer (cf. charts 7 and 8). The prices of lower rated tranches of sub-prime mortgage-backed securities begin to fall.

In June and July, prices of high rated tranches of sub-prime mortgage-backed securities also start falling (chart 9), and the first casualties among financial institutions ensue.

The materiality of the exposure of large international banks – and notably the Swiss big banks – to US sub-prime mortgage markets remains largely unknown at this time. However, overall, the level of confidence regarding the capacity of the financial sector to withstand these shocks is maintained for the time being.

Concerns among market participants regarding the magnitude and concentration of banks' sub-prime exposures escalate in the first week of August. By 9 August, a crisis of confidence has developed on the interbank money markets, and liquidity in many markets has dried up.

Key events:

February 2007:

- The prices of BBB rated tranches of sub-prime mortgage-backed securities fall by 20%.

May 2007:

- UBS announces the reintegration of one of its hedge funds (Dillon Read Capital Management) into its investment bank, after suffering losses related to the US mortgage securities market, and notably the sub-prime segment of this market.

June 2007:

- Moody's, the rating agency, downgrades a range of sub-prime mortgage-backed bonds. The prices of higher rated (AAA and AA) tranches of such bonds start falling. Indices for BBB rated tranches drop by 18%.
- Two hedge funds of Bear Stearns, the US investment bank, collapse due to losses related to sub-prime securities.

July 2007:

- UBS replaces its CEO.
- Several more hedge funds fail due to sub-prime-related losses.
- By the end of the month, HSBC, the British bank, announces sub-prime-related losses, and IKB, the German Landesbank, reports substantial sub-prime-related losses in one of its special investment vehicles (SIVs).

August 2007:

- In the first week of August, IKB brings the troubled SIV on to its balance sheet, and is in turn rescued by the German government.
- Rumours about other institutions – notably Northern Rock, the UK mortgage lender – intensify.
- On 9 August, BNP Paribas freezes three funds due to losses related to US sub-prime mortgage markets.

Phase 3: 9 August 2007 to present

The sub-prime-related losses suffered by large international banks increase, triggering several waves of liquidity squeezes in interbank money markets. Central banks respond with massive and unprecedented liquidity operations.

Over the next few months, the situation deteriorates. US house prices continue to fall (cf. chart 7). The prices of securities backed by US sub-prime mortgages fall, reaching unexpectedly low levels (cf. chart 9). Risk premia increase significantly (cf. charts 10 and 11). Stock prices see a moderate decline towards the end of 2007, plummet in early 2008 and subsequently regain some ground (cf. chart 5).

From autumn 2007 to spring 2008, large banks across the world reveal major write-offs and losses, mainly due to exposures on US sub-prime mortgage markets. These write-offs reach a total of USD 193 billion in March 2008.¹⁹ Many banks subsequently take measures to increase their capital base.

Northern Rock (UK), and later Bear Stearns (US), nearly collapse, following a loss of market confidence that severely reduces their capacity to fund their operations. In both cases, public sector interventions prevent the failure.

In Switzerland, UBS makes a series of announcements of losses due to the drop in the market value of its large holdings of securities backed by US sub-prime mortgages. UBS's disclosed gross losses on these positions amount to about CHF 40 billion by May 2008. As a consequence, UBS incurs an annual net loss of about CHF 4.4 billion for 2007, and about CHF 12 billion in the first quarter of 2008. At the same time, it takes measures to significantly strengthen its capital base during this period, raising about CHF 28 billion of fresh capital. UBS also sells off part of its further exposures to the US real estate market.

CSG stays profitable in 2007, but suffers a loss of CHF 2.1 billion in the first quarter of 2008. By May 2008, Credit Suisse has gradually disclosed what amounts to about CHF 9 billion of gross losses and write-downs related to the sub-prime crisis.

In contrast, Swiss banks with a domestic business focus prove not to be substantially exposed to the US sub-prime mortgage market.

The magnitude of banks' disclosed exposures on the US sub-prime mortgage market, and the uncertainty regarding exposures that have not yet been disclosed, give rise to a crisis of confidence in the money market during this period. As can be seen in chart 3, it is possible to distinguish three waves of severe loss of confidence in the interbank money market over the ten months from August to May, together with associated surges in money market spreads. The first wave hits global money markets in August and September, and the second in November and December 2007. After relative calm in money markets in the first two months of 2008, the third wave gathers momentum in late February, and breaks on Wall Street with the rescue of Bear Stearns by the Fed in mid-March. This third wave subsides during April, after which money markets remain relatively calm.

Each wave triggers extraordinary liquidity operations by central banks. In order to keep money markets functioning, some central banks provide additional liquidity to the banking sector over longer than usual time horizons and against a broader set of collateral than usual. In the case of Bear Stearns in March 2008, the Federal Reserve Bank of New

Key events:

August 2007:

The SNB and other central banks commence extraordinary temporary liquidity provision to the markets on 9 and 10 August.

September 2007:

Northern Rock is faced with a bank run following rumours that it has received emergency liquidity assistance from the Bank of England. The run ceases a few days later when the government guarantees all Northern Rock deposits.

October 2007:

– UBS issues a profit warning, and later announces a third quarter loss of CHF 726 million and write-downs related to US sub-prime exposure in the order of CHF 4.2 billion.
– Standard & Poors (S&P), the rating agency, downgrades UBS.

November 2007:

– Major US banks report sizeable losses due to sub-prime exposure in the first half of November; some of them also announce measures to raise new capital.
– Moody's downgrades UBS.
– Credit Suisse announces third quarter profits of about CHF 1.3 billion, despite write-downs of about CHF 2.2 billion.

December 2007:

– UBS announces further write-offs of USD 10 billion related to US sub-prime exposure and measures to raise CHF 13 billion of fresh capital through a mandatory convertible notes issue (accepted by UBS shareholders in February 2008).
– Fitch, the rating agency, downgrades UBS.
– Coordinated liquidity operations by major central banks are announced on 12 December. The SNB provides USD 4 billion in temporary liquidity to Swiss money markets.
– Bear Stearns announces a loss for the fourth quarter, its first ever quarterly loss.

January 2008:

– The SNB offers USD 4 billion of temporary liquidity to Swiss markets.
– Global equities plunge.
– Société Générale discloses a trading loss of about USD 4.9 billion.
– Major US banks announce losses and write-downs for 2007, and several also announce related measures to raise capital.
– At the end of the month, UBS warns of fresh write-offs, implying a fourth quarter net loss of about CHF 12.5 billion and a net loss for 2007 of the order of CHF 4.4 billion.

February 2008:

– UBS confirms a 2007 net loss of about CHF 4.4 billion.
– Credit Suisse announces an annual profit of CHF 8.5 billion for 2007, and shortly thereafter discloses preliminary findings of additional sub-prime-related write-offs of USD 2.7 billion (about CHF 2.9 billion).

March 2008:

– The SNB and other G10 central banks announce coordinated liquidity operations. The SNB provides USD 6 billion in temporary liquidity to Swiss money markets.

19 Cf. IMF (www.imf.org), *Global Financial Stability Report*, April 2008.

York decides to provide liquidity (indirectly) to securities dealers. Moreover, as part of concerted actions between central banks, the SNB – for the first time in its history – provides USD liquidity to market participants in December 2007. These USD liquidity operations are repeated in January, March and April, and their frequency is increased in May 2008.

- A wholesale run on Bear Stearns occurs by mid-month and the investment bank's stock price plunges. Bear Stearns faces difficulties in funding its operations, even against high grade collateral on the secured funding market. It is rescued by the Fed and JP Morgan Chase the following day.
- A few days later, the Fed announces exceptional temporary measures whereby primary brokers are given access to its lending facilities.
- Credit Suisse announces adjustments in connection with US sub-prime-related losses amounting to about CHF 1.18 billion in the fourth quarter of 2007 and CHF 1.68 billion in the first quarter of 2008. Annual net profit for 2007 is revised to CHF 7.76 billion and net profit in Q4 to CHF 0.54 billion.

April 2008:

- Major US banks announce losses and write-downs for the first quarter of 2008 related to the sub-prime crisis. Several banks also announce measures to raise additional capital.
- UBS announces about USD 19 billion (about CHF 19 billion) of gross losses and write-downs on US real estate and related structured credit positions, and a net loss of about CHF 12 billion in the first quarter.
- UBS simultaneously announces an ordinary capital increase of about CHF 15 billion (fully underwritten by a syndicate of banks) and the departure of its Chairman.
- S&P, Moody's and Fitch downgrade UBS.
- Credit Suisse announces a first quarter net loss of CHF 2.1 billion, and write-downs in the order of CHF 5.3 billion.
- The SNB renews its repo operations in USD, providing USD 6 billion in temporary liquidity to Swiss money markets.

May 2008:

- The SNB increases the amount of US dollar repo auctions to USD 12 billion.
- UBS sells USD 15 billion worth of US real estate-related assets to BlackRock, the US asset manager.

2 Profitability

Although heavily affected by the international financial turmoil, the Swiss banking sector remained profitable overall in 2007. The deterioration in financial market conditions has led to substantial losses in trading operations at the big banks and, consequently, to a major decline in their results. Banks with a domestic business focus posted even better results than in 2006, since they benefited from the buoyant domestic economy.

Results vary for different bank categories

In 2007, aggregate net profit in the Swiss banking sector amounted to CHF 15 billion, a drop of 51% from the all-time high of the previous year. The decline in 2007 was mainly attributable to the big banks, whose profits were down by 83% compared to 2006. This was due to a net loss of CHF 11 billion recorded by the big banks in the second half of the year, after they had posted a CHF 15 billion profit in the first half.

The other banks benefited from favourable economic conditions in Switzerland and reported better results than in 2006. The improvement was especially pronounced in the case of the cantonal banks, whose profits were up by 9%, as well as the Raiffeisen banks (+7%).

Developments were similar as regards profitability, measured in terms of return on assets (ROA). For the banking sector as whole, ROA fell from

64 basis points to 31 basis points (cf. chart 12). As a measure of comparison, the average profitability of the Swiss banking sector over the past 20 years has been 45 basis points.

