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Overview

Monetary policy report (p. 6)

The global economy developed favourably over the winter of 2006–2007. In the fourth quarter 2006, real GDP grew strongly in the euro area and Japan, while the US economy continued to grow at a slower pace. Economic prospects remained favourable overall; however, the substantial fall in prices on the stock markets at the end of February indicated that cyclical risks were once again given somewhat greater weight.

In Switzerland, too, the economic upswing continued. Real GDP expanded further in the fourth quarter, and growth remained broad-based. A number of indicators suggest that the economy remained buoyant in the new year. Survey results in manufacturing, for example, have remained positive right up until the end of the reporting period, and consumer sentiment has improved further as well. The SNB projects balanced economic growth of around 2% for 2007. This is slightly higher than estimated potential growth.

On 15 March, the SNB raised the target range for the three-month Libor by 0.25 percentage points to 1.75%–2.75%. By raising the target range, the National Bank is ensuring that inflation prospects remain favourable.

The economic situation from the vantage point of the delegates for regional economic relations (p. 38)

The talks held by the SNB delegates for regional economic relations with around 150 representatives from various economic sectors and industries in the period from December 2006 to February 2007 were marked by optimism. Almost all participants thought that 2007 had got off to a good start after a largely excellent year in 2006, and most said they were expecting the current year to see further substantial sales growth. There was little if any mention of a slowdown in business.

Seventy years after: The final collapse of the gold standard in September 1936 (p. 42)

In the 1930s, all countries devalued their currencies or introduced exchange controls. Switzerland and the other gold bloc countries held out longest and tried to restore competitiveness by reducing domestic costs and prices. This policy largely failed so that the recovery started later than in the countries which had devalued between 1931 and 1935.

At the time, the devaluation of the Swiss franc in September 1936 was not seen to herald the end of the gold-backed system. It took almost 40 years before flexible exchange rates were regarded as a feasible option, and more than 60 years before the gold parity of the franc was removed from the statute book.

The pricing behaviour of Swiss companies: Results of a survey conducted by the SNB delegates for regional economic relations (p. 48)

Corporate pricing has met with increasing interest in recent years. This article is based on conversations the SNB delegates for regional economic relations held with some 70 companies between August and October 2006. The results have shown that most of the companies surveyed adjust their prices at fixed time intervals; the prices of their main products are adjusted once a year on average. The arguments for price adjustments cited most frequently were changes in the prices of competitors, followed by changes in the prices of primary products and changes in demand. The most common reasons mentioned for foregoing a price adjustment were implicit and explicit agreements and cost-based pricing. Overall, the results show a high degree of conformity with comparable studies undertaken in other European countries.

Swiss National Bank Working Papers and Swiss National Bank Studies (p. 56)

Abstracts of four papers: Andreas M. Fischer, Gulzina Isakova and Ulan Termechikov, *Do FX traders in Bishkek have similar perceptions to their London colleagues? Survey evidence of market practitioners' views*, SNB Working Paper 2007-1; Ibrahim Chowdhury und Andreas Schabert, *Federal Reserve policy viewed through a money supply lens*, SNB Working Paper 2007-2; Angelo Ranaldo, *"Segmentation and time-of-day patterns in foreign exchange markets"*, SNB Working Paper 2007-3; Caesar Lack, *Forecasting Swiss inflation using VAR models*, SNB Economic Study No. 2, 2006.

Monetary policy report

Report to the attention of the Governing Board of the Swiss National Bank for its quarterly assessment of March 2007

This report is based primarily on the data and information available as at mid-March 2007.

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About this report

The Swiss National Bank (SNB) has the statutory mandate to pursue a monetary policy serving the interests of the country as a whole. It ensures price stability while taking due account of economic developments.

It is a particular concern of the SNB that its monetary policy be understood by a wider public. However, it is also obliged by law to inform regularly of its policy and to make its intentions known. This Monetary Policy Report performs both of these tasks. It describes economic and monetary developments in Switzerland and explains the inflation forecast. It shows how the SNB views the economic situation and what conclusions it draws from this assessment.

Sections 1–3 of the present report were drawn up for the Governing Board's assessment of March 2007. The key developments and section 4 (inflation forecast) take due account of the Governing Board's monetary policy decision of 15 March 2007.

Unless otherwise stated, all rates of change from the previous period are based on seasonally adjusted data and are annualised.

Key developments

The global economy developed favourably over the winter of 2006–2007. In the fourth quarter, real GDP grew strongly in the euro area and Japan, while the US economy continued to grow at a slower pace. Economic prospects remained favourable overall; however, the substantial fall in prices on the stock markets at the end of February indicated that cyclical risks were once again given greater weight. The monetary policies of the major industrialised countries varied in line with their differing positions in the economic cycle. Whereas the European Central Bank (ECB) again lifted its key rate in March so as to counter inflationary threats, the Federal Reserve left its overnight rate unchanged as it had tightened its monetary policy sooner and more sharply than the ECB.

The SNB's assessment of international economic developments did not differ much from its quarterly assessment in December 2006. It still expects the global economy to expand at a robust pace. This is also reflected in its global economic assumptions underlying the March inflation forecast. In light of persisting sectoral problems, the forecasts for US GDP growth have been revised downwards slightly for 2007 and 2008, but there has been no change in the assumptions about the economic situation in Europe.

In Switzerland, too, the economy continued to recover in the 2006–2007 winter half-year. Real GDP expanded further in the fourth quarter, and growth remained broad-based. However, economic growth as estimated by SECO was weaker than the SNB had expected on the basis of the generally favourable trend of business and the strong growth in employment. A number of indicators suggest that the economy remained buoyant in the new year. Survey results in manufacturing, for example, have remained positive thus far, and consumer sentiment has improved further.

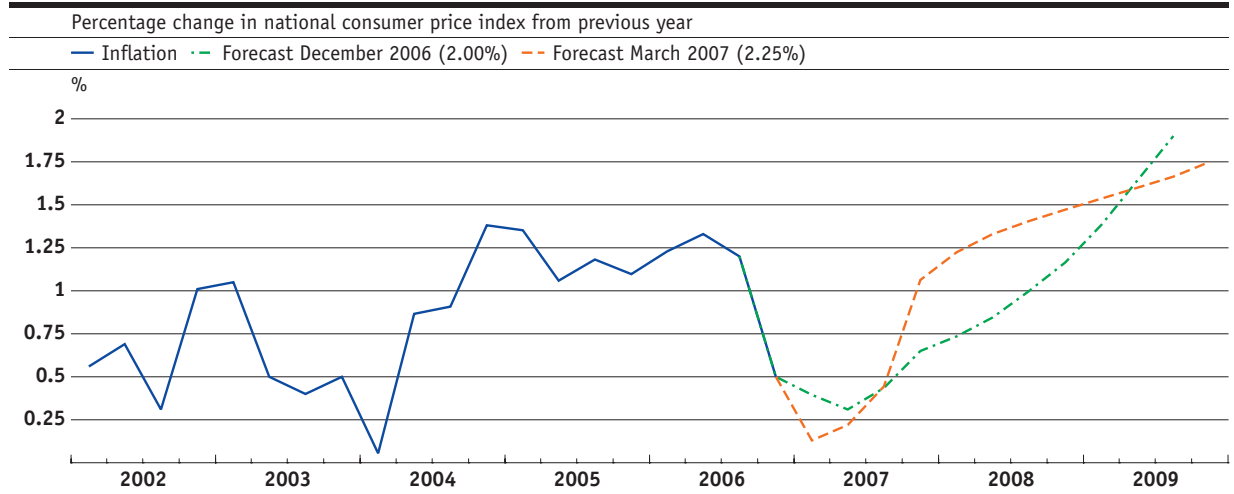
The SNB projects balanced economic growth of around 2% for 2007. This is slightly higher than estimated potential growth. The expected slight levelling off of global economic growth suggests that Swiss exports should grow slightly less than last year. By contrast, high capacity utilisation should give a further boost to equipment investment. Given the anticipated favourable income trend and the declining unemployment rate, private consumption should also remain an important driver of economic activity.

At its quarterly assessment in March, the SNB decided to lift the target range for the three-month Libor by 0.25 percentage points to 1.75–2.75% and to keep the rate in the middle of the target range for the time being, thus ensuring that the inflation outlook remains favourable.

According to the March inflation forecast, which is based on the assumption that the three-month Libor remains steady at 2.25% over the next three years, inflation will be slightly lower this year than was expected at the monetary policy assessment in December 2006. In mid-2007, annual inflation will start to increase slightly faster than the SNB predicted at that time. The reason for this is the development of the Swiss franc exchange rate, which partially neutralised the impact of the interest rate hike in December.

By increasing the three-month Libor by a further 0.25 percentage points, the SNB has maintained its monetary policy course of gradual normalisation. In order to ensure long-term price stability, it will probably have to continue with this policy. However, any assessment of the inflation outlook is subject to greater uncertainty. While, on the one hand, structural changes in the economy are having more of a dampening effect on prices, the high level of capacity utilisation and exchange rate movements, on the other, are exacerbating the risk of higher production costs increasingly being passed on to prices. Should circumstances change, the SNB will take appropriate measures.

Inflation forecast of December 2006 with Libor at 2.00% and of March 2007 with Libor at 2.25%



Inflation forecast of March 2007 with Libor at 2.25%

	2007	2008	2009
Average annual inflation in percent	0.5	1.4	1.6

1 Developments in the global economy

The global economy developed favourably over the winter of 2006–2007. In the fourth quarter, real GDP grew strongly in the euro area and Japan, while the US economy continued to grow at a slower pace. Despite extensive utilisation of production capacity inflation remained moderate. However, both purchasing managers indices – which lost ground in many countries – and the OECD’s leading indicators – which declined in the second half of 2006 – pointed to a slowdown. Monthly GDP consensus forecasts for the US and the euro area, which rose slightly until February, nonetheless showed that the economic trend was rated as robust (cf. table 1.1).

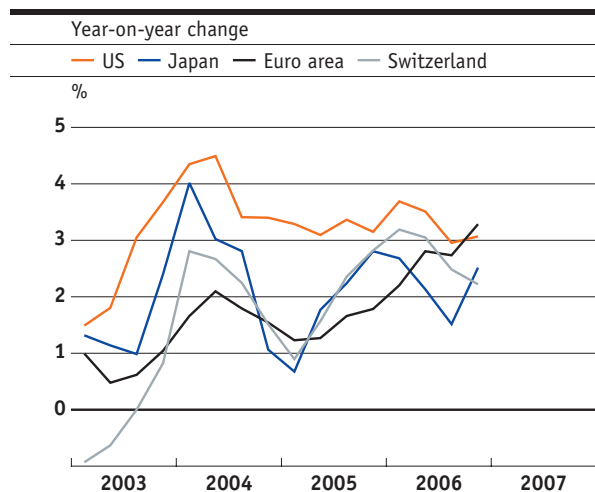
At the end of February, investors’ violent response to the sharp fall in share prices on the Shanghai stock exchange pointed to fears that the global economy could be levelling off to a greater extent than had so far been expected. Factors which contributed to this included in particular the persisting sectoral problems in the US economy and the renewed rise in oil prices in February. Thereafter, greater weighting was once again assigned to the risks on the financial markets, which had been marked by decidedly low volatility and low risk premiums.

