Financial Stability Report

Bericht zur Finanzstabilität
Rapport sur la stabilité financière

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This document is based on data available as at 21 May 2007.

Table of contents

2007 Financial Stability Report

Foreword

This report highlights the main trends in the Swiss financial system with respect to their impact on financial stability, to which the SNB is required to contribute in accordance with the National Bank Act (art. 5 para. 2 (e) NBA). Through this report, the SNB conveys its evaluation of the stability of the financial system 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, and individual banks are only considered if this is deemed relevant for obtaining an overall picture. 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. This report focuses on two vital elements in the system: the banking sector and financial market infrastructure.

Overall assessment

Banking sector

Overall favourable situation

In 2006, external factors affecting the Swiss banking sector were favourable both in Switzerland and abroad.[1] Although the central banks of many industrialised countries raised interest rates, economic growth still remained relatively strong. At the same time, the equity markets experienced a significant upswing overall, while volatility remained at a low level. The available indicators suggest that this situation improved the financial standing of borrowers. For instance, most companies retained their good credit ratings, and the risk premiums on debts have remained low, both in Switzerland and abroad.

In this environment, the Swiss banking sector exceeded the high profit levels of the previous years. On the whole, all fields of business were able to benefit from the favourable conditions. Trading and commission revenues in particular increased strongly. Moreover, provisioning, which had already been at a historically low level, was further reduced by most banks.

In all bank categories, the high level of profits led to an improvement in the capital base. As a result, the banking sector's ability to absorb shocks has been further enhanced. At the same time, the big banks' leverage remains high in both a historical and international comparison.

The positive impression conveyed by the banks' profits and capital base is consistent with market indicators. According to market estimates, the credit standing of Swiss banks remains high. The SNB stress index – which combines a set of variables representing potential symptoms of stress – confirms the impression that the Swiss banking sector has been experiencing a particularly low-stress period since the middle of 2003 (cf. graph 1).

Positive outlook

Our expectations regarding the stability of the Swiss banking sector are essentially positive. Despite the fact that economic growth is expected to remain strong, there are, however, initial signs that the extremely favourable overall situation may normalise. In 2006, for example, Moody's downgraded the ratings of more European companies than it upgraded. Furthermore, household insolvencies have risen in Switzerland as well as in Germany, the UK and the US. Such a normalisation, should it occur, would have only a moderate impact on banks' earnings and the level of stress for the Swiss banking sector is likely to remain below average in the medium term.

Deteriorating economic conditions could have major impact

Even if the outlook is positive, negative surprises cannot be ruled out. For instance, one cannot exclude that the events in US sub-prime mortgage markets at the beginning of 2007 could turn out to be early warning signs of a larger crisis to come in the US property market, or of a general decline in credit quality. More generally, it is always important to bear in mind that a favourable environment can deteriorate surprisingly quickly and strongly, as has been observed several times in the past.

There are two reasons why the impact of an unexpectedly sharp deterioration in the environment could be particularly serious at the moment. Firstly, there has been a relatively sharp rise in costs at many banks. Experience has shown that banks have difficulty cutting costs rapidly if their earnings start to recede due to a deterioration in economic conditions. Secondly, there are signs that the already high appetite for risk on the part of investors, including Swiss banks, has increased yet further. The big banks in particular increased their

1 Cf. box 2, p. 18, for a description of the structure of the Swiss banking sector.

risk-taking in the banking business; their exposure in trading and in foreign lending business grew considerably.[2] Meanwhile, the domestically oriented banks (cantonal, regional and Raiffeisen banks) continue to bear a relatively high interest rate risk.

Our scenario analyses indicate that the banking sector should be able to withstand a sharp deterioration in its environment (cf. box 3, pp. 26–27). The International Monetary Fund (IMF) came to similar conclusions in the context of its *Financial Sector Assessment Program Update* for Switzerland in 2006 (cf. box 6, p. 35). However, the full extent of the banks' risk exposure, and thus, of the consequences of a deterioration in the economic and financial environment remain uncertain. It is, for instance, difficult to assess what effect the strong growth of the big banks' loan portfolios abroad had on their overall risk situation.

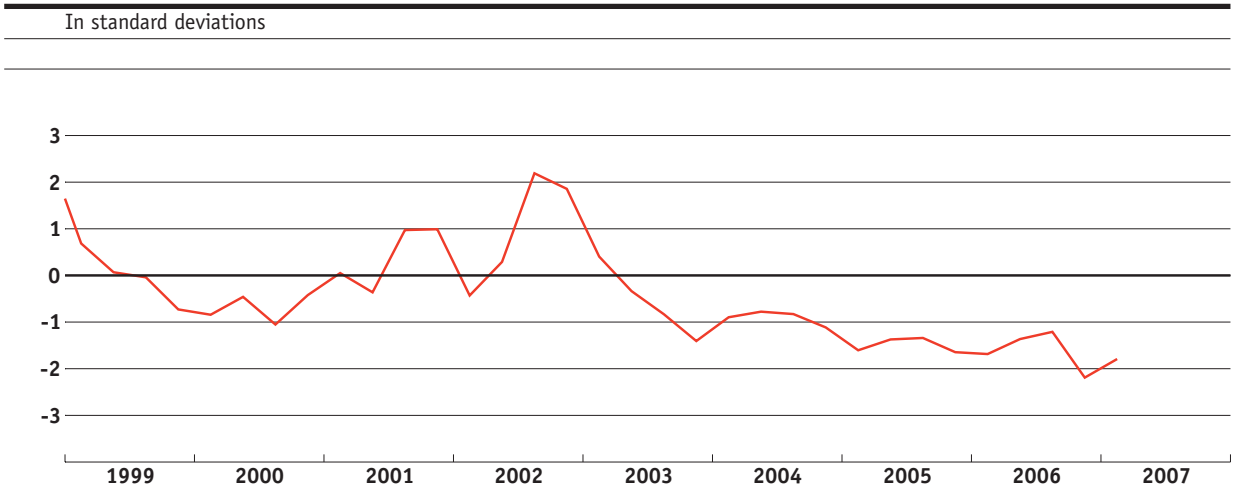
Limitations in our assessment of risk and stability

A reliable evaluation of the stability of the banking system calls for detailed information on banks' risk exposure. It also requires this information to be aggregated into a global risk profile representing high stress situations (tail events). Our report reveals a certain number of shortcomings in this regard. Information published by banks on their exposure to different risk factors is still lacking in detail. It rarely focuses on situations of stress, nor does it systematically provide a global perspective of the risk profile. These shortcomings are particularly visible in the case of small and medium-sized banks, although they also exist to some extent for the large institutions both in Switzerland and in other industrialised countries.[3]

Implementation of the new Basel II Capital Accord should rectify some of these shortcomings with effect from 2008. Under the new regulations, the big banks will be required to provide information enabling a far more accurate assessment of their credit risk exposure (first pillar). Additionally, banks will be required to make an overall evaluation of their risks and capital base. This evaluation will then be subjected to a critical assessment by the supervisory authority (second pillar). Finally, banks will be required to publish more details on their capital base and on the different types of risk incurred (third pillar).

In addition to the introduction of Basel II, the SNB considers that the big banks should put greater emphasis on risk indicators that focus on stress situations when publishing their financial statements. Moreover, the big banks should publish indicators that provide a more global perspective of their risk profile and capital adequacy. One of them has already taken important steps in this direction. This increased transparency would contribute to the effective functioning of market discipline. Lastly, the SNB believes that the prudential authorities and big banks should intensify their collaboration in the field of stress testing. In particular, it would

Stress index* Graph 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 1987–2006 average. A value above (below) zero indicates that the stress is above (below) its historical average. The stress index for the first quarter of 2007 is computed with provisional data. For a description of the underlying variables and the methodology, cf. SNB (2006), *Financial Stability Report,* box 5, pp. 44–45.

2 However, given the sale of Winterthur Insurance, Credit Suisse Group (CSG) recorded a decline in its overall risk exposure.

3 For a review of the public risk disclosures of banks and securities firms, cf. Moody's Investors Service (2006) *Risk Disclosures of Banks and Securities Firms.*

be helpful if the authorities carried out periodic stress testing together with the big banks. These stress tests would be based on instruments developed by the banks for their own internal purposes, while at the same time meeting certain criteria laid down by the authorities. This collaboration would provide the authorities with a more transparent and comparable assessment of the banks' resilience to high levels of stress.

By making improvements in the quality and dissemination of information on the two big banks' risk exposure, these efforts would help to reinforce the stability of the Swiss banking sector. Because of their size, these institutions have systemic importance. Moreover, their leverage is high. Accordingly, any errors made when assessing their risk levels could have serious consequences for the stability of the banking sector and hence for financial stability in Switzerland.

Financial market infrastructure

With regard to the clearing and settlement of payments and transactions involving securities and other financial instruments, the Swiss financial sector's market infrastructure enjoys a high degree of safety and efficiency by international standards. The infrastructures deemed important for the stability of the Swiss financial system have proven their functional efficiency over the years. Their design contributes to reducing settlement-related risks as well as, ultimately, systemic risks. The Swiss financial market infrastructure also has a good track record in terms of operational risk and it is encouraging that operators have taken substantial measures to further strengthen the infrastructure's reliability and resilience in recent years. This positive overall assessment notwithstanding, it is clear that there is no room for complacency. Against the background of rapidly changing technology, ongoing efforts are required to keep operational and other risks at bay and to identify measures for further improvements.

Part I: Banking sector

1 General conditions

External factors affecting the Swiss banking sector were favourable in 2006. Economic activity was high, prices on the stock markets rose and the credit standing of borrowers was very good, both in Switzerland and abroad. The near and medium-term prospects are also favourable. However, initial signs of declining credit quality are visible. More generally, market players should account for the fact that a sudden and material deterioration in the economic situation is possible, even when prospects are good.[4]

Sustained economic activity

In 2006, economic growth in Switzerland reached 2.7%, its highest level since 2000 (cf. graph 2). Similarly favourable conditions were observed in the main economic areas of interest to the Swiss banking sector. Gross domestic product (GDP) growth was high in the US, the European Monetary Union (EMU), the UK and Japan. As in Switzerland, GDP growth was above the potential – or sustainable – level in these regions. According to OECD estimates, the output gap (the gap between observed and potential growth rates) ranged from 0.5 percentage points in the US to 1.1 percentage points in Switzerland.[5] Emerging markets also experienced continuing high economic growth rates in 2006.

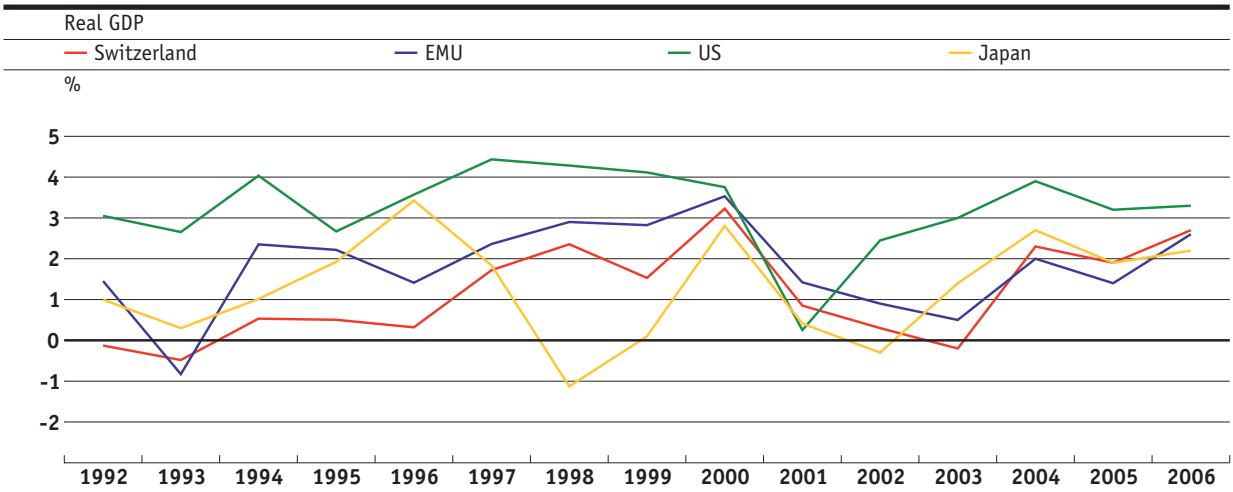
The outlook for economic activity remains favourable. Consensus forecasts predict a moderate overall slowdown in GDP growth for 2007 and 2008, with economic growth levels gradually converging towards potential levels in most countries.[6]

Further rise in short-term interest rates

As expected in this good economic environment, the SNB and other central banks pursued their gradual normalisation of monetary policy. This led to moderate increases in interest rates in most countries, mainly at the short end of the maturity spectrum.

In Switzerland, the three-month Libor rose by about 100 basis points (bp) in the course of 2006, and has risen further since then, reaching 2.4% by mid-May 2007 (cf. graph 3). Long-term interest rates also rose from the unusually low levels observed in 2005 and 2006 (cf. graph 4). However, while short-term rates have been rising steadily for the third year in a row, no clear trend could be observed for the rates of longer maturities. Between year-end 2002 and mid-May 2007, the yield on ten-year government bonds has been fluctuating between 2% and 3%. Turning to a longer-term perspective, short-term nominal interest rates have increased by about 200 bp since the 2004 low and are now relatively close to their fifteen-year average of 2.5%. Real short-term interest rates have also reached levels in line with their longer-term average, after fluctuating around zero for almost four years. By contrast, and in spite of the recent increase, the long-term interest rates in Switzerland were still about 80 bp below their fifteen-year average by mid-May 2007.

Growth in GDP — Graph 2



Sources: OECD, State Secretariat for Economic Affairs (SECO)

4 The analysis of the economic and financial environment is based on risk factors which have been singled out as important drivers affecting the stability of the Swiss banking sector. Other potentially relevant risk factors that are not mentioned in the text were analysed, for instance hedge funds (cf. box 1, p. 10).

5 OECD, Economic Outlook, December 2006.

6 Consensus Forecasts, April 2007, Consensus Economics Inc., London.

Box 1: Hedge funds and financial stability

It is widely accepted that hedge funds and other private investment vehicles have been a source of innovation in the global asset management industry and have brought substantial benefits to financial markets. Hedge funds are investment funds which offer their services primarily to wealthy investors.[7] Through their flexible and largely unconstrained investment approaches as well as their extensive use of innovative financial instruments, they have contributed to improving the efficiency of financial markets.

Notwithstanding these important benefits, hedge funds can, in some circumstances, be a destabilising force and give rise to a number of potential risks. The potential risks to financial stability, specific to hedge funds, relate to the possibility that large losses in one or several hedge funds get transmitted to one or several internationally active banks. In an extreme case, this dynamic could be sufficiently strong to threaten the solvency of one or several large banks and undermine the stability of the financial system. Not unlike the period following the Asian crisis and the collapse of Long-Term Capital Management, governments, regulators and central banks have recently been called upon to address a number of potential risks associated with the activities of hedge funds, including their potential impact on financial stability.[8]

The hedge fund industry has grown rapidly in recent years. Assets under management by hedge funds have tripled since 2001 but remain limited compared to global markets for equities or debt securities. The aggregate assets managed by hedge funds amount to approximately USD 1,600 billion. This is less than the sum of the five largest trading books in the banking industry. Total debt securities outstanding amount to some USD 60,000 billion and there are some USD 25,000 billion dollars worth of credit default swaps outstanding. The potential use of leverage is one of the defining characteristics of hedge funds. In fact, hedge funds are generally referred to as highly leveraged institutions. Nonetheless, their current leverage (ratio of debt to equity capital) appears to be significantly lower than the leverage of the major international banks, which is situated between 10 and 50 (cf. chapter 4).[9]

In light of these figures, there is currently little evidence that hedge funds constitute a direct threat to financial stability. Accordingly, the recent failure of Amaranth, one of the large hedge funds, involved losses of several billion dollars but had no discernible impact on the stability of the financial system. Moreover, hundreds of hedge funds are liquidated every year without causing any noteworthy negative impact. Nonetheless, we cannot exclude that, in some circumstances, particularly in times of extended market stress, hedge funds "can become the transmission mechanism of systemic risk because they borrow from and trade with regulated financial institutions such as prime brokers and investment banks".[10] Any financial regulatory authority with statutory responsibilities to promote financial stability therefore has an obligation to think about possible measures to mitigate systemic risk emanating from the activities of hedge funds or other private investment vehicles with similar characteristics. Still, the threshold for justifying additional regulatory measures should be set high. Ill-considered regulatory measures will achieve little and risk being counterproductive.

Arguably, the most effective way to address potential systemic risks emanating from the hedge fund industry is to reinforce the existing regulatory framework of the large internationally active banks by strengthening the relationship between prime broker dealers and hedge funds. The Swiss National Bank (SNB) is contributing actively to the international debate on potential regulatory responses to the growth in size and scope of the hedge fund industry. In this context, the SNB has outlined the steps towards a 'best practice proposal' aimed at strengthening the credit relationship between prime broker dealers and hedge funds.[11] The objective of the proposed standard is to minimise the risks of the credit links between prime broker dealers and hedge funds being unwound in a disorderly fashion at times of extended market stress. Clearly much work remains to be done to make such a proposal operational and productive in the sense of enhancing financial stability. Such work is best undertaken in concert between the regulatory authorities of the most prominent financial centres, senior hedge fund managers and representatives, and risk management experts from the most important global financial institutions. The Federal Reserve Bank of New York, the SEC and the British FSA have recently initiated such a process. In cooperation with other supervisory authorities, they are conducting periodic surveys of the exposures of the most important prime broker dealers to hedge funds. The recently published recommendations by the Financial Stability Forum in May 2007 also point to a number of possible measures to reduce the threat of hedge funds to financial stability by strengthening the discipline of hedge funds, prime broker dealers and regulatory authorities.

7 Unlike regulated investment funds, hedge funds can use leverage without any restrictions; in other words, they can borrow to increase the capital available for investment.

8 Cf., for example, "The President's Working Group, Agreement among PWG and US Agency Principals on principles and guidelines regarding private pools of capital, 2007" and Financial Stability Forum, "Update of the FSF Report on Highly Leveraged Institutions", 2007.

9 Similar comparisons can be found in the report entitled "Hedge Funds, Leverage and the Lessons of Long-Term Capital Management" published by the "President's Working Group on Financial Markets" in 1999. This report concluded that the threat comes not from hedge funds but from a generally high level of leverage within the financial system. Based on a new survey by the British Financial Services Authority (FSA), the average leverage of a hedge fund is approximately 1.4 today (cf. Callum McCarthy, *Hedge funds: what should be the regulatory response?,* 2006).

10 William K. H. Fung and David A. Hsieh, "Hedge Funds: An Industry in Its Adolescence", *Economic Review, Federal Reserve Bank of Atlanta,* vol. 91, 2006.

11 Philipp M. Hildebrand, "Hedge funds and prime broker dealers: steps towards a 'best practice proposal'", *Banque de France, Financial Stability Report – Special Issue on Hedge Funds,* April 2007.

Similar developments were observed in other countries. Short-term interest rates have been increasing significantly since year-end 2002 (cf. graph 3), albeit at different paces. In the US and the EMU, short-term nominal interest rates are currently about 100 bp above their fifteen-year average. As in Switzerland, long-term rates have been following no clear trend since year-end 2002 and ten-year government bond yields are still significantly below their fifteen-year average in the EMU, the US and Japan (cf. graph 4).

Recent developments have brought short-term interest rates broadly into line with historical averages, following a prolonged period of unusually low levels. However, by mid-May 2007, longer-term interest rates had remained relatively low in most countries considered. In this context, market participants should bear in mind that medium or long-term interest rate movements of around 150 to 200 bp over twelve months have occurred several times over the last fifteen years in the G10 countries.

Material developments in foreign exchange markets

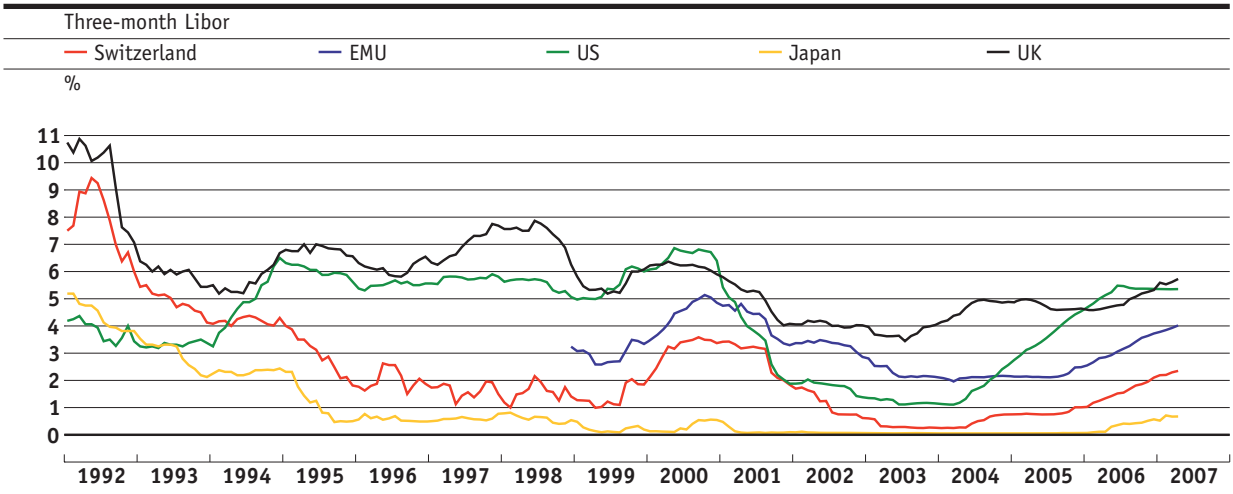
Developments in foreign exchange markets received increasing attention in late 2006 and early 2007. Between year-end 2005 and mid-May 2007, the euro and the British pound have gained about 6%, as compared with the Swiss franc, while the US dollar and the yen have lost 7% and 10% respectively (cf. graph 5). While material, these developments are not extreme in a longer-term perspective. For example, looking at nominal dollar exchange rates over the past fifteen years, there have been several periods with year-on-year fluctuations of over 15%, and fluctuations of about 7% are quite common. In the shorter euro exchange rate series however, a development of similar magnitude has only been observed twice so far: in 2000/2001, when the euro lost more than 5% against the Swiss franc, shortly after its introduction, and in 2003/2004, when the euro gained more than 7% against the Swiss franc.

In the current environment, further unusually large exchange rate fluctuations cannot be ruled out. Such fluctuations could be driven in particular by a disorderly unwinding of global external accounts imbalances. For instance, the US external debt already large by any standards has been growing further in 2006 following the persisting high current account deficit.

Further increases in stock prices

In 2006, for the fourth year in a row, prices moved upwards on the major stock markets. Growth rates of most stock indices were above average, although they were somewhat below the spectacular levels achieved in 2005 in Switzerland, Japan and the EU. Between year-end 2002 and mid-May 2007, and despite the early 2007 correction, share prices have doubled on the Swiss, EMU and Japanese markets and are up by around 70% on the US and UK markets.

Short-term interest rates — Graph 3

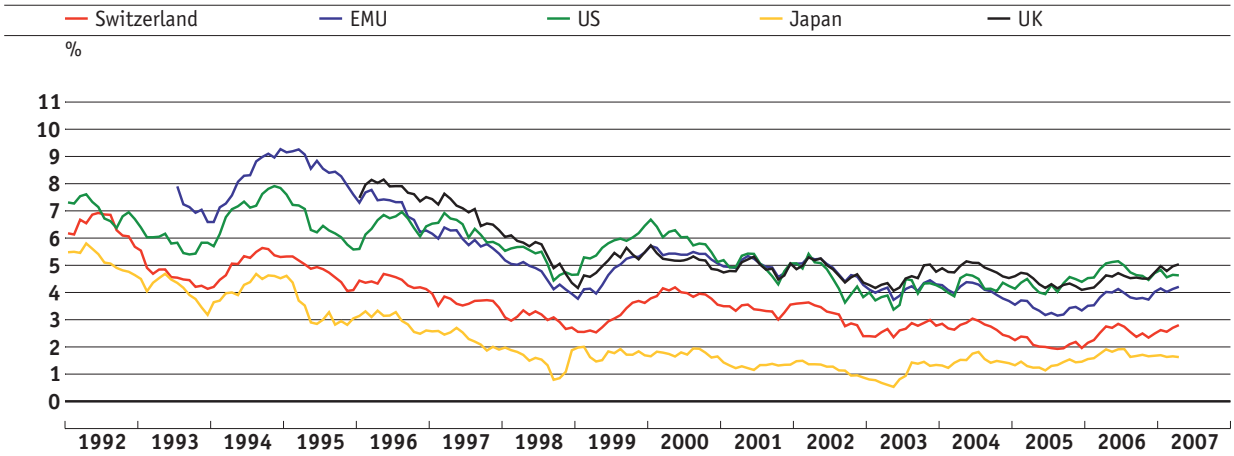


Source: Reuters

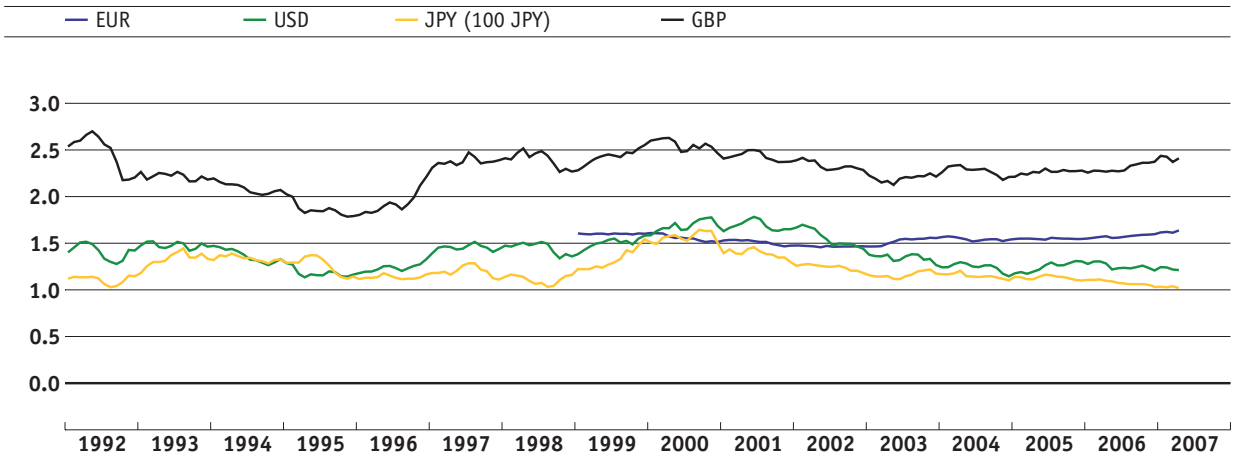
This strong growth in stock prices reflects fundamental factors, such as the favourable macroeconomic environment and the related high corporate profitability. After accounting for the impact of these factors, current stock prices appear to be broadly in line with their historical average. For instance, price-earning (P/E) ratios – which give an indication of stock valuation – are currently close to their long-term average for most markets (cf. graph 6). Other indicators of stock valuation based on fundamental factors confirm this view.

Stock price volatility rose markedly, albeit temporarily, on the European, Swiss and Japanese markets in the second half of 2006 and in early 2007, reflecting a phase of higher uncertainty regarding the current state of the economy and the outlook for the future. In spite of these movements, the volatility of most major indices remains low by historical standards (cf. graph 7).