Substantial losses in big bank trading operations

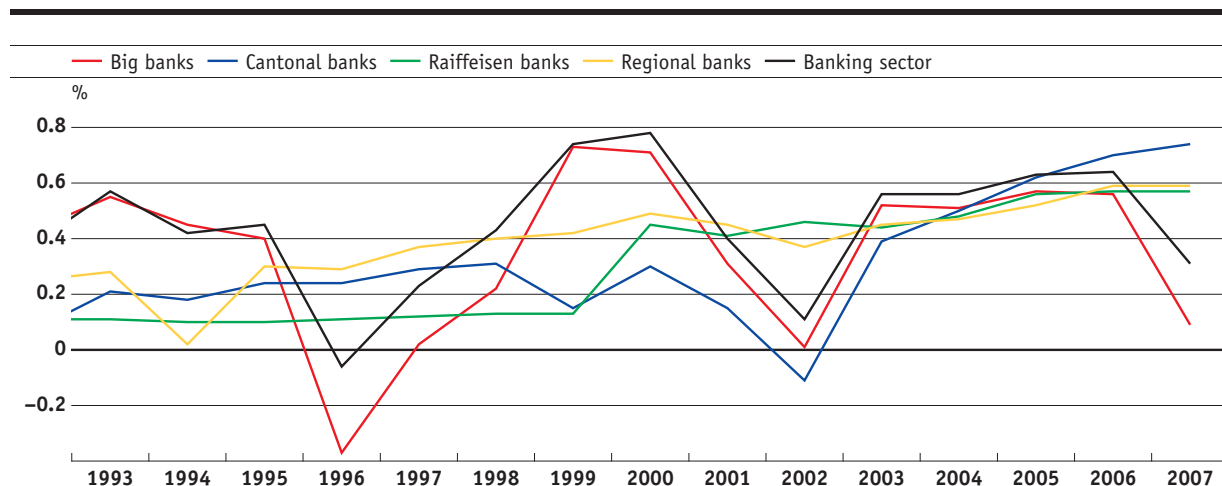
Overall, Swiss banking sector income declined by 11% in 2007. This decrease was almost exclusively attributable to the drop in big bank income; the other banks recorded an increase in income compared to the previous year (cf. table 1, p. 23).

The fall in income at the big banks was a direct result of the losses suffered in the US sub-prime mortgage-backed securities segment. Consequently, the losses associated with the international financial turmoil are almost fully reflected in the result for trading operations.

As opposed to the result for trading operations, all other big bank operations reported increased income as compared to 2006. In particular, income from commission business and services, which accounted for almost 70% of big bank income in 2007 (cf. chart 13), was up by 15.5%. Thanks to the good performance of their wealth management divisions as well as their investment banking units outside the fixed income segment – all of which improved on their 2006 income figures – the big banks were able to reduce the impact of the losses they had suffered on positions linked to the US sub-prime market.

Return on assets

Chart 12



Sources: SFBC, SNB

Box 3. Structure of the Swiss banking sector

The Swiss economy is characterised by a comparatively large banking sector by international standards, and by the dominance of two banks, Credit Suisse and UBS. At the end of 2007, the banking sector's total assets exceeded CHF 4,700 billion or over nine times the size of Swiss annual GDP. This is by far the biggest ratio among the G10 countries, followed by Belgium and the Netherlands, where total bank assets are five to six times the size of annual GDP. Measured in absolute terms, the US has the largest banking sector. However, total assets of all banks are less than US annual GDP (cf. table below).

	Size of the banking sector (ratio of total assets to annual GDP)	Concentration (assets of the largest three banks as a percentage of total assets)
Belgium	5.9	88
Canada	1.6	58
France	3.1	72
Germany	2.9	35
Italy	1.6	61
Japan	1.7	48
Netherlands	5.3	91
Sweden	3.1	83
Switzerland	9.2	80
United Kingdom	3.6	64
United States	0.9	42

Sources: SNB, *Annual Reports* (2006 and 2007), IMF

The Swiss banking sector is also large in historical terms. Up to the end of 2006, the ratio of total assets to annual GDP had been growing rapidly and steadily. This rapid growth almost exclusively reflected the development of foreign business at the two big banks. In 2007, this ratio fell slightly, as it had during the last two periods of major turbulence on the international financial market, i.e. 1998 – when the Russian and LTCM crises occurred – and the 2001/2002 stock market crash and economic slowdown. In contrast, the ratio of domestic assets to GDP has remained comparatively stable over the past 15 years at just over 200% (cf. chart below).

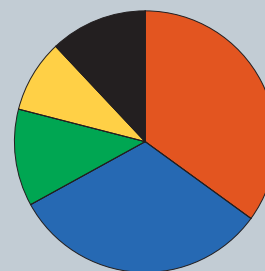
Market concentration in the Swiss banking market is high but not exceptional compared to other countries. The market share (measured in terms of total assets) of the three

largest banks (CR3) is a typical measure of market concentration. In Switzerland, it amounts to 80%. This is lower than in countries such as the Netherlands (91%) or Belgium (88%), but well above the G10 (unweighted) average (66%) (cf. table below). However, Switzerland is exceptional in that the bulk of the CR3 (76 of the 80 percentage points) is accounted for by the two largest banks. The rest of the Swiss banking sector comprises 24 cantonal banks (8%), 390 independent bank members of the Raiffeisen group (3%) and 76 regional banks (2%). The remaining 227 banks (referred to as 'other banks' in this report and including private banks, foreign-owned banks and branches of foreign banks) have a 12% share of total assets.

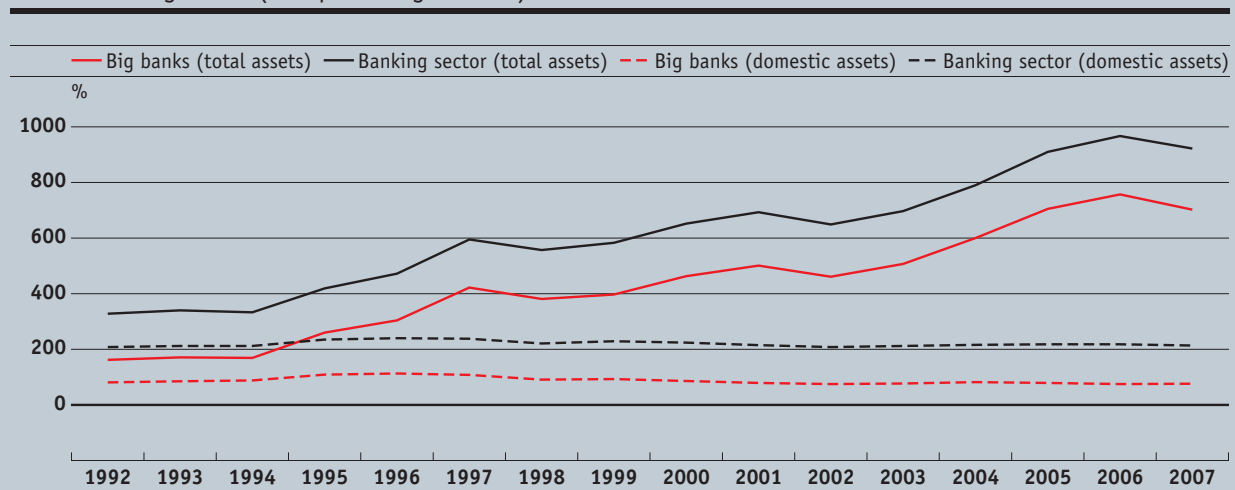
Though the two big banks dominate the Swiss market in terms of total assets, their relative importance in the domestic credit market is less significant. Their combined market share in the domestic credit market is approximately 35%, closely followed by cantonal banks (32%). The share for Raiffeisen banks is 12% and for regional banks 9% (cf. chart below). The market structure is very similar on the deposit side. These figures emphasise the importance of analysing all main bank categories – the big banks (Credit Suisse and UBS), cantonal banks, Raiffeisen banks and regional banks – when assessing financial stability in Switzerland. However, due to their size and international exposure, special attention is given to the two big banks in this report.

Market share: domestic lending

in %	
Big banks 35	Cantonal banks 32
Raiffeisen banks 12	Regional banks 9
Other banks 12	



Size of banking sector (as a percentage of GDP)



Sources for chart: SFBC, SNB

At banks with a domestic business focus, income generated by the different segments grew modestly, with the exception of trading operations at cantonal banks, which fell by 17%. The rest of the banking sector, including the private banks, recorded substantial income growth in all areas (cf. table 1).

The fall in income for the entire banking sector was accompanied by a 3% increase in costs. Whereas banks with a domestic business focus experienced an appreciable increase in their costs

(+5%), as did the other banks (+14%), costs at the big banks remained at their 2006 levels. Consequently, this latter group managed to offset a 4% rise in personnel expenses by means of an 11% reduction in other operating costs. However, it is worth noting that the increase in personnel expenses at the big banks occurred in the first half of 2007 and that these costs were down 30% again by the end of the year.