Slowdown in US economic growth

In the US, economic growth remained slow in the fourth quarter. Real GDP rose by 2.2% compared with the previous period, which was roughly in line with the increase in Q3. In particular, the downturns in the real estate sector and the automotive industry had a dampening effect on the economy. Investment in housebuilding decreased, as to a slightly lesser extent did corporate investment. By contrast, private consumption, government spending – particularly in the military sector – and exports remained important sources of support for the economy.

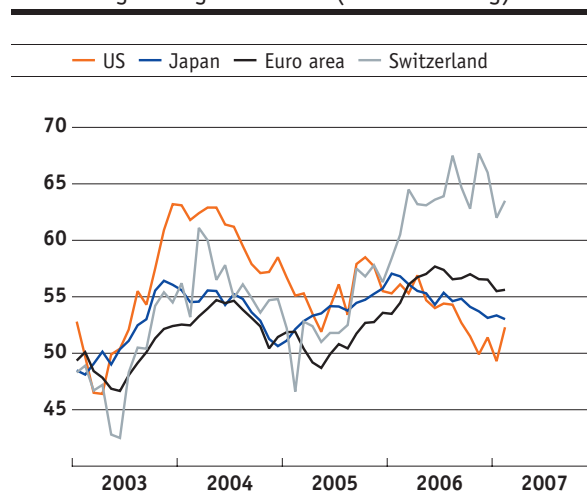
The US economy is only likely to grow moderately in the first quarter as well, as housebuilding and the manufacturing sector are still generating negative stimuli. However, during the course of the year, economic growth should climb back to the long-term average of around 3%. Private consumption should continue to improve thanks to the favourable trend of incomes and employment. Corporate investment can also be expected to strengthen again thanks to high capacity utilisation and the positive earnings situation.

Graph 1.1
Real GDP



Sources: State Secretariat for Economic Affairs (SECO), Thomson Datastream, SNB

Graph 1.2
Purchasing managers' indices (manufacturing)



Source: Thomson Datastream

European economy in full swing

In the fourth quarter, real GDP in the euro area increased by a steeper 3.6% after around 2% in the third quarter. Economic expansion was broad-based, with net exports making the largest contribution. A breakdown by countries shows that Germany and Italy recorded particularly strong GDP growth, although the pre-emptive effects of the forthcoming increase in VAT played a role in Germany. There was also a noticeable increase in the utilisation of production factors in the euro area. In January 2007, unemployment in the euro area fell to 7.4%, which is the lowest level recorded since EUROSTAT began compiling the data series in 1996. At the same time, utilisation of manufacturing capacity reached just over 84%, i.e. the same as in the boom year 2000.

In the first quarter, economic growth in the euro area should lose momentum slightly, in particular as a result of the tighter fiscal policies in place in Germany and Italy. However, the positive mood among entrepreneurs and consumers right up until the end of the reporting period, which was also reflected in sustained strong growth in lending, gives grounds for optimism.

Favourable economic trend in Asia

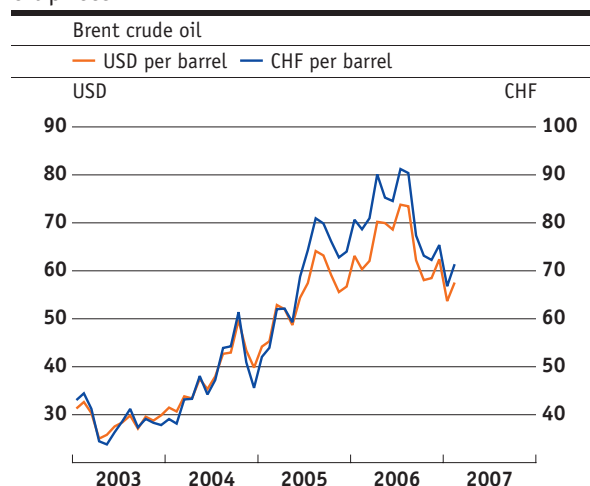
The Asian economy also performed well. In Japan, real GDP rose by 5.5% in the fourth quarter after a lull in the summer of 2006. Economic growth was driven mainly by private consumption, although exports and corporate investment also increased significantly. The weakening of the yen, coupled with strong demand from East Asia, should continue to support the economy during the current year.

The fourth quarter saw no change in the strength of China's real GDP growth, which was up 10.4% on the previous year. Although there has been a slight shift in economic momentum toward private consumption since mid-2006, investment and exports still made the largest contribution to growth.

The other East Asian economies also continued to power ahead.¹ Although exports declined as a result of falling demand for IT goods, this was offset by strong domestic demand. In January, exports picked up again and this, coupled with a number of other indicators, points to a robust economic trend in 2007.

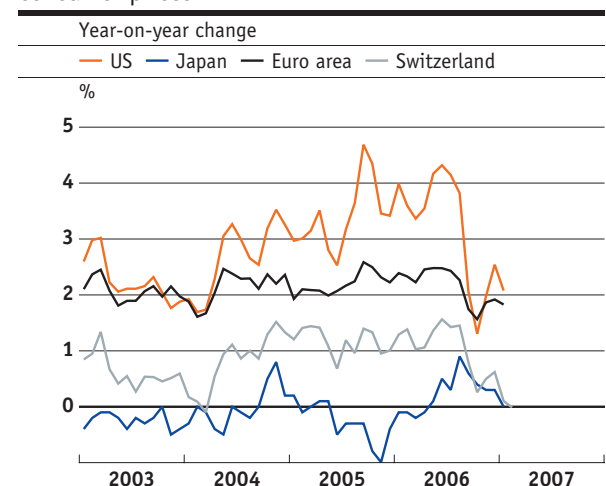
1 The information relates to Hong Kong, Korea, Taiwan and Singapore.

Graph 1.3
Oil prices



Sources: Reuters, SNB

Graph 1.4
Consumer prices



Sources: Swiss Federal Statistical Office (SFSO), Thomson Datastream

Slightly higher core inflation

From October to January, annual consumer price inflation in the G7 countries rose by 0.4 percentage points to 1.7%, after dipping to an annual low in October because of the fall in oil prices. Core inflation – which excludes oil and food prices from the basket of goods – inched up to 1.9%. This left it only marginally short of September's five-year high of 2%.

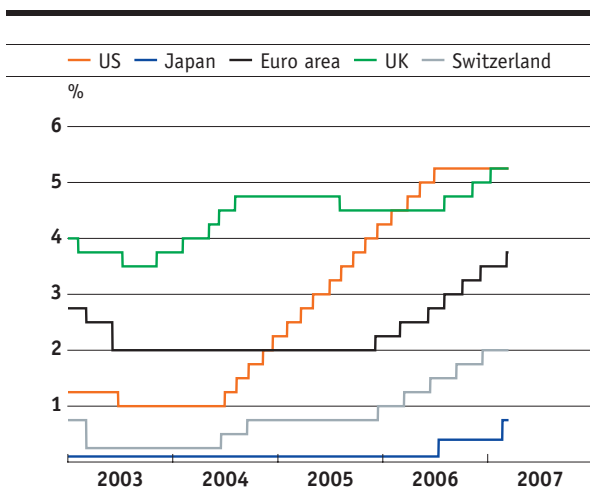
Unadjusted annual inflation fluctuated significantly more strongly in the US than in the euro area. After a fall to 1.3%, by January it had edged up by 0.8 percentage points to 2.1%, mainly because of baseline effects relating to oil prices. In the euro area, it increased only slightly to 1.8% (February), while in Japan it dropped back 0.6 percentage points to 0%. Core inflation varied considerably. In the US, it edged down 0.2 percentage points to 2.7%, whereas in the euro area it increased to 1.9% and in Japan it remained in the negative range (-0.2%).

Differing monetary policies

The monetary policies of the major industrialised countries varied in line with their differing positions in the economic cycle. The Fed, which had tightened its monetary policy sooner and more sharply than the European Central Bank (ECB) and the Bank of Japan, left its overnight rate at 5.25%. The main reasons it gave for the moderately restrictive monetary policy were the tight conditions on the labour market and the fact that inflation was still above the target range.

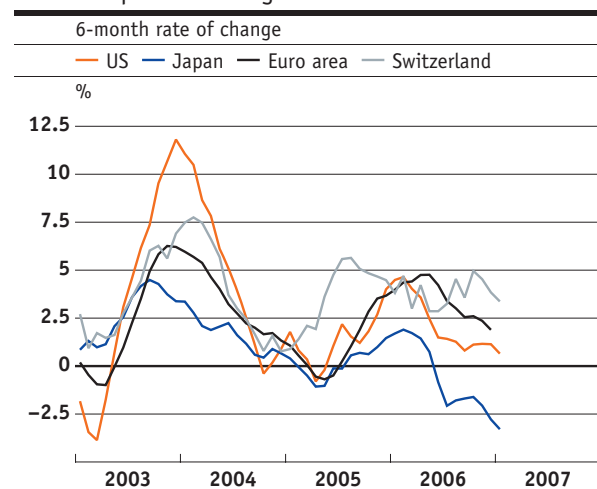
By contrast, in March the ECB raised its main refinancing rate by 0.25 percentage points to 3.75%, citing increased inflationary risks. Mounting wage pressure was one of the contributing factors. In light of the robust economic trend, February also saw the Bank of Japan raise its overnight rate by 0.25 percentage points to 0.5%. This was its first interest rate move since July 2006 when the overnight rate was raised to 0.25%. In its fifth such move in succession, China's central bank raised its minimum reserve rate slightly to 10% in a bid to counter the expansionary monetary operating environment.

Graph 1.5
Official interest rates



Sources: Thomson Datastream, SNB

Graph 1.6
OECD composite leading indicators



Source: OECD

Consensus forecasts

Table 1.1

	Economic growth ¹				Inflation ²			
	November		February		November		February	
	2007	2008	2007	2008	2007	2008	2007	2008
United States	2.5	–	2.7	3.0	2.3	–	1.7	2.3
Japan	2.0	–	1.9	2.3	0.4	–	0.2	0.6
Euro area	1.9	–	2.1	2.1	2.1	–	2.0	1.9
Germany	1.3	–	1.7	2.0	2.2	–	1.9	1.5
France	2.0	–	1.9	1.9	1.6	–	1.5	1.7
Italy	1.3	–	1.3	1.5	1.9	–	1.9	2.0
United Kingdom	2.4	–	2.6	2.4	2.2	–	2.3	2.0
Switzerland	2.0	–	2.0	1.9	1.0	–	0.6	1.0

1 Real GDP, year-on-year change in percent

2 Consumer prices, year-on-year change in percent

Source: Consensus Forecasts, November 2006, February 2007. Consensus forecasts are monthly surveys conducted among over 240 companies and economic research institutes in more than 20 countries, covering predictions for the expected development of GDP, prices and other economic data. The results are published by Consensus Economics Inc., London.