Long-term interest rates — Graph 4



Nominal exchange rates (CHF per foreign currency) — Graph 5



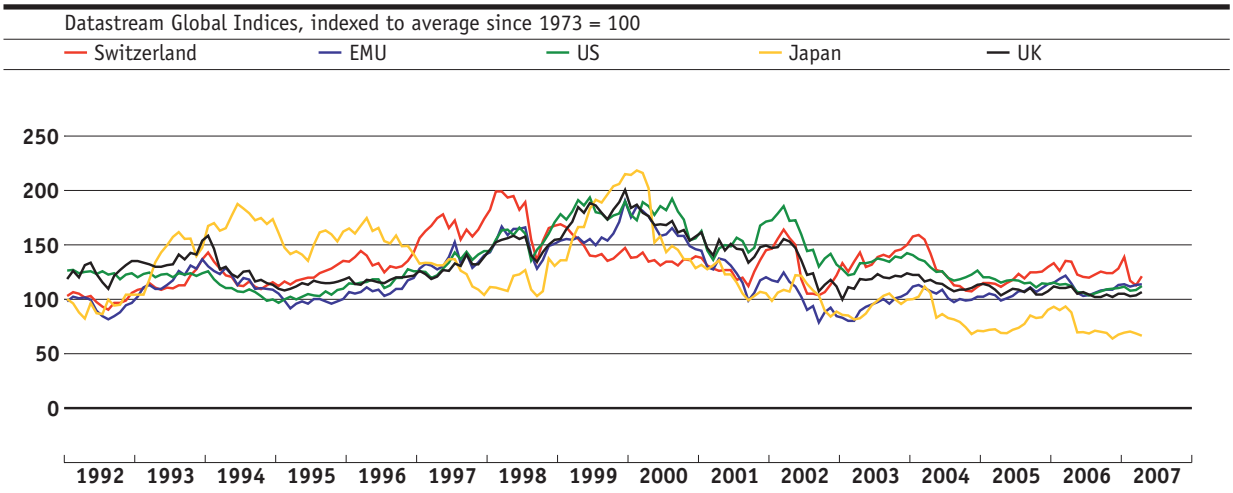
Graph 4: Sources: SNB, Thomson Datastream
Graph 5: Source: SNB

Moderate increase in Swiss real estate prices

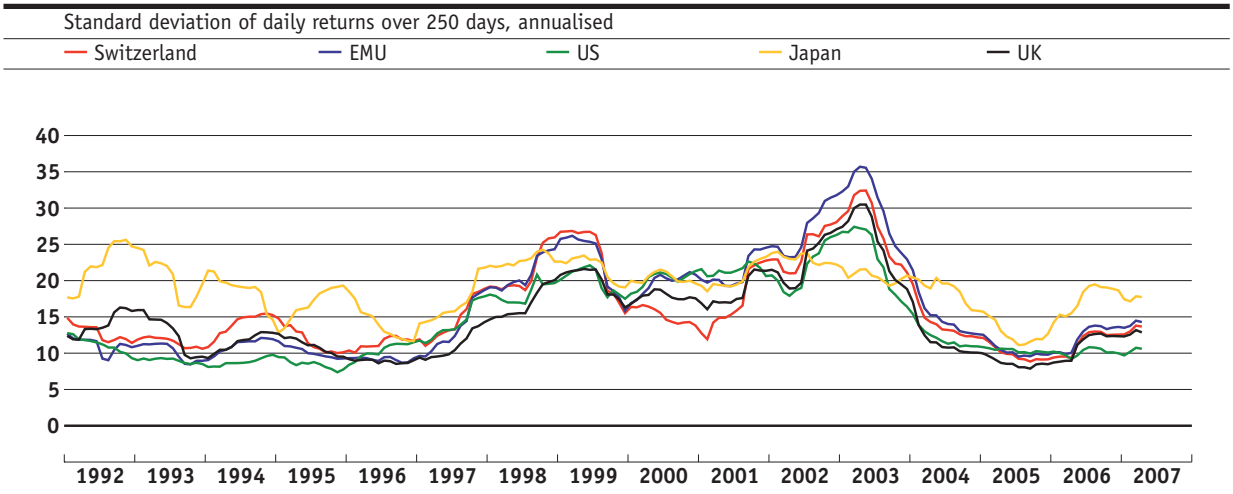
In 2006, real estate prices in Switzerland were up only 1.4% in real terms, in line with growth rates in previous years. Indeed, the Swiss real estate market as a whole has been experiencing a prolonged period of moderate growth (cf. graph 8). The average real growth rate over the last ten years is under 1% per annum and, by year-end 2006, price levels were still about 35% below their 1989 peak in real terms. Some regions and some market segments, however, have been experiencing much more rapid developments. For instance, over the past five years, prices for single-family homes in real terms were up by more than 25% in Geneva. Hence, while the Swiss real estate market is experiencing a prolonged period of calm, local imbalances cannot be ruled out.

As opposed to general developments in Switzerland, the growth of real estate prices has been particularly strong in many countries of importance to the Swiss banking sector. In the US and the UK, in

Stock market price-earning ratios* Graph 6



Volatility of MSCI indices Graph 7



Graphs 6 and 7: Source: Thomson Datastream

* Earnings are realised earnings per share.

particular, real estate prices have risen by about 60% and more than 100% respectively in real terms since 1997, reaching levels far above their former peaks. Such price increases can only be partly explained by the improvement in economic fundamentals such as GDP growth and the low level of interest rates.

In these countries, 2006 saw the growth in prices easing. In the US, the growth rate dropped to below 6%, while real estate price growth has been around 2% in the UK for the second year in a row. This slowdown is in line with the most likely scenario of a gradual price stabilisation in these markets. However, forced sales – triggered by increases in delinquencies on mortgages – that would put pressure on house prices, with a potential negative impact on economic activity and credit quality cannot be excluded.

High but declining credit quality

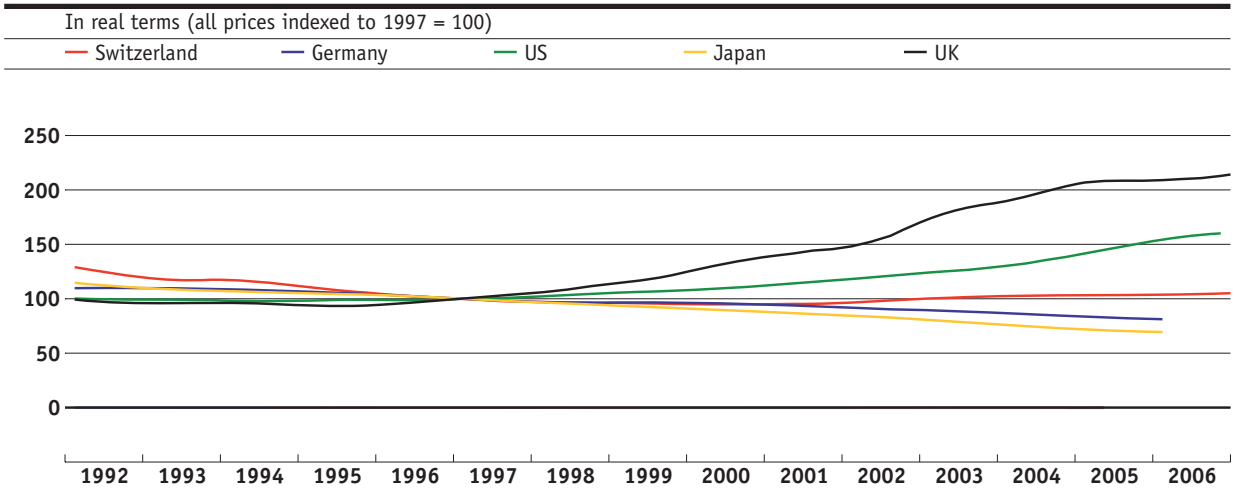
In line with the favourable developments in the economy, the creditworthiness of borrowers remains very high. However, according to some indicators, the credit quality has been declining somewhat lately.

Credit spreads provide a market assessment of the financial situation of larger companies, even though they do not reflect borrower default risks alone (cf. box 5, pp. 32–33). In 2006, credit spreads remained low for the third year in a row in the countries of importance to the Swiss banking sector. In Switzerland, spreads even reached a historical minimum in October 2006 (cf. graph 9). Other indicators confirm the view of a low credit risk, both in Switzerland and abroad. In particular, the leverage of the average firm as well as the corporate bankruptcy rate declined in Switzerland (cf. graph 10). Furthermore, the debt ratio of the largest companies reached its lowest level in nineteen years (19%).

At the same time, however, signs of declining credit quality have been building up lately, especially abroad. First, there was a sharp increase throughout 2006 in Moody's ratio of downgrades to upgrades for European companies. The ratio is now well above its long-term average. Second, the indebtedness of firms increased markedly in the EMU and the UK while corporate debt grew at an increasing rate in the US. Third, the financial situation of households deteriorated. Delinquency rates in the most risky segments of the credit market, such as the sub-prime mortgage market in the US as well as household insolvencies in Switzerland, the US, the UK and Germany have increased.

After a long period of unusually high credit quality, a moderate decline is to be expected even under the most likely scenario of favourable economic developments. Furthermore, as some countries have been experiencing rapid credit growth in conjunction with asset price appreciation for many years, less smooth scenarios are also possible. In the past, such a combination of factors has often led to periods of financial instability and fast – real or perceived – declining credit quality. More generally,

Real estate prices — Graph 8



Sources: Bank for International Settlements (BIS), Wüest & Partner (Single Family House Index)

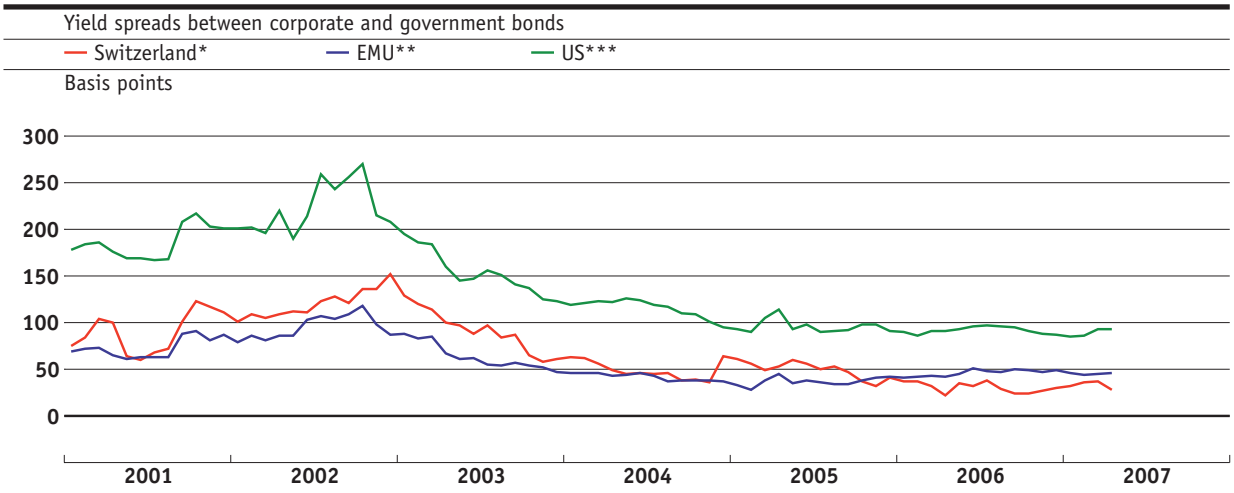
past experience has shown that sudden rises in spreads of up to 100 bp on investment grade debts or 200 bp on sub-investment grade debts – even within an individual rating category – are not exceptional.

Foreign banks in good shape

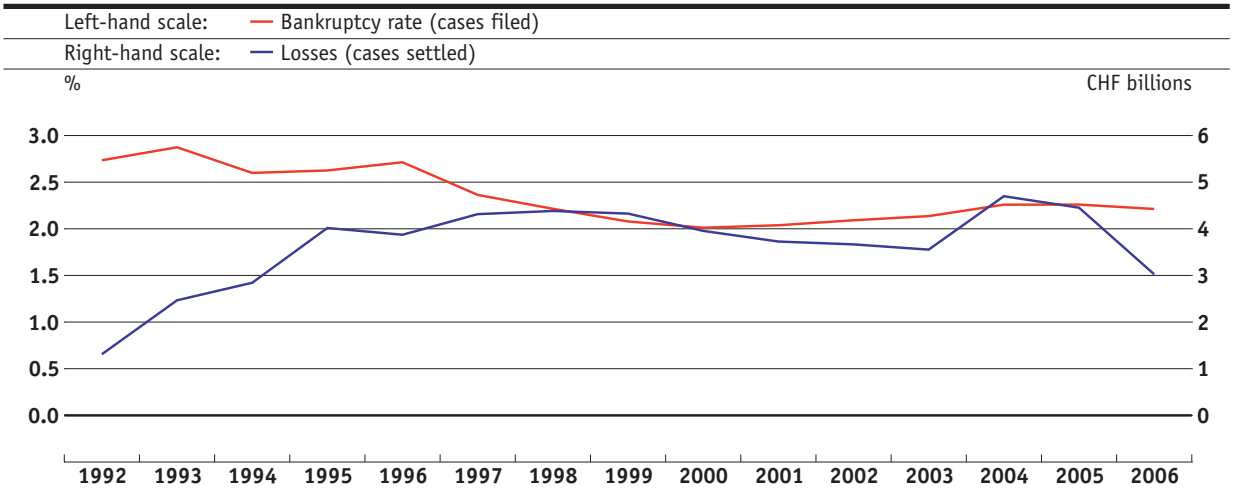
As expected, given the good economic and financial conditions, profitability was high for most large banks abroad in 2006. More generally, available indicators suggest that banking sectors in industrial countries are in good shape.

The prices of credit default swaps (CDS) for bank debts in 2006 persisted at or around the lowest level observed since mid 2002 (cf. graph 11). Furthermore, the ratio of bank ratings upgrades to downgrades by Moody's was very high by historical standards in 2006. According to the European Central Bank (ECB), the capacity of euro-area banks to cope with shocks further increased thanks to comfortable solvency positions and improved risk management capabilities, while risk-taking according to value at risk (VaR) figures has

Credit spreads — Graph 9



Bankruptcy rate in Switzerland — Graph 10



Graph 9: Sources: SNB, Thomson Datastream

Graph 10: Sources: SECO, Swiss Federal Statistical Office (SFSO)

* 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.

not materially increased.[12] Finally, based on FitchRatings' Bank Systemic Risk Matrix,[13] the conditions in the banking sector of industrialised countries are strong (median EMU member country) or very strong (US and UK).

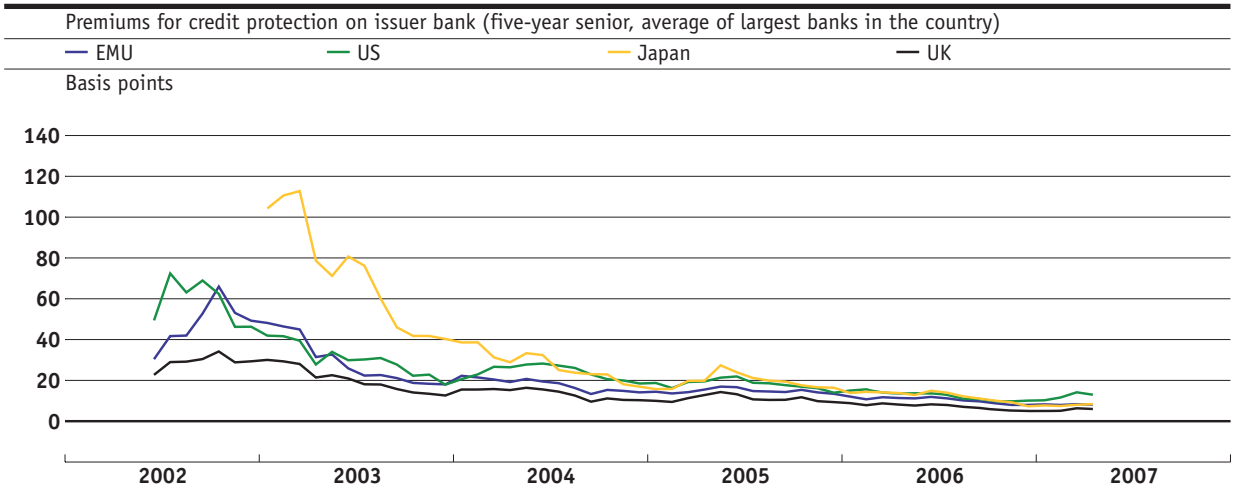
According to FitchRatings, however, while conditions in most countries' banking sectors remained constant or improved in 2006, the risk of systemic stress tended to augment due to rapid credit growth in conjunction with either strong real exchange rate or asset price increases.

Outlook

All in all, the SNB considers that the short and medium-term outlook for external factors affecting the Swiss banking sector is favourable. More specifically, the scenario of a moderate slowdown in economic activity is still considered to be the most likely outcome. Market participants in general, and banks in particular, should nevertheless account for the fact that less favourable scenarios cannot be ruled out.

The SNB has identified two adverse scenarios of particular relevance to the Swiss banking sector. The first scenario depicts the unwinding of international imbalances and a hard landing for the US economy. Its assumptions include a sudden and long-lasting nominal depreciation of the US dollar, declining equity prices and economic growth and increasing spreads on a global scale. The second scenario is Swiss-centred. It assumes, in particular, a severe slowdown in real GDP growth and a drop in equity prices. The analysis of the impact of these scenarios is described in box 3 on page 26.

Banks' credit default swap prices — Graph 11



Source: Bloomberg

12 ECB, *Financial Stability Review,* December 2006.
13 FitchRatings, *Bank Systemic Risk Report,* March 2007.

2 Profitability

In the Swiss banking sector, profits rose yet further in 2006 and have now reached a record high. This result was driven mainly by the trading and commission business. Owing to the favourable environment, earnings rose more sharply than costs overall. On the whole, the outlook remains favourable for 2007. Should the environment deteriorate unexpectedly sharply, however, the drop in profitability is likely to be especially strong. The main reasons for this are the banks' high appetite for risk and the higher costs at the big banks in particular.

Record earnings and high profitability at Swiss banks

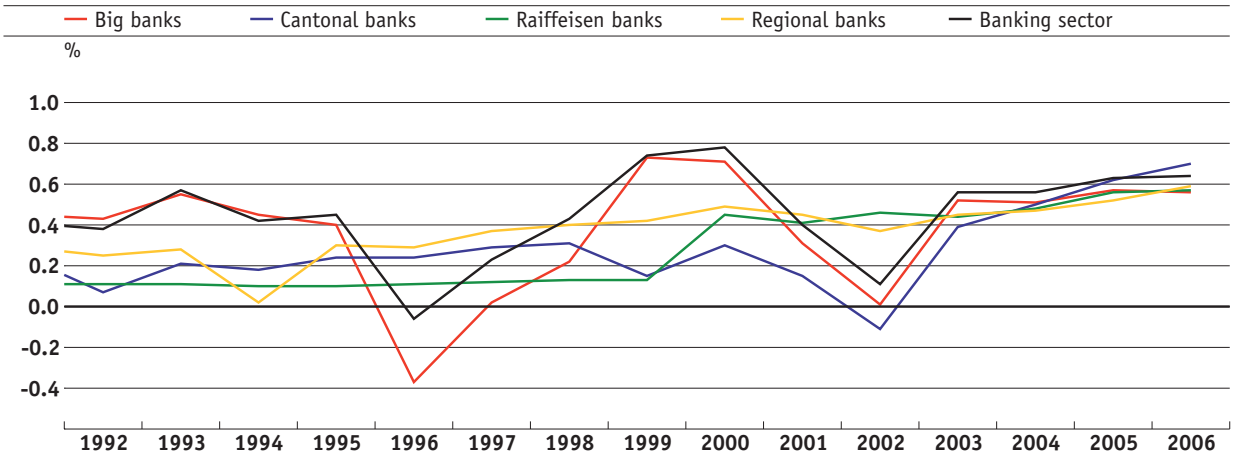
In 2006, the aggregate net profit in the Swiss banking sector rose by 13% to CHF 30 billion, thereby reaching an all-time high. The net profit was higher in all bank categories than in the previous year. The big banks posted an increase of 10%, the cantonal banks 20%, the Raiffeisen banks 8% and the regional banks 16%.

In terms of return on assets (ROA), profitability was also high by historical standards (cf. graph 12). ROA for the banking sector as a whole was 64 bp, which is 40% above the average of the last twenty years. It even reached a record high at the cantonal, Raiffeisen and regional banks. Owing to special factors, ROA at the big banks fell slightly,[14] but still remained at a historically high level of 56 bp. Other key figures for profitability, such as return on risk-weighted assets (RORWA)[15] and return on equity (ROE),[16] confirm that 2006 was an above-average year for Swiss banks in terms of profitability. Aggregated RORWA was 2.4%, aggregated ROE approximately 17%. Both values are more than 50% higher than the average of the past ten years. While, in terms of ROA, profitability in 2006 was very similar for all bank categories, ROE at the big banks was considerably higher than that of other categories. This can be attributed to the fact that the big banks hold relatively little capital in comparison with their assets (cf. chapter 4, p. 29).

As a result of special factors from 2005,[17] gross profits at the big banks grew considerably more sharply (+33%) than their net profits in 2006. The rise in gross profits was 11% at the cantonal banks, 9% at the Raiffeisen banks and 6% at the regional banks. All in all, gross profits in the Swiss banking sector were up by 26%.

Total income in the banking sector for 2006 came to CHF 121 billion, 9% higher than a year earlier. As in 2005, this rise was again mainly due to the favourable conditions in the international financial markets: trading and commission revenues increased by 59% and 16% respectively. Interest income, meanwhile, dropped by 8%; although this was merely a result of the drop in interest income at the big banks, which recorded a 20% decline despite a growth in lending volume of more than

Return on assets — Graph 12



Sources: SFBC, SNB

14 The decline is largely attributable to the extra profits of almost CHF 4 billion posted a year earlier by UBS following the sale of its private banks and GAM to Julius Bär. Without this special factor, ROA for the big banks would have risen considerably, even if the extra profits made from the CSG sale of Winterthur in 2006 had not been included.

15 Net profits divided by risk-weighted assets (cf. box 4, p. 30).
16 Net profits divided by eligible capital (cf. box 4, p. 30).
17 Cf. footnote 12.

Box 2: 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 2006, the banking sector's total assets exceeded CHF 4,500 billion or nearly ten times the size of Swiss GDP. This is by far the biggest ratio among the G10 countries, followed by Belgium and the Netherlands where total bank assets are five times the size of GDP. Measured in absolute terms, the US has the largest banking sector. However, total assets of all banks are less than US GDP (cf. table below).

	Size of the banking sector (ratios of total assets to GDP)	Concentration (assets of the largest three banks as a percentage of total assets)
Belgium	**5.3**	**88%**
Canada	**1.5**	**57%**
France	**2.9**	**70%**
Germany	**2.7**	**31%**
Italy	**1.5**	**59%**
Japan	**1.7**	**48%**
Netherlands	**4.7**	**90%**
Sweden	**2.8**	**84%**
Switzerland	**9.7**	**81%**
United Kingdom	**3.1**	**64%**
United States	**0.8**	**39%**

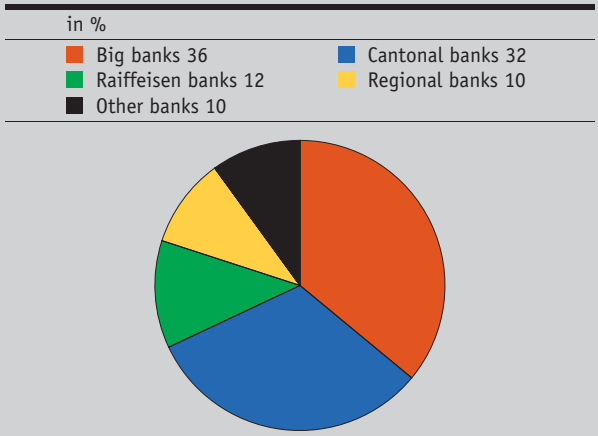
Sources: SNB, *The Banker* (July 2006), IMF

The Swiss banking sector is also large in historical terms. It has been growing rapidly and steadily over the last ten years, doubling the ratio of total assets to GDP. This rapid growth almost exclusively reflects the development of foreign business at the two big banks. The ratio of domestic assets to GDP remained comparatively stable at just over 200% (cf. graph below).