Overall, however, the cost/income ratio for the Swiss banking sector increased markedly, rising

Table 1: Swiss banking sector: Results for 2007 (in CHF billions)

	Big banks				Annual growth rate	Commercial banks with a domestic focus		Other banks	
	H1/2007	H2/2007	2007	2007		Annual growth rate	2007	Annual growth rate	
Total income	52.9	16.5	69.4			12.3	2.5%	25.9	19.9%
of which:									
Interest income	6.5	7.3	13.8	5.0%	8.3	3.7%	6.3	24.0%	
Income from commission and services	25.0	23.5	48.5	15.5%	2.6	5.4%	15.3	18.7%	
Trading income	14.9	-18.2	-3.3	-115.0%	0.9	-11.2%	3.0	22.1%	
Other income	6.5	3.9	10.4	1.0%	0.5	-1.9%	1.3	11.1%	
Total expenses	31.2	24.0	55.2	0.0%	6.1	5.2%	14.7	14.3%	
of which:									
Personnel expenses	24.8	17.2	42.0	3.9%	3.8	3.9%	9.8	14.3%	
Other expenses	6.4	6.8	13.2	-10.7%	2.3	7.3%	4.9	14.4%	
Gross profit	21.7	-7.5	14.2	-55.8%	6.2	0.0%	11.2	28.2%	
Net profit	14.6	-11.2	3.4	-83.4%	3.8	7.2%	7.4	31.4%	

Income components by bank category (2007)

Chart 13

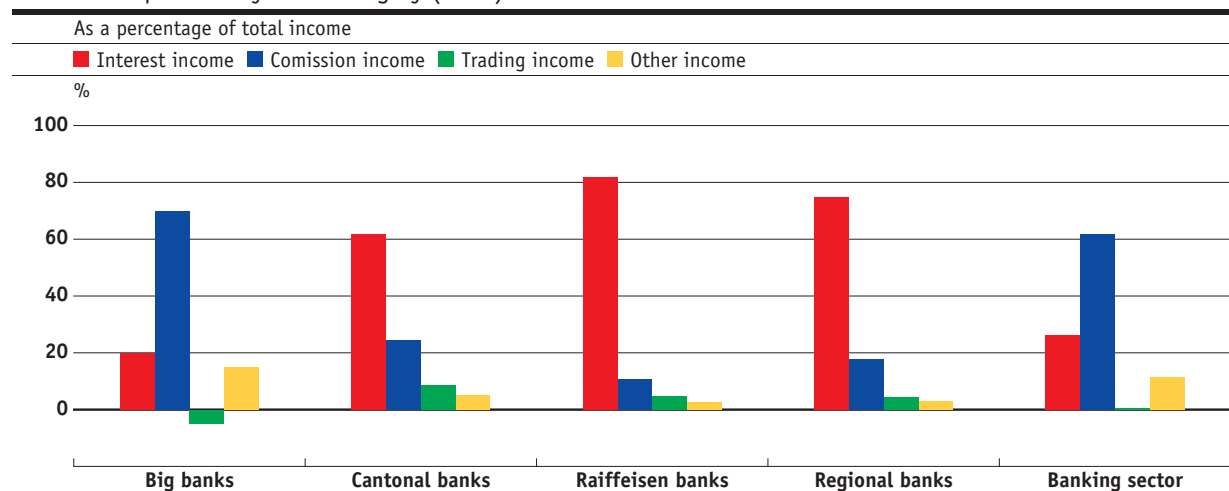


Table 1: Sources: SFBC, SNB

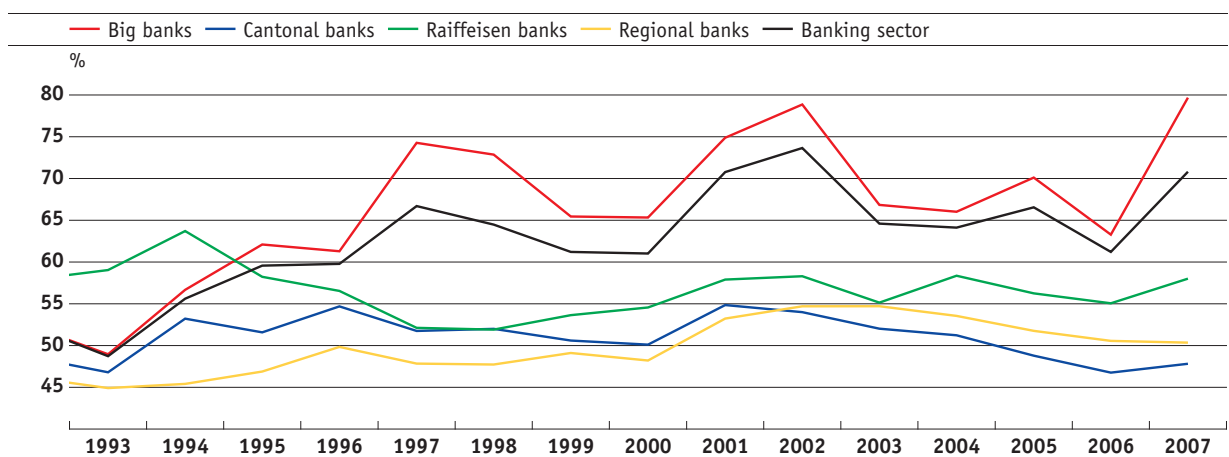
Chart 13: Sources: SFBC, SNB

from 61% to 71% in 2007 (cf. chart 14). This development reflects the surge experienced at the big banks, where the ratio soared from 63% to an all-time high of 80%. At the other banks, the cost/income ratio remained practically stable at a level slightly below the historical average. The increase in the cost/income ratio illustrates the fact that cost structures in the banking sector are relatively slow to adjust. As a result, drops in income generally lead to an initial decline in profitability.

Finally, new write-downs and provisions were up by 37% (+CHF 0.6 billion), although the figure remained very low in historical terms. Based on this indicator, it would appear that the deterioration in conditions on the international credit market has not yet materially affected the quality of the loan portfolios of Swiss banks. As indicated above, the big banks' losses due to value corrections or write-downs on US non-prime mortgage market securities affected their trading results and not the new write-downs and provisions in their loan portfolios.

Cost/income ratios

Chart 14



Sources: SFBC, SNB

3 Risks

The overall risk at the big banks increased in 2007, even though they have significantly reduced their exposures to the markets that were particularly affected by the current turmoil. Credit risk rose slightly and, mainly as a direct consequence of the hike in volatility on the financial markets, market risk rose strongly. For the other bank categories, the overall risk is relatively low by historical standards.

Big banks

Slight increase in credit risk

Despite a fall in lending volume (-8%, cf. chart 15), credit risk increased for the big banks in 2007. This assessment is based on two indicators. First, the amount of capital required as backing for credit risks – an overall measure for credit risk – rose by 10%. An explanation for such an increase alongside falling credit volume is that the drop in volume is mainly attributable to a reduction in relatively low-risk repo business – mainly conducted with foreign non-banks. By contrast, the credit volume of the big banks excluding repo business rose by 14%.²⁰ Thus the risk reduction arising from the reduction in repo business was more than offset by an increase in more risky lending in 2007.

Second, there are first signs of a deterioration in credit quality. According to the market's assessment, credit risk has increased substantially worldwide as compared to the last few years. Various indicators such as credit spreads or credit default swap (CDS) prices point to this (cf. charts 10 and 11). Even after the recent decrease following the peak in March 2008, these indicators point to significantly higher credit risk than during the period between early 2004 and July 2007. Since the credit portfolio held by the Swiss big banks is widely diversified, the average quality of their lending portfolio may well have deteriorated.

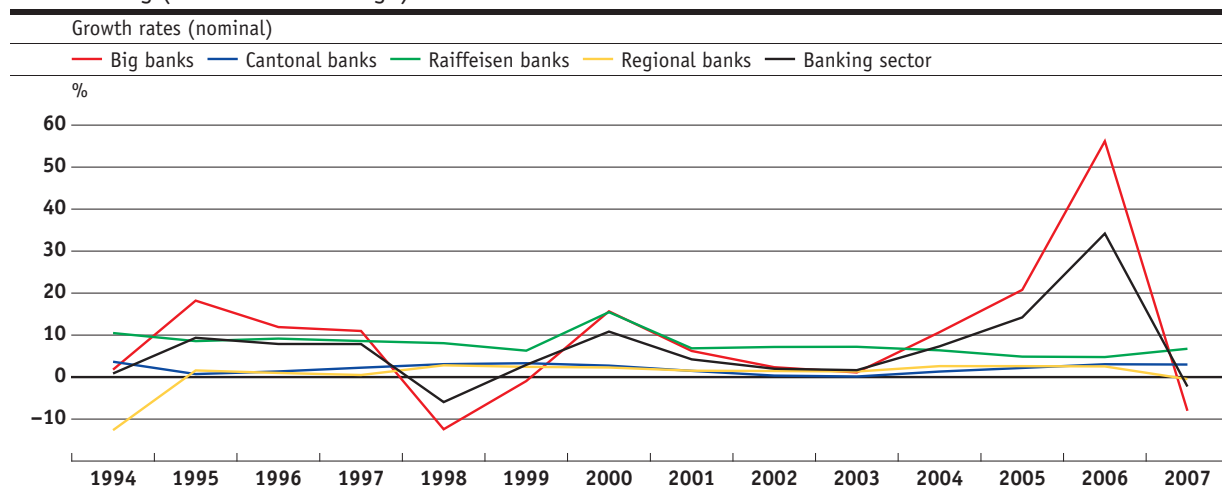
At the same time, however, backward-looking indicators of credit quality, such as the share of non-performing loans (NPLs) in total lending volume, remain at a historically low level (cf. chart 16). This may appear surprising, given that credit markets were at the core of the international financial turmoil. But the positions on which the banks recorded losses – mainly securities linked to US mortgages – were almost all in their trading books.²¹ Conventional loans, which are held in the banking book until maturity, were not affected.

Rise in market risk

Based on VaR figures – a standard measure of market risk – market risk at the Swiss big banks increased markedly in 2007.²² The ten-day VaR rose 68% for UBS and 151% for Credit Suisse Group (CSG) (cf. chart 17). This is the biggest increase

Total lending (domestic and foreign)

Chart 15



Sources: SFBC, SNB

20 Source: Annual reports, 2007.

21 The trading book covers positions held for either trading or hedging purposes. These positions must be valued frequently and precisely, and the portfolio must be managed actively. The banking book covers all other bank positions.

22 The VaR measures maximum losses within a given time span, for a given probability. For instance, a ten-day 99% VaR of CHF 100 million signifies a 99% probability that trading losses will not exceed CHF 100 million within the next ten days.