2 Development of the Swiss economy

2.1 Aggregate demand and output

Positive economic trend

The Swiss economy continued to follow a positive trend. According to estimates by the State Secretariat for Economic Affairs (SECO), the fourth quarter saw real GDP rise by 1.8% from the previous period, thus exceeding the corresponding year-earlier level by 2.2%. However, GDP growth was weaker than the SNB had expected on the basis of the generally favourable trend of business and the strong growth in employment.

Aggregate demand (without inventories) once again increased sharply compared with the previous period, with exports making the strongest contribution to growth. However, private consumption and equipment investment also continued to provide significant economic support, while construction investment and public sector spending fell back slightly compared with the third quarter. The sharp increase in aggregate demand was reflected in a massive surge in imports, with the result that foreign trade made a distinctly negative contribution to GDP growth.

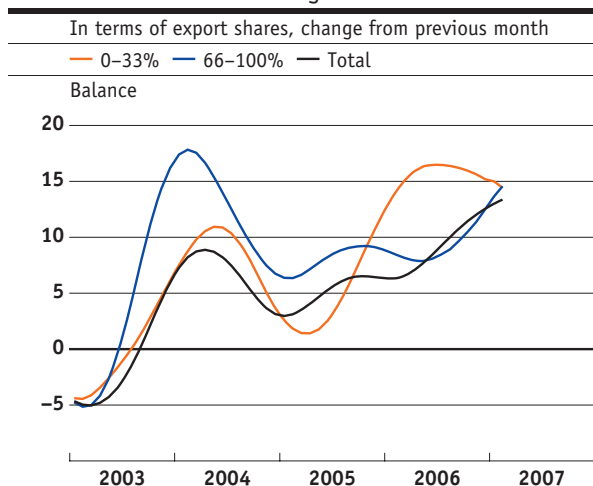
Banks as the most important growth driver

GDP trends by production sector, which is calculated by SECO, showed a strong recovery in added value generated by banks and insurers. Positive growth stimuli were also generated by the transport, hospitality and construction sectors, however. By contrast, the decline in added value generated by the retail sector dampened GDP growth, while added value created by industry stagnated at a high level.

A number of indicators suggest that the manufacturing sector remained buoyant in the fourth quarter and at the beginning of the new year. According to production figures published by the Swiss Federal Statistical Office (SFSO), manufacturing output increased by 10.6% compared with the third quarter, exceeding the year-earlier level by 9.7%. Orders continued to rise until the end of the reporting period, with both orders in hand and capacity utilisation rising to long-term peaks.

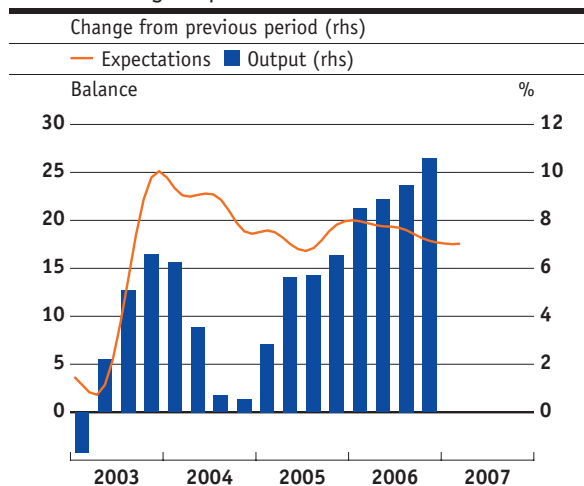
The outlook for the following months remained bright. As graph 2.2 shows, companies have scaled back their expectations in terms of new orders and production slightly. However, the relevant survey results are still well within the positive range, which means that industrial output can be expected to continue rising.

Graph 2.1
New orders in manufacturing



Source: Institute for Business Cycle Research at ETH Zurich (KOF/ETH)

Graph 2.2
Manufacturing output



Sources: SFSO, KOF/ETH

Real GDP and components
Growth rates on previous period, annualised

Table 2.1

	2003	2004	2005	2006	2005				2006			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Private consumption	0.8	1.5	1.3	1.9	2.4	0.7	2.7	2.4	1.5	1.7	2.3	2.2
Government consumption	2.6	-0.8	-1.6	-0.5	-2.3	-0.7	-2.6	0.2	2.1	-5.3	3.2	-0.9
Investment in fixed assets	-1.4	4.5	3.2	3.7	6.8	15.6	-5.5	0.8	3.0	10.3	5.3	2.0
Construction	1.8	3.9	3.5	0.1	9.7	27.6	-11.1	-3.6	-2.9	7.6	3.2	-1.9
Equipment	-3.9	4.9	2.9	6.9	4.6	6.2	-0.3	4.6	8.5	12.7	7.1	5.2
Domestic final demand	0.5	1.9	1.4	2.1	2.8	3.8	0.1	1.7	1.9	2.8	3.1	1.8
Domestic demand	0.4	1.5	1.1	2.2	0.9	-0.4	2.6	5.6	0.6	4.0	-6.3	12.7
Total exports	-0.4	8.4	6.4	9.9	0.5	26.7	7.7	9.8	13.1	0.5	11.7	14.1
Goods	-0.1	7.8	5.8	11.6	-0.9	34.2	-1.4	9.9	22.7	-0.9	15.0	15.9
Excluding valuables ¹	0.7	7.6	6.3	11.1	-3.9	38.7	-3.7	8.7	19.8	5.4	8.1	16.2
Services	-1.4	10.0	8.0	5.4	4.4	9.0	35.6	9.5	-8.8	4.5	3.0	9.1
Aggregate demand	0.1	3.7	2.9	4.8	0.8	8.0	4.3	7.0	4.8	2.7	-0.3	13.2
Total imports	1.0	7.4	5.3	9.9	-0.2	20.3	5.6	18.2	9.4	2.8	-4.6	43.5
Goods	2.2	6.4	5.5	10.6	-2.2	23.5	5.4	18.4	11.7	1.9	-5.8	50.2
Excluding valuables ¹	2.8	6.6	5.1	9.0	-1.0	20.3	5.3	16.1	14.0	0.0	-10.7	40.5
Services	-4.8	12.1	4.4	6.3	9.5	6.5	7.0	17.2	-1.5	7.6	1.3	13.6
GDP	-0.2	2.3	1.9	2.7	1.1	3.6	3.8	2.8	2.7	2.7	1.7	1.8

¹ Valuables: precious metals, precious stones and gems as well as objets d'art and antiques
Source: SECO

Good economic prospects for 2007

The 150 or so leading representatives of various sectors interviewed by the SNB delegates for regional economic relations between December and February were optimistic about the business situation and the outlook for the future. There was little mention of any slowdown in business. High capacity utilisation led to a greater willingness to invest in expansion and increase personnel numbers. The main concerns cited were the lengthening delivery times for commodities and primary products and difficulties recruiting qualified staff (cf. "The economic situation from the vantage point of the delegates for regional economic relations", March 2007).

For 2007, the SNB expects real GDP growth to average roughly 2%. This means that economic growth is still slightly higher than estimated potential growth, so unemployment should continue to decline. Demand remains broad based. The predicted slight levelling off of global economic growth suggests that Swiss exports should grow slightly less than last year. By contrast, high capacity utilisation should give a further boost to equipment investment. Private consumption should also remain an important driver of economic activity.

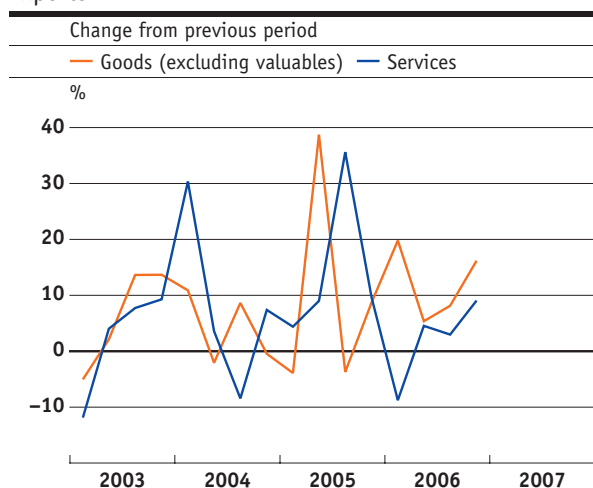
Sharp rises in exports and imports

Supported by the favourable international economic situation and the weakening of the Swiss franc against the euro, real exports of both goods and services showed a sharp quarter-on-quarter rise in the fourth quarter and were up 9.3% year-on-year. In the case of services, there was a particularly steep increase in commission income from banking business. However, income from tourism and merchanting also followed positive trends.

In the goods sector, almost all sectors exported more than in the third quarter, the exceptions being a small number of categories in the capital goods sector. On a regional level, too, demand remained broad-based. Within the EU, there was a higher-than-average increase in demand from southeastern Europe. In January, there were signs of a slowdown in export momentum, particularly in relation to exports of semi-finished goods.

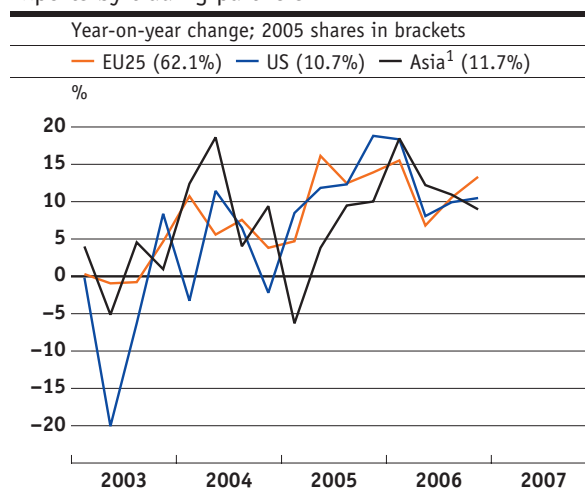
After a lacklustre development in the summer of 2006, the fourth quarter saw a massive increase in imports of goods and services compared with the previous quarter. On a year-on-year basis, the rise came to 8.8%. As imports increased significantly more strongly than exports, the contribution of foreign trade to GDP growth was negative

Graph 2.3
Exports



Source: SECO

Graph 2.4
Exports by trading partners



¹ Asia: Japan, China, South Korea, Hong Kong, Singapore, Taiwan, Malaysia, Thailand, Philippines, Indonesia
Source: Federal Customs Administration (FCA)

again for the first time for three quarters. This reflects the sustained broad-based economic upturn. Robust private consumption led to sharp rises in imports of consumer goods and – in the service sector – to significantly higher spending on tourism. In January, import growth slowed down, but imports of commodities and semi-finished goods in particular continued to expand strongly.