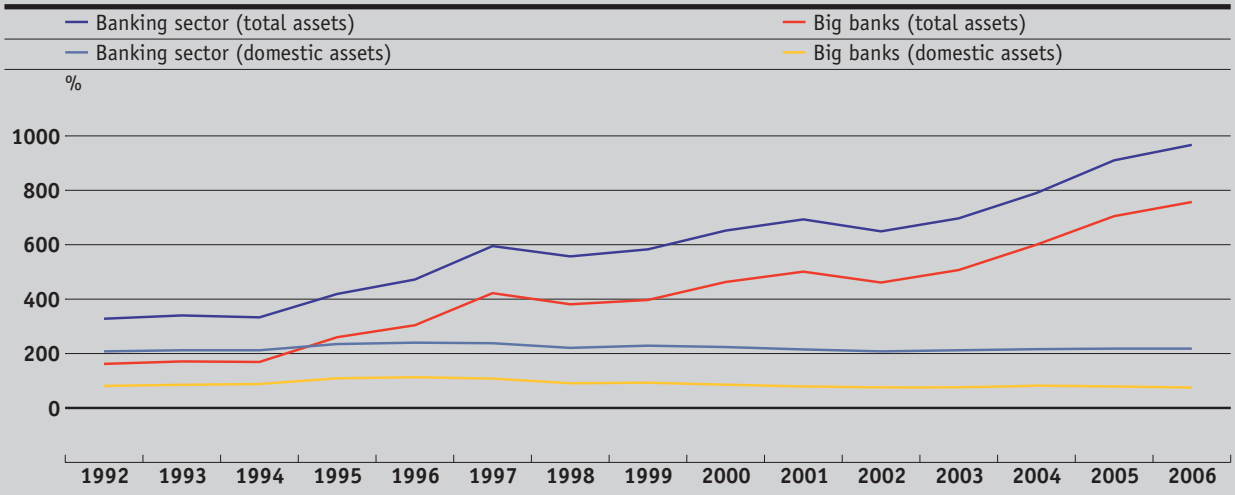
Market concentration in the Swiss banking market is high but not exceptional as compared to other countries. The market share (measured in terms of total assets) of the three largest banks (CR3) is a typical measure of market concentration. In Switzerland, it amounts to 81%. This is lower than in countries such as the Netherlands (90%) or Belgium (88%), but well above the G10 (unweighted) average (65%) (cf. table). However, Switzerland is exceptional in that the bulk of the CR3 (78 of the 81 percentage points) is made up of the two largest banks. The rest of the Swiss banking sector comprises 24 cantonal banks (8%), 405 independent bank members of the Raiffeisen group (3%) and 78 regional banks (2%). The remaining 226 banks (referred to as 'other banks' in this report and including private banks, foreign-owned banks and branches of foreign banks) have a 10% 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 much less significant. Their market share in the domestic credit market is approximately 36%, closely followed by cantonal banks (32%). The share for Raiffeisen banks is 12% and for regional banks 9% (cf. graph 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



Size of banking sector (as a percentage of GDP)

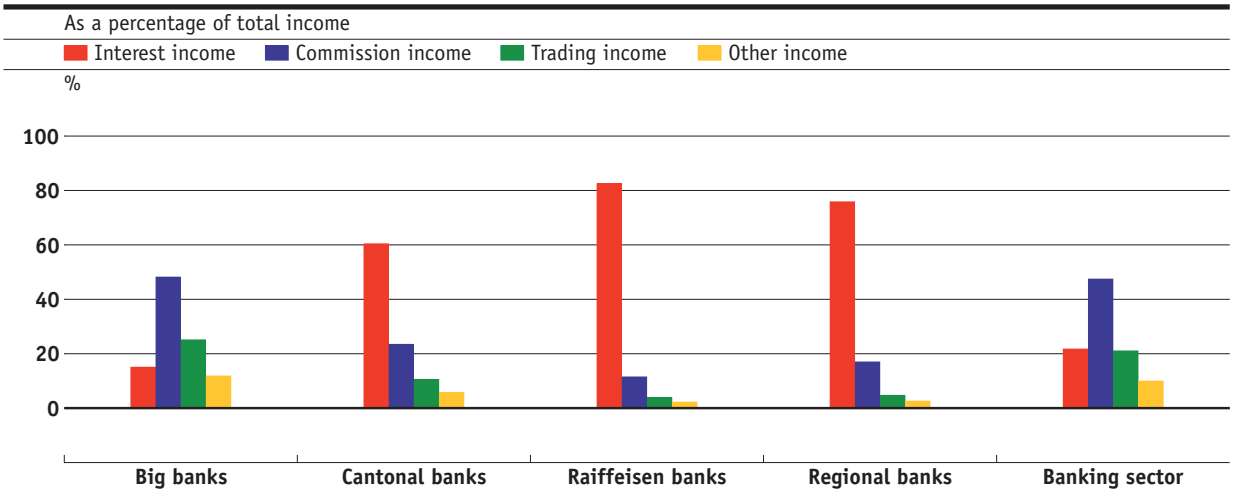


Sources for graphs: SFBC, SNB

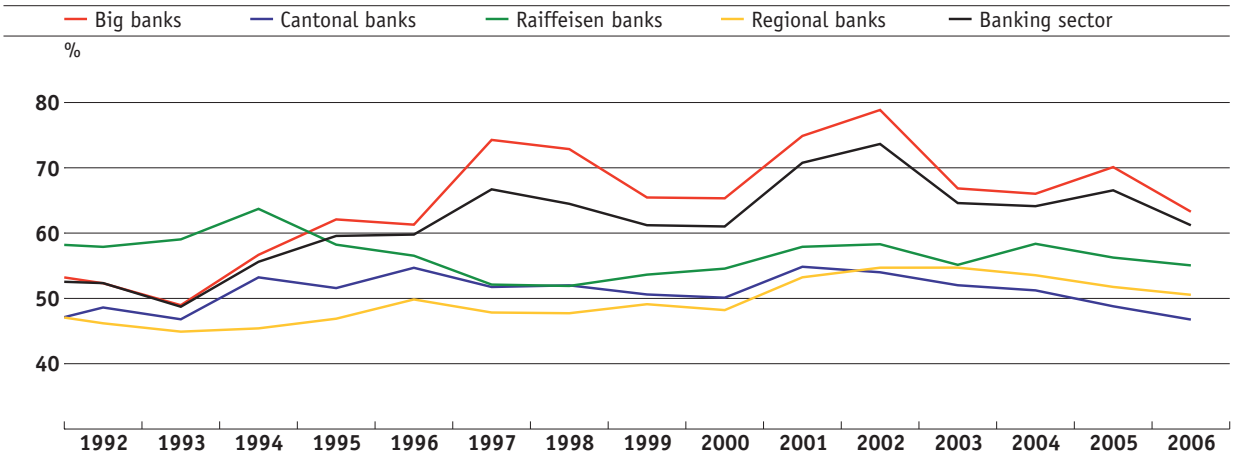
50%. There are two reasons for this development, the first being that the interest rate margin at the big banks decreased. The strong growth in lending volume at the big banks was largely attributable to repos and securities lending and borrowing. As these are low margin businesses, their contribution to the interest income is only minimal. The second reason for the decline is that the big banks are increasingly using interest-bearing liabilities to finance activities that do not only generate interest income, such as trading business. By contrast, the interest rate margin at the domestically oriented banks did not decline. While total lending for these banks rose by 3%, their interest income climbed by 4%.

The diverse results achieved in the different fields of business were one reason for the disparities between the earnings of the different bank categories. Total income at the big banks (+9%)[18] rose more markedly than in the other bank categories – cantonal banks (+7%), Raiffeisen banks (+6%) and regional banks (+4%) – because of the relatively important role that commission and trading

Income components by bank category (2006) Graph 13



Cost/income ratios Graph 14



Graphs 13 and 14: Sources: SFBC, SNB

18 The increase would have been higher still (around +21% according to the annual reports of the big banks) had the sale of Winterthur and that of Motor Columbus (a UBS holding company with participations in the energy sector, sold at the beginning of 2006) not been included.

business plays there. In these other bank categories, particularly at the Raiffeisen and regional banks, interest differential business is dominant (cf. graph 13). Over the past fifteen years, the relative importance of the various income components has been fairly constant for the different bank categories. The only change has been a moderate increase in commission business at the big banks at the expense of interest differential business.

In 2006, operating expenses remained more or less stable across the entire banking sector and also in the individual bank categories. At the big banks, this stability was due largely to special factors that occurred in 2005, however. Excluding these factors,[19] operating expenses would have been up by 12% at the big banks and by 11% for the banking sector as a whole.

Overall, the cost/income ratio receded from 67% in 2005 to 61% in 2006. In the case of the big banks, it was down from 70% to 63%. Even without the aforementioned special factors from 2005, the ratio would have declined, albeit less sharply. The cost/income ratio also dropped in all the other bank categories (cf. graph 14).

In 2006, new write-downs and provisions fell by 44% to a low level. The decline at the big banks and the Raiffeisen banks was particularly marked (–76% and –73% respectively). Meanwhile, at the cantonal banks (–22%) and the regional banks (–18%), provisions also fell further. Overall, the situation was quite similar to that of 2005.

Outlook

The outlook for the profitability of the Swiss banking sector remains favourable. The anticipated normalisation of economic conditions is likely to have only a moderate impact on banks' earnings potential.

Should there be a particularly severe deterioration in the general climate, however, a sharp decline in profitability is to be expected. Firstly, the risk-appetite in the banking sector is currently relatively high (cf. chapter 3). Their income should therefore react sensitively to such a deterioration. Secondly, costs have risen strongly in the past few years, particularly at the big banks. Experience has shown that costs are relatively sluggish as compared with income. This applies in particular to investment banking, an area of banking that has been pushed considerably by the big banks in recent years and which tends to generate rather volatile income.

19 In particular the consolidation of Motor Columbus.

3 Risks

In view of the sharp rise in their exposure in trading and foreign lending business, the big banks exhibited a material increase in their risk-taking in the banking business.[20] For the other bank categories, the overall risk appears fairly low in historical terms – with the exception of interest rate risk, which remained relatively high.

High growth in lending at big banks

Credit risk measures the risk of default by a counterparty and is of central importance for the cantonal, Raiffeisen and regional banks, because these bank categories operate mainly in the lending business (cf. box 2, p. 18). It is also a major area of risk for the big banks, even though the relative importance of the lending business for them is lower.

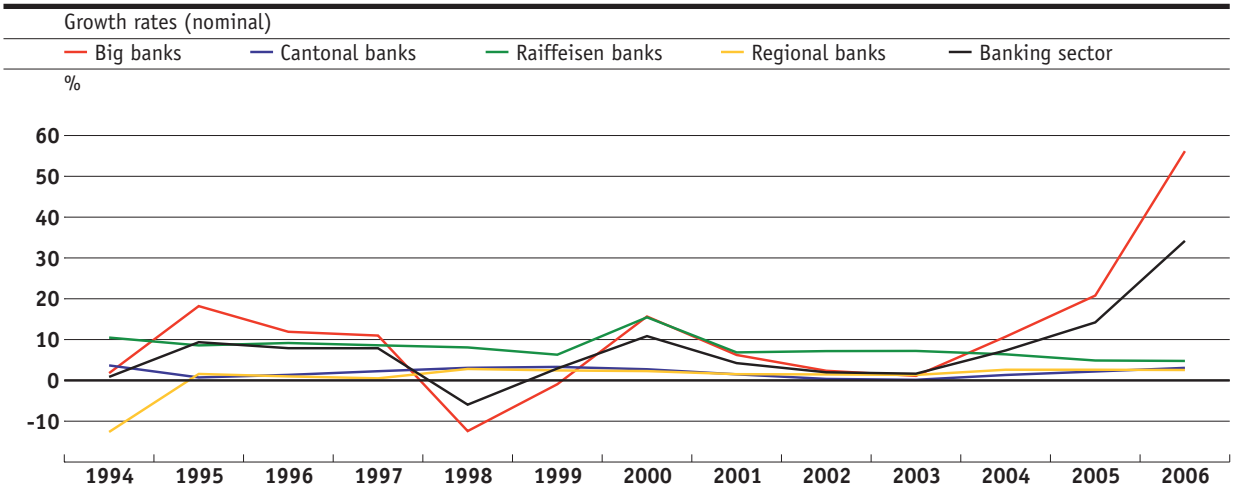
Credit risk can be divided into two distinct components – the volume of lending and the average quality of loans. A rise in volume without any change in the quality implies a higher credit risk, as does a deterioration in quality without any change in volume.

At most banks, the volume of lending grew moderately in 2006 (cf. graph 15). The rate of growth varied between 2% and 5%, depending on the bank category (cantonal, Raiffeisen and regional banks). The big banks were a notable exception, however, with the volume of lending soaring by 50%, i.e. an increase of CHF 450 billion. This outlier is largely the result of an accounting reclassification at UBS.[21] Even if this special factor were not included, growth would still be 25%. This strong growth is mainly attributable to foreign business, which, on taking the special factor into account, exhibited unusually high growth of +33%. These figures are based on a broad definition of loans. Among other items, they also include repos with non-bank customers. While these repos are considerably less risky than uncovered traditional loans, they are nevertheless not risk-free.[22]

Where domestic business is concerned, the lending volume of the big banks also grew at an above-average rate. While mortgages have exhibited only average growth (+4%), domestic claims against customers have grown particularly strongly (14%). Considering the rather moderate developments in the market as a whole, this strong growth might reflect an increasing risk appetite at the big banks (cf. graph 16).

The domestic lending volume at the domestically oriented banks (cantonal, regional and Raiffeisen banks) developed in line with the prevailing economic conditions. Firstly, over the past few years, the growth rate of domestic claims against customers at these banks has been lower than GDP growth. This suggests that, overall, the banks tended to pursue a cautious lending policy in Switzerland and did not expand lending by lowering lending standards. Secondly, between 1996 and 2006, domestic mortgage loans rose by 2.6% on average (2006: 3.9%), while real estate prices increased by

Total lending (domestic and foreign) Graph 15



Sources: SFBC, SNB

20 However, given the sale of Winterthur Insurance, CSG recorded a decline in its overall risk.

21 "For comparability reasons, UBS reclassified CHF 183 billion from receivables against banks to receivables against customers on 31 December 2005.", UBS, *Financial Report 2006,* p. 98.

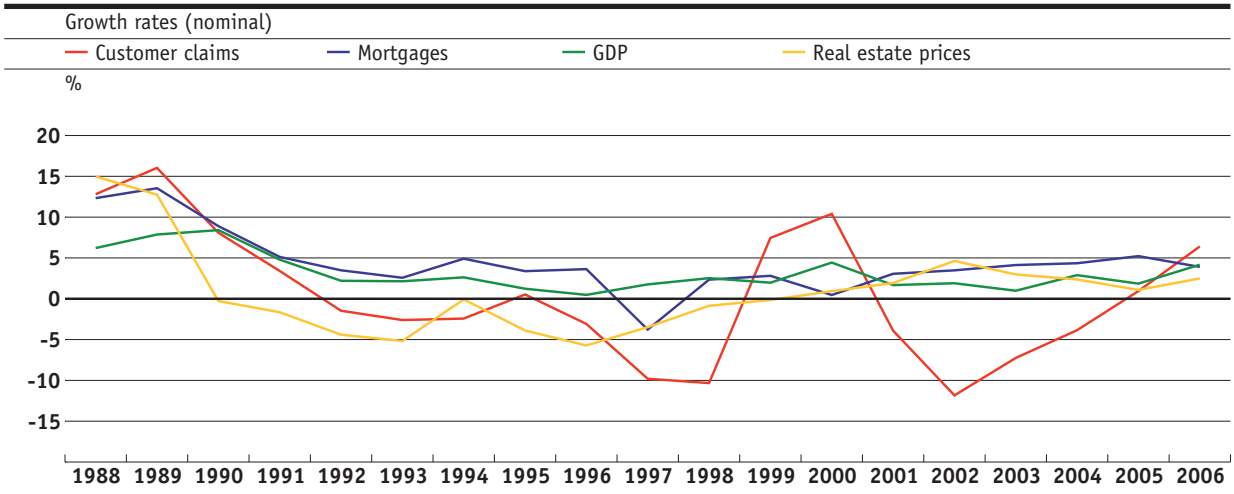
22 According to the banks' narrower definitions of loans which excludes these items, loans at UBS have increased by 16%, while loans at Credit Suisse (banking business) increased by 8%. Source: Annual reports.

an average of 1.2% per annum over the same period. These moderate growth rates do not point to a speculative bubble in the mortgage market, as there was in the late 1980s. Accordingly, neither mortgages nor customer claims at those bank categories that are focused on business within Switzerland appear to show any structural imbalances. Meanwhile, real estate prices in a number of other countries – including in the US and the UK – have soared in recent years (cf. chapter 1, pp. 13–14). The Swiss big banks are directly exposed to these real estate markets. According to the results of an internal study, however, the loss potential from these exposures seems relatively low.

As far as loan quality is concerned, the available indicators are providing some mixed signals. In the banking statistics, current loan quality is reflected by the figures for non-performing loans.[23] In addition, write-downs and provisions for default risks give indications of average borrower quality. Both of these indicators showed a clear improvement over the previous year. For all bank categories, the share of non-performing loans in total lending volume declined and for the banking sector as a whole, this share dropped from 0.8% to 0.4%. As a result, non-performing loans have reached the lowest level ever attained since collection of this particular statistic began (cf. graph 17). The share of existing write-downs and provisions for default risks in total lending volume provides a similar snapshot of the current position. This figure also declined in all bank categories, as well as for the banking sector as a whole, dropping from 1.1% at the end of 2005 to 0.7% at the end of 2006. Historical comparisons show these values to be very low. In the last twenty years, new write-downs and provisions were on average almost ten times higher than they are now. In isolated poor years, they were even as much as twenty times higher. Even if the favourable environment is taken into account, the current values are still low. According to our own estimates, current write-downs and provisions are roughly one-third lower than under similarly good conditions in the past.

However, write-downs and provisions are only of limited reliability in assessing the quality of a loan portfolio. As indicators on loan quality, write-downs and provisions – like non-performing loans – have the disadvantage that they primarily show the current situation and that of the past year. These indicators are thus of only limited suitability for a forward-looking evaluation of the quality of loans.[24] This is particularly problematic at the moment, because, after a long period of an unusually high level of borrowers' credit standing, a number of signals are pointing to a normalisation of economic conditions (cf. chapter 1). For the big banks, indicators that are more future-oriented suggest that loan quality has deteriorated somewhat. For instance, the share of loans with an

Domestic lending market — Graph 16



Sources: SFBC, SNB, Wüest & Partner (Single Family House Index)

23 Non-performing loans are claims against customers and mortgage loans for which payments are more than 90 days overdue (BAG-SFBC, marginal number 248a).

24 Banks are, for instance, not permitted to determine their write-downs and provisions freely, but are required to adhere to accounting standards. They are particularly restricted in how they record future, statistically-expected losses as expenditure in the present.

investment grade rating declined at the big banks.[25] Comparable rating data that provide information on the future development of loan quality are unfortunately not available for the other bank categories.

All in all, the big banks are the only bank category to have increased their lending volume considerably. With loan quality remaining unchanged – or indeed even declining on the basis of more forward-looking indicators – their credit risk rose sharply. According to its own assessment, Credit Suisse Group's credit risk rose by around 10%.[26] The credit risk appears to have remained relatively stable at a low level at the other bank categories, with lending volume increasing moderately and an improvement in loan quality. However, it is unclear whether the loan quality is really as high as the available indicators suggest.

Higher market risk for the big banks

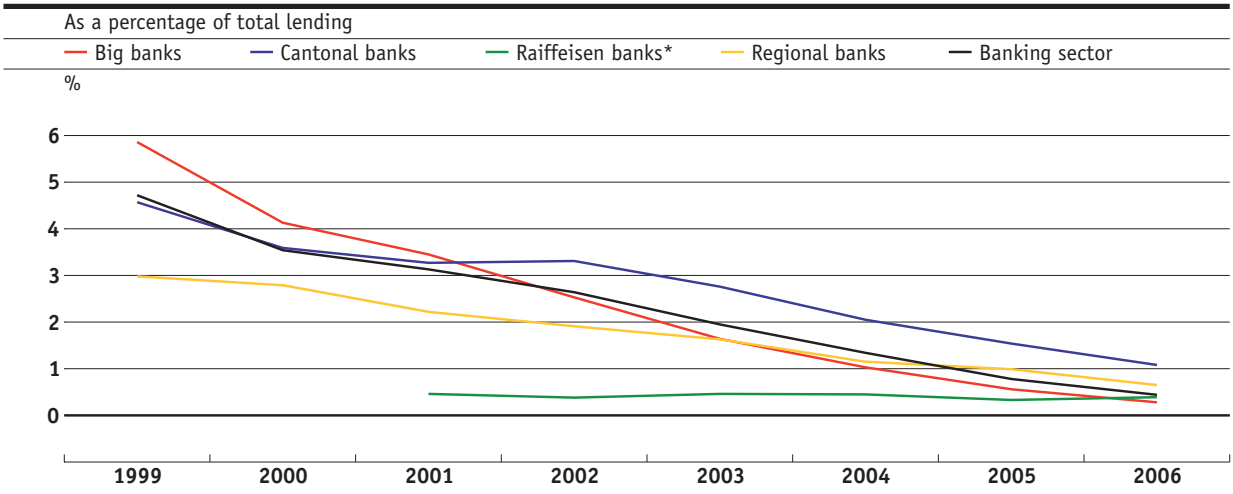
Market risk is the risk that changes in market prices will generate profits or losses. This price risk mainly affects banks' trading books and financial investments. Market risk also includes the interest rate risk in the trading book and banks' currency risk.

Market risk is particularly important for the big banks, because they are heavily dependent on trading results. Trading portfolios account for one-third of their total assets. The cantonal banks are also dependent on trading results, although to a lesser extent, while market risk plays a minor role for the Raiffeisen banks and the regional banks (cf. chapter 2, p. 19).

The big banks publish their market risk regularly, in the form of VaR figures. The VaR measures maximum losses within a given time span, for a given probability.[27] Based on this indicator, the market risk at UBS increased by 20%, while at CSG, the VaR remained virtually unchanged compared with the previous year (cf. graph 18). However, it should be borne in mind that the current level of volatility, which is at a historically low level, has an impact on the VaR (cf. graph 7). The lower the market volatility, the lower the VaR (assuming an unchanged portfolio composition). Consequently, the low VaR figures at present are largely attributable to the current low level of market volatility. Should the volatility return to a higher level – in the past, market volatility repeatedly more than doubled within a year – the actual risk would rise accordingly.

Looking at the size of the trading portfolio, we note a substantial rise in exposures at UBS. Portfolio holdings are up one-third on the previous year, to almost CHF 900 billion. Taken with the aforementioned VaR values and indicators, this development suggests that UBS's market risk has risen strongly since the previous year. CSG's trading book recorded an increase of around 4% to roughly CHF 450 billion. At the same time, CSG's internal risk

Non-performing loans — Graph 17



Sources: SFBC, SNB

* Statistics for the Raiffeisen banks only available from 2001.

25 The share of loans with an investment grade rating fell at UBS from 74% to 68% and at CSG from 81% to 59%. This decline is mainly but not entirely due to the introduction of new internal rating models at both banks, however. Source: Annual reports.
26 Measured by the credit risk Economic Risk Capital (ERC). ERC is an internal risk indicator used at CSG. Source: Annual report. For the time being, UBS does not publish credit risk data based on the bank's own calculations.

27 For instance, a ten-day 99% VaR of CHF 100 million signifies a 99% probability that trading losses will not exceed CHF 100 million over ten days.

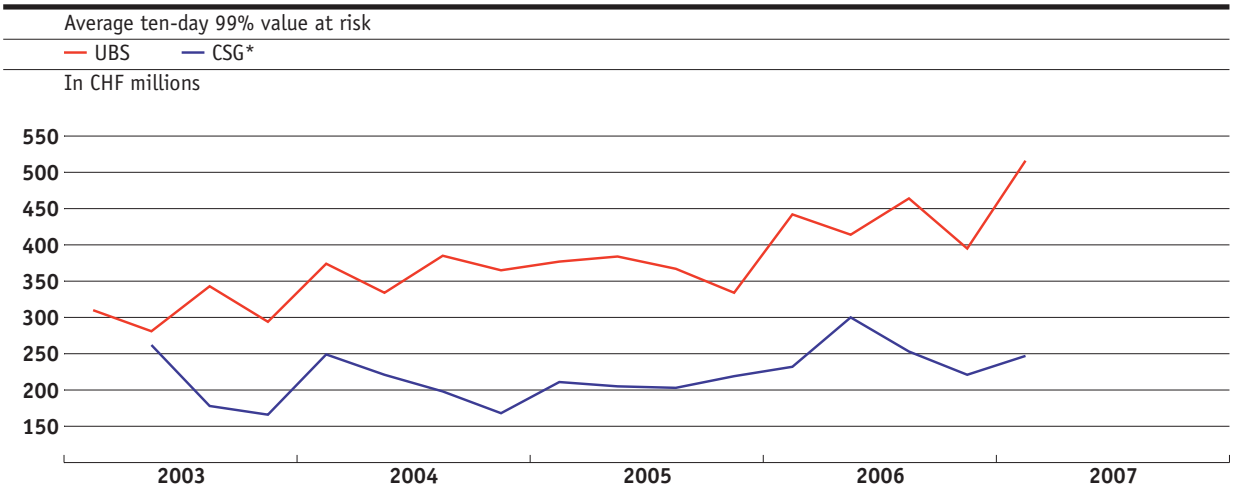
indicator – the Economic Risk Capital (ERC) – suggests that market risk has increased by roughly 20%. Like the VaR values, these ERC values refer to the banking business of CSG. The sale of Winterthur Insurance at the end of 2006 – which constituted an important special factor – allowed CSG to shed a significant source of market risk. Accordingly, market risk for the entire Group as per ERC dropped by 40%.[28]

Since no VaR data or similar risk indicators are available for the other bank categories, we measure their market risk by using capital adequacy requirements calculated on the basis of items subject to market risk. In the case of the cantonal banks, market risk (measured in this way) increased by 10% on the previous year. Starting at a low level, it fell at the Raiffeisen banks by 4%, and rose at the regional banks by 8%.[29]

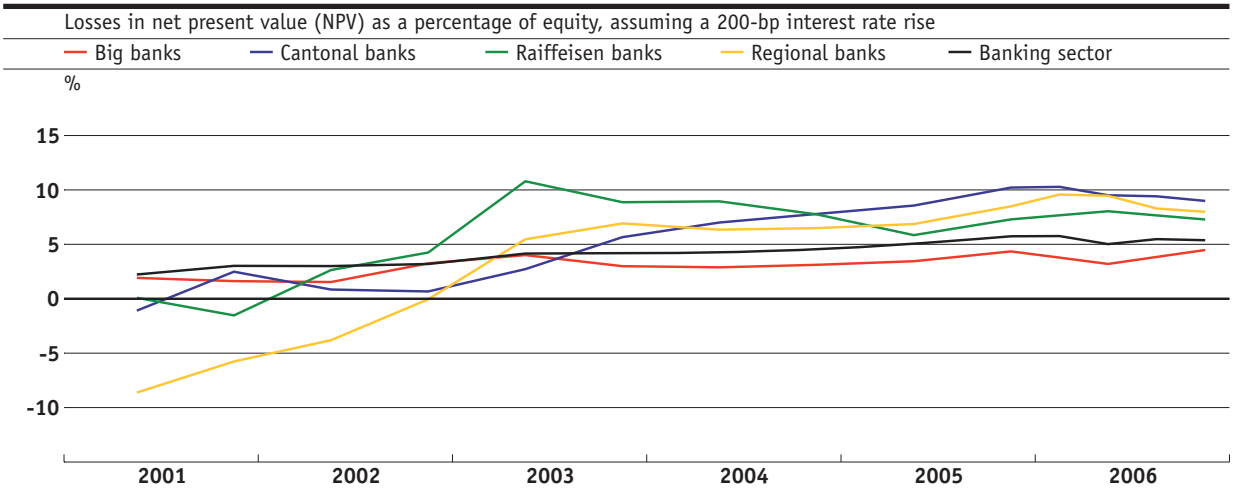
Interest rate risk still high at domestically oriented banks

A direct interest rate risk exists if there is serious mismatching between the repricing maturities[30] of a bank's assets and liabilities. Banks typically use short-term liabilities to refinance

Market risk — Graph 18



Interest rate risk — Graph 19



Graph 18: Sources: Annual reports

* One-day VaR scaled to ten days.

Graph 19: Sources: SFBC, SNB

28 Source: Annual report

29 Market risk at cantonal banks accounts for 9.8% of total capital requirements (2005: 9.3%). The corresponding figure for the regional banks is 4.6% (2005: 4.3%) and for the Raiffeisen banks, 2.1% (2005: 2.3%). The corresponding figure for the big banks (10.5%; 2005: 11.3%) is not very useful for comparisons with the other bank categories, due to the fact that the big banks use internal models for calculating their capital requirements. Because these internal models measure market risk more precisely, they arrive at a capital requirement which is considerably lower than the simple standard procedure (cf. arts. 12m–12o Banking Ordinance).

30 Time that will lapse until the next occasion on which interest rates can be adjusted.

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.

Generally speaking, the greater the dependence of a bank on interest differential business, the greater the importance of interest rate risk for this bank. Consequently, interest rate risk is an important risk factor for cantonal, Raiffeisen and regional banks. As in the case of credit risk, the relative importance of interest rate risk is lower for the big banks, since their sources of revenue are more diversified.

If the general level of interest rates were to rise by 200 bp, the average result for all banks would be a reduction in the net present value amounting to 5.4% of available capital (year-end 2005: 5.7%). Interest rate risk has thus declined slightly for the first time in several years (cf. graph 19). Overall, however, the domestically oriented banks (cantonal, regional and Raiffeisen banks) continue to bear a high interest rate risk.[31]

Overall risk assessment

It is difficult to combine the various risk categories described above to form a cohesive picture. Firstly, a number of interdependencies and overlaps exist between the categories. An interest rate rise, for instance, may also impact on borrowers' ability to meet their payment obligations; such a rise thus poses not only an interest rate risk, but also a credit risk. Secondly, each risk category behaves differently. If, for example, the economy is in good shape, the credit risk might result in minor losses, while, at the same time, a stock market crash could bring about losses in trading business.[32] Thirdly, the risks incurred are measured in different units, depending on the risk category. Consequently, the individual categories cannot be directly compared or added.