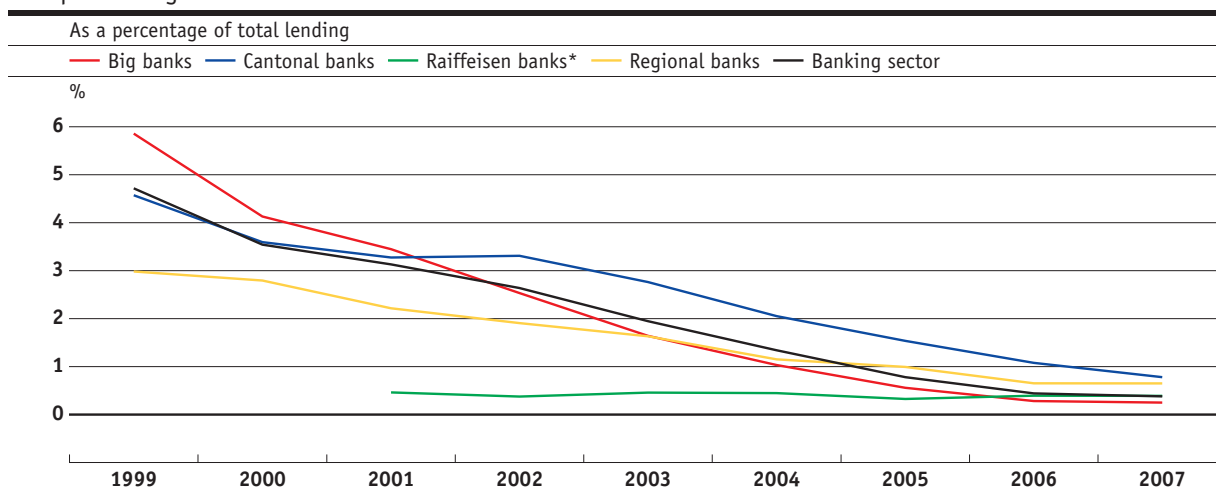
ever measured in our data series. As regards risk factors, developments were driven predominantly by the marked rise in credit spreads.

While useful as an indicator for market risk during normal times, VaR figures tend to underestimate the actual market risk in turbulent times. For instance, in 2007, effective losses exceeded VaR limits in many more cases than might have been expected according to model predictions. Indeed, limits were sometimes exceeded by a very wide margin. UBS, for example, reported a maxi-

mum ten-day VaR (99% confidence interval) of CHF 833 million for its entire trading portfolio in 2007. Yet in the second half of 2007, the losses on its trading portfolio amounted to some CHF 17 billion.²³ CSG reported a maximum ten-day VaR (99% confidence interval) of CHF 683 million for its trading portfolio in 2007. The losses on its trading portfolio in the second half of 2007 amounted to some CHF 900 million, thereby exceeding the VaR by more than 30%.²⁴

Non-performing loans

Chart 16



Market risk

Chart 17

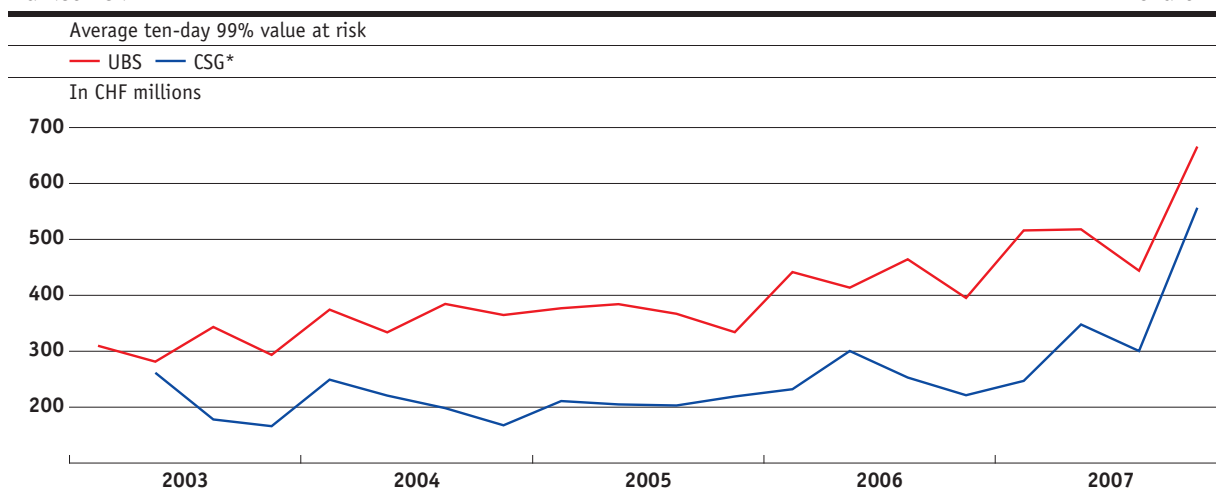


Chart 16: Sources: SFBC, SNB

* Statistics for the Raiffeisen banks are only available from 2001.

Chart 17: Source: Annual reports 2007

* One-day VAR scaled to ten days.

23 The ten-day VaR is relevant, since it is used in the determination of required capital for market risks. But even if the ten-day VaR is extrapolated to half a year (the UBS trading losses were suffered in the second half of 2007), the write-downs still exceed the VaR by a factor of 6. Sources: UBS Annual Report 2007 and UBS quarterly reports 3 and 4/2007.

24 Sources: CSG Annual Report 2007 and CSG quarterly reports 3 and 4/2007.

In the light of these limitations, the size of a bank's trading portfolio represents a rough but useful complementary indicator for assessing the bank's market risk. In past years, the trading portfolios of the Swiss big banks have been growing fast. In 2007, the overall size of big bank trading portfolios stabilised at a high level (CHF 1,306 billion; -2%).²⁵ Hence, according to this indicator, market risk at Swiss big banks has been stabilising at high levels. Yet, developments at the two big banks differed considerably. At UBS, the trading portfolio was down 12% from the year-back figure, reaching CHF 774 billion.²⁶ However, because of the unusually high growth recorded in 2006, it is still well above the level at the start of 2006. The CSG trading book increased by 18% against the previous year to reach CHF 532 billion.²⁷

While, overall, the size of the trading portfolios did not decrease substantially in 2007, the two Swiss big banks have reduced their trading exposures to the markets most affected by the crisis. For instance, UBS's exposure to the sub-prime segments of the US residential mortgage market decreased from about CHF 40 billion to some CHF 16 billion between September 2007 and March 2008 and has been further reduced since then (cf. box 2, p. 18).²⁸ Similarly, CSG reduced its exposure to this market segment from about CHF 6 billion to some CHF 2 billion during the same time span.²⁹ More generally, according to CSG's internal risk indicator – Economic Risk Capital (ERC) – its posi-

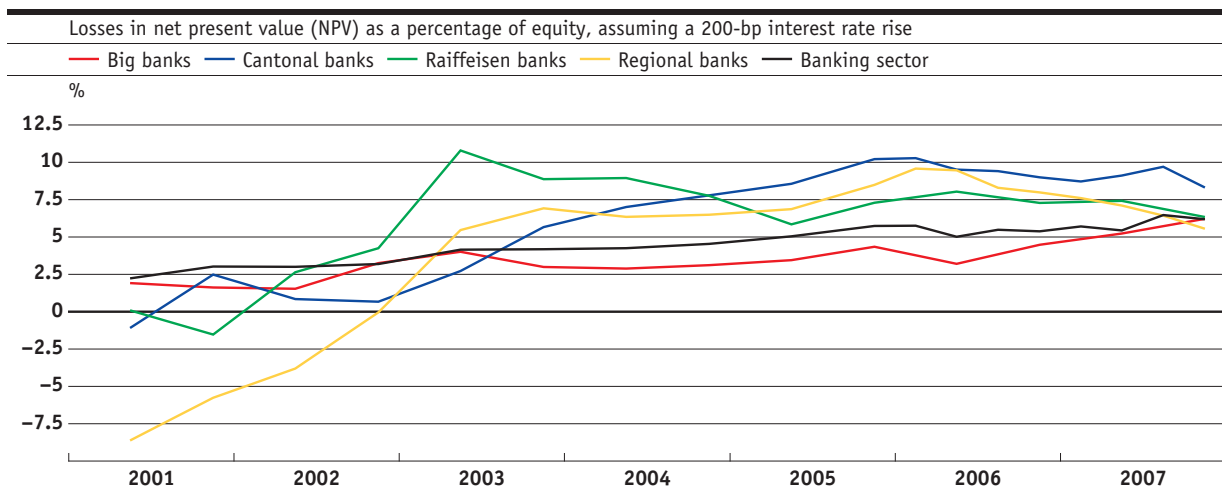
tion risk fell by about 4% in 2007, mainly as a result of reductions in real estate, structured product and fixed income trading exposures.³⁰

Another potential source of risk could stem from credit derivatives. Over the past few years, the big banks have been accumulating large positions in these products, mainly through CDS. Both banks bought and sold protection against credit events, almost exclusively for trading rather than hedging purposes. In 2007, the positive replacement value of these contracts increased by more than 300%, from CHF 45 billion to CHF 186 billion, and the negative replacement value by 260%, from CHF 49 billion to CHF 178 billion.³¹ The surge in the replacement values mainly reflects the effect that deteriorating conditions on the credit markets have had on the market value of these positions. In principle, the economic risk related to these positions is low, as movements in positive and negative replacement values broadly offset each other, and because the counterparty risk is collateralised. This, however, presupposes that banks are able to assess their counterparty risk almost on a real-time basis and adjust the collateral accordingly. In view of the size of the positions involved and the speed at which their market value fluctuates, even small delays in confirming transactions, for example, can lead to temporary exposures that are potentially large.

The standard indicators for market risk do not include the direct interest rate risk in the banking

Interest rate risk

Chart 18



Sources: SFBC, SNB

25 Source: *Annual reports 2007*.

26 Source: *UBS, Annual Report 2007*.

27 Source: *CSG, Annual Report 2007*.

28 Source: *UBS, Annual Report 2007 and Quarterly Reports 4/2007 and 1/2008*.

29 Sources: *CSG Annual Report 2007 and Quarterly Reports 04/2007 and 01/2008*.

30 The position risk is the level of unexpected loss in economic value on the portfolio of positions over a one-year horizon which is exceeded with a given small probability (0.03%). Source: *CSG Annual Report 2007*.

31 Replacement values are the assessment of the value of these derivative contracts. In most cases they are based on models.

book. For the big banks, this risk remained stable in 2007, at a relatively low level (cf. chart 18).³² If the general level of interest rates were to rise by 200 basis points, the discounted present value of the big banks would decline by 6% of capital (2006: 5%).