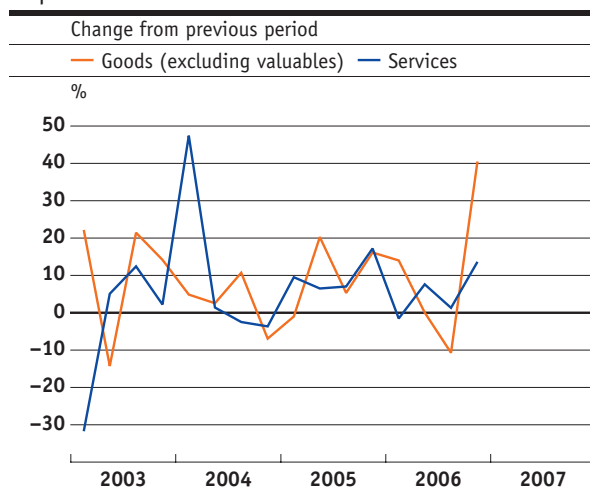
Robust growth in private consumption

Private consumption showed a significant quarter-on-quarter increase in the fourth quarter and was up 2.0% year-on-year. Consumption of both goods and services made positive contributions, with real retail sales up 1.5% year-on-year, despite a smaller number of shopping days. High sales figures were reported in particular for luxury

goods (watches, jewellery) and consumer durables (household furnishings). New car registrations have also increased steeply of late. The sharp rise in overnight stays by Swiss guests into December and continuing optimistic expectations in the hotel sector point to an unbroken upturn in domestic tourism.

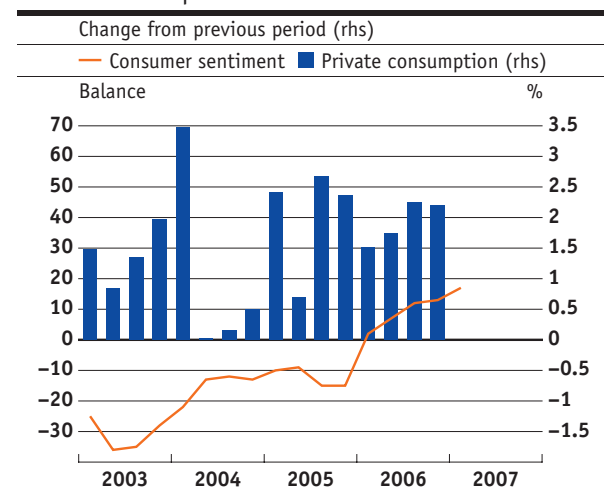
The consumer sentiment index continued to rise in January and was close to its record at the beginning of 2001. Improved perceptions of job security and income prospects were especially important factors contributing to the positive sentiment. Based on rising employment and higher real wages, the SNB expects real employee incomes to increase by 3.0% this year. This rise exceeds last year's estimated increase (+2.4%). This means that the uptrend in private consumption should continue.

Graph 2.5
Imports



Source: SECO

Graph 2.6
Private consumption



Source: SECO

Slight fall in construction investment

In the fourth quarter, construction investment declined slightly compared with the previous quarter, exceeding their year-back level by 1.4%. Having risen significantly more sharply than real GDP for four years, its annual average remained virtually unchanged. The stagnation is mainly attributable to lower investment in civil engineering and weaker growth in investment in commercial construction projects. Residential construction, however, continued to expand.

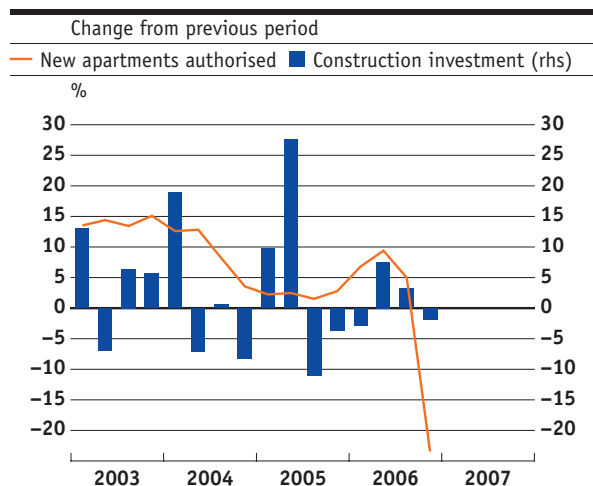
The next few quarters should see construction investment consolidate at a high level. The Swiss contractors' association's indicators point to a decline in growth in commercial construction activity, which is suffering from persistently high vacancy rates for office accommodation, while the civil engineering sector can be expected to see

a further decrease in construction volume. Investment in residential construction should stabilise at a high level following a fall in the number of building permits issued in the second half of 2006.

Rising equipment investment

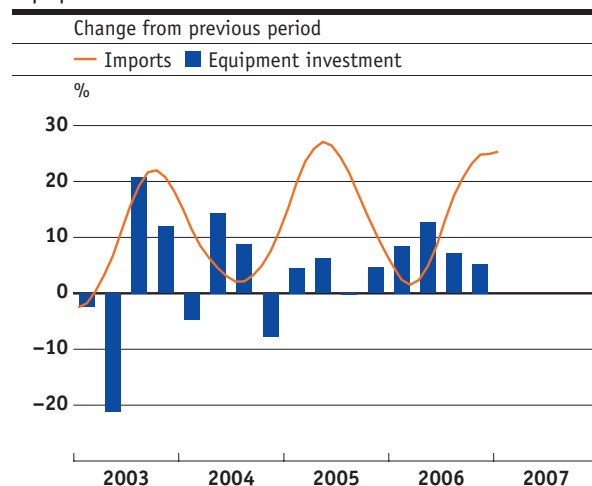
In the fourth quarter, growth in equipment investment was roughly on a par with the previous quarter, but down slightly on the first half of the year. The annual average rise came to 6.9%. Despite this robust increase, the ratio of capital stock to production is probably still low. This is consistent with the high level of capacity utilisation in manufacturing. Given good business results among companies and the favourable financing conditions, we should see sharp rises in equipment investment over the coming quarters.

Graph 2.7
Construction



Sources: SFSO, SECO

Graph 2.8
Equipment



Sources: FCA, SECO

2.2 Capacity utilisation

Further growth in utilisation figures

According to the quarterly KOF/ETH survey, utilisation of technical capacity in manufacturing stood at 88% in the fourth quarter, which is the highest level for over 15 years (graph 2.9). Accordingly, the companies surveyed described technical capacity as a greater obstacle to production growth than the availability of staff. A growing majority of companies said that they were expanding capacity (graph 2.9), which suggests that there will be little if any further rise in capacity utilisation. Unlike manufacturers, the construction companies covered by the quarterly survey by the Swiss Institute for Business Cycle Research at ETH Zurich regarded the availability of staff as a greater obstacle to production growth than technical capacity. By contrast, there were no reports of capacity shortages from banks or the hospitality trade.

Still slight production overhang

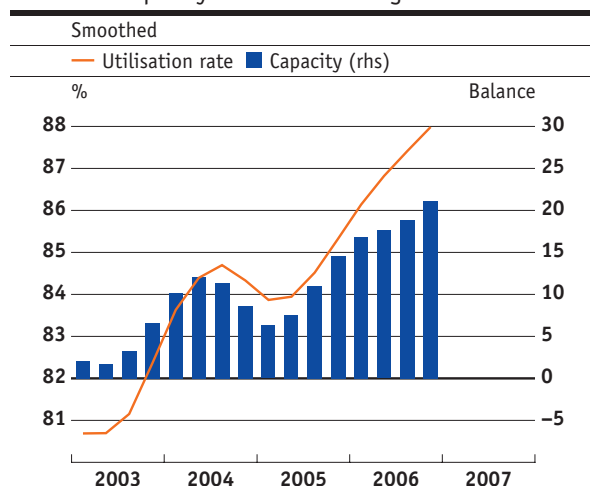
A more comprehensive measure of capacity utilisation in the economy is the output gap, which is calculated as the percentage difference between real GDP and estimated production potential. This

measure takes account not only of the manufacturing industry but of other sectors as well. Moreover, it provides an indication of the tightness of the labour market as well as utilisation of technical capacity. Graph 2.10 shows three estimates of the output gap based on different methods of estimating production potential: production function (PF), Hodrick-Prescott filter (HP) and multivariate filter (MV).

In the fourth quarter, real GDP grew by 1.8%, which is roughly in line with the production potential, thus leaving the output gap unchanged. The analysis of the production gap in accordance with the production function approach shows that only the high degree of utilisation of capital stock made a positive contribution.

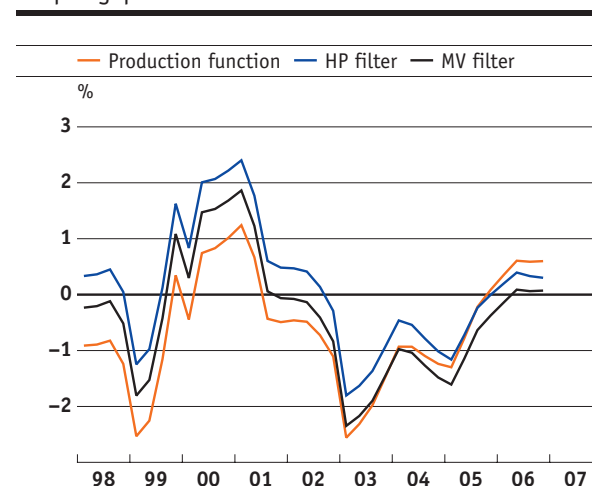
The production overhang is unlikely to increase much over the coming quarters. On the one hand, GDP growth can be expected to fall back towards potential growth, while on other hand two factors should lead to a slight rise in potential growth. Firstly, strong investment activity should boost growth in capital stock and secondly, the immigration of foreign workers, the rise in the participation rate and the decline in unemployment should bring about an increase in potential hours worked.

Graph 2.9
Technical capacity in manufacturing



Source: KOF/ETH

Graph 2.10
Output gap



Source: SNB

2.3 Labour market

Sharp rise in employment

The number of persons in employment rose strongly again in the fourth quarter. The increase came to 2.5% compared to the previous quarter and 1.6% year-on-year. While all sectors of the economy contributed to the growth in employment, manufacturing played the biggest part. There was also a substantial increase in job numbers in the construction industry and in the service sector. Within the service sector, growth in staff numbers was strongest in the financial services industry and – for the first time for a long time – in the wholesale and retail trade.