In the absence of a yardstick enabling an accurate and reliable measure of the overall risk to which banks are exposed, our assessment is based on two complementary yet imperfect instruments. Firstly, the SNB carries out scenario analyses to assess the effect of various macroeconomic scenarios on the profitability of the banking sector and on its level of stress (cf. box 3, pp. 26–27). The individual impact of different macroeconomic and financial variables as well as two scenarios[33] which combine several of these variables were tested. The results indicate that the banking sector's risk appetite increased significantly in 2006. The impact of a sharp decline in stock market prices or an increase in international credit spreads – the two main risk factors facing the Swiss banking sector – grew by around 10% on 2005.

A second instrument is given by the banks' own calculations. Unfortunately, it is still uncommon in the banking sector that such calculations are performed and subsequently published. This prevents us from carrying out an overall assessment of risk-taking in the banking sector based on such data. Focusing on the big banks, CSG's ERC figures indicate that total risk appetite in the banking business (Credit Suisse) was increased in 2006 for the third year in a row (+9% for total ERC and +22% for position risk, i.e. excluding operational and other risks categories) and is now high by historical standards. For the group as a whole, however, ERC figures suggest a decline in the overall risk appetite. This risk reduction mainly reflects the sale of CSG's insurance subsidiary (Winterthur) as of year-end 2006 which has had a big impact on the bank's market risk (cf. pp. 23–24). Regarding UBS, the indicators for the different types of risks described in this report point to a substantial increase in risk-taking. However, due to the lack of available data on a comprehensive risk measure targeted at tail events, the magnitude of the increase and the level of the bank's overall risk-taking cannot be assessed.

31 These results are based on banks' assumptions regarding the repricing maturity of all the different accounting items. The National Bank performs a complementary interest rate risk analysis which is based on standard hypotheses regarding the repricing maturity of some positions, in particular savings deposits and traditional variable-rate mortgages. While our standard hypotheses are close to the repricing maturity assumed by the average bank in the sample, they are significantly shorter than the average repricing maturities assumed by the larger banks. Based on these hypotheses, the average sensitivity to interest rates is 1.5 to 2 times as high as that measured on the basis of the banks' hypotheses.

32 Expressed in more technical terms, a diversification effect exists between the risk categories. The extent of this effect depends decisively on the correlations between them.

33 The first scenario simulates an unwinding of international imbalances and the second a domestic recession.

Box 3: Stress testing the stability of the Swiss banking sector

Macroeconomic and financial conditions can change rapidly. The analysis of the resilience of the banking sector to such changes is a central aspect of the SNB's assessment of risk-taking and capital adequacy in the Swiss banking sector. More generally, the scenario analysis is a key aspect of the SNB's assessment of the stability of the Swiss financial system. In addition to single-factor sensitivity analyses, the SNB considers the impact of two scenarios, both of which are of particular relevance to the Swiss banking sector.

The first scenario depicts the unwinding of international imbalances and a hard landing for the US economy. Consequently, it is more relevant for the two big banks. The scenario is based on simulations generated by the IMF and SNB macroeconomic models. It is motivated by US external imbalances and considers the impact of a sudden and permanent nominal depreciation (–22%) of the US dollar in effective terms. This shock is assumed to have a severe effect on global equity prices (–30%), spreads (+50 bp) and economic growth, with the latter dropping to below 1% in the US, the euro area and Switzerland. While short-term interest rates are expected to be tightened significantly in the US in response to capital outflows (+300 bp), short-term interest rates are assumed to decline in Switzerland (–130 bp).

The second scenario is Swiss-centred and hence of particular relevance to the mainly domestically oriented cantonal, regional and Raiffeisen banks. The scenario assumes a combination of negative developments in Switzerland, such as a domestic recession (real GDP declining by 2%), a strong increase in domestic credit spreads (+70 bp) and a drop in domestic equity prices (–30%).

Methodology

Two approaches are used to assess the consequences of these scenarios for the banking sector. First, their 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 the banks' trading book. This allows us to assess the economic resilience of the banking sector.

Second, the expected impact of these scenarios 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. chapter 6). 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

As can be seen from the table below, the economic resilience of the Swiss banking sector to changes in macroeconomic and financial conditions appears to be relatively high.[34] According to the simulations, the banking sector as a whole should remain profitable both under the 'unwinding of international imbalances' (scenario 1) and the 'domestic recession' (scenario 2) scenarios.

The impact of the 'unwinding of international imbalances' would nonetheless be material, as it would lead to a drop in profitability amounting to about 26% of the banking sector's excess capital. For the big banks, for which the international scenario is of primary concern, that figure would be around 33%. The impact of the 'domestic recession' scenario would be smaller. While the drop in profitability for the banking sector as a whole should amount to about 10% of the banking sector's excess capital, that figure would be around 15% for the domestically oriented banks. The impact of both

	Economic resilience		**Stress resilience**
	Expected profits (simulated values; in percent of excess capital)	Difference with respect to the baseline scenario (percentage points)	Expected levels of stress (simulations)*
Baseline scenario	40		Low
Scenario analysis			
– Scenario 1: Unwinding of international imbalances	14	–26	Very high
– Scenario 2: Domestic recession	30	–10	Moderate
Sensitivity analysis			
– Credit spread (+50 bp)	33	–7	Moderate
– Stock market prices (–30%)	28	–12	Moderate
– Interest rate (+200 bp, parallel shift)	35	–5	Low

* The scale used to qualify the level of stress comprises five steps: very low, low, moderate, high and very high. These steps were calibrated based on past values taken by the stress index.

34 The International Monetary Fund (IMF) came to the same conclusions in the context of its Financial Sector Assessment Program Update for Switzerland in 2006 (cf. box 6, p. 35).

scenarios is mainly driven by the effect of the assumed increase in credit spreads and the stock market crash. As compared to 2005, the sensitivity of the banking sector's earnings to economic and financial shocks, expressed in percent of excess capital, has remained broadly constant. Hence, the rise in the banks' capital base (cf. chapter 4) seems to have been compensated by higher levels of risk-taking in the banking sector (cf. also chapter 3), leaving the capital adequacy of the banking sector broadly unchanged.

Even if the banking sector's economic substance (capital) should be left unaffected, the conditions depicted under the 'domestic recession' or the 'unwinding of international imbalances' scenarios would still be stressful for the banking sector. The analysis of the stress resilience of the Swiss banking sector suggests that the 'domestic recession' scenario would lead to a level of stress that is moderate by historical standards. Under the 'unwinding of international imbalances' scenario, the Swiss banking sector is even predicted to face 'very high' levels of stress. By way of comparison, the forecast level of stress would be similar to the levels reached during the 1998 episode, when the Russian and LTCM crises occurred, or the 2001/2002 period, which was characterised by a stock market crash and a general economic slowdown. The impact of both scenarios is mainly driven by the effect of the assumed increase in credit spreads and the stock market crash.

These results suggest that the banking sector should experience a stressful episode in the event of a severe deterioration of its macroeconomic and financial environment. This increase in the level of stress should reflect a certain degree of market participants' loss of confidence in the Swiss banking sector's situation. This loss of confidence should in turn reflect higher levels of uncertainty and a decline in the market participants' risk appetite, rather than a loss of the banking sector's economic substance. Such a loss of confidence would nevertheless be damaging for the stability of the banking sector as confidence is, like capital, a prerequisite for the functioning of banks.

Limitations

The scenario analysis is subject to two main limitations. Firstly, 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. Secondly, 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 scenarios 1 and 2.

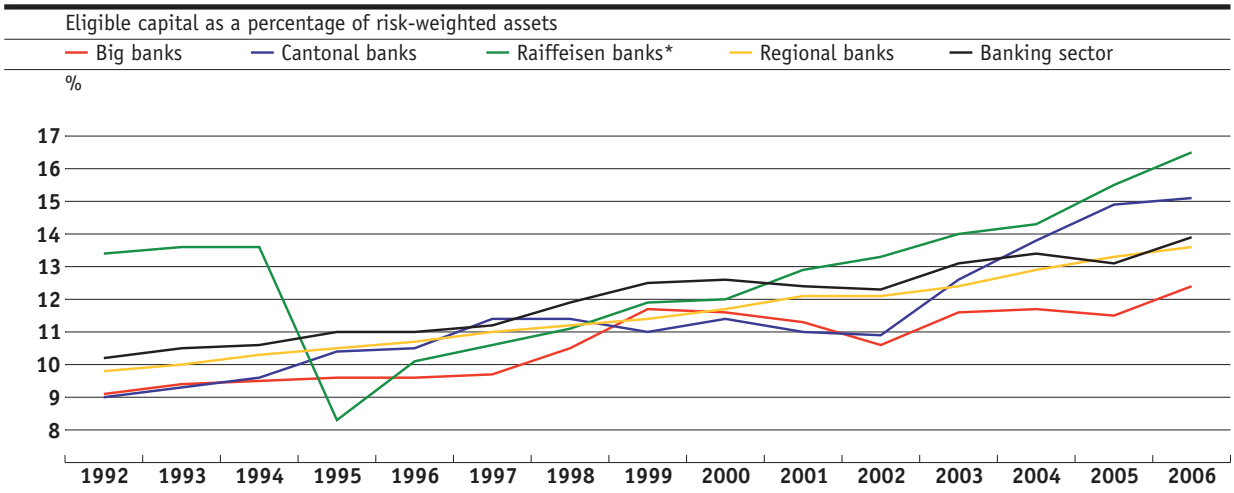
4 Capital base

Owing to favourable year-end results in all bank categories, their capital base rose significantly. As a result, the banking sector's ability to absorb shocks has been further enhanced. From a historical perspective, risk-weighted capital ratios are high in all bank categories. The big banks' leverage, nevertheless, remains high by both historical and international standards. All in all, the capital base of the Swiss banking sector appears to be sound.

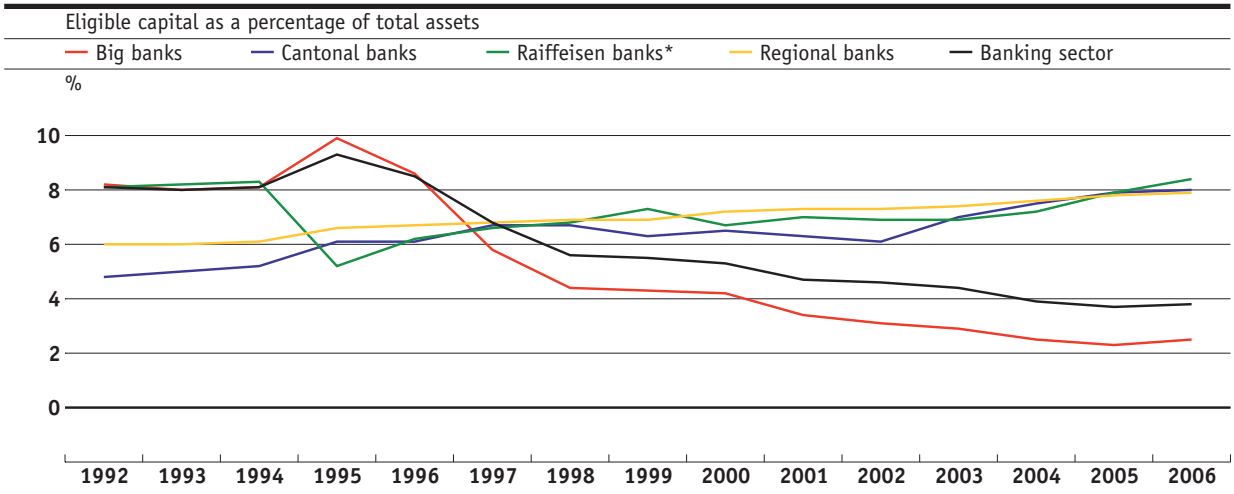
Marked rise in risk-weighted capital ratios in all bank categories

In 2006, risk-weighted capital ratios increased in all bank categories (cf. graph 20).[35] The ratio for the entire banking sector rose from 13.1% in 2005 to 13.9% at the end of 2006. The increase was particularly pronounced at the big banks (from 11.5% in 2005 to 12.4% in 2006) and at the Raiffeisen banks (from 15.5% to 16.5%). Individually, all banks reported excess capital as at the end of 2006.

Capital ratios (risk-weighted) Graph 20



Capital ratios (unweighted) Graph 21



Graphs 20 and 21: Sources: SFBC, SNB

* A significant proportion of capital at the Raiffeisen banks comprises the members' obligation to pay in additional capital. As of 1995, only part of this can be included in eligible capital, hence the sharp drop in capital at the Raiffeisen banks.

35 Cf. box 4, p. 30 for an explanation of the terminology used in this chapter.

By historical standards, risk-weighted capitalisation at Swiss banks is strong (cf. graph 20). The past fifteen years have seen a significant improvement in the capitalisation of all bank categories. Individually, there has also been a marked improvement at most banks.

Risk-weighted capital ratios up, primarily due to higher eligible capital

The improvement in risk-weighted capital ratios is due to a stronger increase in eligible capital (capital base) in comparison with required capital. Thanks to high profits,[36] eligible capital was up 14% year-on-year in the banking sector as a whole. All bank categories registered a significant rise in their capital base: big banks (+21%), cantonal banks (+7%), regional banks (+4%) and Raiffeisen banks (+12%).

Required capital rose as well, albeit to a lesser extent: big banks (+12%), cantonal banks (+5%), regional banks (+2%) and Raiffeisen banks (+5%). In all bank categories, higher required capital is mainly the result of growth in their balance sheet totals.

Big banks' leverage stabilised, yet remains high

The unweighted capital ratio – the ratio of eligible capital to total assets – also increased at most banks in 2006 (cf. graph 21). After the big banks had seen a steady decline in this ratio (from approximately 10% at the end of 1995 to 2.3% at the end of 2005) in the previous ten years as a result of strong growth in total assets, it stabilised at a low level in 2006. In other words, big banks' leverage stabilised after having risen for a prolonged period, albeit at a high level.[37]

By contrast, in the other bank categories, unweighted capital ratios saw a renewed rise in line with the long-term trend. Ratios at the cantonal, regional and Raiffeisen banks were roughly 8% at the end of 2006. This is slightly higher than in the previous year and significantly higher than ten years earlier.

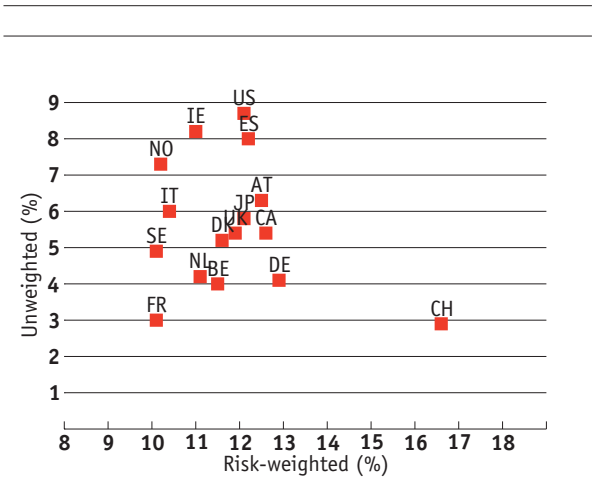
The strong risk-weighted and weak unweighted capitalisation (high leverage) of the big banks is also evident in a comparison with other internationally active banks in North America, Japan and Europe. On the basis of country averages, Switzerland ranks first with regard to risk-weighted capital ratios (highest risk-weighted capital ratio). It comes in last, however, with regard to unweighted capital ratios (highest leverage) (cf. graph 22).[38]

The overall capital base seems adequate

To determine the adequacy of a bank's capital base, a complete identification and appropriate coverage of all incurred risks is required. However, no yardstick enabling an accurate and reliable measure of the overall risk to which a bank is exposed exists (cf. chapter 3, p. 25). Hence, in order to round out the picture provided by risk-weighted capital ratios and leverage, three additional indicators are considered.

A first indicator is provided by the scenario analysis conducted by the SNB (cf. box 3, pp. 26–27). Based on this analysis, it appears that the economic resilience of the Swiss banking sector to large negative changes in the macroeconomic and financial conditions is relatively high and that it remained broadly unchanged in 2006. Hence, the rise in the banks' capital base seems to have been

Capital ratios of major international banks Graph 22



AT = Austria
BE = Belgium
CA = Canada
DK = Denmark
FR = France
DE = Germany
IE = Ireland
IT = Italy
JP = Japan
NL = Netherlands
NO = Norway
ES = Spain
SE = Sweden
CH = Switzerland
UK = United Kingdom
US = United States

Sources: 2005 and 2006 annual reports

36 Cf. chapter 2.

37 In Switzerland, there are no regulatory restrictions on the ratio of eligible capital to unweighted assets. The regulatory capital adequacy requirements refer exclusively to risk-weighted assets (cf. box 4, p. 30). Nevertheless, unweighted capital 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).

38 Capital ratios as published by the BIS were used for comparison purposes.

broadly compensated by higher levels of risk-taking in the banking sector (cf. also chapter 3), leaving the overall capital adequacy of the banking sector unaffected.

A second indicator is the judgement of the financial markets. According to financial market data, the soundness of the Swiss big banks – which depends, in particular, on the adequacy of their capital base – is relatively high (cf. chapter 5).

A third indicator is provided by the banks' own calculations. Ideally, such measures should provide an overall assessment of the banks' risk profile. This might be expressed in relation to the banks' capital base, focusing particularly on stress situations (tail events). Unfortunately, the lack of data prevents us from assessing the overall capital adequacy of the Swiss banking sector as a whole, based on banks' own calculations (cf. chapter 3, p. 25). Focusing on the big banks, some data are nevertheless available. According to CSG, its capital adequacy improved in 2006 and is now high by historical standards. This improvement reflects a decrease in overall risk appetite for the group as a whole (including non-banking subsidiaries) as measured by economic risk capital (ERC) and an increase in the capital base in 2006. The main driver of these developments was the sale of CSG's insurance subsidiary (Winterthur) as of year-end 2006. However, the positive impact of this divestiture on capital adequacy might only be temporary, as CSG has announced that it would gradually use the capital made available to expand its activities.

To summarise, based on risk-weighted capital ratios – the traditional indicator of capital adequacy – the capital adequacy of domestically oriented banks further improved in 2006 and is sound by historical standards. This impression is confirmed if we make use of measures such as leverage and the scenario analysis conducted by the SNB. The capital base of the two big banks also appears sound on the basis of indicators such as risk-weighted capital ratios, the SNB's scenario analysis, the market's judgement and, in the case of CSG, the bank's own calculations. Hence, all in all, the capital base of the Swiss banking sector seems to be sound in spite of the remarkably high leverage of the two big banks. It should be stressed, however, that this assessment is characterised by a considerable degree of uncertainty, due, in particular, to the scarcity of reliable and comprehensive data enabling an overall assessment of risk-taking in the banking sector (cf. chapter 3).

Box 4: Regulatory framework

Swiss banking law prescribes minimum capital requirements (cf. arts. 11–14 Banking Ordinance). Essentially, capital backing is required for all on-balance-sheet assets, off-balance-sheet operations and other open items in the trading book and elsewhere. These items are of a diverse nature and the underlying risks vary, depending on the counterparty and collateral provided. To take account of this, the various items are risk-weighted. Of these risk-weighted items, 8% must be backed by capital at all times (required capital). However, the Swiss Federal Banking Commission (SFBC) can relax or tighten the regulations in specific cases (cf. art. 4 para. 4 Banking Act). Cantonal banks with a state guarantee are allowed capital requirements that are up to 12.5% lower (cf. art. 13 (b) Banking Ordinance).

The eligible capital used to back risk-weighted assets comprises three components: core capital, supplementary capital and additional capital. Core capital comprises paid-up equity, reserves and profits. Supplementary capital comprises hidden reserves, subordinated debt papers and certain hybrid instruments (e.g. mandatory convertible bonds). 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 banks have more eligible capital than required, they are said to have excess capital. The risk-weighted capital ratio comprises eligible capital as a percentage of risk-weighted assets. The unweighted capital ratio comprises eligible capital as a percentage of the total assets.

The Basel Committee on Banking Supervision at the Bank for International Settlements (BIS) has substantially revised the Basel Capital Accord over the last few years. The new Capital Accord (Basel II) is more flexible and risk-sensitive. It comprises three pillars: (i) minimum capital requirements, (ii) supervisory review process and (iii) the effective use of market discipline. The definition of capital and the minimum capital ratio of 8% of risk-weighted assets have been retained. To determine their risk exposure, the banks may use either a standardised approach or an internal ratings-based approach. The standardised approach came into effect in Switzerland at the start of this year and the other approach will come into effect at the start of 2008. Consequently, neither has any impact on the present stability report.[39]

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

5 Market assessment

The market assessment of the soundness of a bank is reflected in credit spreads, share prices and ratings. These indicators suggest that the situation in the Swiss banking sector remained unchanged in 2006. According to market estimates, the risk of default by Swiss banks remains low.

Spreads on bank bonds and CDS prices: steady trend at low level

The credit spreads between bank bonds and Swiss Confederation bonds as well as 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 Confederation bond, and the higher the price of a CDS (cf. box 5, p. 32).

In 2006, as in the two previous years, the average spread between the yields on Swiss bank and Confederation bonds remained more or less constant at a low level. The same trend can be observed for all banks: spreads for individual institutions remained virtually unchanged with current levels below the average of the last nine years (cf. graph 23).

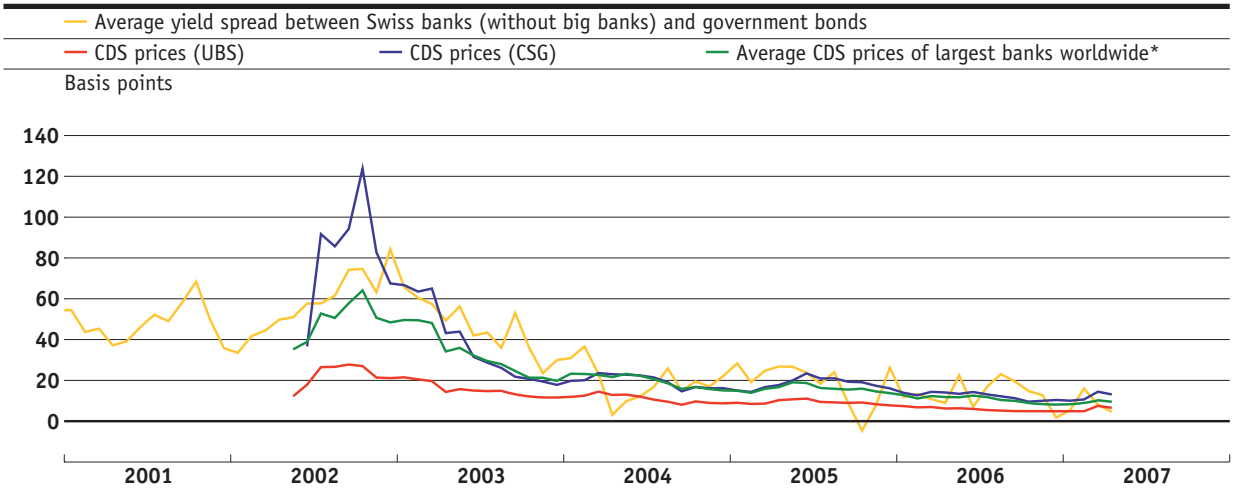
CDS prices for the two Swiss big banks and other large international banks also remained stable at a low level in 2006 (cf. graph 23). The premiums for UBS are low both in absolute terms and relative to other major international banks. By contrast, those for CSG are slightly above the average figure for the largest banks worldwide. However, the difference between individual institutions is minimal.

Insolvency indicators derived from equity prices are low

Share prices provide an insight into the current situation and future profit prospects of a bank. They reflect, in particular, the market valuation of the bank's assets and of the risks embedded in those assets. These figures, which can be derived from a bank's share price using the option pricing theory, can then be used to assess the probability that the value of a bank's assets will fall below the value of its liabilities over a given time horizon. In other words, the option pricing theory can be employed to derive the probability of insolvency priced into shares and, hence, allows the construction of an insolvency indicator.[40]

Graph 24 shows the insolvency indicator for the two Swiss big banks and for a sample of the largest banks worldwide (mean value). The higher the indicator, the higher the implied risk of insolvency assessed by the market. Following a peak at year-end 2002, the insolvency indicators for both the two Swiss and the foreign banks exhibited a downward trend and have been relatively constant since 2004. Based on share prices, it appears that the market currently considers the soundness of UBS and CSG to be broadly in line with the international average. As with CDS prices, however, the difference between individual institutions is minimal.

Credit market assessment — Graph 23



Sources: Bloomberg, SNB, Thomson Datastream

* Comprises a sample of the world's largest banks in North America, Japan and Europe according to *The Banker* (July 2006).

40 However, caution is called for when interpreting insolvency indicators because their calculation is based on a number of simplifying assumptions. Option pricing theory essentially assumes a normal distribution of bank revenues. If the actual distribution is different and there are wide discrepancies between the banks, this indicator can be misleading. Moreover, bank share prices, and thus the indicator, are influenced by factors that have nothing to do with the banks' fundamental data.

Box 5: Determinants and predictability of credit spreads

In general, interest rates on corporate bonds are higher than those in the government bond market. These credit spreads or corporate bond spreads are primarily intended to compensate creditors for the higher credit risks incurred with corporate bonds.

Credit spreads currently represent a major risk factor for Swiss banks. This is evident in both the results of the SNB's scenario analysis (cf. box 3, pp. 26–27) and the stress tests conducted by the banks. A sharp rise in credit spreads (in the area of +60 bp for BBB-rated bonds) would result in a substantial drop in profits.

At the same time, credit spreads between government bonds and AAA-rated USD corporate bonds (21.5.2007: 62 bp) or BBB-rated corporate bonds (21.5.2007: 120 bp) have been below their ten-year average of 72 or 165 bp,[41] for quite some time now. However, as history has shown, credit spreads can go up or down sharply and unexpectedly within a few days or weeks. In a year-on-year comparison, these changes are even more massive, for instance credit spreads rose by 135 bp from October 2001 to October 2002.

Given this background, it would be important to be able to forecast the extent and the timing of a potential correction. Existing research in this area, however, suggests that the dynamics of credit spreads are difficult to forecast. The most important reason for this is that credit spreads depend on several factors which themselves can only be forecast with great difficulty. The determinants will be outlined briefly in the next section, with the main focus on those factors that change over time and are therefore relevant in order to explain or forecast the developments in credit spreads.

Determinants of credit spreads

From a theoretical viewpoint, credit risk is the most important determinant of the size of and change in the credit spread between a corporate bond and a corresponding government bond.[42] However, empirical literature clearly shows that the size of credit spreads is only determined to a small extent by credit risk. It is estimated to contribute a maximum of one-quarter,[43] and in the case of top-rated bonds only a mere 5%.[44] However, since credit spreads are highly correlated with the ratio between rating downgrades and rating upgrades, we conclude that credit risk is indeed relevant for developments in credit spreads.

There is less agreement in the literature with regard to the determinants of the remaining share of around three-quarters. In addition to credit risk, the following additional determinants are mentioned: bond-specific aspects, different taxation of corporate and government bonds, a premium for the lower liquidity on the corporate bond market, macroeconomic factors and another systematic factor which is not determined more precisely. The last three factors cannot be clearly separated from one another. They all reflect general credit risk to a certain degree.