Outlook

The two Swiss big banks have reduced their exposures to the credit markets most affected by the crisis. Nonetheless, their exposures to international credit markets remain significant. Besides exposures in the trading portfolio, the big banks also have exposures in their loan portfolio (banking book), about half of which – mainly claims against customers and banks – concern non-domestic borrowers. Even though risk mitigation measures such as collateralisation and hedges significantly reduce the risks associated with these loans, the remaining risk is material.

A moderate slowdown in economic growth, which is currently considered to be the most likely scenario, might hence affect the Swiss big banks through a materialisation of the credit risk related to some of these positions. As a consequence, the share of non-performing loans in total lending volume, which amounted to less than 0.25% in December 2007, might increase. By way of comparison, this figure amounted to 2.2% on average over the last decade and reached almost 6% in 1999.

Furthermore, less favourable scenarios, such as a recession in the US, cannot be ruled out (cf. chapter 1). It is naturally difficult to quantify the impact of such a scenario on banks. Nonetheless, the results of an SNB stress test, which simulates the impact of such a scenario on the profitability of the Swiss banking sector (cf. box 4, p. 30), do provide a few insights. According to these results, big banks' profitability would drop significantly in a scenario combining a recession in the US and Switzerland over one year with an overall drop in equity prices and a rise in credit spreads.

Banks with a domestic focus

Credit risk unchanged

Credit risk remains relatively low for banks with a domestic business focus – the cantonal banks, regional banks and Raiffeisen banks. The capital requirement for credit risks, an indicator for overall credit risk, has remained almost unchanged

as compared to the year-back figure (+1%). This mainly reflects the moderate growth in loan volume at banks with a focus on the domestic credit market.³³

No reliable forward-looking indicators are available to assess the credit quality at these banks. As in the case of the big banks, backward-looking indicators, such as the share of NPLs in total lending volume, suggest that the quality of loans remains high (cf. chart 16). Furthermore, in view of the moderate growth of loan volumes and prices in the domestic housing market in the past few years, credit quality at these banks is not expected to deteriorate markedly in the medium term. This is because, first, the claims of all banks (including big banks) against domestic customers remained broadly constant between 1997 and 2007 (average annual growth rate: –0.2%). This suggests that the banks tended to pursue a cautious lending policy in Switzerland. Second, domestic mortgage claims have risen by an average of 3% over the past ten years, while real estate prices have climbed an average 2% a year. Finally, in the same period, the proportion of relatively low risk first-rank mortgages (mortgages with a loan-to-value ratio of up to 66%) in the overall volume of mortgages has risen by an average 0.9%. Thus, overall, neither the domestic credit market nor the domestic real estate market appear to show significant structural imbalances.

So far, these banks have only been indirectly affected by the international financial turmoil, through their claims against the big banks. Due to the impact of the crisis on the big banks, the risks attached to these claims have increased.³⁴

Relatively low market risk

For the cantonal banks, and most particularly for the regional and Raiffeisen banks, market risk is of secondary importance. For instance, the share of trading portfolios in overall assets amounts to no more than 4% in the case of the cantonal banks, as compared to 30% for the big banks.³⁵

VaR or similar indicators for measuring market risk do not exist for the domestically focused banks. An indicator of their market risks is provided by movements in required capital for market risks. Using this form of measurement, market risk for the cantonal banks dropped by 33% below the year-back level. In the case of the Raiffeisen banks it surged 76% from a previous low level and for the regional banks it dropped by 4%.

32 A direct interest rate risk exists if there is serious mismatching 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 may be locked in for a longer period than interest rates on liabilities. If a bank is in this position, a rise in interest rates will reduce the present value of assets more substantially than the present value of liabilities, and the net present value of the bank will fall.

33 In 2007, the Zurich Cantonal Bank and the Raiffeisen banks switched to Basel II for their capital adequacy calculations. This could have had an impact on the capital requirements for these banks. Con-

sequently, particular care should be taken when comparing figures for these banks with those for the previous year.

34 Note that there is an upper limit to a bank's overall exposure to a big bank. Roughly speaking, a bank's maximum exposure of this kind is equivalent to the level of its own capital. SFBC (www.ebk.admin.ch), Ordinance on Capital and Risk Distribution for Banks and Securities Traders (Capital Ordinance art. 83 et seq.) and SFBC circular 06/5.

35 Market risks at cantonal banks account for 3.5% of total capital requirements (2006: 5.3%). The corresponding figure for the regional banks is 0.44% (2006: 0.45%) and for the Raiffeisen banks, 1.5%

Interest rate risk high at some cantonal banks

In 2007, the average interest rate risk dropped on average for banks with a domestic business focus (cf. chart 18).³⁶ Despite this decline, the cantonal banks taken as a group still show a relatively high interest rate risk. If the general level of interest rates were to rise by 200 basis points, the discounted present value of the cantonal banks would decline by 8% of equity (2006: 9%).

Outlook

A moderate slowdown in economic growth might also affect banks with a domestic business focus through a materialisation of the credit risk

related to their loan portfolio. However, given the relatively slow growth in domestic loan volume and real estate prices during the last decade, credit quality for banks with a domestic business focus is not expected to decline markedly under this scenario.

Less favourable scenarios – such as a ‘recession and financial market turbulence’ scenario (cf. box 4, p. 30) – would have a significant impact on these banks, however. According to the simulations conducted by the SNB, the profitability of these banks would decrease markedly even though it should remain positive, on an aggregate basis, under such adverse conditions.

(2006: 0.8%). At the big banks, capital requirements for market risks accounted for 9.2% (2006: 4.5%).

³⁶ Cf. footnote 27.

Box 4. Stress testing the stability of the Swiss banking sector

As the international financial turmoil has illustrated, macroeconomic and financial conditions can deteriorate significantly and rapidly. Analysing the banking sector's resilience to such stress events forms an important part of the SNB's assessment of risk taking and capital adequacy in the Swiss banking sector. Scenario analysis is thus a key aspect of the SNB's assessment of Swiss financial system stability.

In addition to single-factor sensitivity analyses – in which the impact on the banking sector of a sudden increase in, say, credit spreads is simulated – the SNB also evaluates the potential impact of a recession coupled with financial market turbulence. Even though a slowdown of moderate amplitude is currently most likely and constitutes the SNB's baseline scenario, a scenario depicting a recession accompanied by turbulence on the financial markets is of particular relevance to the Swiss banking sector at present (cf. chapter 1).

In this adverse scenario, GDP growth is expected to be negative in both the US (–0.2% year on year) and Switzerland (–1.2%, year on year), equity prices are expected to fall globally (–30%) and credit quality is expected to decline, i.e. credit spreads are expected to increase (+75 basis points). Furthermore, it is expected that short-term interest rates will be cut in the US (–200 basis points) and Switzerland (–110 basis points) to mitigate the impact of the crisis.

Methodology

Two approaches are used to assess the impact of this adverse scenario on the banking sector. First, the expected impact on bank earnings is simulated. This profitability scenario analysis is based on past experiences of the sensitivity of bank earnings to changes in macroeconomic and financial conditions (e.g. how strongly have bank earnings from trading and commissions reacted to equity price movements) and on the current characteristics of the banks' activities, such as the current size of their trading book. This allows us to assess the economic resilience of the banking sector.

Second, the expected impact of this scenario on the level of stress experienced by the Swiss banking sector is simulated. The level of stress is measured by using the stress index, an indicator developed by the SNB (cf. box 6, p. 38).

This index combines a set of variables, such as an increase in bank bond yield spreads or a decrease in bank capital, all of which represent possible symptoms of stress in the banking sector. The impact of the scenarios on the stress index is assessed on the basis of past experiences of the sensitivity of the stress level to changes in macroeconomic and financial conditions, on the one hand, and current characteristics of bank activities, such as the current size of the banks' credit portfolio, on the other hand. This allows us to assess the stress resilience of the banking sector.

These two approaches are complementary in the sense that, while both economic and stress resilience are important characteristics of a stable financial system, profitability and stress are not always linked. Macroeconomic shocks may lead to potentially damaging levels of stress in the banking sector – by triggering a loss of confidence – without necessarily affecting banks' profitability in a material way. The reverse is also true. In the past, sudden drops in profitability have not necessarily caused stress levels to peak.

Results

The results of the stress tests are summarised in the table below. They provide a mixed picture regarding the resilience of the Swiss banking sector to changes in macroeconomic and financial conditions. While profitability should reach 37% of excess capital under the baseline scenario – which depicts a slowdown of moderate amplitude – it would fall to 8% under the adverse scenario. In addition, our simulations suggest that some banks are likely to face losses that are large relative to their capital base even though the banking sector as a whole should remain profitable.

Our analysis also indicates that the level of stress in the banking sector should remain high by historical standards throughout 2008, even under the baseline scenario. Under the adverse scenario, stress in the banking sector could reach significantly higher levels than the historical peak so far.

Furthermore, the sensitivity of the banking sector's earnings to economic and financial shocks, expressed as a percentage of excess capital, has increased in 2007. In other words, the capacity of the banking sector to absorb

Stress tests of the Swiss banking sector

	Economic resilience		Stress level
	Expected profits in 2008 (simulated values; as a percentage of excess capital)	Deviation from baseline scenario in 2008 (in percentage points)	Expected levels of stress (simulation)
Baseline scenario	37		High
Severe recession and financial market turbulence scenario	8	–29	Very high
Sensitivity analysis			
– Credit spread (+75 bp)	25	–12	Very high
– Stock market prices (–30%)	23	–14	Very high
– Interest rate (+200 bp, parallel shift)	31	–6	Very high

The scale used to assess the stress level is divided into five categories: very low, low, moderate, high and very high. Each category is calibrated using past values from the stress index.

a shock of a given magnitude – a measure of its capital adequacy – has decreased somewhat compared to the previous year. For instance, according to our analysis, the impact of a 75 basis point increase in credit spreads was 33% higher than by the end of 2006, i.e. increased from 9 percentage points to 12 percentage points. This result is mainly driven by the deterioration in the banking sector's capitalisation (cf. chapter 4).