Graph 2.11 shows movements in employment in terms of full/part-time employment. Demand for labour once again increased in all three categories, but was strongest in the full-time segment. Converted into full-time positions, the volume of work rose by 2.9% in the fourth quarter, exceeding the level of a year previously by 1.6%.

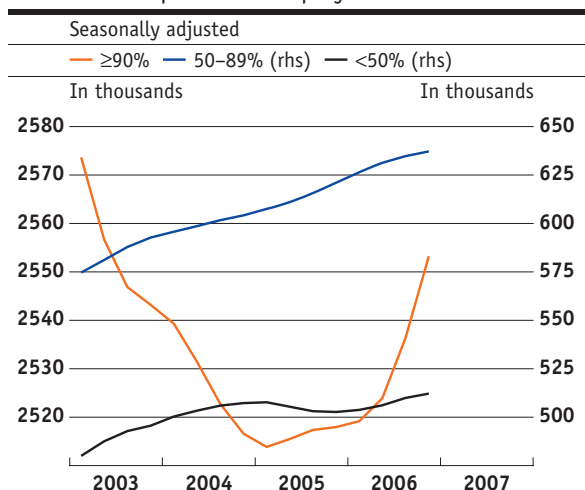
In 2006, the number of gainfully employed persons increased by a total of 100,000, two fifths of whom were foreign nationals. This meant that the proportion of foreign workers increased from 25.2% to 25.5%. In addition to immigration, the higher participation rate and the falling unemployment rate also contributed to the increase in the number of employed persons.

Unemployment eases and more job vacancies

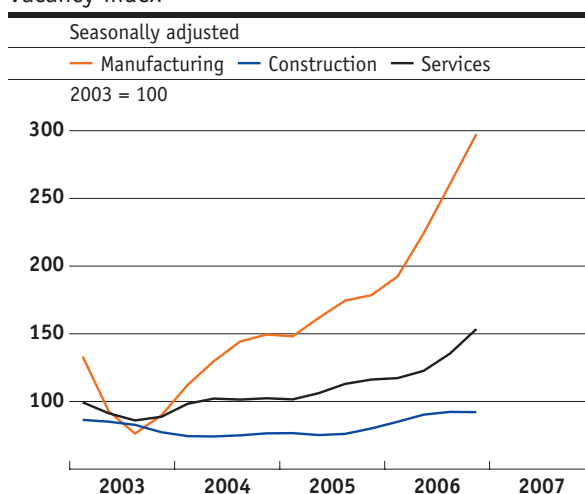
The seasonally adjusted unemployment rate dropped by 0.1 percentage points to 3.0% between November and February. Accordingly, 116,800 unemployed persons were registered with employment offices in February. In this period, the proportion of job seekers declined by 0.1 percentage points to 4.5%, or 179,200 persons.

As can be seen from graphs 2.12 and 2.13, the number of job vacancies rose both according to the statistics published by SFSO and according to Publicitas figures.

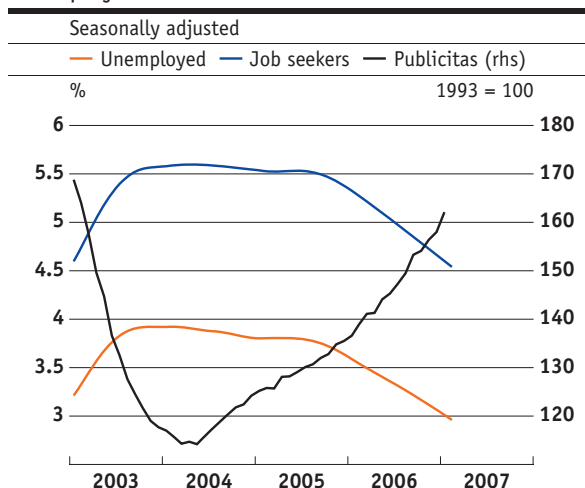
Graph 2.11
Full-time and part-time employment



Graph 2.12
Vacancy index



Graph 2.13
Unemployment rates and vacancies



Graphs 2.11 and 2.12:
Source: SFSO

Graph 2.13:
Unemployed and job seekers registered with the regional employment offices in percent of the labour force according to the 2000 census (labour force: 3,946,988 persons).
Sources: Publicitas, SECO

2.4 Goods prices

Pressure from producer and import prices subsiding

The price pressure exerted by producer and import prices on the downstream consumer level continued to decrease between October and January. Annual inflation of domestically produced goods decreased from 2.0% to 1.7%, while that of imported goods remained at around 3%. Broken down by types of goods, price pressure decreased in the case of agricultural products, inputs and consumer goods, while it was slightly higher for capital goods. Compared with October, energy prices in January were only slightly lower than in the previous year.

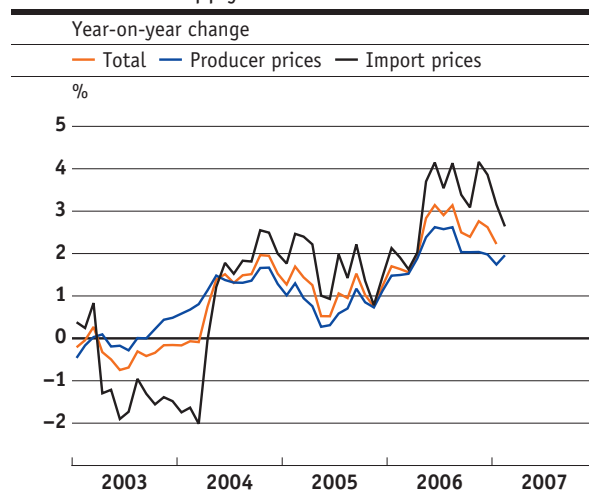
Further decline in consumer price inflation

Annual inflation measured by the national consumer price index (CPI) declined from 0.5% in November to 0.0% in February, which is the lowest level recorded since March 2004. Overall, it was below the SNB's inflation forecast of mid-December 2006. The unexpectedly sharp decline in oil prices had a major impact.

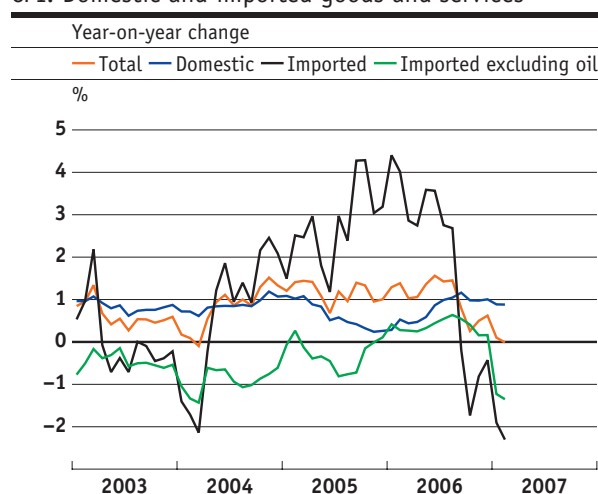
Domestic inflation slightly lower

Between November and February, domestic inflation subsided by 0.1 percentage points to 0.9%. Domestic goods once again had a dampening effect on prices and fell back more sharply than in the previous year (February: -0.7%), mainly because of falls in the price of processed foods and electricity. The quarterly rentals index showed a 1.0% rise between November and February, the net result being a 0.1 percentage point rise in the annualised rate of rent inflation to 2.3%. At 0.6%, February's inflation rate for other private services was slightly lower than in November, mainly as a result of falling prices for telecom services and scheduled flights. By contrast, prices increased in the hospitality and hotel sectors, as did those for hospital and transport services in the public sector.

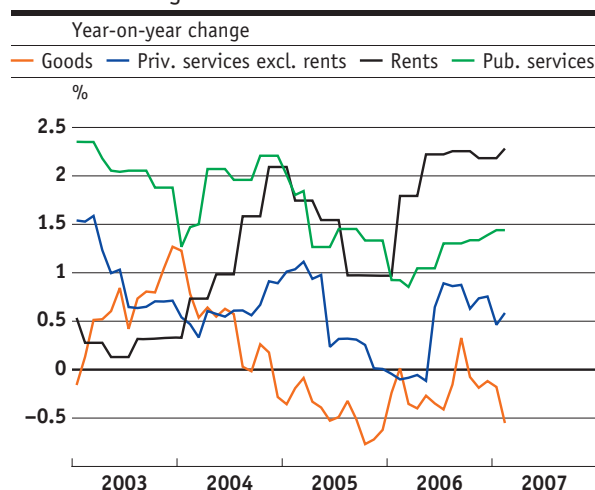
Graph 2.14
Prices of total supply



Graph 2.15
CPI: Domestic and imported goods and services



Graph 2.16
CPI: Domestic goods and services



Graph 2.14:
Source: SFSO

Graphs 2.15 and 2.16:
Sources: SFSO, SNB

Price drop for consumer goods with a high import share

The prices of consumer goods that are mainly imported declined significantly and were 2.3% below the year-earlier level in February, as against -0.8% in November. The steeper decline was primarily due to sizeable price cuts for clothing, shoes, consumer electronics and drugs.

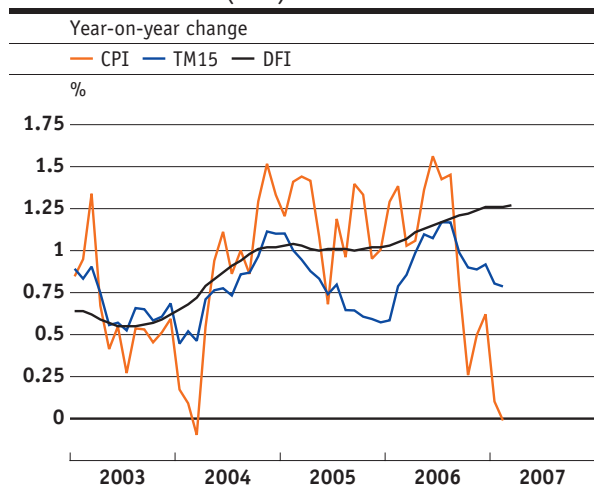
Core inflation rates giving mixed signals

Inflation, as measured by the CPI, undergoes numerous short-term fluctuations which may distort perceptions of the general inflation trend. For this reason, core inflation rates are calculated with the aim of capturing the longer-term price movements. The SNB computes two measures of core inflation, as shown in graph 2.17. The trimmed means method (TM15) excludes from the consumer price index, for any given month, those 15% of goods prices with the highest and those 15% with the lowest annual rate of change. Dynamic factor inflation (DFI) takes account not only of prices but of data on the real economy, financial market indicators and monetary variables. The two core infla-

tion rates calculated by the SFSO always exclude the same goods from the commodities basket in each period (graph 2.18). In the case of core inflation 1 (SFSO1), these are food, beverages, tobacco, seasonal products, energy and fuel. Core inflation 2 (SFSO2) also factors out products with administered prices.