Bond-specific aspects, such as nominal value, coupon, issue volume or residual maturity affect the yield on bonds and thus – unless they are identical for the corporate and government bonds examined – the size of the credit spreads.[45] In addition, credit spreads contain a premium to take account of different taxation of corporate and government bonds: unlike interest income on government bonds, interest income on corporate bonds is taxable in the US.[46] Bond-specific and tax aspects hardly change over time and are therefore not relevant for developments in credit spreads.

Market liquidity plays an important role both with regard to the level and developments in credit spreads. Government bonds are considered to be more liquid than corporate bonds. In relation to more liquid bonds, yields on less liquid ones are higher. This is because they contain a higher illiquidity premium. Changes in liquidity have a significant impact on movements in credit spreads, which may even exceed that of credit ratings.[47] Liquidity is often measured relative to the bid/ask spread, which is strongly correlated with volatility in the financial markets. Consequently, changes in market liquidity in terms of the bid/ask spread also appear to be a gauge of general risk assessment und uncertainty, which is then transmitted to movements in credit spreads.

Macroeconomic factors influence general credit risk and thus credit spreads. GDP, risk-free interest rates,[48] the slope of the term structure of interest rates and the stock market have a significantly negative impact on credit spreads. In other words, an increase in these variables leads to a reduction of credit spreads.[49] Declining volatility in the financial markets or – to a somewhat lesser extent – higher inflation also lead to lower credit spreads. Overall, macroeconomic factors have a greater impact on bonds with lower ratings than on bonds with high ratings.

Different studies[50] underscore the importance of an additional systematic risk factor inherent in corporate bonds.[51] It is unclear, however, how this systematic factor is to be interpreted. There are two explanations which seem plausible to us: (1) the systematic factor reflects the risk compensation investors generally demand. It thus captures investors' appetite for risk. (2) The systematic factor reflects imbalances between supply and demand of corporate and government bonds in a narrower sense, and between liquidity and investment possibilities in a broader sense.[52] Consequently, a low credit spread captures a liquidity overhang, since the shortage of investment possibilities in relation to available liquidity forces investors to accept low risk premiums.

To summarise, credit spreads consist of a premium for individual credit risk and the macroeconomic environment, premiums for bond and tax-specific differences, and a market liquidity premium. In addition, they depend on other systematic factors, such as risk appetite and liquidity overhang. These last two factors, in particular, are difficult to quantify. Especially individual credit risk, the macroeconomic environment, market liquidity, risk appetite and liquidity overhang have an impact on developments in credit spreads and thus on the forecasts.

Predictability

In order to forecast developments in credit spreads, knowing the individual determinants and their relative importance is not sufficient. It must be possible to forecast the development of these factors as well, which is extremely difficult. This is why, in the literature, the focus tends to be on explaining the size and movements in credit spreads and only a few attempt to make out-of-sample forecasts, and these forecasts explain only a fraction of the actual credit spreads.[53]

Forecasting peaks appears to be especially difficult. This is evidenced by three episodes in the past, when credit

41 Credit spreads for Merrill Lynch USD bond indices. Source: Bloomberg.
42 Considering credit spreads per rating category, an increase in the individual credit risk of a corporate bond does not result in an expansion of the credit spread of the corresponding rating category. Rather, the increase results in a rating downgrade of the respective corporate bond.
43 E.g. Collin-Dufresne, Pierre, Robert S. Goldstein and Spencer Martin (2001): "The Determinants of Credit Spread Changes", *The Journal of Finance,* vol. 56, no. 6, pp. 2177–2207 or Elton, Edwin J., Martin J. Gruber, Deepak Agrawal and Christopher Mann (2001): "Explaining the rate spread on corporate bonds", *The Journal of Finance,* vol. 56, no. 1, pp. 247–277.
44 Delianedis, Gordon and Robert Geske (2001): "The Components of Corporate Credit Spreads", mimeo.
45 E.g. Chen, Long, David A. Lesmond and Jason Wei (2007): "Corporate Yield Spreads and Bond Liquidity", *The Journal of Finance,* vol. LXII, no. 1, pp. 119–149.
46 E.g. Athanassakos, George and Peter Carayannopoulos (2001): "An empirical analysis of the relationship of bond yield spreads and macro-economic factors", *Applied Financial Economics,* vol. 11, pp. 197–207 or Elton et al. (2001).
47 Chen et al. (2007).
48 Neal, Robert, Dough Rolph and Charles Morris (2000): "Interest

spreads increased sharply within a short period of time. In September 1998 – after an extended period of very low spreads – BBB spreads climbed by 48 bp (+38%) within two days, in September 2001 by 50 bp (+24%) within four weeks, and in September/October 2002 by 72 bp (+24%) within three weeks. Neither international organisations (OECD, IMF, BIS) nor the banks devoted any advance attention to these scenarios in their reports. No significant imbalances could be spotted early on. In the aftermath of the Russian crisis in the autumn of 1998, there was a sizeable increase in credit spreads worldwide. Stock market prices tumbled, implicit volatilities rose sharply, and markets suffered from low liquidity. The Russian crisis caught markets by surprise. However, even if signs of a crisis had been discernible, nobody would have expected that the impact on financial markets in industrialised countries could have been that strong. All the more so, since the Asian crisis a year before had not triggered any uncertainty in industrialised countries. Higher credit spreads in the autumn of 2001 and 2002 were a similar surprise. The first rise came in the aftermath of the 9/11 terrorist attacks. The next one was primarily triggered by corporate scandals. Both peaks were caused by unexpected events. The macroeconomic environment was sound. In mid-2002, for instance, the forecast for real GDP in the US was even lifted from 0.7% (December 2001 forecast) to 2.5%. After 9/11, confidence was restored faster than expected. Owing to a highly expansionary monetary and fiscal policy, the US was considered to be a growth engine. It was questionable, however, whether inflation might have changed the picture. The high level of household debt, which financed consumption in the US, and the price of oil were mentioned as other possible risks. With regard to credit risks, a positive development was anticipated: For the last quarter of 2002, Moody's forecast a significant drop in corporate defaults.[54] Nothing pointed to a massive increase in credit spreads in advance.

Although peaks seem almost impossible to forecast, and predicting general trends also poses a challenge, we will nevertheless attempt to assess the development of the major determinants in the next section.

Development trends for credit spreads and their significance for the Swiss banking sector

Based on Moody's forecast of the global corporate default rate for 2007, which exceeds the actual defaults in 2006, we expect a slight deterioration in individual credit risk and thus a widening in credit spreads. This assessment corresponds to the answers provided by senior loans officers queried by the Federal Reserve on movements in loan quality. Senior loan officers expect stabilisation or a slight deterioration in commercial and industrial loans in 2007.

Macroeconomic factors impact developments in credit spreads as well. We expect a slight weakening of GDP growth and an increase in volatility in the financial markets. Both developments would result in a widening in credit spreads. Volatility, in particular, can increase rapidly when shocks unsettle investors' confidence.

Other systematic factors, such as liquidity overhang and risk appetite also change over time, therefore influencing movements in credit spreads. Notwithstanding the central banks' lifting of interest rates, there still seems to be a worldwide liquidity overhang; although it is growing at a slower pace. It is smaller, however, than during the extreme phases experienced at the end of 1998 and 2001. Both situations are evidenced in estimates of liquidity overhang by the OECD[55] and the International Monetary Fund (IMF).[56] We expect a downward trend in the liquidity overhang with a concomitant increase in credit spreads (cf. chapter 1, p. 14). During phases of low volatility and few corporate defaults, investors tend to underestimate risks. It is possible, therefore, that low credit spreads are not so much an expression of liquidity overhang, but rather of general risk assessment. When the risk appetite declines, i.e. when the risk compensation generally demanded is on the increase again, credit spreads go up as well. We do not detect any tangible signs of a general trend reversal in risk assessment. Investors' appetite for risk has been growing since the middle of 2006, but it has not taken on extreme proportions. This can be gleaned from different indicators, each measuring investors' willingness to take risks. Such indicators include the survey carried out by Merrill Lynch with 300 institutional investors regarding their risk tolerance, the State Street Investor Confidence Index, which measures shifts in portfolios in favour of more secure investments, capital flows in equities and bonds in developing countries and the Goldman Sachs Risk Aversion Index, which estimates risk aversion based on a performance comparison between government bonds and shares.[57] However, general risk assessment can change very quickly when unexpected negative events unfold.

Thus, the following conclusions can be drawn: Forecasting developments in credit spreads is extremely difficult because (1) the different components of the spreads themselves can only be forecast with great difficulty and (2) the relative importance of these components in explaining spreads is disputed in the academic literature. All in all, an analysis of the different components suggests that credit spreads will tend to widen. In addition, there have always been sharp and unexpected increases in credit spreads in the past. Given this uncertainty and the substantial negative impact any marked increase in credit spreads would have on banks' profits, it is important that this scenario be given great attention, in particular when conducting stress tests.

Rates and Credit Spread Dynamics", *SSRN Social Science Research Network,* arrive at a slightly different conclusion. While an increase in the treasury rate leads to a reduction in the credit spread in the short term (less than three years), it leads to an increase in the long term.

49 E.g. D Amato, Jeffery and Maurizio Luisi (2006): "Macro factors in the term structure of credit spreads", *BIS Working Papers,* no. 203.

50 E.g. Collin-Dufresne et al. (2001), D Amato and Luisi (2006), Elton et al. (2001), Neal et al. (2000).

51 Sovereign spreads also contain a compensation for such a risk factor. For sovereign spreads, this compensation is considered to be even higher than for corporate spreads (cf. Remolona, Eli, Michela Scatigna and Eliza Wu (2007): "Interpreting sovereign spreads", *BIS Quarterly Review,* March 2007.

52 E.g. Collin-Dufresne et al. (2001).

53 E.g. Ericsson and Reneby (2003).

54 Twelve-month global speculative-grade forecast of the corporate default rate. For an explanation of the method, cf. Moody's (1999), "Predicting default rates: a forecasting model for Moody's issuer-based default rates".

55 OECD Financial Market Trends 2006, no. 91, p. 20.

56 *IMF Financial Stability Report* (2007), p. 48.

57 Cf. *IMF Global Financial Stability Report 2007,* pp. 48 et seq.

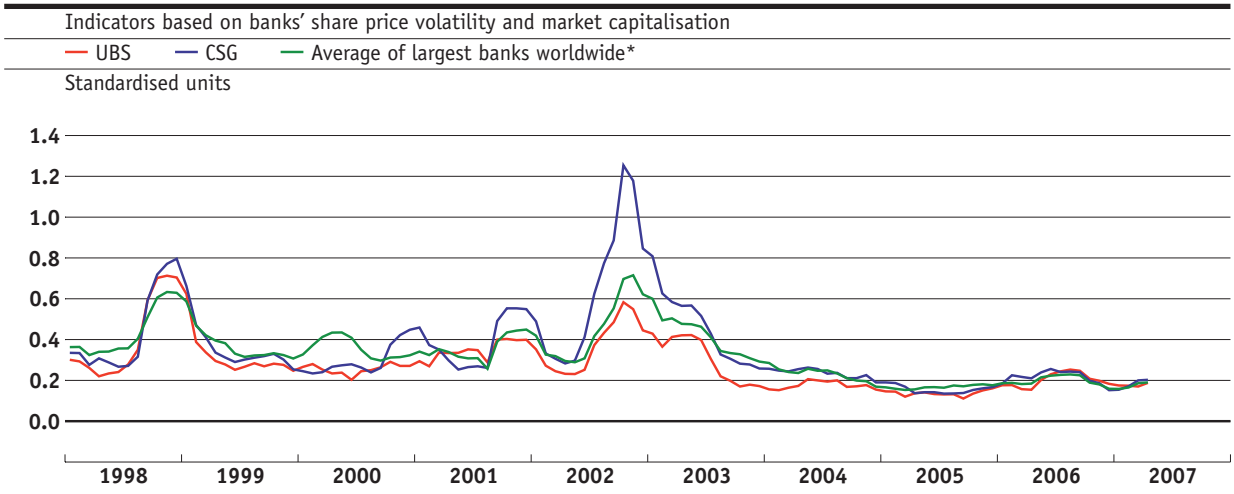
Ratings

Only a mere 8% of all institutions in the Swiss banking sector have a rating from Moody's, Standard & Poor's and/or Fitch, yet they account for nearly 90% of the sector's balance sheet total. In 2006, the long-term credit rating was not downgraded for any of these banks, while it was upgraded for one-sixth (among them CSG and its subsidiary, Credit Suisse). Overall, the rating agencies assess the credit rating of Swiss banks as medium high to high. In addition to assigning credit ratings, the rating agencies also issue an outlook showing the anticipated medium-term trend in their ratings. In 2006, this outlook became slightly more positive compared with the previous year (two improvements). On the whole, the agencies' outlook reports anticipate stable ratings for Swiss banks in the medium term. Between February and May 2007, Moody's introduced a new bank rating method, which led to ratings adjustments. In the Swiss banking sector, the two big banks, in particular, were affected by these changes. The credit ratings of UBS and Credit Suisse were upgraded two notches, while the rating of CSG was raised one notch. In international terms, CSG ranks as average, while UBS is still positioned above.

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, industry groups or official institutions, is not taken into consideration. Unlike long-term credit ratings, the FS ratings for Swiss banks remained virtually unchanged in 2006. Overall, the intrinsic financial strength of Swiss banks is rated as adequate to strong. The revised methodology introduced by Moody's in the first and second quarters resulted in a one-notch upgrade in the FS ratings for UBS and Credit Suisse. From an international perspective, Credit Suisse, or CSG, ranks as average, while UBS is still positioned above (cf. graphs 25 and 26).

Of the above-mentioned rating agencies, only Fitch also publishes a rating for the financial stability of countries. Through its 'bank systemic risk matrix', Fitch assesses the systemic risk by including a bank-specific and a macroeconomic dimension. Both dimensions are taken into account, as systemic bank crises can be triggered by bank-specific or macroeconomic events. Switzerland has been awarded the highest rating for both dimensions.

Insolvency indicators — Graph 24



Sources: Bloomberg, SNB, Thomson Datastream

* Comprises a sample of the world's largest banks in North America, Japan and Europe according to *The Banker* (July 2006).

Box 6: Financial Sector Assessment Program Update for Switzerland

The International Monetary Fund (IMF) analysed the Swiss financial sector in 2006. This was the second analysis carried out under the Financial Sector Assessment Program (FSAP) and it updates the FSAP of 2001. The IMF focused on: (i) financial sector stability, (ii) regulatory and supervisory developments for the banking and insurance sectors and pension funds, and (iii) progress made in implementing the 2001 FSAP recommendations.

Based on its analysis, the IMF concludes in particular that the banking sector as a whole is in good shape and appears resilient to shocks. This assessment is based principally on the outcome of stress tests conducted by the authorities (top-down stress testing) and by the big banks (bottom-up stress testing using the banks' own internal stress testing tools).

The IMF was broadly satisfied with the implementation of the recommendations made in FSAP 2001. For instance, it welcomed the progress made by the Swiss authorities in developing lender of last resort and crisis management arrangements. The IMF regards the Swiss authorities to be at the forefront of countries in their effort to operationalise this framework.

Nevertheless, on the basis of its analyses and conclusions, the IMF sees a need for action in certain areas. From the SNB's viewpoint, the recommendations regarding the enhancement of the supervision of the two big banks are particularly important for the stability of the Swiss banking system.

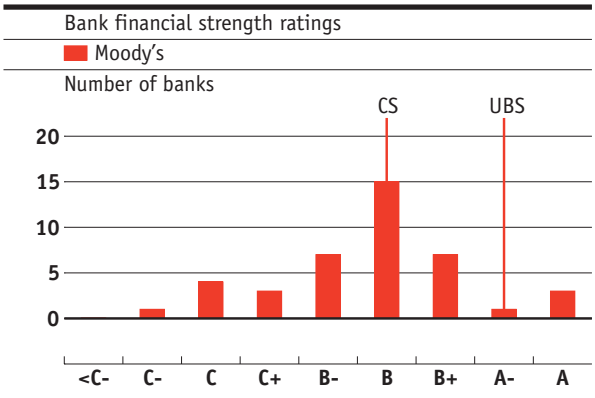
First, the IMF stresses the importance of the supervision of the two big banks given their systemic relevance. In this context, it recommends that the new capital adequacy requirements (Basel II) should reflect both institution-specific and systemic risks (second pillar). The SFBC plans to carry out an in-depth review of the capital adequacy of the two big banks, as part of the implementation of Basel II. The SNB welcomes this plan of action.

Second, the IMF recommends strengthening supervision of the liquidity risks of the big banks, given their systemic importance. The SNB welcomes this recommendation. It is convinced that ensuring that the big banks' liquidity holdings are adequate when compared to their liquidity risk exposure would contribute significantly to the stability of the Swiss banking sector. The SNB is therefore working closely with the SFBC and the banks on this issue.

Third, the IMF stresses the improvements made regarding cooperation between the SFBC, the SNB and the regulators and central banks in other countries and underscores the need for developing this cooperation further. The SNB shares the view that international cooperation among prudential authorities is important, since Switzerland's big banks conduct most of their activities abroad. The SNB will therefore contribute to further improving this cooperation, focusing in particular on issues related to the provision of liquidity in emergency situations.

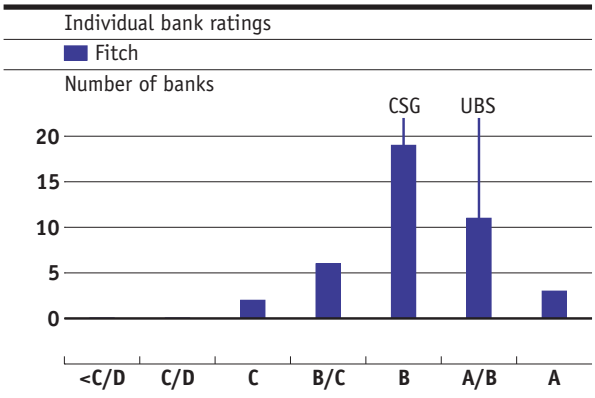
Fourth, the IMF stresses the importance of strengthening the regulatory and supervisory framework. In this context, the IMF supports the objective of setting up a Federal Authority for Financial Market Oversight (FINMA) Act as a strong, unified and independent financial sector regulator. However, the IMF considers that some provisions in the draft FINMA Act need to be clarified or elaborated. In particular, according to the IMF, industry representatives should be given less leverage in opposing regulation and the FINMA should be given the powers to impose civil fines. Furthermore, the IMF stresses the importance of strengthening the staffing and resources of the SFBC. The SNB fully supports the IMF's views on this. In particular, it is of the opinion that competitive remuneration of the FINMA's staff is an important prerequisite for good banking supervision.

Moody's FS ratings* Graph 25



Source: Moody's

Fitch FS ratings* Graph 26



Source: FitchRating

* Comprises a sample of the world's largest banks in North America, Japan and Europe according to *The Banker* (July 2006), provided they are rated by Moody's, Standard & Poor's and Fitch. If a bank holding company is not assigned a financial strength rating, the corresponding rating of its largest affiliate is taken instead.

6 Stress index for the banking sector

The previous chapters of this report cover different aspects of the banking sector, all of which are potentially relevant for its stability. In this last chapter, we combine these pieces of information within a 'stress index' measuring the current degree of instability in the Swiss banking sector. According to this index, the level of stress in the Swiss banking sector is currently low. Moreover, as the outlook regarding external factors affecting the Swiss banking sector is favourable, the level of stress should remain well below its historical average in the short and medium term. Finally, the Swiss banking sector should be able to withstand relatively large shocks without showing symptoms of acute stress should the macroeconomic environment nevertheless deteriorate. Only very adverse scenarios would drive stress to high levels.

Low level of stress in the banking sector

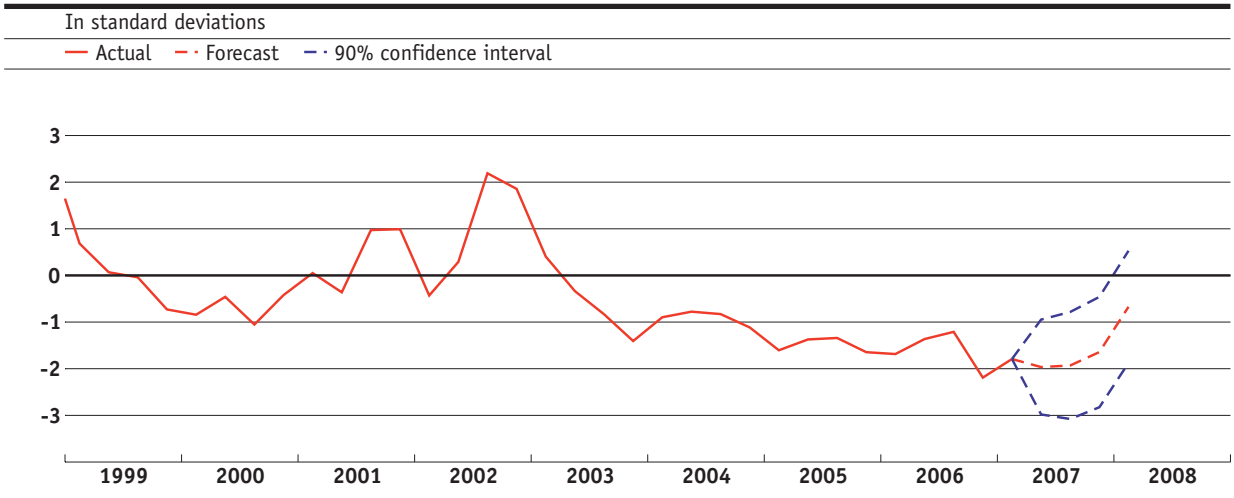
The stress index measures the current degree of instability in the Swiss banking sector. According to this indicator, 2006 was a very calm period in the banking sector (cf. graph 27). This index combines a set of variables – such as an increase in the banks' bond credit spreads or a decrease in the banks' capital – all of which represent possible symptoms of stress in the banking sector.[58] The level of stress remained stable throughout the year, at low levels by historical standards for the third year in a row. In the fourth quarter of 2006, it even reached a historical low, in response to a material increase in the banking sector's capital base (cf. chapter 4). It is the first time that such a long period of low stress has been experienced since data for the computation of the index were first collected (1987). Moreover, aside from banks' stock prices – which saw a temporary dip in the second and third quarters of the year – all variables included in the index pointed to lower than average levels of stress for 2006.

Positive outlook

We also develop i) a forecasting model for the stress index, using a set of general economic and financial variables reflecting potential economic imbalances, and ii) a scenario analysis which estimates the reaction of the index to various macroeconomic shocks. Both tools enable potential sources of future instability to be identified.

Our forecasting model suggests that the level of stress should remain low in 2007 (cf. graph 27), and then gradually converge to its historical average over the next year. The forecast persistence in the low level of stress reflects the fact that the financial and macroeconomic variables in Switzerland which have had a significant effect on banking stress over the past twenty years – the stock price index, the housing price index, GDP and developments in the domestic credit market – have been

Stress index* Graph 27



Sources: SFBC, SNB, Thomson Datastream

58 For a description of the underlying methodology, cf. SNB (2006), *Financial Stability Report,* box 5, pp. 44–45 (www.snb.ch).

* 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 1987–2006 average. A value above (below) zero indicates that the stress is above (below) its historical average. The stress index for the first quarter of 2007 is computed with provisional data.

evolving close to or below their sustainable growth level during the last few years. Consequently, a sudden downward correction in these variables – and thus a rise in banking stress – seems unlikely. The return of the stress index to values that are closer to its historical average reflects the anticipated normalisation of the macroeconomic and financial environment.

Moderate sensitivity to shocks

Should the macroeconomic environment nevertheless deteriorate, our simulations suggest that the Swiss banking sector would be able to withstand relatively large shocks without showing symptoms of acute stress (cf. box 3, pp. 26–27, for a description of the scenarios considered and their impact). In particular, single variables shocks – such as a substantial fall in stock prices or a rise in credit spreads – or a 'domestic recession' should generate low to moderate levels of stress.

However, under the 'unwinding of international imbalances' scenario, which depicts an unwinding of international imbalances and a hard landing for the US economy, the Swiss banking sector is predicted to face very high levels of stress. Under such adverse conditions, the stress should reach levels that were observed during the 1998 episode, when the Russian and LTCM crises occurred, or during the 2001/2002 period, which was characterised by a stock market crash and a general economic slowdown.

Part II: Financial market infrastructure

1 Introduction

Safe and efficient financial market infrastructures are a key prerequisite for a stable financial system. Alongside stock exchanges, the financial market infrastructure mainly comprises clearing and settlement systems for payments and for transactions in securities and other financial instruments (subsequently referred to as payment and securities settlement systems). Of particular interest are those payment and securities settlement systems which are considered to be important to the stability of a country's financial system. A critical feature of these systems is that they may trigger or channel the spread of a systemic crisis and thus jeopardise the stability of the financial system. Moreover, the smooth functioning of the systemically important clearing and settlement systems is essential for the implementation of monetary policy and for the supply of liquidity to the economy.

To promote the objective of safe and efficient financial market infrastructures, the Swiss National Bank oversees payment and securities settlement systems. Chapter 2 of this part provides an overview of the SNB's oversight framework, including a description of the systems it oversees, the oversight methodology, the cooperation with other authorities and the SNB's disclosure policy. Chapter 3 includes an assessment of the infrastructures it oversees, concluding that, overall, the infrastructures deemed important to the stability of the Swiss financial system enjoy a high degree of safety and efficiency and contribute significantly to the reduction of systemic risk. Chapter 4 highlights a number of recent developments that have the potential to affect the safety and efficiency of the Swiss financial market infrastructures. Finally, looking beyond traditional clearing and settlement systems, chapter 5 examines the latest developments in clearing and settlement arrangements for OTC derivatives.

2 Oversight of systemically important infrastructures

The Swiss National Bank is responsible for the oversight of payment and securities settlement systems in Switzerland. Oversight is a central bank function whereby the objectives of safety and efficiency are promoted by monitoring existing and planned systems, assessing them against these objectives and, where necessary, inducing change. This chapter provides a summary of the key elements of the SNB's oversight framework.

Mandate

The National Bank Act (arts. 19–21 NBA) lays out the principles for the oversight of payment and securities settlement systems. In particular, it empowers the SNB to impose minimum requirements on the operation of those systems from which risks for the stability of the Swiss financial system may emanate. The minimum requirements and other implementing provisions, such as the criteria for establishing whether a system is systemically important or the SNB's powers in case of non-compliance with the minimum requirements, are set out in the National Bank Ordinance (arts. 19–39 NBO).

Systemically important infrastructures

A payment or securities settlement system is important for the stability of the Swiss financial system if operational or technical problems in the system might lead to serious credit or liquidity problems for financial intermediaries, or if payment or delivery problems of individual participants might be transferred to other financial intermediaries via the system. In determining whether this could be the case, the SNB takes into account a number of criteria, such as the type as well as the number and value of transactions cleared or settled through the system, the type and number of links with other systems, or the existence of short-term alternatives. Based on these criteria, the SNB currently considers the following five systems to be systemically important: the payment system Swiss Interbank Clearing (SIC), the securities settlement system SECOM, the central counterparties x-clear and London Clearing House (LCH), as well as the multi-currency payment system Continuous Linked Settlement (CLS). Box 7 provides a short description of these systems and explains how they are linked to each other.