Limitations

The scenario analysis is subject to two main limitations. First, the simulations are based on a stable relationship between profitability or level of stress in the banking sector and the macroeconomic and financial variables included in the models. If, for instance, banks' behaviour in the event of an equity market crash today were to deviate markedly from their past behaviour, our simulations would provide a biased picture of the real impact of an equity market crash on profitability and on stress in the Swiss banking sector. Second, due to the lack of appropriate data, the analysis does not account for possible feedback effects that may amplify the impact of each adverse macroeconomic or financial movement when these movements occur simultaneously (non-linearities). As a consequence, the simulations may underestimate the real effect of a combination of shocks, such as those considered in the scenario.

4 Capital base

Whereas the capital base at banks with a domestic business focus was strengthened, capitalisation at the big banks deteriorated substantially in 2007. This is attributable both to the losses at UBS, which reduced its eligible capital, and to the substantial increase in required capital at both big banks resulting from the higher level of risk. Simultaneously, their capital-to-assets ratio remained at a very low level, by both historical and

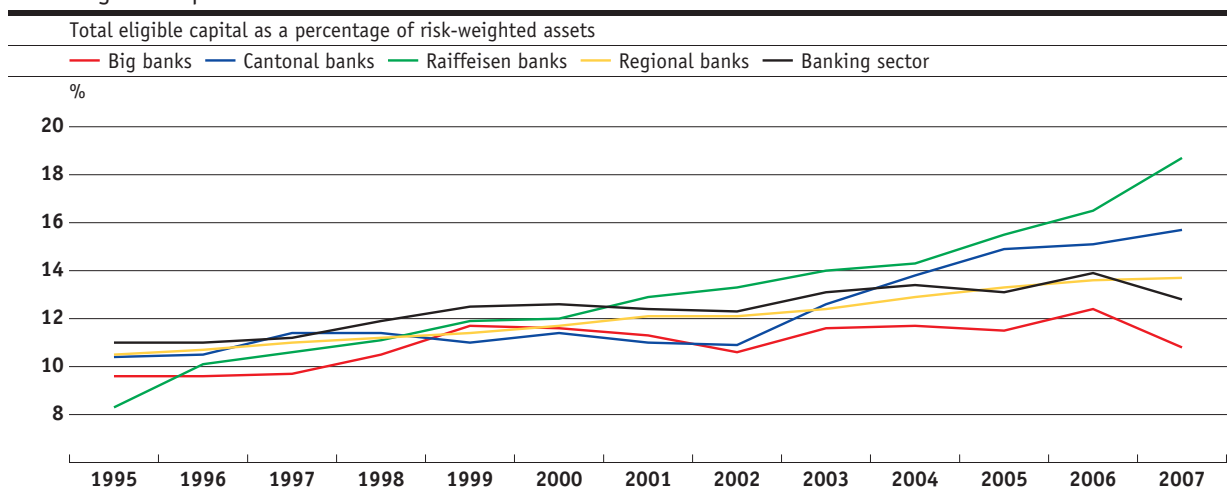
international standards. As a reaction to these developments, UBS has taken steps to raise substantial amounts of new capital in 2008.

Lower risk-weighted capital ratio for big banks

The capital situation at the big banks deteriorated in 2007 (cf. chart 19).³⁷ The risk-weighted capital ratio dropped significantly, from 12.4% to 10.8%. This decline is attributable both to the rise in risks, which resulted in an increase in required

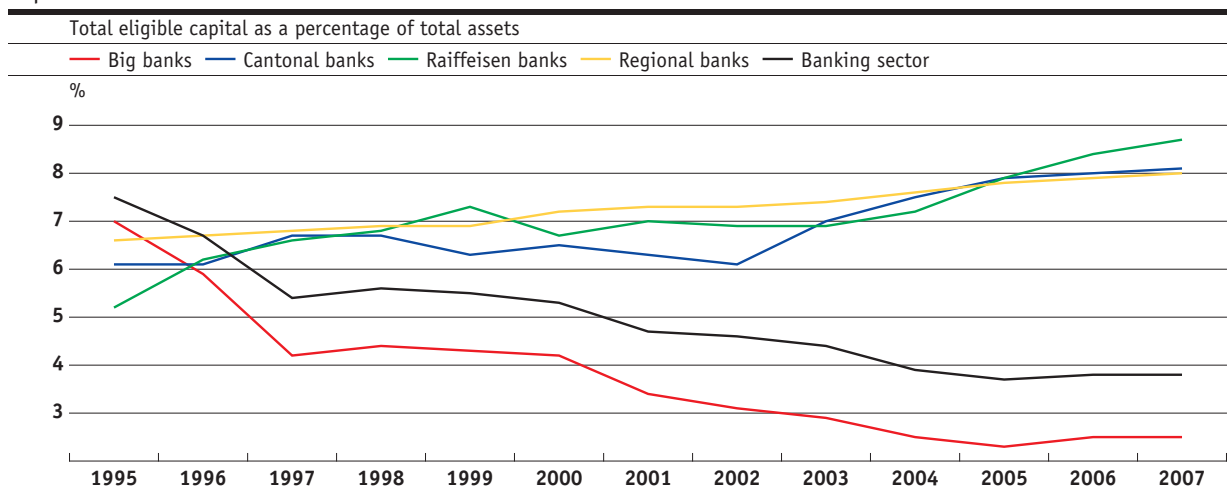
Risk-weighted capital ratios*

Chart 19



Capital-to-assets ratios

Chart 20



Charts 19 and 20: Sources: SFBC, SNB

* Ratios are based on Swiss capital regulation.

37 Cf. box 5, p. 35, for an explanation of the terminology used in this chapter.

capital at both big banks, and to the losses at UBS, which led to a decline in its eligible capital. Even after this decrease, the big banks' risk-weighted capital ratios remain high by international standards (cf. chart 21).³⁸ At the same time, their capital-to-assets ratio, which had been steadily decreasing between 1995 and 2005, stabilised at about 2.5% in 2007 (cf. chart 20). According to this figure, the leverage of the Swiss big banks remains high in both historical and international terms.³⁹

The results from the scenario analysis conducted by the SNB (cf. box 4, p. 30) suggest that, overall, the capital adequacy of the Swiss big banks deteriorated in 2007. As compared to 2006, the sensitivity of these banks' earnings to economic and financial shocks, expressed as a percentage of their excess capital, increased. In other words, their capacity to absorb a shock of a given magnitude – a measure of their capital adequacy – decreased.

As a reaction to these developments and to the CHF 11.5 billion loss reported in Q1 2008, UBS has taken steps to raise substantial amounts of new capital. In Q1 2008 it issued mandatory convertible notes amounting to CHF 13 billion. An ordinary capital increase of about CHF 15 billion, which has been fully underwritten by a syndicate of banks, will further increase the capital buffer by the end of Q2 2008. These steps should ensure that the big banks' risk-weighted capital ratios remain well

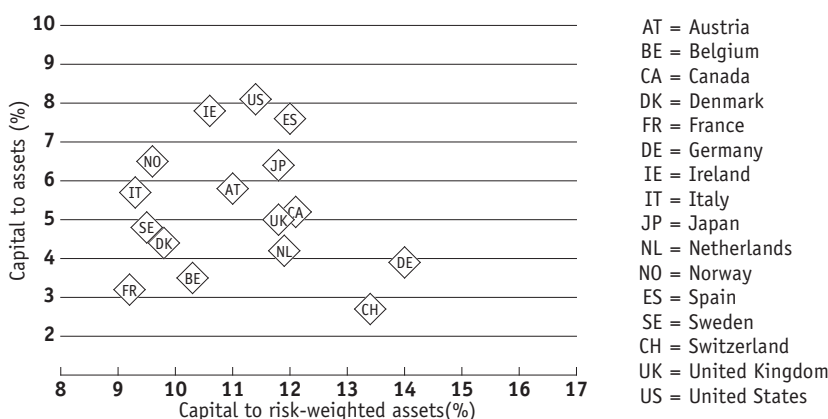
above the regulatory minimum and at high levels by international standards, even after accounting for the negative impact of the international financial turmoil on their capital base.

Further improvement at banks with a domestic business focus

In 2007, the capital base was strengthened at banks with a domestic business focus (cf. charts 19 and 20). The improvement in the capital situation was particularly noticeable at the Raiffeisen banks, where the risk-weighted capital ratio rose from 16.5% (end-2006) to 18.7% and the capital-to-assets ratio from 8.4% to 8.7%. The cantonal banks improved their risk-weighted capital ratio from 15.1% to 15.7% and their capital-to-assets ratio from 8.0% to 8.1%. At the regional banks, the capital situation was almost unchanged. At the end of 2007, their risk-weighted capital ratio came to 13.7% and their capital-to-assets ratio was 8%.

According to the scenario analysis conducted by the SNB, the capital adequacy of banks with a domestic business focus did not change significantly in 2007. The sensitivity of banks' earnings did increase slightly in 2007, but this was more than offset by an increase in the size of their capital buffer. Thus, overall, the sensitivity of their earnings to economic and financial shocks – expressed as a percentage of their excess capital – was broadly unchanged compared to end-2006.

Capital ratios of major international banks* Chart 21



Source: 2006 and 2007 annual reports

* Average ratios of largest banks in each country. Ratios are based on BIS total capital and on BIS risk-weighted assets.

38 BIS total capital ratios were used for comparison purposes.

39 In Switzerland, there are no regulatory restrictions on the capital-to-assets (eligible capital to unweighted assets). The regulatory capital adequacy requirements refer exclusively to risk-weighted assets (cf. box 5, p. 35). Nevertheless, capital-to-assets ratios have to be taken into account when assessing the soundness of the capital base. For a more in-depth analysis of this topic, cf. pp. 33–37 of the SNB's 2005 *Financial Stability Report* (www.snb.ch).