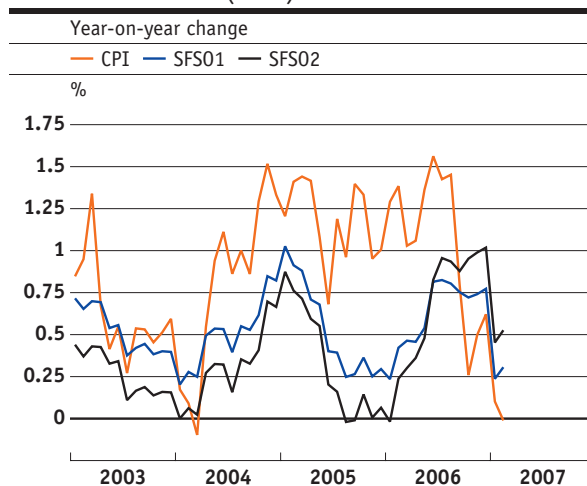
Core inflation calculated on the basis of the trimmed means method fell by 0.1 percentage points to 0.8% between November and February, which left it 0.4 percentage points lower than in August. Dynamic factor inflation, however, continued its slight upward trend, reaching 1.3% in mid-March compared with 1.2% in November. By contrast, there was a significantly more marked decline in the two core inflation rates calculated by the SFSO, which by February had fallen back by 0.4 and 0.5 percentage points to 0.3% and 0.5% respectively. The clear discrepancy between the SFSO's core inflation rates and the core inflation rate calculated on the basis of the trimmed means method is explained by the fact that the latter factors out the sharp changes in the prices of clothing and shoes, electricity and telecoms services.

Graph 2.17
Core inflation rates (SNB)



Sources: SFSO, SNB

Graph 2.18
Core inflation rates (SFSO)



Source: SFSO

National consumer price index and components
Year-on-year change in percent

Table 2.2

	2006	2006			2006		2007	
		Q2	Q3	Q4	November	December	January	February
Overall CPI	1.1	1.3	1.2	0.5	0.5	0.6	0.1	-0.0
Domestic goods and services	0.8	0.6	1.1	1.0	1.0	1.0	0.9	0.9
Goods	-0.2	-0.3	-0.1	-0.1	-0.2	-0.1	-0.2	-0.6
Services	1.1	0.9	1.4	1.3	1.3	1.3	1.2	1.3
Private services excluding rents	0.4	0.2	0.9	0.7	0.7	0.8	0.5	0.6
Rents	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3
Public services	1.2	1.0	1.3	1.4	1.3	1.4	1.4	1.4
Imported goods and services	1.9	3.3	1.7	-1.0	-0.8	-0.4	-1.9	-2.3
Excluding oil products	0.4	0.3	0.6	0.2	0.2	0.2	-1.2	-1.4
Oil products	9.3	18.1	7.7	-6.3	-5.2	-3.3	-5.2	-6.9

Sources: SFSO, SNB

3 Monetary developments

3.1 Interest rates and inflation expectations

At its monetary policy assessment in December 2006, the SNB decided to increase the target range for the three-month Libor rate by 0.25 percentage points to 1.50–2.50% with immediate effect. It announced that it would continue to pursue its strategy of a gradual normalisation of interest rates if the economy were to develop as anticipated.

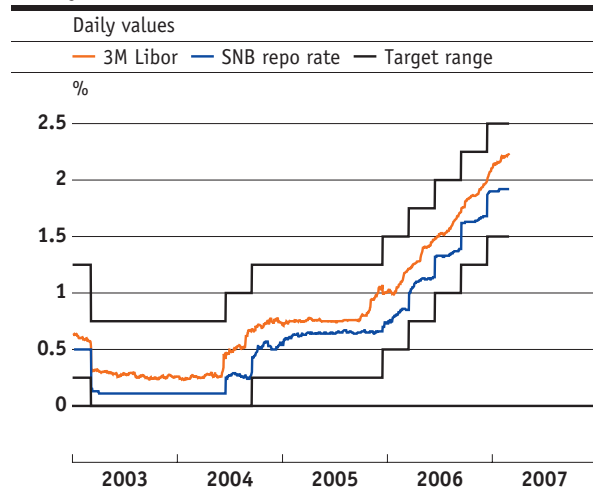
Further tightening of monetary policy expected

The trend on the money market between mid-December 2006 and mid-March 2007 showed that a further rise in the target band was expected. The three-month Libor rose continuously, climbing from 2.0% after the last interest rate decision to 2.25% in mid-March. These expectations were also mirrored in the futures market (cf. graph 3.2). At the end of February, the interest rate for futures contracts with a mid-March maturity was 2.26%, corresponding to an anticipated interest rate hike of 25 basis points. Rates for futures contracts maturing in June, September and December 2007 have risen slightly since the last assessment and stood at 2.46%, 2.56% and 2.61% respectively. Market participants were therefore expecting at least two 25 basis point increases in the interest rate target range by the end of the year.

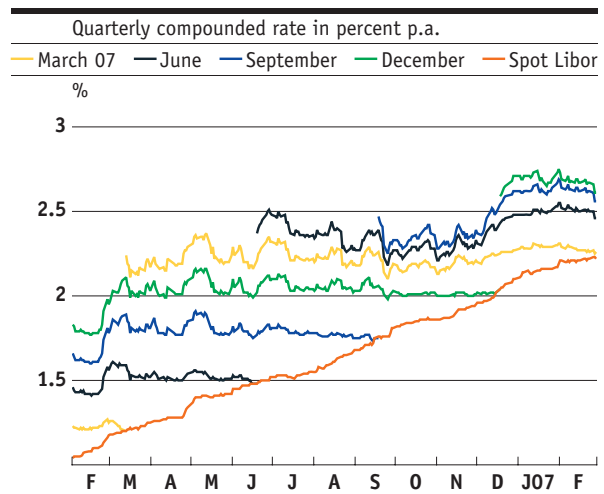
Contrasting movements in short-term interest rates

While short-term interest rates in Switzerland have risen by 25 basis points since the last assessment, the three-month Libor rate for investments in euros increased by 22 basis points from 3.68% in mid-December to 3.90% in mid-March. The interest rate differential between short-term Swiss franc investments and euro investments thus narrowed slightly from 1.68 percentage points in mid-December to 1.65 percentage points in mid-March. However, the rise in rates for short-term Swiss franc investments contrasted with a slight decline in short-term US rates, although the Fed has left its key rate at 5.25% since the beginning of August 2006. As a result, the interest rate spread between

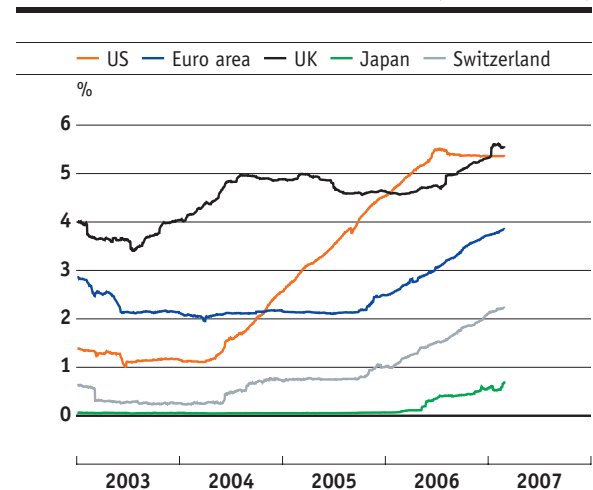
Graph 3.1
Money market rates



Graph 3.2
Three-month interest rate futures



Graph 3.3
International short-term interest rates (three months)



Graphs 3.1, 3.2 and 3.3:
Source: SNB

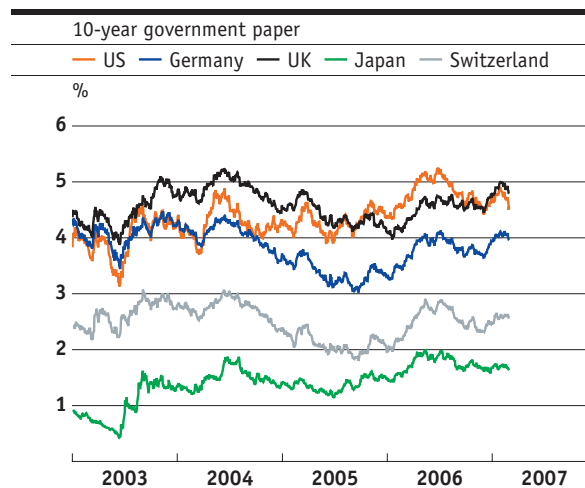
three-month Swiss franc and US dollar investments contracted again from 3.36 percentage points in mid-December to 3.10 percentage points in mid-March.

Long-term interest rates present mixed picture

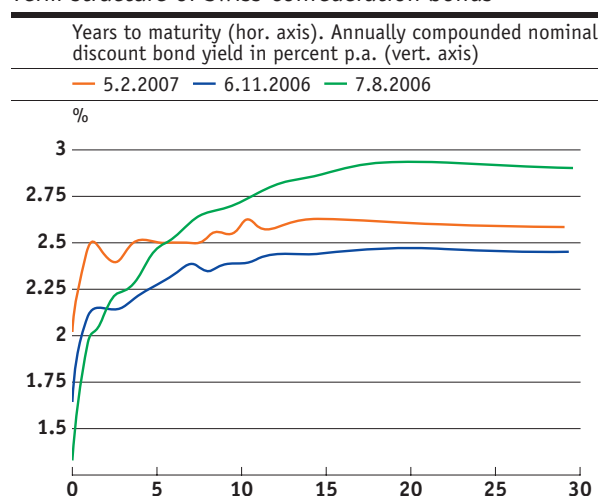
In contrast with the second half of 2006, long-term yields in Switzerland and Germany increased between mid-December 2006 and mid-March 2007 (cf. graph 3.4). The yield on ten-year Swiss Confederation bonds rose by 17 basis points in comparison with mid-December 2006 and stood at 2.61% in mid-March, while the same period saw yields on German government bonds rise by 13 basis points to 3.94%. By contrast, the yield on ten-year US Treasuries stood at 4.53% in mid-March, which was 7 basis points lower than in mid-December. The robust economic environment should enable interest rates to rise in Switzerland and the euro area in particular, while price losses on the stock markets and resulting higher demand for bonds have the opposite effect.

Graph 3.6 depicts the yields on nominal discount bonds with differing maturities issued by the Swiss Confederation. It shows that yields have risen across the whole maturity spectrum. Graph 3.5 shows that the yield curve is very flat for maturities of one year and over.