Oversight methodology

In principle, the operators of systemically important infrastructures are required to comply with the SNB's minimum requirements. However, operators domiciled abroad may be discharged from this obligation if they are subject to equivalent oversight by a foreign authority and if this authority is willing to cooperate with the SNB. These conditions are met for both CLS and LCH. CLS Bank International, the operator of CLS, is domiciled in New York and overseen by the Federal Reserve System. LCH.Clearnet Limited, the operator of LCH, is domiciled in the United Kingdom and regulated by the Financial Services Authority (FSA).

Ongoing oversight activities for systems subject to the SNB's minimum requirements, i.e. SIC, x-clear and SECOM, focus on ensuring their continuing compliance with these requirements.[59] The SNB's oversight methodology consists of three steps: (1) monitoring, (2) assessment and (3) inducing change. Monitoring serves to gather information on the system operators' governance arrangements, structures, processes, and risk management procedures. It is facilitated by the operators' obligation to provide the SNB with all relevant information, including specific internal documents, audit reports, operating statistics and production reports. Moreover, in 2006, system operators conducted a self-assessment with respect to their own compliance for the first time. The self-assessment, which followed a detailed questionnaire, proved to be an effective means of gathering information on a broad range of issues and helped the SNB to improve its understanding of the risks involved in these systems and the measures taken to mitigate such risks.

Based on the information gathered, the SNB assesses whether a system complies with the minimum requirements. Since the minimum requirements are formulated at a relatively high level of abstraction, they have been expressed in more specific terms in the form of 'control objectives'.[60] The system-specific control objectives improve the transparency and clarity of regulatory requirements and facilitate the dialogue between the SNB and the system operators that it oversees.

Should the SNB conclude that one or more minimum requirements are not being fully observed, it has various instruments at its disposal to induce change, including the possibility of issuing recommendations and instructions to system operators.

59 For a more detailed overview of the SNB's oversight methodology cf. SNB (2005), *Financial Stability Report,* pp. 49–51.
60 Cf. SNB (2006), *Financial Stability Report,* pp. 48–49.

Cooperation with other authorities

The SNB cooperates closely with other authorities. Domestically, it works with the SFBC, which is responsible for the supervision of SIS SegaInterSettle AG, the operator of SECOM, and SIS x-clear AG, the operator of x-clear. Both entities have a banking licence. For systems that operate internationally, the SNB also cooperates with foreign authorities. In the case of x-clear and LCH, the Swiss authorities cooperate with the FSA, which is responsible for supervision in the UK. For x-clear, this cooperative oversight arrangement is necessary since x-clear is recognised as an Overseas Clearing House in the UK.

Together with other central banks, the SNB also participates in a cooperative oversight arrangement for CLS, with the Federal Reserve System acting as the authority with primary responsibility for oversight. Finally, the SNB is also engaged in a cooperative oversight arrangement for SWIFT, with the National Bank of Belgium acting as central bank with primary responsibility. SWIFT maintains a global network for secure messaging services to financial institutions and market infrastructures; as such, it is neither a payment nor a securities settlement system.[61]

Disclosure policy

In order to assess in detail a system's compliance with the minimum requirements, the SNB has access to detailed information about the systems it oversees, including non-public or confidential information, such as internal documents and audit reports. Since the non-disclosure of confidential information is a necessary prerequisite for a trust-based and open dialogue with system operators, the SNB publishes neither confidential information gathered through its oversight activities nor any detailed assessments based on that information. However, based on the analysis of both public and confidential information, the SNB publishes a general assessment of the overseen infrastructures in the annual *Financial Stability Report* (cf. chapter 3). The published assessment focuses on those systems which must comply with the SNB's minimum requirements; unless explicitly referred to, the assessment does not extend to systems it oversees within the context of a cooperative oversight arrangement led by a foreign authority.

Box 7: Systemically important infrastructures for the Swiss financial system

The Swiss Interbank Clearing (SIC) system allows for the settlement of payments in Swiss francs on an individual basis in real-time (known as real-time gross settlement, RTGS) on the accounts of the SNB. Participants may settle both large-value payments, such as money market transactions or the cash leg of securities transactions, and retail payments. The system plays a critical role in the implementation of the SNB's monetary policy. It is operated on behalf of the SNB by Swiss Interbank Clearing AG, a subsidiary of Telekurs Group and PostFinance.

The Settlement Communication (SECOM) system allows for the processing and settlement of both domestic and cross-border securities transactions in real-time. It is operated by SIS SegaInterSettle AG (SIS), a subsidiary of SIS Swiss Financial Services Group (SIS Group). SIS also acts as the Swiss Central Securities Depository (CSD) and offers its customers access to foreign markets, either via direct links to foreign CSDs or via an extensive network of custodian banks.

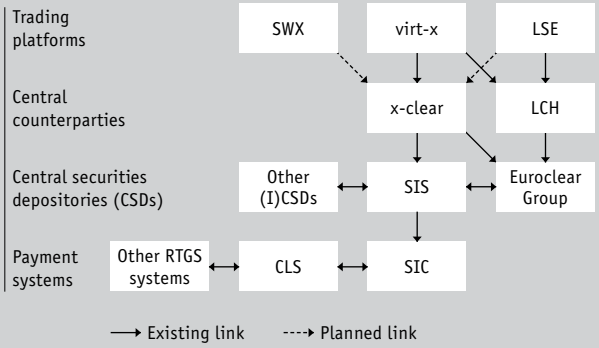
x-clear acts as a central counterparty for cash equity trades concluded on the trading platform virt-x and intends to do so for SWX and London Stock Exchange (LSE) in the future. It is operated by SIS x-clear AG, a subsidiary of SIS Group.

London Clearing House (LCH) acts as a central counterparty for a wide range of cash and futures markets in Europe and the United States. Of particular importance for the Swiss financial system are its clearing services provided for virt-x. LCH is operated by the UK based LCH.Clearnet Limited, a subsidiary of LCH.Clearnet Group.

Continuous Linked Settlement (CLS) is a multi-currency payment system that allows for the simultaneous settlement of both sides of foreign exchange transactions in 15 currencies, including Swiss francs. It is operated by the US-based CLS Bank International.

The graph below illustrates the various links that exist between the stock exchanges (LSE, virt-x and SWX) and the systemically important payment and securities clearing and settlement systems.

Links between the Swiss financial system's core infrastructures



61 Strictly speaking, SWIFT is not subject to the oversight provisions set out in the National Bank Act. For more information on SWIFT and central banks' cooperative oversight of SWIFT cf. SNB (2006), *Financial Stability Report,* pp. 54–55.

3 General assessment

This chapter provides the SNB's general assessment of the systemically important infrastructures. In line with the disclosure policy described in chapter 2, the assessment focuses on those systems which are required to comply with the SNB's minimum requirements, i.e. SIC, SECOM and x-clear.

Summary assessment

Overall, the infrastructures deemed important to the stability of the Swiss financial system enjoy a high degree of safety and efficiency. The architecture of these infrastructures helps minimise those risks which are typically associated with the clearing and settlement of payments, and transactions involving securities and other financial instruments. The linkages between these infrastructures allow both an efficient and highly automated processing of transactions and the reduction or even elimination of various settlement risks. The infrastructures' rules and procedures provide adequate incentives to carefully manage any remaining risk. Taken together, these factors contribute to a significant reduction of systemic risk, i.e. the risk that widespread credit or liquidity problems may emerge due to the failure of one of the system participants to meet its obligations or a disruption in the system itself. In the following, this positive summary assessment is substantiated by explaining how the operators of the infrastructures subject to oversight mitigate the different settlement risks.

Credit risks

In payment and securities settlement systems, recipient participants may be subject to credit risk if payments or securities transactions are settled on a conditional basis, thereby leaving the possibility of an unwinding at a later point in time in the event of the sending participant's default. However, any payment in SIC and any securities transfer in SECOM is unconditional and irrevocable upon the crediting of the recipient participant's account. Continuous real-time processing and immediate finality of settled payments and securities transactions thus insulate recipient participants from credit risk.

Principal risk may arise in two-sided transactions such as securities or foreign exchange transactions where both parties have obligations which they are obliged to fulfil. The risk materialises if one party fully meets its financial obligations but does not receive the countervalue. In the case of securities transactions, principal risk is eliminated by the real-time link between SIC and SECOM. This link allows participants to settle their obligations by means of a delivery-versus-payment (DVP) mechanism. In order to achieve simultaneous settlement of both securities and cash, the seller's securities are first blocked in SECOM, which then releases a payment request to SIC. If the buyer has sufficient funds in its SIC account, the funds are transferred to the seller and SIC sends a confirmation to SECOM, where the blocked securities are immediately credited to the buyer. DVP is also ensured for the transactions that settle the cash leg on the currency accounts offered by SIS. In the case of foreign exchange transactions, principal risk is eliminated by simultaneous settlement of both sides of the transaction in the multi-currency accounts of CLS Bank (payment-versus-payment). Participants may fund their accounts with CLS Bank by transferring balances via the domestic RTGS systems. A key requirement for settling Swiss francs in CLS was thus the SNB's agreement that CLS Bank be granted remote access to SIC.

Another type of credit risk emanates from the potential default of the settlement bank, i.e. the institution on whose accounts payments are settled. In SIC, settlement bank risk is eliminated by the fact that participants settle their obligations with central bank money on the accounts of the SNB. However, settlement bank risk is a potential issue in the event of money settlements on the accounts of a private-sector institution such as SIS SegaInterSettle AG (SIS), which offers its participants cash accounts in the main currencies, including Swiss francs. While foreign currency accounts are primarily used to facilitate the settlement of securities denominated in foreign currencies, the Swiss franc accounts are used to settle the cash leg of securities transactions whenever a SECOM participant does not participate in SIC. To the extent that participants maintain cash balances on their accounts with SIS, they are exposed to the risk that SIS will fail. However, given the narrow scope of SIS' businesses and its conservative risk management policies and practices, settlement bank risk is very small.

Replacement cost risk, which arises due to the lag between the execution and the settlement of securities transactions, is yet another form of credit risk, albeit combined with market risk. For (spot) equity transactions concluded on virt-x and SWX, the lag is three days. During this time period, a participant's failure would leave the solvent counterparty

with an unhedged market position, or prevent it from realising potential gains on a position. The resulting exposure represents the replacement cost of the original transaction at current market prices. Such replacement cost risk may be eliminated by interposing a central counterparty, which becomes the seller to any buyer and the buyer to any seller, and guarantees its participants the fulfilment of the related delivery and payment obligations. For transactions executed on virt-x, participants may choose between two central counterparties, x-clear and LCH.[62] In order to meet their obligations even in the case of default of one of their main participants, the central counterparties themselves need a very strong and robust risk management. For instance, x-clear's financial resources, which mainly comprise the collection of margins and a default fund, are calibrated to withstand the default of the two largest participants in the event of extreme but plausible market conditions. However, there is room for improvement in managing the risks arising from the link to LCH.

Liquidity risk

In order to settle their obligations, financial intermediaries need sufficient liquidity, be it in the form of cash or securities. In SIC, a (temporary) lack of liquidity on the part of participants could give rise to delayed settlement, or, at the system level, to a complete gridlock. This kind of liquidity risk is reduced by the SNB's provision of intraday liquidity, in particular. During main business hours, participants may satisfy their temporary liquidity needs by means of interest-free intraday repos with the SNB, which they are required to repay by the end of the day. In order to bridge unexpected liquidity bottlenecks on an overnight basis, participants may also have recourse to the SNB's liquidity-shortage financing facility. The interest rate for liquidity provided through this facility is two percentage points above the call money market rate, thereby providing participants with adequate incentives to effectively manage their liquidity. Liquidity risk is further reduced by a number of system design features. These include a centralised queuing mechanism with defined priorities, a bilateral offsetting mechanism to resolve gridlock situations, a rule to split large payments into smaller tranches and a progressive pricing structure that favours early input and settlement of payments.

Similarly, a temporary lack of securities on the part of participants could hamper the smooth settlement of transactions in SECOM. This risk is greatly reduced by securities lending and borrowing, which is offered both by SIS and by other market participants. For instance, to meet its delivery obligations a participant may temporarily borrow specific securities from a pool of securities maintained by SIS. These borrowings need to be fully collateralised. Moreover, to manage any remaining liquidity risk, participants in both SIC and SECOM have real-time access to relevant information that allows them to monitor their account balances and the status of settled or pending transactions.

Operational risk

In practice, clearing and settlement mainly comprises the electronic input, processing, storage and output of information in an environment characterised by highly automated processes and increasing technical complexity. Operational factors, such as technical malfunctions or human error, may affect the confidentiality, integrity or availability of this information, thereby causing or exacerbating credit or liquidity risk. The mitigation of operational risk is thus a key concern from the perspective of financial stability and is at the centre of the SNB's oversight activities.

In general, the operators of the infrastructures that the SNB oversees pay due attention to keeping operational risk at bay, thereby contributing to the resilience of the financial system. In order to achieve a high degree of security and operational reliability and to reduce the likelihood of operational disruptions, operators have put in place appropriate governance arrangements, structures, and risk management procedures and controls. In addition, as the occurrence of major operational disruption, such as the loss of a data centre or the temporary unavailability of critical staff, can never be completely ruled out, operators have strengthened their business continuity arrangements in recent years. In particular, for both SIC and SECOM, a significant degree of resilience is provided through their operations across two redundant data centres and their ability to move processing quickly between sites in case of need.

However, there remain three areas for further improvements in terms of operational risk. First, although contributing to more efficiency and higher resilience of the involved systems overall, the recent integration of the Telekurs Group and SIS Group IT infrastructure services has led to an increase in concentration risk with regard to critical data centres (cf. chapter 4). To mitigate this risk,

62 Transactions executed on SWX were hitherto settled directly between the relevant counterparties. However, x-clear intends to provide central counterparty services for SWX equities transactions as of September 2007.

operators should press ahead with the planned set-up of an out-of-region backup data centre. Second, SNB encourages operators to examine the case for establishing more demanding technical conditions for participation, especially in the case of critical system participants. This reflects the concern that a critical participant's inability to send or receive transactions over an extended period of time may cause or exacerbate widespread liquidity problems for other participants, and thus severely affect the smooth functioning of the system as a whole. Third, in view of the fact that, so far, business continuity arrangements have mainly been implemented and tested on a firm-specific level, the main stakeholders of the Swiss financial centre may consider expanding their planning to take account of sector-wide disruptions, for instance, by broadening the range of crisis scenarios. This would allow for tests of sector-wide crisis management and, in particular, make it possible to establish the extent to which business continuity arrangements of system operators and participants are mutually consistent.

Legal risk

The reliable and predictable operation of payment and securities settlement systems depends on the laws, rules and procedures that support the clearing and settlement of payments and securities transactions. A key concern is that a poor legal framework or legal uncertainties may cause or exacerbate a credit or liquidity risk, due, for example, to an unexpected applicability of a particular law or regulation, or because of an inability to enforce a contract.

The Swiss legal system does not provide for one specific codification on payment and securities settlement systems. In fact, to clarify any legal issues in this area, a number of different codes of law apply and must be considered. In particular, the Law on Assignations ("The Order") in the Swiss Code of Obligations and the Law of Property in the Swiss Civil Code are relevant. In addition, the Swiss Debt Enforcement and Bankruptcy Law contains a few specific provisions for the field of application relevant in this context.

The legal framework has recently been strengthened. The amendment of the Federal Law on Banks and Savings Banks of 3 October 2003 establishes core principles to protect the systems which have been declared as systemically important. First, this amendment grants legally binding character to the point in time in which a payment or a security settlement is no longer revocable by the rules of the system (finality). Second, the enforceability of netting clauses has been additionally strengthened.

With regard to securities transactions, three closely related projects are aimed at modernising the legal basis. First, the Federal Council submitted the draft for an Uncertificated Securities Act to Parliament last year. This act establishes the legal basis for the safekeeping and the assignment of securities held with a financial intermediary. Second, the Federal Council proposed that the Federal Assembly ratify the Hague Securities Convention. This international convention prescribes which jurisdiction is applicable in cases of cross-border safekeeping arrangements and securities transactions. Third, Switzerland supports the work of the International Institute for the Unification of Private Law (Unidroit) in harmonising substantive securities legislation. So far, Unidroit has prepared the draft convention which is scheduled to be passed in 2008.

All of these projects, either planned or already implemented, are intended to further enhance legal predictability. However, the operators of systemically important infrastructures are urged to review the contractual relationship with the participants in order to ensure, in particular, the enforceability in the event of a crisis. This especially applies to cross-border contracts between operators and participants.

4 Recent developments

This chapter highlights developments in the Swiss financial market infrastructure over the last 18 months, differentiating between sector-wide, system-specific and international developments. Our attention will be limited to developments of relevance to systemically important infrastructures and with a potential impact on the stability of the Swiss financial system. Table 1 at the end of this chapter summarises the key figures for the systemically important infrastructures.

Sector-wide developments

A fundamental prerequisite for a safe and efficient financial system is a reliable and transparent statutory basis. In the safekeeping, clearing and settlement of securities, the statutory basis no longer reflects the most modern business practice, following the tempestuous developments of recent years. Consequently, three closely linked projects have been established to update the legal foundations upon which securities transactions are based. These projects are as follows:

- The draft for an Uncertificated Securities Act, which the Federal Council submitted to the Federal Assembly on 15 November 2006, is designed to place the substantive foundations for the safekeeping of securities by financial intermediaries and their transfer on a modern basis. In particular, the draft recognises the constitutive effect of entries in the deposit accounts held by intermediaries. Uncertificated securities come into being when they are entered in the depository's securities account and are also transferred in this manner.
- At the same time, the Federal Council proposed that the Federal Assembly ratify the Hague Securities Convention. Rather than dealing with substantive law, this international convention is limited to prescriptions governing which jurisdiction is applicable in cases of cross-border safekeeping arrangements and securities transactions. It designates the jurisdiction chosen by the parties in the account agreement as, in principle, applicable.
- Finally, Switzerland also supports the work of the International Institute for the Unification of Private Law (Unidroit) in harmonising substantive securities legislation. The Unidroit draft convention covers the same area of regulation as the Uncertificated Securities Act and is complementary to it, in that a situation is created in which several jurisdictions can work together smoothly along a given chain of depositories. Adoption of the convention is scheduled for 2008.

Private sector market participants as well as authorities continued their efforts to strengthen the resilience of the Swiss financial system by implementing the recommendations included in the report *Business Continuity Planning in the Swiss Financial Centre,* published in February 2006.[63] For instance, the SFBC commissioned the Swiss Bankers Association to develop a code of conduct on banks' business continuity management. Moreover, under the SNB's leadership, the effectiveness of the interbank alarm and crisis organisation was further strengthened and tested. Also, the Swiss providers of telecommunication services have continued their efforts to further enhance the reliability of their services, for instance, by agreeing on collective business continuity arrangements. These efforts contribute to financial stability, as the services provided by the telecommunication industry play a key role for the smooth functioning of the financial sector in general and for the resilience of financial market infrastructures in particular. Furthermore, article 48 of the revised Telecommunications Act closes a regulatory gap by allowing the Federal Council to issue technical and administrative regulations pertaining to the security and availability of telecommunication infrastructures and services.

Telekurs Group and SIS Group have continued the consolidation of their IT infrastructure services into one single organisation. During the first project phase, the operations of the systemically important infrastructures, SIC and SECOM, were consolidated in two data centres. The cooperation between Telekurs Group and SIS Group makes it possible to achieve efficiency gains and helps to reduce the risks associated with the potential loss of critical staff in the event of a crisis. The increased geographical concentration risk will be mitigated in the second project phase, which foresees the set-up of a third out-of-region data centre.

Moreover, in May 2007, the boards of directors of SWX Group, SIS Group and Telekurs Group have signed a letter of intent to merge the three organisations. Within the framework of the contemplated merger, the business activities of all three companies are to be combined under one roof. Subject to approval by the owners and responsible authorities,

63 Cf. SNB (2006), *Financial Stability Report,* p. 50, www.snb.ch.

the transaction is expected to take effect in early 2008. The intended merger will not affect the effectiveness of the oversight arrangements for systemically important infrastructures.

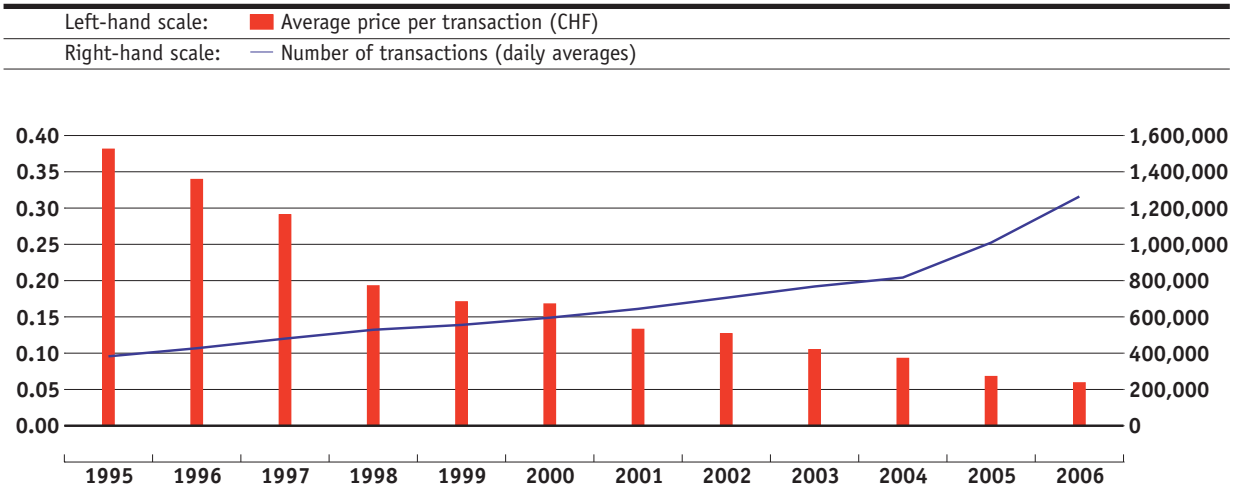
System-specific developments

Since 1987, the Swiss Interbank Clearing (SIC) has been operated by SIC AG (formerly Payserv AG) on behalf of the SNB. SIC is one of the largest RTGS systems in terms of volume, settling 1.3 million transactions per day. The strong increase in transaction volume in 2006 (+25%) was mainly due to two changes related to retail payments: the discontinuation of the direct credit solution (these transactions are now settled individually in SIC) and the switch from batch payments to individual payments for direct debit transactions. On 29 December 2006, SIC settled a historic peak volume of 3.8 million transactions. Over the years, the continuing transaction growth has contributed to significantly lower transaction fees (cf. graph 28).

SIS SegaInterSettle, the Swiss international central securities depository (ICSD) and securities settlement system, was rated by Moody's Investor Service with the highest grade Prime-1 for short-term deposits and Aa1 for long-term deposits in 2006. Last year, SIS SegaInterSettle announced substantial price reductions for custody services and cross-border transactions. Also in 2006, SIS SegaInterSettle completed the migration of German market access from a custodian relationship to a direct link with the German CSD Clearstream Banking Frankfurt (CBF). The migration reflects the general policy of shortening the custody chain by establishing – as far as possible – direct links with foreign CSDs. SIS SegaInterSettle also introduced 'Global Funds Services' (GFS) which allow for automated settlement of investment fund transactions. SIS SegaInterSettle reported a record deposit value of CHF 3,009 billion at year-end 2006. This record value is due to the acquisition of new clients, the demand for further services by existing clients, as well as the positive development on the stock markets. The total deposit value is made up of CHF 2,476 billion (82.3%), attributable to the Swiss market, and CHF 533 billion (17.7%) from international markets.

The year 2006 marked a major milestone in the development of SIS x-clear, the Swiss central counterparty (CCP). In March 2006, the Board of SWX Swiss Exchange approved the introduction of CCP services for the SWX equity market, inviting SIS x-clear and LCH to act as CCPs. SIS x-clear plans to start clearing for SWX transactions in September 2007, while LCH has decided not to offer clearing for SWX transactions for the time being. In May 2006, the London Stock Exchange (LSE) announced its intention of introducing competitive CCP services for LSE equity transactions. The new arrangement would allow customers to choose whether to clear through x-clear or through LCH, which is currently the sole clearing provider for LSE's equity business. This

Transaction volumes and prices in SIC — Graph 28



Source: Swiss Interbank Clearing AG

service is scheduled to go live in the first quarter of 2008. Moreover, since it started operations in 2003, SIS x-clear has been rated for the first time: the rating by Moody's Investors Service is Prime-1 for short-term deposits and Aa1 for long-term deposits. SIS x-clear's turnover reached record values in 2006. On a year-to-year basis, the number of transactions increased by 51% and the value by 34%. The strong growth of transactions allowed SIS x-clear to cut its prices by 40% in April 2006.

In 2006, the multi-currency payment system Continuous Linked Settlement (CLS) experienced an increase in the number and value of settled transactions of 29% and 30%, respectively. This reflects both the growth in foreign exchange markets and market participants' increasing use of CLS. While the number of settlement members remained fairly constant, the number of indirect participants increased from around 700 to more than 900. Moreover, in order to attract a bigger share of relatively low-value transactions, CLS introduced a new pricing policy as of 1 May 2006. With the intention of allowing its users further risk reductions and cost savings, CLS also continues to expand its business. For instance, services for the settlement of cash flow positions for non-deliverable forwards are targeted to go live later this year, while those for foreign exchange option premiums go live in early 2008. Moreover, CLS participated successfully in a request for a proposal to settle payments related to credit derivatives stored in DTCC's Trade Information Warehouse (cf. also chapter 5).

International developments

More than eight years after the introduction of the euro, the euro area still lacks an efficient, integrated financial market infrastructure. However, several initiatives and projects have been launched with the intention of overcoming the existing fragmentation. In the payments area, the forthcoming introduction of TARGET2 and the banking industry's initiative to create the Single Euro Payment Area (SEPA) are the most notable. Moreover, the Markets in Financial Instruments Directive (MiFID), the European Code of Conduct for Clearing and Settlement and the Eurosystem's TARGET2-Securities project are designed to promote the competition between and the integration of European trading and post-trading infrastructures. As the Swiss financial system is closely linked with the European financial system, these developments in European market infrastructures may have a direct or indirect bearing on the stability of the Swiss financial system.

Later this year, the TARGET2 single shared platform will replace the former large-value payment systems in the euro area. It is a real-time gross settlement (RTGS) system with liquidity-saving features. The migration from national RTGS systems to TARGET2 will take place in 3 stages (19 November 2007, 18 February 2008, and 19 May 2008).[64] Swiss banks will have indirect access to TARGET2 through the German-based Swiss Euro Clearing Bank (SECB), the settlement institution of the Swiss euro payment system euroSIC. In addition, some bigger banks will have direct access through their own branches in the euro area. In the area of retail payments, efforts are ongoing to implement the Single Euro Payment Area (SEPA). SEPA was launched in May 2002 by European banks and banking associations with the aim of creating a competitive and innovative euro area retail payments market that would bring with it higher service levels, more efficient products and cheaper alternatives for making payments, especially cross-border payments. The initiative is the private sector's response to the regulation on cross-border payments in euro, issued by the European Parliament and the Council in December 2001. The regulation's goal is the elimination of differences between charges for domestic and cross-border euro payments in the European Union (EU). In March 2006, Swiss banks were granted access to SEPA.[65] As a precondition for participation, Swiss banks need to ensure an equivalent implementation of relevant EU rules and regulations.