Need for higher capital buffer at big banks

The SNB believes that, even though both big banks fulfil the current minimum regulatory requirements, their capital base needs to be strengthened in the future. This could be achieved through the use of two complementary instruments: a tightening of risk-weighted capital requirements and the introduction of a floor for the capital-to-assets ratio, i.e. through the introduction of a 'leverage ratio' (cf. box 1, p. 8). A strengthening in the capital base over and above these requirements would be desirable, for the following reasons:

- The shortcomings of the current regulatory framework have been clearly revealed in the current turmoil. For instance, the current regulations seriously underestimated market risks. The uncertainty as regards possible mis-evaluation of the risks needs to be given adequate consideration.⁴⁰
- As already mentioned, the leverage of the Swiss big banks is particularly high. As the current tur-

moil has shown, one consequence of high leverage is that losses which are small in comparison to a bank's assets can deplete a significant portion of its capital. The big banks' capital base should be high enough to provide a sufficient buffer to act as a safeguard, even against large shocks.

- The big banks' total assets and liabilities amount to several times the Swiss annual GDP, and their market share in domestic loan and deposit business is around 20% in each case (cf. box 3, p. 22). Their size and importance for the Swiss economy justifies especially prudent decision-making when determining the level of their capital base.

⁴⁰ The introduction of Basel II will not solve this issue. Cf. box 5, p. 35.

Box 5. Capital regulation

Swiss banking law prescribes minimum capital requirements. Essentially, capital backing is required for all on-balance-sheet assets, off-balance-sheet operations and other open positions in the trading book and elsewhere. These positions are of a diverse nature and the underlying risks vary, depending on the counterparty and collateral provided. To take account of this, the various positions are risk-weighted ('risk-weighted assets'). Of these risk-weighted positions, 8% must be backed by capital at all times ('required capital').

The 'eligible capital' used to back risk-weighted assets comprises three components: tier 1 (core) capital, tier 2 (supplementary) capital and tier 3 (additional) capital. Tier 1 capital comprises mainly paid-up equity, reserves and retained earnings. Supplementary capital comprises hidden reserves, subordinated debt and certain hybrid instruments. Additional capital comprises unsecured, subordinated and fully paid-up liabilities that are subject to a lock-up clause which prevents the payment of interest and repayment of the principal, if this violates the capital adequacy requirements. If a bank has more eligible capital than required capital then it has 'excess capital'. The Swiss Federal Banking Commission expects banks to have at least 20% excess capital.

The 'risk-weighted capital ratio' comprises eligible capital as a percentage of risk-weighted assets. The 'capital-to-assets ratio' referred to in chapter 4 comprises eligible capital as a percentage of total assets. There are currently no regulatory requirements for the capital-to-assets ratio in Switzerland.

At the start of 2007, a revised capital regulation came into effect, which implements the revised Basel capital adequacy framework (Basel II) of the Basel Committee on Banking Supervision into Swiss legislation.⁴¹ The new regulation comprises three pillars. Pillar 1 – the minimum capital requirements – is a derivative of Basel I and the most important of the three pillars. Compared to Basel I, the new minimum capital requirements are more risk-sensitive and they additionally cover operational risk. The supervisory review process (pillar 2) and the effective use of market discipline (pillar 3) are introduced to enhance the solidity of banks further. To determine their credit risk exposure for capital requirements under pillar 1, banks may use either a standardised approach or an internal ratings-based (IRB) approach. Only a few banks (2%) – albeit those accounting for over 80% of total banking sector assets – have decided to adopt

an internal ratings-based approach. These include UBS, CSG and Banque Cantonale Vaudoise. Roughly 10% of all Swiss banks – mostly subsidiaries of foreign financial groups or banks with an international focus – have opted for the international standardised approach. The remaining banks (88%) apply the Swiss standardised approach that is closest to the previous Swiss capital regulation.

The new regulation is only partly reflected in this financial stability report as (i) the advanced IRB approaches did not enter into effect until 1 January 2008 and (ii) for banks using the standard or foundation IRB approaches it was optional but not mandatory to switch to the new regulation before 1 January 2008. In 2007, less than a quarter of the banks that decided on a standard approach had already started to apply the new regulation.

The new regulation addresses some of the weaknesses of Basel I that have been revealed by the financial market turmoil in 2007/2008. For instance, it reduces the incentive for asset securitisation to lower required capital. However, Basel II would not have prevented the current crises. Two problems that lie at the heart of the crisis cannot be solved by the Basel II regulation. The first is the poor credit risk assessment by banks and rating agencies. Existing shortcomings in risk management, such as the underestimation of tail risks and risk correlation or the inaccurate valuation of risk exposure, have even more far-reaching consequences under the new regulation because the IRB approaches rely on internal bank models to estimate credit risk. The same is true for inaccurate external credit ratings, as they build the basis for credit risk assessment in the standardised approaches. The second problem is market risk assessment. The current turmoil brought to light the shortcomings in the risk models used. However, rules governing capital requirements for market risk remain largely unchanged under the new regulation.⁴²

The current crisis has shown that both risk models and credit ratings are far from being infallible. Risk assessment will remain difficult in the future and, realistically, capital requirements will never fully reflect banks' underlying risks. It is of central importance to bear this in mind when considering the implications of the current crisis for the design of effective capital adequacy rules in the banking sector. A discussion of the lessons learned from the crisis can be found in box 1, p. 8.

41 For further information in German on the new Swiss capital regulation, cf. the Capital Adequacy Ordinance (www.admin.ch/ch/d/sr/c952_03.html) and the circulars of the Swiss Federal Banking Commission SFBC-C 06/1 'Credit Risks', SFBC-C 06/2 'Market Risks', SFBC-C 06/3 'Operational Risks', SFBC-C 06/4 'Capital Adequacy Disclosure' and SFBC-C 06/5 'Large Exposures' (www.ebk.admin.ch/d/regulier/rundschr/index.html).

For more information on Basel II, cf. www.ebk.admin.ch/e/dossiers/basel.html and www.bis.org/publ/bcbsca.htm.

42 Some changes are nonetheless planned. Among the most important, one can mention the introduction of a new minimum regulatory capital charge, the incremental event risk requirement. This charge should capture default risk over a one-year horizon, taking into account the impact of liquidity, concentrations, hedging and optionality.

5 Market assessment

The market assessment of the soundness of a bank is reflected in credit spreads and ratings. These indicators suggest that the situation in the Swiss banking sector deteriorated in 2007. In the case of banks with a domestic business focus, credit spreads have only been edging up modestly. For the Swiss big banks, however, the market appears to assess the risk of default as significantly higher than before August 2007. Despite easing down markedly after peaking in March 2008, CDS prices for both big banks remain high by historical standards. As compared to other large international banks, the two Swiss big banks are currently in the middle of the range.

Spreads on bank bonds and CDS prices higher

The credit spreads between bank bonds and Swiss Confederation bonds as well as credit default swap (CDS) prices reflect the credit market's assessment of the soundness of banks. The higher the credit risk for the lender, the higher the spread between the corresponding bank bond and a risk-free Swiss Confederation bond, and the higher the price of a CDS.

Until mid-2007, the average spread between the yields on Swiss bank bonds (excluding big banks) and Confederation bonds remained more or less constant at a very low level, as in previous

years. In the third quarter, this figure climbed in the wake of the credit market turmoil, reaching a level which it has held since then. Spreads for individual banks are in most cases currently around the average of the past nine years (cf. chart 22).

CDS prices for both Swiss big banks and other large international banks also remained more or less unchanged at a very low level until mid-2007. These prices then soared between June 2007 and March 2008. Premia for both Swiss big banks reached levels that were at or above the maximum level reached by CSG in 2002, and significantly above the average level of a sample composed of large international banks in the US, Europe and Japan. Recent weeks have seen CDS prices ease down again at most banks. Nevertheless, price levels are still high in historical terms (cf. chart 22).

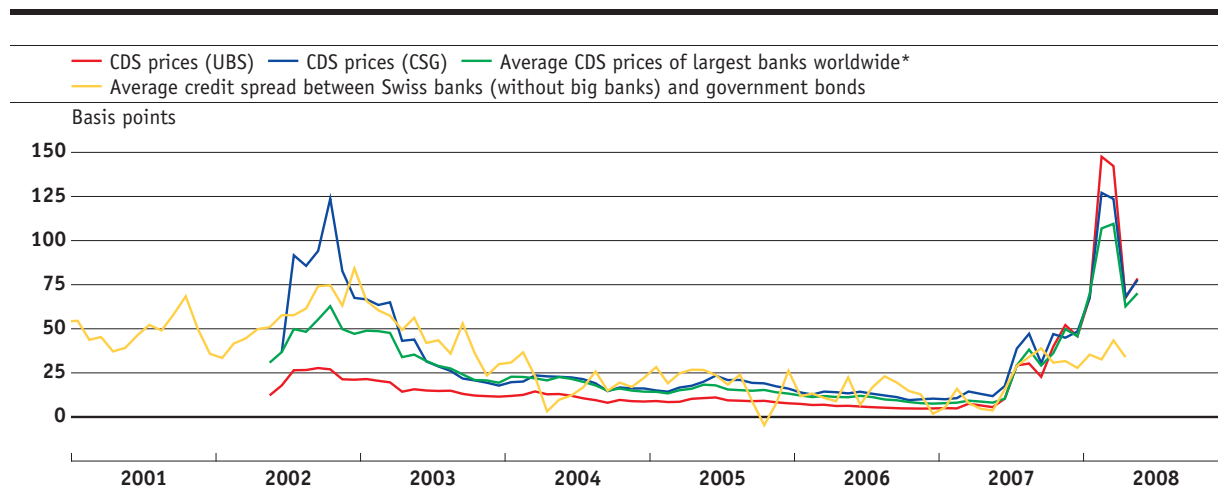
Deterioration in rating agency assessments

Only about 8% of all institutions in the Swiss banking sector have a rating from Moody's, Standard & Poor's and/or Fitch, yet these banks account for nearly 90% of total assets in the sector. As opposed to other market indicators such as CDS prices, ratings tend to fluctuate less. This is largely due to the fact that ratings are based on a 'through the cycle' approach, in other words, the risk of default is assessed over an entire business cycle.