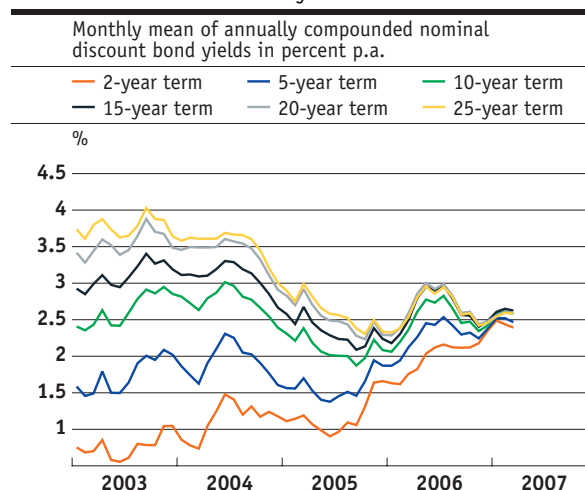
Graph 3.4
International interest rates



Graph 3.5
Term structure of Swiss Confederation bonds



Graph 3.6
Swiss Confederation bond yields



Graph 3.4:
Sources: Thomson Datastream, SNB

Graphs 3.5 and 3.6:
Source: SNB

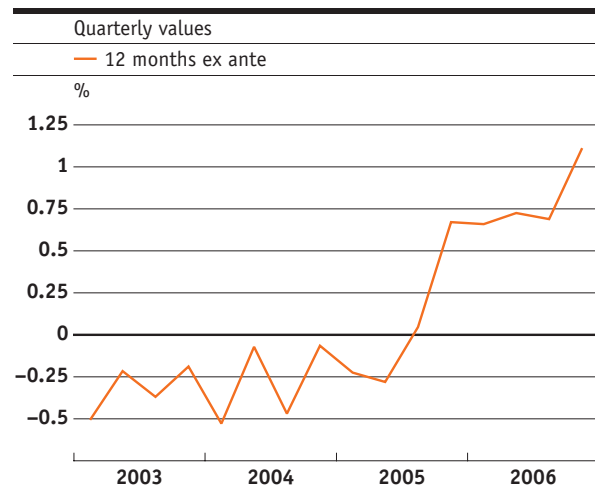
Rise in short-term real interest rates

Graph 3.7 shows movements in the one-year real interest rate. This interest rate is defined as the difference between the 12-month nominal interest rate and the expected rise in consumer prices during the period in question. Inflation expectations are taken as an average of the forecasts published by a number of different institutions (cf. "Consensus Forecast": February 2007).² In the fourth quarter of 2006, the real interest rate obtained in this manner stood at 1.1%, which was significantly higher than in the previous quarter (0.7%). Rising nominal interest rates and lower short-term inflation expectations, which were due to falling oil prices, were responsible for the increase. This means that the one-year real interest rate remains 50 basis points below its historical average of 1.6%.

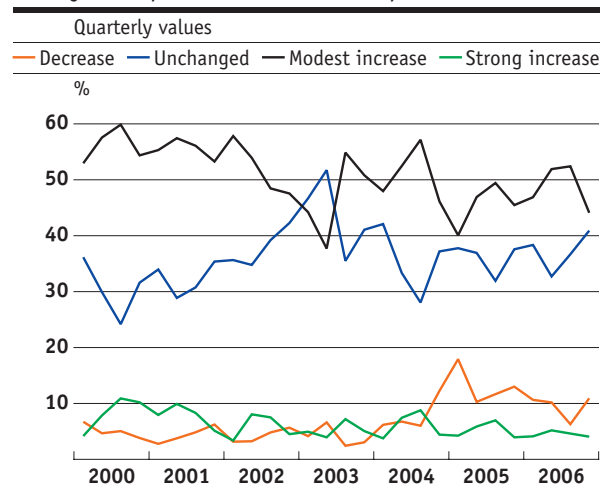
Lower short-term inflation expectations are also reflected in data on consumer sentiment published by SECO in February. The proportion of consumers expecting prices to rise over the next 12 months has fallen back in comparison with the previous quarter (c.f. graph 3.8).

² Cf. table 1.1

Graph 3.7
Estimated real interest rate



Graph 3.8
Survey on expected movements in prices



Graph 3.7:
Source: SNB

Graph 3.8:
Sources: SECO, SNB

3.2 Exchange rates

Volatile foreign exchange market

The euro has remained virtually unchanged against the US dollar since the monetary policy assessment of December 2006. During the period under review, the Swiss franc initially lost ground against the euro and in mid-February reached its lowest point since the introduction of the euro in 1999. A countermovement then ensued and the Swiss franc advanced again. By mid-March, the Swiss franc stood at 1.607 against the euro, versus 1.597 in mid-December. The US dollar appreciated slightly to CHF/USD 1.218 in mid-March, compared with CHF/USD 1.207 in mid-December.

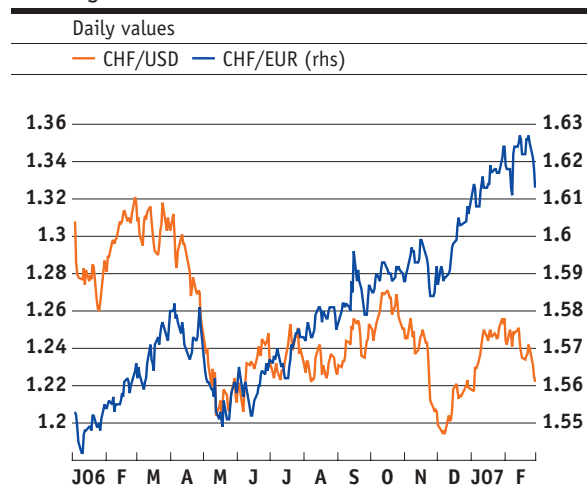
The export-weighted real external value of the Swiss franc, which takes international inflation differences into account, has lost ground since the last monetary policy assessment. In comparison with the euro area, it was at the same level as in the early 1990s. However, the Swiss franc has not weakened markedly in real terms against all currencies. Against Switzerland's 24 most important trading partners it is at the same level as at the beginning of 2000 (cf. graph 3.10). Switzerland's positive economic environment and high price stability should also have a supportive effect, particularly in relation to the euro area.

More expansionary monetary conditions

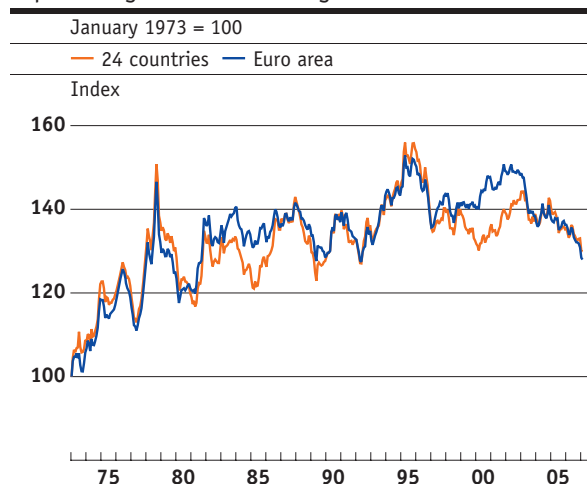
The Monetary Conditions Index (MCI) combines the three-month Libor and the trade-weighted nominal external value of the Swiss franc. It provides a measure of monetary conditions facing the Swiss economy. The MCI is reset to zero straight after each monetary policy assessment. An increase to positive values (decline to negative values) signifies a tightening (loosening) of monetary conditions (cf. "Box: The Monetary Conditions Index (MCI)", Monetary Policy Report 1/2004, p. 27).

If the changes in the three-month Libor and in the trade-weighted nominal external value of the Swiss franc are weighted 3:1, the index has persisted in the negative range since the December assessment, signifying that monetary conditions in Switzerland have become more expansionary (cf. graph 3.11). At the end of February 2007, the MCI stood at -15 basis points. This means that the steady rise in the three-month Libor rate has been more than offset by the decline in the trade-weighted nominal external value of the Swiss franc.

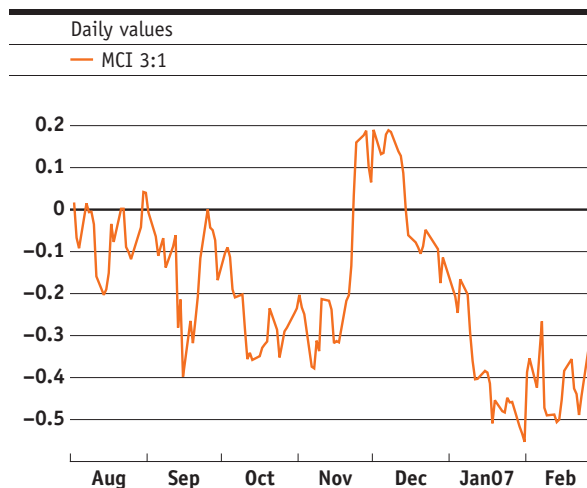
Graph 3.9
Exchange rates



Graph 3.10
Export-weighted real exchange rate of Swiss franc



Graph 3.11
MCI nominal



Graphs 3.9, 3.10 and 3.11:
Source: SNB

3.3 Equity, commodity and real estate prices

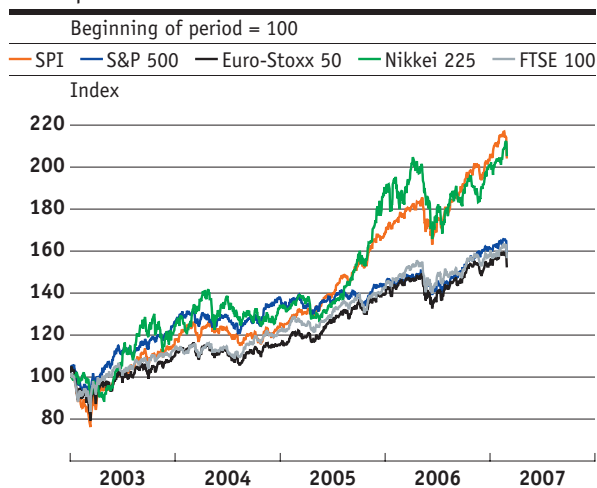
Trends on the equity, commodity and real estate markets can provide pointers to future inflation trends. Furthermore, price swings in these markets may trigger wealth effects which will in turn have repercussions on corporate and household savings and investments. Since the December 2006 assessment, real estate is likely to have had a positive impact on wealth. This could lead to higher private consumption and increased price pressure. On the other hand, most commodity prices – including oil – have declined, which has had a dampening effect on inflation expectations.