Issued in 2004, the Markets in Financial Instruments Directive (MiFID) needs to be transposed into national law by EU member states by 1 November 2007. MiFID is part of the EU Financial Services Action Plan which aims at establishing a single market for financial services in the European Union. It creates a comprehensive harmonised legal framework for the execution of securities orders through regulated markets, multilateral trading facilities or investment firms in EU member countries. This should facilitate cross-border investments and foster competition. In addition, investor protection is promoted by heightened transparency, fairness and efficiency. MiFID does not apply directly to Swiss market participants, unless they maintain subsidiaries or branches in the EU. However, Swiss financial intermediaries and market infrastructures could be affected

64 For more information on TARGET2, cf. www.ecb.int.
65 SEPA member countries are the 25 EU member states as well as Iceland, Liechtenstein, Norway and Switzerland.

indirectly through changing customer expectations or market conditions such as increased cross-border competition.

In response to the call of the European Commission to provide an industry-led approach to a more efficient and integrated post-trading market infrastructure in the EU, industry associations of trading and post-trading services providers[66] have prepared the European Code of Conduct for Clearing and Settlement. Signed in November 2006 by all the member organisations, including the Swiss financial market infrastructure companies SWX Swiss Exchange, virt-x Exchange Ltd., SIS SegaInterSettle, and SIS x-clear, the Code of Conduct is designed to give investors the choice of trading, clearing and settling any European security within a consistent, coherent and efficient European framework. It requires signatories to provide full transparency with respect to their relevant tariffs and discounts by 31 December 2006; to allow for access and interoperability as defined in the Code by 30 June 2007; and to make certain services available on an unbundled basis and to implement accounting separation as of 1 January 2008.

Against the background of slow progress in the consolidation and harmonisation of the European post-trading market infrastructure, the European Central Bank's (ECB) Governing Council announced the formal launch of the TARGET2-Securities (T2S) project in March 2007. T2S is designed to settle both the securities and the cash leg of all euro-denominated securities transactions on a single platform by 2013. All other functions – notably, the relationship with intermediaries, investors and issuers and the management of corporate actions – would remain with the existing national central securities depositories (CSDs). As the project is still in an early phase, it remains unclear what impact the realisation of T2S would have on Swiss market participants and infrastructures.

Over the last couple of years, strengthening the resilience of the financial system has been very high on the agenda of both market participants and regulators around the world. In most countries, including Switzerland, particular attention has been paid to improving business continuity arrangements at the level of individual firms. More recently, however, some major financial centres have widened the scope of their crisis scenarios. For instance, in the United Kingdom, a market-wide exercise was conducted to assess the financial sector's capability to cope with a pandemic. Besides testing the effectiveness of individual firms' business continuity arrangements, the market-wide exercise made it possible to review issues such as strategic decision-making and communication in a crisis, to clarify the role of authorities and to identify interdependencies between critical infrastructures.[67]

Key figures of systemically important infrastructures **Table 1**

	System type	Value of transactions in CHF billions[1]			Number of transactions[1]		
		2006	2005	Change (%)	2006	2005	Change (%)
SIC	Large-value payment system	179	162	+11	1,263,508	1,009,456	+25
SECOM	Securities settlement system	47[2]	42[2]	+13	130,793	99,917	+31
x-clear	Central counterparty	2.1	1.6	+34	31,466	20,828	+51
CLS	Multi-currency	2,714[3]	2,081[3]	+30	253,711[3]	196,801[3]	+29
	payment system	149[4]	113[4]	+32	14,645[4]	10,563[4]	+33

1 Daily averages
2 Value of transactions based on settlement values in SIC
3 All currencies settled in CLS (values in USD equivalents)
4 Swiss francs only

66 Federation of European Securities Exchanges (FESE), European Association of Central Counterparty Clearing Houses (EACH) and European Central Securities Depositories Association (ECSDA).

67 For a more detailed overview, cf. www.fsc.gov.uk.

5 Clearing and settlement arrangements for OTC derivatives

Over-the-counter (OTC) derivatives have gained increasing importance in financial markets over the past few years. According to a Bank for International Settlement (BIS) survey, the total size of OTC derivatives markets, as measured by notional amounts outstanding, reached USD 415 trillion in 2006, up from USD 72 trillion in 1998. Recent growth has been particularly strong in OTC credit derivatives, with gross market values almost doubling in just one year.[68]

Credit derivatives make credit risks tradable, thereby allowing for a better allocation of these risks in the financial system. Most credit derivatives are traded OTC rather than on exchanges. The 2006 *Financial Stability Report* analysed systemic aspects of credit risk transfers, concluding that these instruments do not appear to pose a particular threat to financial stability at present. However, the report also highlighted the importance of adequate clearing and settlement processes for credit derivatives in order to avoid systemic risks.[69]

This reflects the fact that, while OTC derivatives markets grew rapidly and new products were introduced, clearing and settlement arrangements evolved more slowly. The absence or limited use of automated processes and centralised infrastructures for clearing and settlement made it difficult for market participants to cope with the surge in trading volumes. The clearing and settlement of OTC credit derivatives received particular attention when, in early 2005, prudential supervisors began to express increasing concern about the size and rapid growth of confirmation backlogs for these instruments. At that time, the financial industry was also beginning to pay increasing attention to the issue. The Counterparty Risk Management Policy Group II, chaired by Gerald Corrigan, the former president of the Federal Reserve Bank of New York, highlighted, in a report released in July 2005, the serious and growing confirmation backlogs in the credit derivatives markets.[70] This led to the formation of a group consisting of the major OTC derivatives dealers – amongst them the two biggest Swiss banks – to address the inadequate post-trade practices in the OTC derivatives markets. This group is working together with supervisors and market regulators from the major financial markets – including Switzerland – in an effort to raise the standards for post-trade processing of OTC derivatives in general, and credit derivatives in particular.

Against this background, a recently published report by the Committee on Payment and Settlement Systems (CPSS) analyses the developments in clearing and settlement of OTC derivatives and identifies areas for further improvements.[71/72] This complements and updates earlier work of the CPSS together with the Committee on the Global Financial System (CGFS) on settlement and counterparty risk management procedures of OTC derivatives published in 1998.[73] For the new analysis, the CPSS has conducted a survey with 35 large OTC derivatives dealers in Europe, North America and Asia, and interviewed representatives of various industry organisations and infrastructure operators.

In its new report, the CPSS concludes that in some respects the clearing and settlement infrastructure of the OTC derivatives markets has been significantly strengthened over recent years. However, two specific areas have been identified where further progress is needed. In addition, the CPSS has also highlighted some developments which are likely to assume greater importance in the future. The key findings of the report are summarised below.

Strengthening of clearing and settlement processes

The introduction of central infrastructures has facilitated the standardisation and automation of post-trade processes for OTC derivatives (cf. box 8, p. 50 for a description of selected central infrastructures for the clearing and settlement of OTC derivatives). For example, selected OTC derivatives can be confirmed electronically, which – in combination with increasing back-office resources – has led to a significant reduction in the number of outstanding confirmations for OTC credit derivatives. After confirmation, an official legal record of OTC credit derivatives contracts can be stored in a central trade information warehouse and can be accessed for operational processes throughout the lifecycle of the contract. A central counterparty service is available for interest rate swaps, and this makes it possible to achieve multilateral netting of credit exposures on the contracts cleared and to reduce liquidity risk by broadening the scope of payment netting. Furthermore, 'multilateral termination services' offer the cancellation of offsetting positions in OTC derivatives with minimal impact on net exposures, thereby reducing counterparty credit, funding liquidity and operational risks.

68 Cf. BIS (2007), *OTC derivatives market activity in the second half of 2006,* www.bis.org.
69 Cf. SNB (2006), *Financial Stability Report,* pp. 32–33, www.snb.ch.
70 Cf. Counterparty Risk Management Policy Group II (2005), *Towards Greater Financial Stability: A Private Sector Perspective,* www.crmpolicygroup.org.
71 Cf. BIS/CPSS (2007), *New developments in clearing and settlement arrangements for OTC derivatives,* www.bis.org/cpss.
72 The CPSS serves as a forum for central banks to monitor and analyse developments in payment, clearing and settlement systems.
73 Cf. BIS (1998), *OTC Derivatives: Settlement Procedures and Counterparty Risk Management,* www.bis.org/cpss.

In addition, market participants and industry organisations have worked together to enhance the contractual foundations for the post-trade processing of OTC derivatives. The number of unsigned master agreements has been greatly reduced, ensuring that, in the event of a counterparty's default, transactions can be closed out and netted. Market participants have also adopted a novation protocol drafted by the ISDA (International Swaps and Derivatives Associations). This protocol requires written consent for all novations by close of business on the date the novation is struck, achieving prompt notification and consent for novations (cf. box 9, p. 51 for a brief discussion of novations).

Furthermore, a range of bilateral measures between participants in the OTC derivatives market have contributed to the reduction of risks in post-trade processing. For example, the use of collateral to mitigate counterparty credit risk has been adopted in all major jurisdictions. Significant progress has also been made to reduce legal, custody and operational risks in collateralisation arrangements.

Areas requiring further progress

Whereas the backlog in outstanding confirmations of OTC credit derivatives has been significantly reduced, there has been less progress on other OTC derivatives instruments. Failure to confirm a trade can exacerbate market and credit risks if material errors in a dealer's records of transactions go undetected. In this regard, it is encouraging that a group of major dealers has agreed to work over time to reach a common set of goals for the confirmation

Box 8: Selected central market infrastructures for the clearing and settlement of OTC derivatives

As for other financial instruments, central market infrastructures play a critical role in automating clearing and settlement processes for OTC derivatives. Many of these infrastructures are relatively new, reflecting the recent strong growth in the OTC derivatives market and the increasing attention given to post-trade processes for these instruments. Here we describe some selected infrastructures currently used in the post-trade processing of OTC derivatives:

Confirmation

Deriv/SERV is an automated trade matching and confirmation service for credit default swaps, equity derivatives and interest rate derivatives. Deriv/SERV is operated by DTCC, the Depository Trust and Clearing Corporation. The service automatically compares the data submitted by the counterparties, and a trade is considered legally confirmed if the trade details fully match. Otherwise, the system reports fields that do not match and counterparties can revise the submitted data. Over 500 participants currently use the service.

SwapsWire provides an automated trade input facility which makes it possible for trades to be verified and legally confirmed. Originally geared towards interest rate swaps, the service has been expanded to include various currencies, other interest rate derivatives, inflation swaps, credit default swaps and equity products.

Trade information warehouse

In November 2006, DTCC launched a trade information warehouse for OTC derivatives. A central trade database maintains the official legal record of contracts. This renders bilateral reconciliation superfluous and the use of agreed-upon trade records by counterparties reduces the risk of payment and margin breaks or other processing problems. The trade information warehouse can therefore be an important step towards achieving straight-through-processing for simple OTC derivatives. It can be accessed by other service providers that offer automated services in the various stages of post-trade processing.

Clearing

SwapClear is a central counterparty service for interest rate derivatives launched by LCH.Clearnet in 1999. It clears single currency interest rate swaps with varying maturities in 12 currencies. LCH.Clearnet is a recognised UK clearing house and is supervised by the Financial Services Authority (FSA). SwapClear currently has 20 clearing members and in 2006 cleared a notional value of approximately USD 2 trillion per month.

Multilateral termination

triReduce offers a multilateral early termination service for swap dealers in interest rates, credit derivatives and energy derivatives. Termination cycles are run regularly for each product type, with 10 to 30 dealers usually participating. Participants submit a file of trades they are willing to put forward to termination. These trades are reconciled and triReduce searches for offsetting positions among all trades submitted, subject to constraints specified by the participant. All major dealers are currently users of the triReduce service. In the first half of 2006, contracts totalling almost USD 4 trillion in notional value were terminated.

of equity, interest rate, currency and commodity derivatives. This has already led to some improvements in equity derivatives, where the major dealers met their commitment to reduce the number of confirmations outstanding for more than 30 days by 25%. The same focus and energy should now be extended to other OTC derivative products.

Another concern relates to potential market disruptions in the event that a major dealer defaults. This could potentially result in significant stress for OTC derivatives markets and related financial markets. If a counterparty defaults, the master agreements stipulate the closing out and netting of positions. Market participants should ensure that they have current, accurate, and comprehensive information on their counterparty credit exposures to major participants, so that they can make informed and rapid decisions at the time of a default. Daily portfolio reconciliation between the major market participants can achieve this. Also, multilateral termination services (see above) can reduce the number of contracts that need to be closed out in a default. Finally, market participants should work together to identify further actions that can be taken to ensure a smooth close-out and reduce market impact in the event that a major participant defaults.

Recent developments

A recent development is the extension of prime brokerage arrangements to OTC derivatives. In such an arrangement, the prime broker – typically a major OTC derivatives dealer – acts as an intermediary in specified OTC derivatives transactions between the prime brokerage client (typically a hedge fund) and any one of a list of approved executing dealers. In this way, the hedge fund community derives some of the benefits of a central counterparty. However, these arrangements focus not only the risks on the prime broker, but also the responsibilities of risk management. Therefore, it is critical that the prime broker is able to manage these risks adequately.

As described above, central infrastructures have become increasingly important in the post-trade processing of OTC derivatives. For efficient clearing and settlement processes, it is critical that the various infrastructures are linked together to achieve a processing with minimum manual intervention. For this, service providers must ensure fair and open access to their services and achieve interoperability with other infrastructures. This will also allow effective competition between service providers and should encourage further innovations. Interoperability can be promoted through harmonised approaches to the description of data, standardised methods and timing conventions for the transmission of data, and formal agreements between services providers with respect to basic service levels, revenue attribution and other commercial terms.

As centralised infrastructures for post-trade processing gain in importance, potential single points of failure and new vulnerabilities may emerge. It is therefore important that providers ensure the operational reliability of their services, as described in the CPSS-IOSCO recommendations for securities settlement systems and central counterparties.[74]

Box 9: Novations of OTC derivatives

A novation is the replacement of a contract between two initial counterparties with a new contract between one remaining party and a new third party. Novations of OTC derivatives have become increasingly common over the last few years, driven partly by the growth of the hedge fund sector, which frequently uses novations to withdraw from a position. Until recently, novations were a source of glowing concern, as dealers frequently accepted novations of credit derivatives without the prior consent of the remaining counterparty. The practice contributed to the growth of unconfirmed trades and created confusion about the identities of counterparties to outstanding trades. This had the potential to undermine the effectiveness of counterparty credit risk management and resulted in frequent disagreements on collateral requirements and failures to make due payments on credit derivatives contracts.

In 2005, the major dealers adopted an ISDA novation protocol requiring written consent for all novations by close of business on the date the novation is struck. This helped to alleviate difficulties in achieving prompt notification and consent for novations. Market participants interviewed by the CPSS reported that adherence to the ISDA novation protocol has greatly reduced the post-trade problems associated with novations.

74 Cf. CPSS-IOSCO (2001), *Recommendations for Securities Settlement Systems;* and CPSS-IOSCO (2005), *Recommendations for Central Counterparties,* www.bis.org/CPSS.

Bericht zur Finanzstabilität 2007 (Übersicht)

Vorwort

Der vorliegende Bericht setzt sich mit den unter dem Aspekt der Finanzstabilität massgebenden Tendenzen des schweizerischen Finanzsektors auseinander. Nach dem Nationalbankgesetz (Art. 5 Abs. 2 Bst. e) hat die SNB den Auftrag, zur Stabilität des Finanzsystems beizutragen. Die SNB übermittelt durch diesen Bericht ihre Einschätzung der Stabilität des Finanzsystems und stellt der Öffentlichkeit eine Übersicht an Informationen und Indikatoren zur Verfügung. Der Stabilitätsbericht gibt der SNB die Möglichkeit, auf Spannungen oder Ungleichgewichte hinzuweisen, die ein Risiko für die Finanzstabilität darstellen könnten. Der Bericht dient nicht dazu, die Solvenz einzelner Finanzinstitute zu beurteilen. Einzelne Banken werden nur betrachtet, wenn dies für das Gesamtbild wesentlich ist. Ein stabiles Finanzsystem zeichnet sich dadurch aus, dass dessen Komponenten ihre Funktion erfüllen und sich gegenüber Schocks als widerstandsfähig erweisen. Dieser Bericht beschränkt sich auf zwei wesentliche Komponenten des Finanzsystems: den Bankensektor und die Finanzmarktinfrastruktur.

Bankensektor

Gute allgemeine Lage

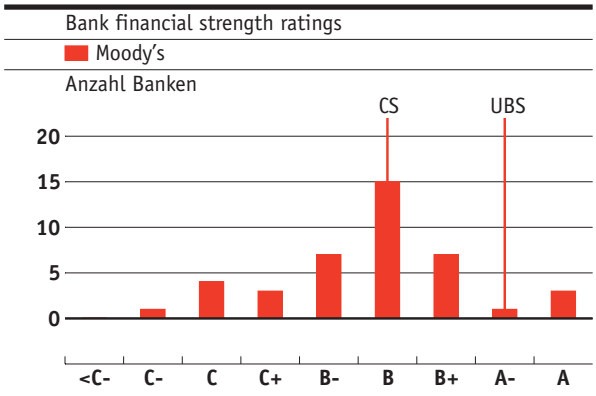
Im Jahr 2006 hat der schweizerische Bankensektor von einem günstigen Umfeld sowohl in der Schweiz wie auch im Ausland profitiert.[1] Das Wirtschaftswachstum blieb weiterhin relativ hoch, obwohl die Zentralbanken mehrerer Industrieländer die Zinsen erhöhten. Parallel dazu verzeichneten die Aktienmärkte insgesamt eine deutliche Aufwärtstendenz bei weiterhin niedriger Volatilität. Aus den verfügbaren Indikatoren geht hervor, dass sich diese Situation mehrheitlich positiv auf die Bonität der Schuldner ausgewirkt hat. Die meisten Unternehmen haben ihr gutes Rating bewahrt, und die Risikoprämien auf den Schulden sind nach wie vor niedrig.

In diesem Umfeld konnte der schweizerische Bankensektor die hohen Gewinne der Vorjahre noch steigern. Insgesamt haben alle Geschäftsfelder vom positiven Umfeld profitiert. Insbesondere die Erträge aus dem Handels- und Kommissionsgeschäft sind stark gestiegen. Zudem reduzierten die meisten Banken die im historischen Vergleich sehr niedrigen Rückstellungen weiter.

Die hohen Gewinne führten bei allen Bankgruppen zu einer Verbesserung der Eigenmittelausstattung. Entsprechend hat sich die Fähigkeit des Bankensektors, Schocks abzufedern, weiter verbessert. Gleichzeitig bleibt der Verschuldungsgrad (leverage) der Grossbanken sowohl im historischen als auch im internationalen Vergleich hoch.

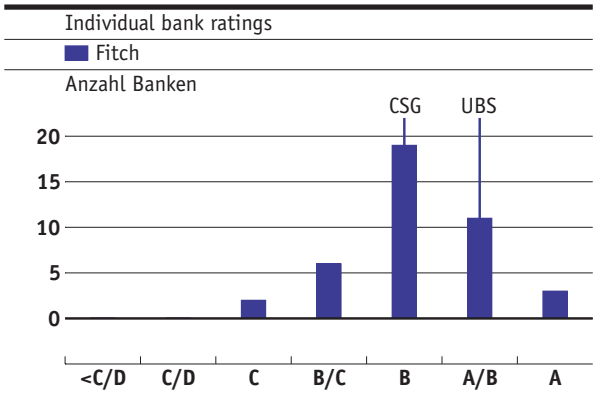
Das positive Bild des Bankensektors, das sich durch die Gewinne und die Eigenmittelausstattung der Banken ergibt, steht im Einklang mit den Marktindikatoren (vgl. Grafiken 1 und 2). Der Markt beurteilt die Bonität der Schweizer Banken weiterhin als hoch. Auch der SNB-Stressindex, der eine

Ratings von Moody's* Grafik 1



Quelle: Moody's

Ratings von Fitch* Grafik 2



Quelle: FitchRating

* Umfasst eine Stichprobe der weltweit grössten Banken in Nordamerika, Japan und Europa basierend auf dem Magazin *The Banker* (Juli 2006), die ein Rating von Moody's, Standard & Poor's sowie Fitch aufweisen. Verfügt eine Bankengruppe über kein *financial strength rating* bzw. *individual bank rating,* wurde das entsprechende Rating ihrer grössten Tochtergesellschaft verwendet.

1 Vgl. Box 2, S. 18, für eine Beschreibung der Struktur des Schweizer Bankensektors.

Vielzahl von Informationen über mögliche Stresssymptome zusammenfasst, bestätigt den Eindruck, dass der Schweizer Bankensektor schon seit Mitte 2003 eine Periode mit deutlich unterdurchschnittlichem Stress erlebt (vgl. Grafik 3).

Günstige Aussichten

Die Zukunftsaussichten für die Stabilität des schweizerischen Bankensystems beurteilen wir grundsätzlich als günstig. Obwohl die Konjunkturaussichten weiterhin positiv eingeschätzt werden, gibt es erste Anzeichen, dass sich die ausserordentlich günstige allgemeine Lage normalisieren könnte. Beispielsweise nahm 2006 Moody's bei den Ratings der europäischen Unternehmen mehr Herab- als Heraufstufungen vor. Auch die Konkurse von Haushalten haben sowohl in der Schweiz als auch in Deutschland, Grossbritanien und den USA zugenommen. Eine Normalisierung des Umfelds dürfte sich jedoch nur moderat auf die Erträge der Banken auswirken und der Stress für den Schweizer Bankensektor sollte auch kurz- und mittelfristig unterdurchschnittlich tief bleiben.

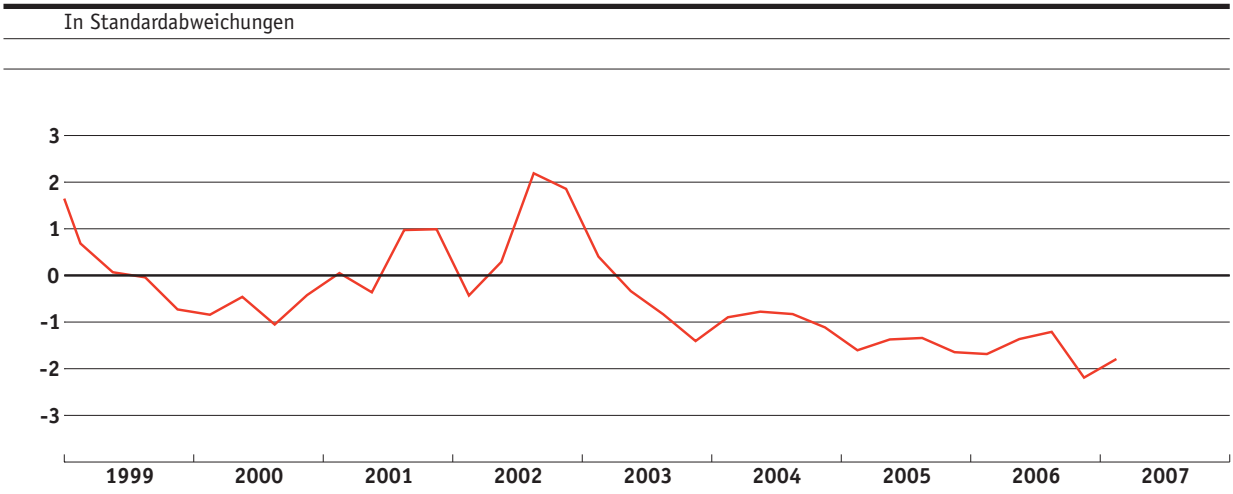
Negative Überraschungen könnten grosse Folgen haben

Auch bei guten Aussichten können jedoch negative Überraschungen nicht ausgeschlossen werden. Beispielsweise kann nicht ausgeschlossen werden, dass die Probleme im Subprime-Mortgage-Markt Anfang 2007 in den USA erste Symptome einer grösseren Krise im US-Immobilienmarkt – oder einer allgemeinen Verschlechterung im Kreditbereich – darstellen. Generell sollte nicht vergessen werden, dass sich ein gutes Umfeld in der Vergangenheit schon mehrfach überraschend schnell und markant verschlechtert hat.

Die Wirkung einer starken Verschlechterung des Umfelds könnte zurzeit aus zwei Gründen besonders stark ausfallen. Erstens sind die Kosten bei vielen Banken im günstigen Umfeld der letzten Jahre relativ stark gestiegen. Erfahrungsgemäss haben Banken Mühe, die Kosten umgehend zu senken, wenn die Erträge wegen einer Verschlechterung des Umfelds zurückgehen. Zweitens gibt es Anzeichen dafür, dass der Risikoappetit der Investoren, unter anderem auch der Schweizer Banken, auf hohem Niveau weiter gestiegen ist. Insbesondere die Grossbanken haben ihre Risikobereitschaft im Bankengeschäft stark erhöht: Ihre Engagements im Handels- und besonders im ausländischen Kreditgeschäft haben stark zugenommen (vgl. Grafiken 4 und 5).[2] Banken, die auf das Schweizer Geschäft konzentriert sind (Kantonal-, Regional- und Raiffeisenbanken), tragen nach wie vor ein relativ hohes Zinsrisiko.

Unsere Szenario-Analysen deuten darauf hin, dass der Bankensektor in der Lage sein sollte, eine überraschend starke Verschlechterung des Umfelds zu verkraften (vgl. Box 3, S. 26). Der Internationale Währungsfonds (IWF) kam im Rahmen seiner Analyse der Stabilität des Schweizer Finanzsektors zum selben Schluss (vgl. Box 6, S. 35). Es bleibt jedoch unsicher, wie hoch das gesamte Ausmass der von

Stressindex* Grafik 3



Quellen: EBK, SNB, Thomson Datastream

* Je höher das Niveau des Index, desto grösser ist das Stressniveau des schweizerischen Bankensektors. Der Index ist in Standardabweichungen von seinem historischen Durchschnitt (1987–2005) bemessen. Ein positiver (negativer) Wert bedeutet, dass der Stress grösser (kleiner) ist als der historische Durchschnitt. Der Stressindex im ersten Quartal 2007 beruht auf provisorischen Daten.

2 Durch den Verkauf der Winterthur Versicherung verzeichnete die CSG allerdings eine Verringerung der gesamten eingegangenen Risiken.

den Banken eingegangenen Risiken ist und, entsprechend, wie stark die Folgen einer Verschlechterung des Umfelds wären.