If rating adjustments attributable to a revision in methodology at Moody's are excluded, upgrades and downgrades for Swiss banks were

Credit market assessment

Chart 22



Sources: Bloomberg, SNB, Thomson Datastream

* Sample of the largest banks in North America, Japan and Europe.

more or less balanced in 2007. Rating developments for UBS should be particularly noted. Since the third quarter of 2007, it has been downgraded by all rating agencies – in the case of Standard & Poor's and Fitch, by as much as two notches. In addition to assigning credit ratings, the rating agencies also issue an outlook showing the anticipated medium-term trend in their ratings. In 2007, the number of improvements and deteriorations in the outlook were balanced. Apart from the deterioration at CSG/Credit Suisse, outlook ratings for the Swiss banks have remained unchanged so far this year. Although not as good as at the end of 2006, agencies' overall assessment of Swiss banks' credit standing is still medium-high to high. With regard to the medium-term rating outlook, the agencies' view is less favourable than in the previous year.

In addition to long-term credit ratings, which are particularly important when banks borrow capital in the markets, Moody's and Fitch also issue 'bank financial strength ratings' or 'individual bank ratings' (FS ratings). From a financial stability perspective, these ratings are of particular interest in that they focus exclusively on the intrinsic financial strength of institutions. Therefore, any support by a third party, e.g. by owners or official institutions, is not taken into consideration. If adjustments attributable to a revision in methodology at Moody's are again excluded, the FS ratings for the Swiss banks deteriorated as a result of the downgrade of UBS by both rating agencies in

2007/2008. Overall, the intrinsic financial strength of Swiss banks is rated as adequate to strong. As compared to large international banks, both Swiss big banks are in the middle of the range (cf. charts 23 and 24).

Moody's ratings* Chart 23

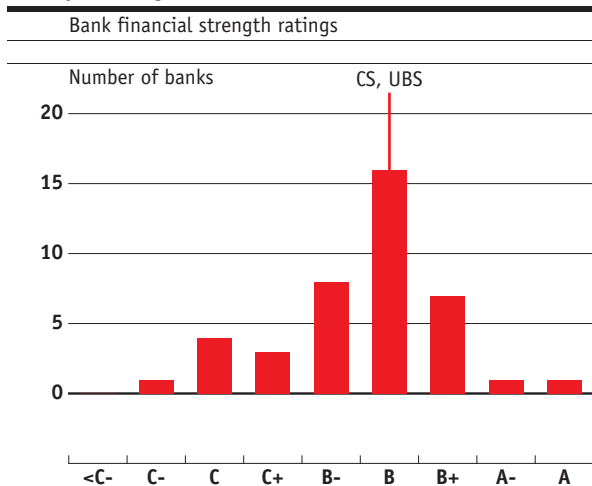
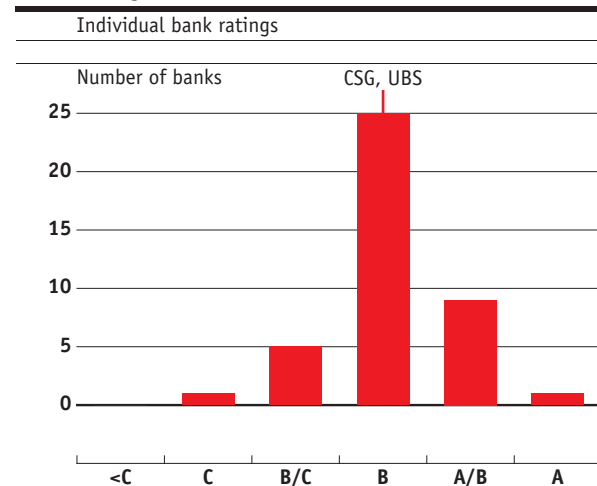


Chart 23: Source: Moody's

Chart 24: Source: FitchRating

Fitch ratings* Chart 24



* Sample of the largest banks in North America, Japan and Europe. If a bank holding company is not assigned a financial strength or individual bank rating, the rating of its largest affiliate is taken instead.

Box 6. Stress index for the Swiss banking sector

The stress index is a continuous indicator of the level of stress experienced by the Swiss banking sector at a given date. The higher the value indicated by the stress index, the higher the level of stress in the Swiss banking sector. The index combines a set of variables – including market data, balance sheet data, non-public data from the supervisory authorities and structural data – all of which represent possible symptoms of crisis in the banking sector. These symptoms are:

- a fall in the banks' stock price index
- an increase in the banks' bond yield spreads
- a fall in interbank borrowing
- a decrease in the banks' profitability
- a decrease in the banks' capital
- an increase in the banks' provisioning rate

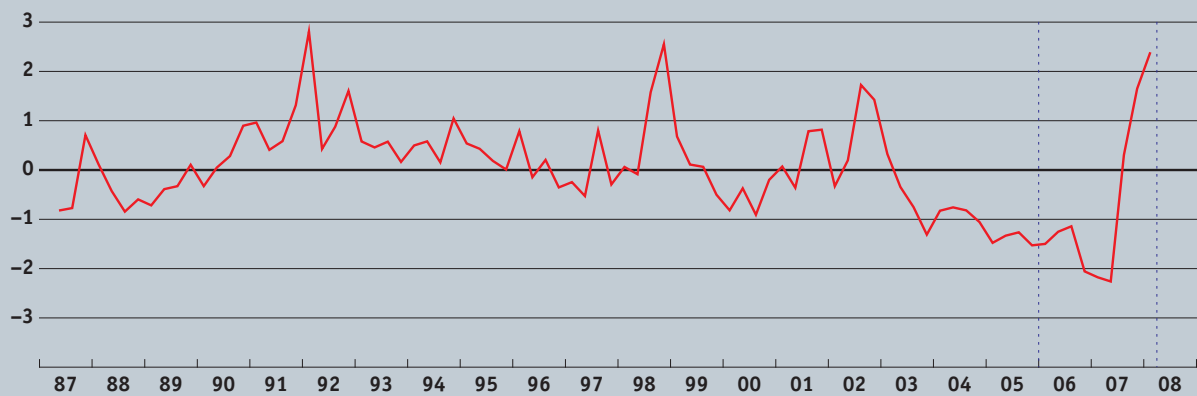
- the share of total assets held by banks listed on the regulator's watchlist
- a decrease in the number of bank branches

The higher the intensity of the individual stress symptoms, the higher the level of the stress index. To build the index, the eight variables described above are first normalised and then aggregated with identical weights. The index is expressed in terms of standard deviations from its historical average. A positive (negative) value indicates that the stress is above (below) its historical average.

According to the index, the stress level in the Swiss banking sector at the end of 2007 was very high by historical standards (cf. chart below). Indeed, the index reached levels similar to those observed during the regional banking crisis at the beginning of the 1990s or during the LTCM and Russian crisis in 1998. The year 2007 saw the largest increase in

Stress index*

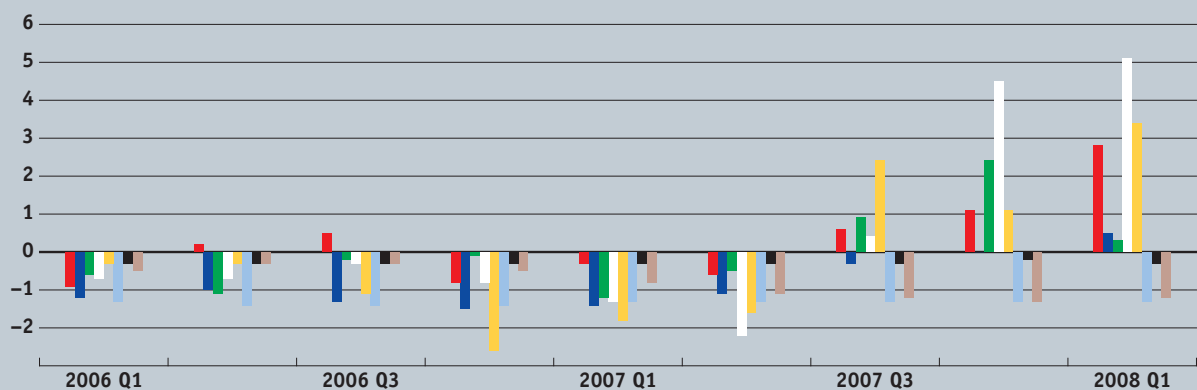
In standard deviations



Stress index: Contribution of individual stress symptoms to total stress*

In standard deviations

■ Share prices ■ Bond spreads ■ Interbank dep. ■ Profitability ■ Capital ■ Provisions ■ Watchlist ■ Branches



Sources for charts: SFBC, SNB, Thomson Datastream

* The higher the level of the index, the higher the level of stress in the Swiss banking sector. The index is expressed in terms of standard deviations from its 1987–2007 average. A value above (below) zero indicates that the stress is above (below) its historical average. The stress index for the first quarter of 2008 has been computed with provisional data.

For the marked period, details of the contribution of individual stress symptoms to total stress are given in the second chart on this page.

The higher the intensity of an individual crisis symptom (e.g. the sharper the decrease in bank share prices), the higher the level of the stress index. A value above (below) zero indicates that the intensity of an individual crisis symptom is above (below) its historical average. The stress index and the contributions of individual stress symptoms for the first quarter of 2008 have been computed with provisional data.

the stress index over a six-month period since 1987, when data for the computation of this index were first collected.

The stress index rose from an all-time low in Q2/2007 to a level close to its all-time high three quarters later. As can be seen in the second chart on page 38, this spectacular increase was driven by banking sector losses, a significant reduction in the capital base, a deterioration in market assessment of the soundness of the sector (i.e. a fall in bank stock prices and a higher spread on their bonds) and finally, by a marked decrease in interbank borrowing during this period.

Financial stability is defined as the capacity of the financial system to withstand severe shocks without losing its capacity to fulfil its functions. In order to assess the resilience of the Swiss banking sector, the SNB simulates the impact of possible shocks on the levels of stress and profitability of the Swiss banking sector. The results of these simulations are reported in box 4, p. 30, together with our forecasts for the levels of stress and profitability under the most likely (baseline) scenario for general economic and financial conditions in 2008.