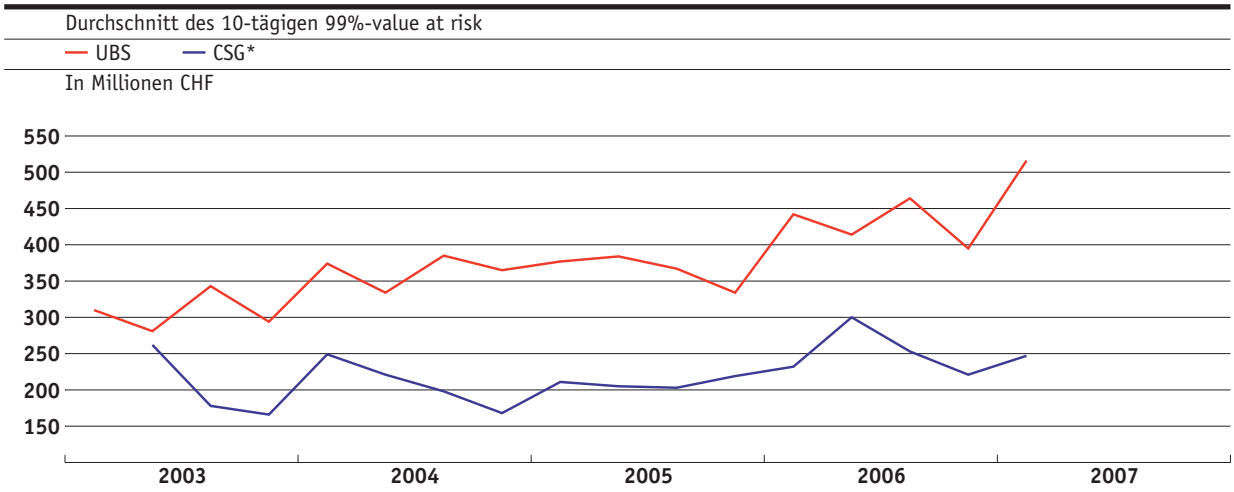
Grenzen unserer Stabilitäts- und Risikoanalyse

Eine verlässliche Stabilitätsanalyse des Bankensystems kann nur auf Basis detaillierter Daten zu den Risiken, denen die Banken ausgesetzt sind, erfolgen. Diese Informationen sind zudem in einem globalen Risikoprofil zu aggregieren, das auch erhöhte Stresssituationen (so genannte Tail Events) abdeckt. Unser Bericht zeigt diesbezüglich einige Lücken auf. Die von den Banken publizierten Angaben zu den einzelnen Risikofaktoren, denen sie ausgesetzt sind, erweisen sich nach wie vor als wenig detailliert. Selten gehen diese Angaben auf Stresssituationen ein. Zudem bieten sie auch nicht systematisch eine umfassende Perspektive hinsichtlich ihres Risikoprofils. Die genannten Lücken offenbaren sich insbesondere bei kleinen und mittelgrossen Banken. Etwas weniger ausgeprägt zeigen sich diese Lücken jedoch auch bei den Grossbanken, und zwar sowohl in der Schweiz als auch in anderen Industrieländern.[3]

Die Umsetzung der neuen Eigenkapitalvorschriften gemäss Basel II sollte ab 2008 dafür sorgen, dass diese Lücken teilweise geschlossen werden. Im Rahmen dieser neuen Bestimmungen müssen die Grossbanken Informationen vorlegen, die eine deutlich genauere Beurteilung der von ihnen eingegangenen Kreditrisiken ermöglicht (erste Säule). Zudem haben die Banken eine globale Bewertung ihrer Risiken und ihrer Eigenkapitalausstattung vorzunehmen. Diese Bewertung wird dann einer kritischen Prüfung durch die Aufsichtsbehörden unterzogen (zweite Säule). Schliesslich werden von den Banken detaillierte Angaben zu ihrer Eigenkapitalausstattung und ihren einzelnen Risikoarten verlangt (dritte Säule).

Ungeachtet der Umsetzung von Basel II ist die SNB der Ansicht, dass die Grossbanken bei der Publikation ihrer Finanzberichte mehr Gewicht auf Risikoindikatoren setzen sollten, die sich auf Stresssituationen beziehen. Zusätzlich sollten die Grossbanken Indikatoren publizieren, die eine umfassendere Perspektive hinsichtlich des Risikoprofils und der Kapitaladäquanz der betreffenden Banken erlauben. Eine der beiden Grossbanken hat bereits wichtige Schritte in diese Richtung unternommen. Die erhöhte Transparenz würde zu einer wirksamen Marktdisziplin beitragen. Ausserdem ist die SNB davon überzeugt, dass die Behörden und die Grossbanken hinsichtlich Stresstests enger zusammenarbeiten sollten. So wäre es insbesondere wünschenswert, dass die Behörden in regelmässigen Abständen Stresstests mit den Grossbanken durchführen. Diese Tests sollten auf den von den Banken für ihre internen Bedürfnisse entwickelten Instrumenten beruhen, müssten aber auch bestimmte, von den Behörden vorgegebene Kriterien erfüllen. Eine derartige Zusammenarbeit würde den Behörden

Marktrisiko — Grafik 4



Quellen: Geschäftsberichte

* Tageswert des Value-at-risk auf 10-Tages-value-at-risk skaliert.

3 Eine Übersicht über die Offenlegung von Risiken durch Banken und Effektenhändler liefert 'Risk Disclosures of Banks and Securities Firms', Moody's Investors Service, Mai 2006.

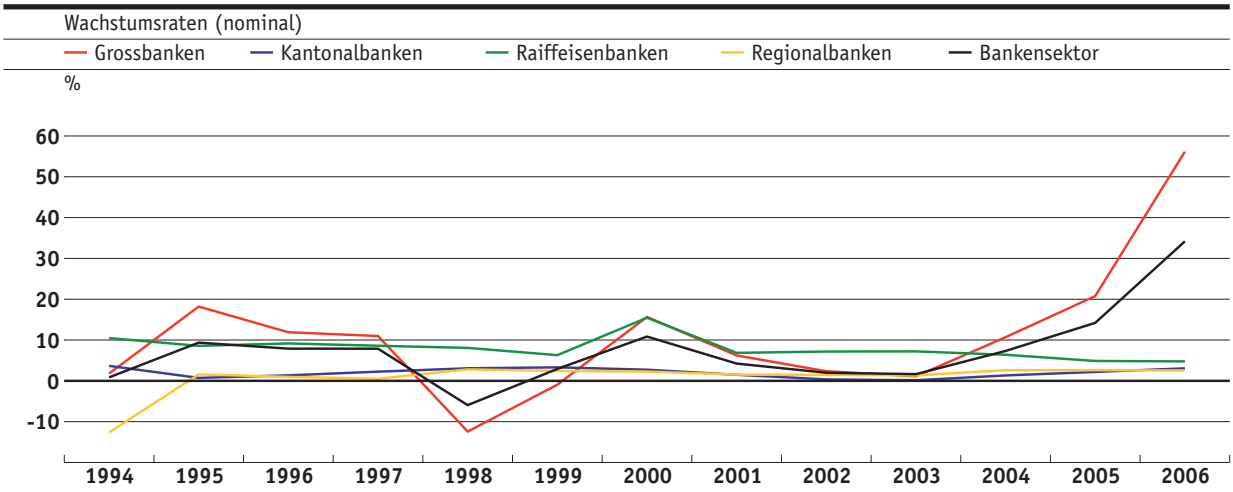
eine transparentere und besser vergleichbare Einschätzung der Widerstandskraft der Banken in Situationen mit erhöhtem Stress erlauben.

Eine Verbesserung der Qualität und der Verbreitung der Angaben zu den Risiken, denen sich die beiden Grossbanken ausgesetzt sehen, würde die Stabilität des Schweizer Bankensektors stärken. Schon allein aufgrund ihrer Grösse verfügen die beiden Grossbanken über eine systemische Bedeutung. Zudem halten sie einen hohen Anteil an Fremdmitteln (Leverage). Daher könnte ein Fehler bei der Einschätzung ihrer Risiken gravierende Folgen für die Stabilität des Bankensektors – und damit für die Finanzstabilität – in der Schweiz haben.

Finanzmarktinfrastruktur

Für die Abrechnung und Abwicklung von Zahlungen und Geschäften mit Wertschriften und anderen Finanzinstrumenten verfügt der Finanzplatz Schweiz über eine im internationalen Vergleich sehr sichere und effiziente Finanzmarktinfrastruktur. Die für die Stabilität des schweizerischen Finanzsystems bedeutsamen Infrastrukturen haben ihre funktionale Effizienz über die Jahre bewiesen. Ihre Architektur trägt zur Verminderung der Abwicklungsrisiken – und damit letztlich der Systemrisiken – bei. Auch in Bezug auf das operationelle Risiko verfügt die schweizerische Finanzmarktinfrastruktur über einen guten Leistungsnachweis. Ausserdem stimmt es zuversichtlich, dass die Systembetreiber in den letzten Jahren wichtige Massnahmen zur weiteren Erhöhung der Zuverlässigkeit und Widerstandsfähigkeit der Infrastrukturen eingeleitet haben. Trotz dieser positiven Gesamteinschätzung ist Selbstzufriedenheit fehl am Platz. Vor dem Hintergrund sich schnell wandelnder Technologien bedarf es vielmehr laufender Anstrengungen, um operationelle und andere Risiken zu reduzieren und Massnahmen für weitere Verbesserungen zu bestimmen.

Total Kredite (Inland und Ausland) Grafik 5



Quellen: EBK, SNB

Rapport sur la stabilité financière 2007 (Synthèse)

Avant-propos

Le présent rapport met en évidence les grandes tendances, sous l'angle de la stabilité, dans le secteur financier suisse. La BNS a pour tâche de contribuer à la stabilité du système financier (art. 5, al. 2, let. e de la loi sur la Banque nationale). En publiant un tel rapport, la BNS fait part de son évaluation de la stabilité financière, met à la disposition du public une synthèse d'informations et d'indicateurs pertinents et signale, le cas échéant, des tensions ou des déséquilibres susceptibles de constituer un risque en matière de stabilité. Ce rapport n'a pas pour objet d'évaluer la solvabilité d'établissements financiers pris individuellement. Des établissements ne sont considérés sur une base individuelle que lorsque cela joue un rôle déterminant pour la vue d'ensemble.

Un système financier stable est un système dans lequel les diverses composantes remplissent leur fonction et sont en mesure de résister à d'éventuels chocs. Le présent rapport se concentre sur deux composantes essentielles du système financier: le secteur bancaire et les infrastructures des marchés financiers.

Secteur bancaire

Bonne situation générale

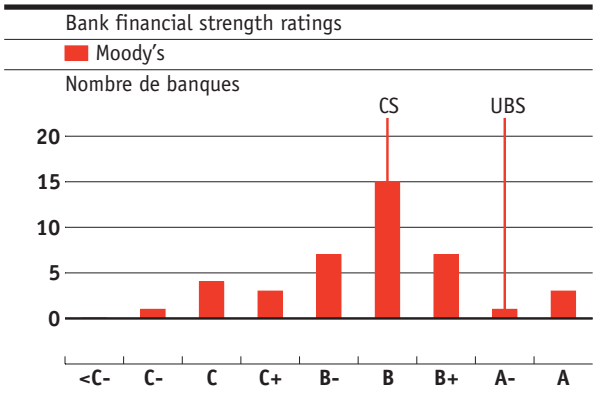
En 2006, le secteur bancaire helvétique a bénéficié d'un environnement favorable à la fois en Suisse et à l'étranger.[1] La croissance économique est restée soutenue, bien que les banques centrales de plusieurs pays industrialisés aient relevé leurs taux d'intérêt. En outre, les marchés des actions ont, dans l'ensemble, marqué une nette tendance à la hausse alors que la volatilité est restée faible. D'après les indicateurs disponibles, cette situation a eu des répercussions positives sur la capacité financière des emprunteurs. La plupart des entreprises ont ainsi conservé leur bonne notation, et les primes de risques sur les dettes sont restées faibles.

Dans cet environnement, les bénéfices du secteur bancaire suisse ont dépassé le niveau déjà élevé atteint ces dernières années. Globalement, tous les domaines d'activité ont bénéficié de l'environnement favorable. Dans leurs opérations de négoce et leurs opérations de commissions notamment, les banques ont tiré des revenus en forte expansion. En outre, la plupart des banques ont encore réduit leurs provisions déjà faibles en comparaison historiques.

Les bénéfices élevés ont permis à toutes les catégories de banques d'accroître leur dotation en fonds propres. En conséquence, la capacité du secteur bancaire à absorber des chocs s'est encore renforcée. Parallèlement, le niveau d'endettement (leverage) des grandes banques reste élevé, en comparaison internationale comme en comparaison historique.

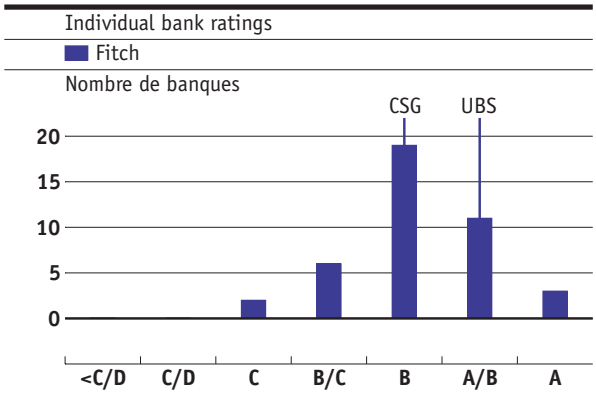
L'image positive donnée par les bénéfices et la dotation en fonds propres élevés des banques est conforme à celle véhiculée par les indicateurs de marché. Le marché considère toujours que la solidité des banques suisses est élevée (cf. graphiques 1 et 2). Par ailleurs, l'indice de stress calculé par la BNS – qui combine un ensemble de variables représentant

Notations de Moody's* Graphique 1



Source: Moody's

Notations de Fitch* Graphique 2



Source: FitchRating

* Echantillon des plus grandes banques d'Amérique du Nord, du Japon et d'Europe recensées par *The Banker* (juillet, 2006) et notées par Moody's, Standard & Poor's et Fitch. Si une holding n'est pas notée *(financial strength rating ou individual bank rating)*, la notation de sa plus grande société de la holding est prise en considération.

1 Pour une description de la structure du secteur bancaire suisse, voir l'encadré 2, p. 18.

des symptômes de stress potentiels – confirme l'impression selon laquelle le secteur bancaire suisse traverse, depuis le milieu de l'année 2003 déjà, une période particulièrement calme (cf. graphique 3).

Perspectives favorables

Les perspectives en matière de stabilité pour le secteur bancaire suisse, apparaissent elles aussi, en principe, favorables. Cependant, même si les prévisions conjoncturelles restent bonnes, des premiers indices d'une normalisation de la situation – après une période exceptionnellement favorable – sont apparus. Ainsi, plus d'entreprises européennes ont vu leur notation révisée à la baisse qu'à la hausse par Moody's en 2006. En outre, les faillites de particuliers ont récemment augmenté en Suisse ainsi qu'en Allemagne, au Royaume-Uni et aux Etats-Unis. Une normalisation de l'environnement économique n'aurait cependant que des répercussions modérées sur les bénéfices des banques et le niveau de stress du secteur bancaire suisse devrait rester inférieur à la moyenne à court et moyen terme.

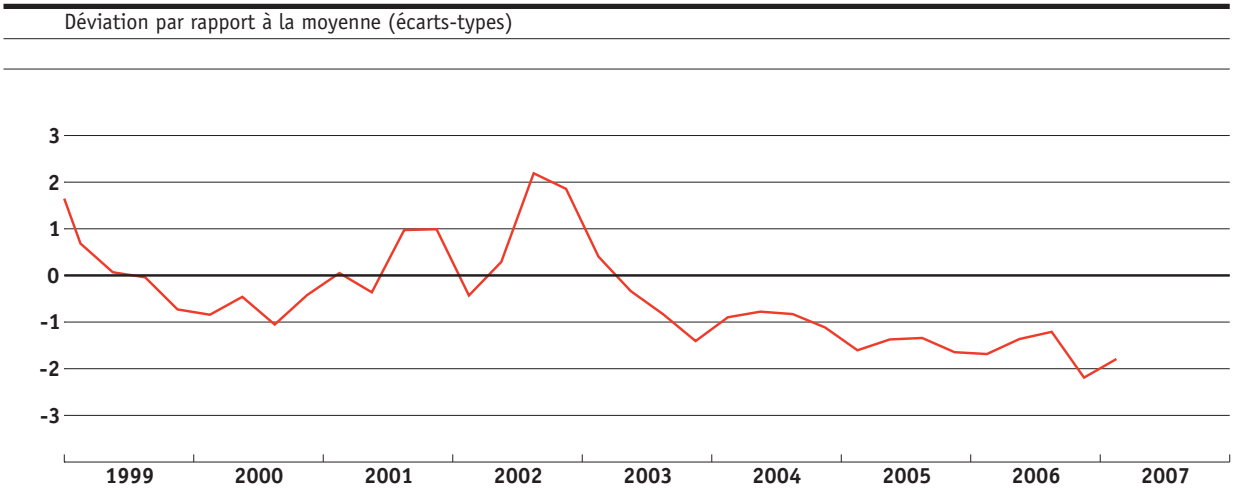
Impact élevé en cas de dégradation plus forte qu'anticipée

Même lorsque les perspectives sont bonnes, de mauvaises surprises ne sauraient être exclues. Ainsi, on ne peut pas exclure que les problèmes apparus au début de 2007 sur le marché américain des hypothèques de qualité inférieure *(subprime mortgages)* puissent s'avérer être le premier symptôme d'une crise plus vaste affectant le marché de l'immobilier aux Etats-Unis ou d'une détérioration générale de la situation sur le marché du crédit. De manière générale, il convient de garder en mémoire le fait qu'à plusieurs reprises déjà un environnement favorable s'est détérioré avec une rapidité et une ampleur inattendues.

Une détérioration plus forte qu'anticipée de l'environnement pourrait actuellement avoir un impact particulièrement élevé et ce, pour deux raisons. D'une part, les coûts dans le secteur bancaire ont augmenté relativement fortement durant ces dernières années. Or l'expérience montre qu'en cas de dégradation de l'environnement, les banques parviennent difficilement à réduire leurs coûts assez vite pour compenser le fléchissement de leurs revenus. D'autre part, l'appétit pour le risque des investisseurs, et en particulier celui des banques suisses, semble s'être encore accru. Les grandes banques ont notamment fortement augmenté leur prise de risque dans les opérations bancaires par le biais d'une hausse marquée de la taille de leur portefeuille de titres et de leur portefeuille de crédits à l'étranger (cf. graphiques 4 et 5).[2] Par ailleurs, les banques dont l'activité est axée surtout sur le marché suisse (banques cantonales, banques régionales et banques Raiffeisen) encourent des risques de taux d'intérêt qui restent relativement élevés.

Il ressort de notre analyse de scénarios que le secteur bancaire devrait en principe être en mesure de faire face à une détérioration marquée de son environnement (voir encadré 3, p. 26). Le Fonds Monétaire International (FMI) est arrivé aux mêmes conclusions dans le cadre de son analyse de la sta-

Indice de stress* Graphique 3



Sources: BNS, CFB, Thomson Datastream

* Une valeur élevée de l'indice correspond à un niveau de stress élevé dans le secteur bancaire suisse. Une valeur positive (négative) signifie que le stress est supérieur (inférieur) à sa moyenne observée entre 1987 et 2005. La déviation par rapport à la moyenne est exprimée en termes d'écarts-type. L'indice de stress pour le premier trimestre 2007 est calculé à partir de données provisoires.

2 Cependant, la prise de risque globale du CSG a diminué en raison de la vente de la Winterthur, sa compagnie d'assurances.

bilité du système financier suisse (voir encadré 6, p. 35). Toutefois, l'évaluation globale de la prise de risque dans le secteur bancaire et, partant, l'évaluation de l'impact d'une dégradation de l'environnement économique et financier restent incertaines.

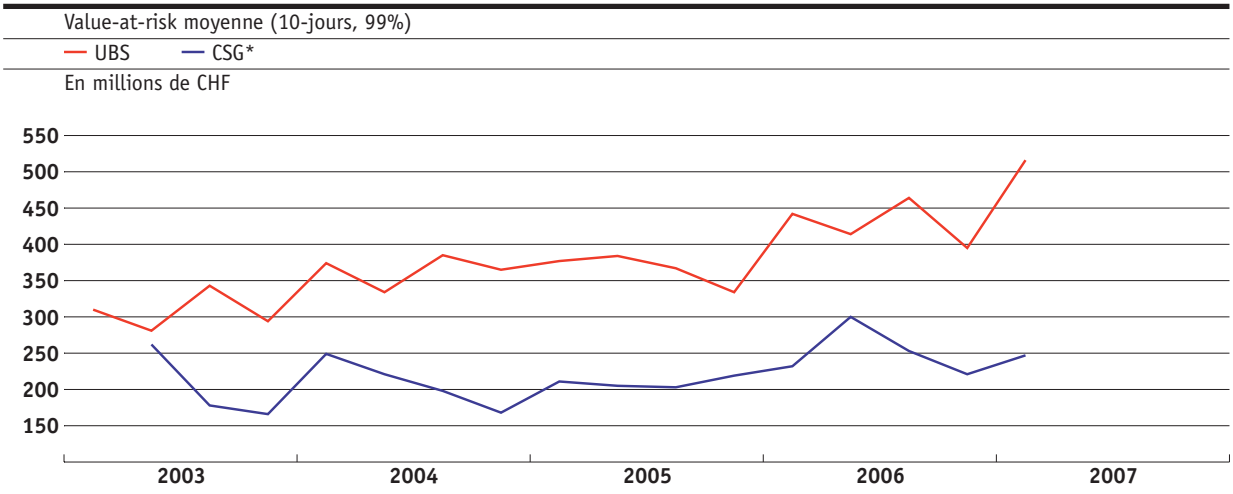
Limites dans notre évaluation des risques et de la stabilité

Une évaluation fiable de la stabilité du système bancaire nécessite des informations détaillées sur les risques auxquels sont exposées les banques. Elle requiert également que ces informations soient agrégées dans un profil de risque *global* représentatif des situations de *stress* élevé (tail events). Notre rapport met en évidence un certain nombre de lacunes sur ce plan. Les informations publiées par les banques sur leur exposition face aux différents facteurs de risques restent peu détaillées. Elles sont rarement axées sur les situations de stress. Elles n'offrent pas non plus systématiquement une perspective globale de leur profil de risque. Ces lacunes sont particulièrement manifestes dans le cas des petites et moyennes banques. Dans une moindre mesure, elles existent cependant aussi du côté des grandes banques, que ce soit en Suisse ou dans d'autres pays industrialisés.[3]

La mise en œuvre du nouveau dispositif de fonds propres prévu par Bâle II devrait combler en partie ces lacunes à partir de 2008. Dans le cadre de ce nouveau dispositif, les grandes banques devront fournir des informations permettant une évaluation beaucoup plus précise des risques de crédit qu'elles encourent (premier pilier). En outre, les banques devront procéder à une évaluation globale de leurs risques et de leur dotation en fonds propres. Cette évaluation sera ensuite soumise au jugement critique des autorités de surveillance (deuxième pilier). Enfin, les banques devront publier davantage de détails sur leur dotation en fonds propres et sur leurs différents types de risques (troisième pilier).

Indépendamment de la mise en œuvre de Bale II, la BNS estime que les grandes banques devraient, dans la publication de leurs états financiers, mettre davantage l'accent sur les indicateurs de risques orientés vers les situations de stress. De plus, les grandes banques devraient publier des indicateurs qui donnent une perspective globale de leur profil de risque et de l'adéquation de leurs fonds propres. L'une d'entre elles a déjà fait un pas important dans cette direction. Une plus grande transparence contribuerait au bon fonctionnement de la discipline de marché. Enfin, la BNS estime que les autorités prudentielles et les grandes banques devraient renforcer leur collaboration dans le domaine des stress tests. Il serait en particulier souhaitable que les autorités effectuent périodiquement des stress tests avec les deux grandes banques. Ces stress tests seraient basés sur les instruments développés par les banques pour leurs besoins internes, mais ils devraient également répondre à un certain nombre de critères définis par les autorités. Cela permettrait aux autorités d'avoir une évaluation plus transparente

Risque de marché — Graphique 4



Sources: rapports annuels

* Value-at-risk avec un horizon à 1 jour mise à l'échelle.

3 Pour une analyse des pratiques bancaires en matière de publication des données relatives aux risques, voir 'Risk Disclosures of Banks and Securities Firms', Moody's Investors Service, mai 2006.

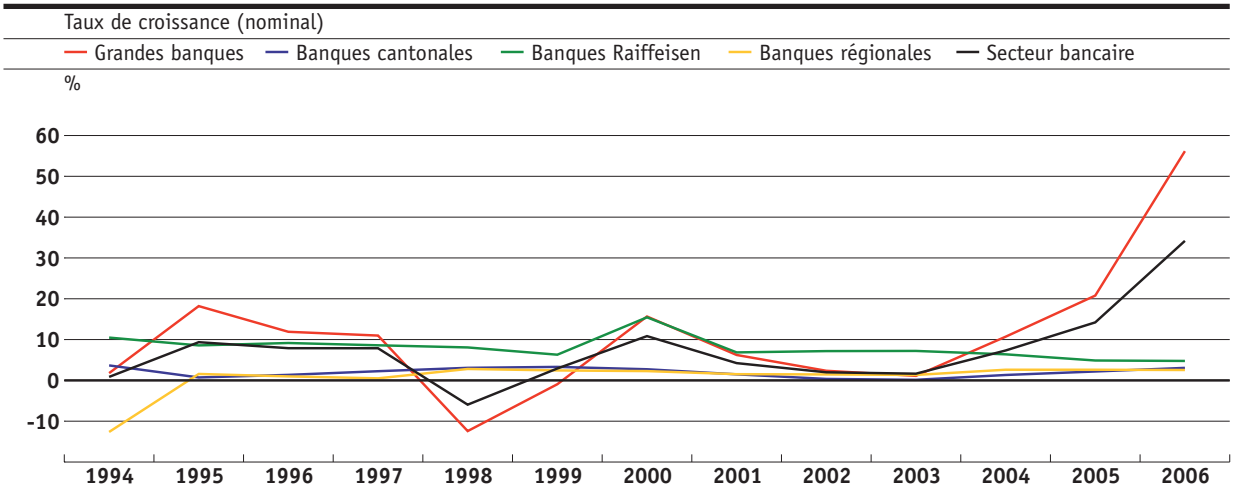
et plus comparable de la capacité de résistance de ces banques face aux situations de stress élevé.

En améliorant notamment la qualité et la diffusion des données sur les risques encourus par les deux grandes banques, ces efforts contribueraient à renforcer la stabilité du secteur bancaire suisse. En effet, en raison de leur taille, ces deux banques revêtent une importance systémique. Par ailleurs, elles présentent un niveau élevé d'endettement (leverage). En conséquence, une erreur dans l'appréciation de leur prise de risque pourrait s'avérer grave pour la stabilité du secteur bancaire et, partant, pour la stabilité financière en Suisse.

Infrastructure des marchés financiers

Dans le domaine de la compensation et du règlement des paiements et des opérations sur titres et autres instruments financiers, le secteur financier suisse occupe sous l'angle de la sécurité et de l'efficacité une place de choix en comparaison internationale. Les infrastructures qui sont importantes pour la stabilité du système financier suisse ont prouvé leur efficacité au cours des années. Leur architecture contribue à réduire les risques liés au règlement et, finalement, les risques systémiques. En matière de risques opérationnels également, l'infrastructure du marché financier suisse a enregistré une bonne performance, et il est encourageant de constater que, ces dernières années, les opérateurs ont pris d'importantes mesures afin de la renforcer sur les plans de la sécurité et de la capacité de résistance. Cette appréciation positive de la situation d'ensemble ne doit pas nous inciter à nous reposer sur nos lauriers. Sur un arrière-plan de changements technologiques rapides, des efforts constants sont nécessaires pour limiter les risques le plus possible et déterminer les mesures à prendre pour de nouvelles améliorations.

Crédit totaux (Suisse et étranger) Graphique 5



Sources: BNS, CFB

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