Greater uncertainty in the equity markets

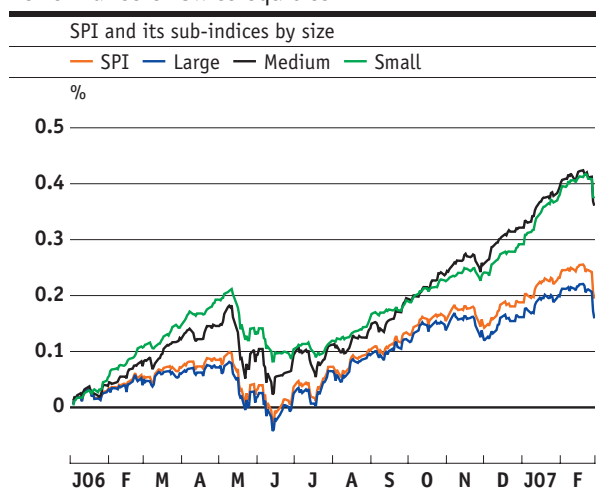
Between mid-December 2006 and mid-February 2007, most equity markets continued to make gains as a result of the positive global economic situation and temporarily reached new historical peaks. The US S&P 500 advanced by 2.2% between mid-December and mid-February and the European Euro-Stoxx 50 climbed by approximately 3.1%. Buoyed by all sectors, the Swiss Performance Index (SPI) made better progress than most markets with a gain of 6.8% (cf. graph 3.14), with valuations in the construction and manufacturing sectors rising most sharply. In general, the greatest gains were made by small and mid caps, which had already outperformed large caps during 2006. This was probably due mainly to the thriving export sector. The Swiss stock market generally benefited from high corporate earnings and dividend payments, mergers and takeovers, and a lower oil price.

At the end of February an abrupt counter-movement began. On 27 February, China's Shanghai Composite index plunged by 8.8% in the sharpest correction for a decade, and the international stock markets followed suit. The same day, both the SPI and the S&P 500 lost around 3.5%, while the Euro-Stoxx 50 fell back by a slightly more moderate 2.7%. The price correction also led to an upsurge in volatility in the equity markets – a sign of uncertainty (cf. graph 3.15). Having remained at very low levels between September 2006 and mid-February 2007, volatility rose significantly towards the end of February.

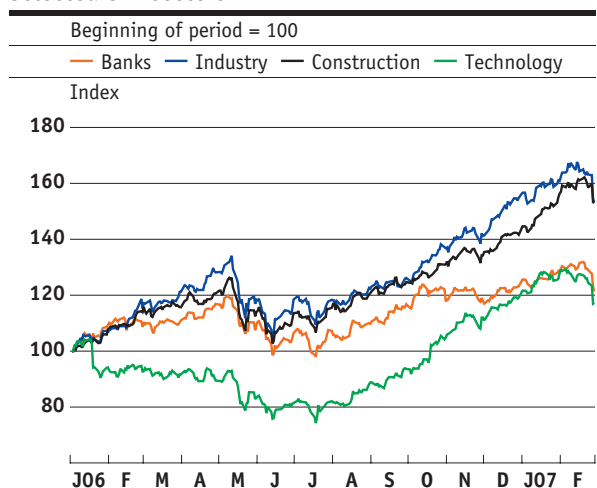
Graph 3.12
Stock prices



Graph 3.13
Performance of Swiss equities



Graph 3.14
Selected SPI sectors



Graph 3.12:
Sources: Thomson Datastream, Bloomberg

Graph 3.13:
Source: SWX Swiss Exchange

Graph 3.14:
Source: Thomson Datastream

Moderate price trend in the real estate market

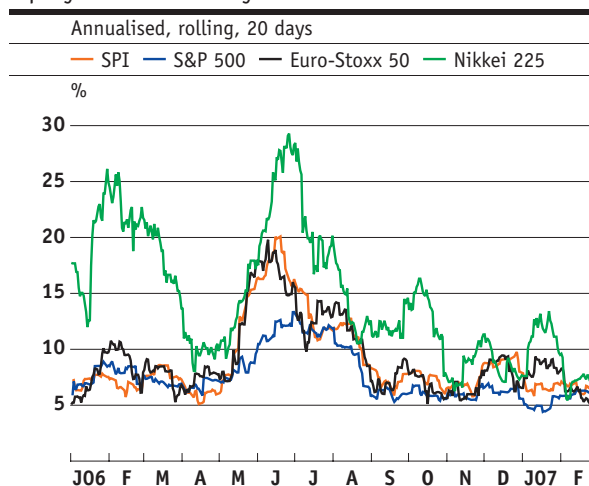
Prices in the housing market continued to follow a moderate trend in the fourth quarter of 2006. This was particularly apparent from apartment rents, which make up the biggest segment of the Swiss housing market. Rents also constitute the largest component of the CPI, accounting for roughly 20%. In the fourth quarter of 2006, apartment rents increased by 2.7% year-on-year in real terms (i.e. in relation to the CPI) as against 2.1% in the preceding quarter. However, it should be noted that this figure relates mainly to old apartments. Having fallen back by 1.8% in the third quarter of 2006, rents for new apartments increased slightly in the fourth quarter (0.2%). Developments in the single-family home and owner-occupied apartment segments may also be taken into consideration, though they account for a smaller share of the overall market. Prices for single-family homes and owner-occupied apartments moved in the same direction as apartment rents and were up 1.2% year-on-year in the fourth quarter. The supply in the housing market has so far kept up with demand, which has strengthened in line with economic conditions. The price trend over the coming quarters is expected to remain moderate, albeit subject to regional variations.

Trends in commercial rents were mixed. Whereas rents for commercial property went up by 3.3%, rents for office space dipped slightly for the third quarter in a row.

Falling commodity prices

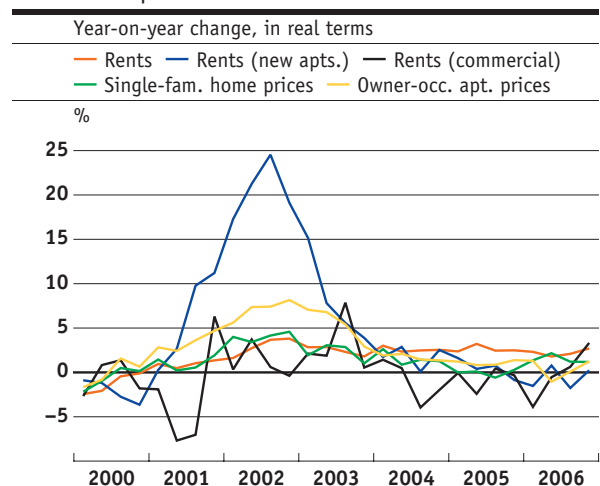
Most commodity prices were very volatile: prices fell in December 2006 and continued to fall until mid-January 2007, but have partially recovered since. In mid-March, the Goldman Sachs Commodity Index was 2.7% lower than immediately after December's monetary policy assessment. Gold in particular made a positive contribution, with a growth rate of 2.5% during the period under review, while energy prices followed a negative trend. In mid-December, the price of oil still stood at USD 62 per barrel, but it dropped to USD 51 for a time in January before recovering to USD 61 per barrel by mid-March.

Graph 3.15
Equity return volatility



Sources: Thomson Datastream, SNB

Graph 3.16
Real estate prices and rents



Source: Wüest & Partner

3.4 Monetary aggregates

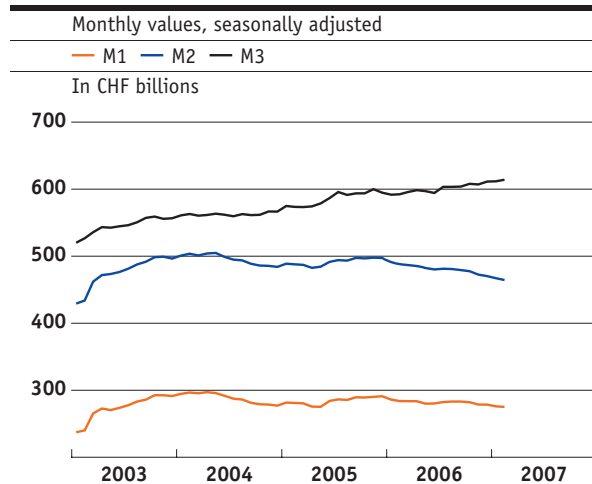
Higher growth in M3

In February 2007, the M3 money supply showed 3.6% growth in comparison with the previous year, largely due to a 44.9% rise in time deposits. By contrast, sight deposits, transaction accounts and savings deposits declined. This points to portfolio restructuring in a climate of rising interest rates. As in the preceding months, the M1 monetary aggregate (note and coin circulation, sight deposits and transaction accounts) and the M2 monetary aggregate (M1 plus savings deposits) continued to fall in February 2007 and were down 3.0% and 4.9% respectively on their year-back levels. While M1 has remained more or less constant since mid-2005, M2 is now more clearly below its level two years ago (cf. graph 3.17).

A way of assessing potential inflationary threats owing to an excessive supply of liquidity to the economy is to calculate a money overhang. There are various ways of doing this. Here, the ECM approach is used (see "Box: Money supply growth and inflation", Monetary Policy Report 1/2005, p. 33). An equilibrium money supply is calculated on the basis of the transaction volume in the economy and the opportunity costs of holding money. This serves as a benchmark for an appropriate supply of money to the economy. If the actual money supply exceeds this level, there is too much liquidity available and thus a danger of increased inflation in the

next four to six quarters. Graph 3.18 shows the percentage deviations of the M3 money stock from the calculated equilibrium value. In order to take account of statistical uncertainty, the money overhang is presented as a range that spans one standard deviation. Since the beginning of 2004, the zero line has been located between the upper and the lower money overhang. This suggests that there will be no monetary pressure on prices in the next few quarters.

Graph 3.17
Monetary aggregates



Source: SNB

Monetary aggregates¹

Table 3.1

	2005	2006	2005	2006					2007	
			Q4	Q1	Q2	Q3	Q4	December	January	February
Monetary base²	41.9	43.1	42.7	43.3	43.3	42.3	43.6	45.5	45.2	44.2
<i>Change³</i>	0.4	3.0	2.0	3.0	4.2	2.6	2.2	1.8	3.7	2.6
M1²	284.2	282.2	290.9	286.4	281.6	280.1	280.6	277.9	278.8	278.8
<i>Change³</i>	-1.5	-0.7	4.3	1.3	1.1	-1.5	-3.6	-4.3	-3.5	-3.0
M2²	491.6	481.4	497.5	491.7	483.1	476.9	473.7	470.0	471.0	469.2
<i>Change³</i>	-0.8	-2.1	2.5	0.1	-0.7	-2.9	-4.8	-5.4	-4.9	-4.9
M3²	585.9	600.6	595.9	595.4	597.7	600.7	608.5	611.3	615.1	616.7
<i>Change³</i>	4.2	2.5	5.5	3.3	2.9	1.7	2.1	2.8	3.4	3.6

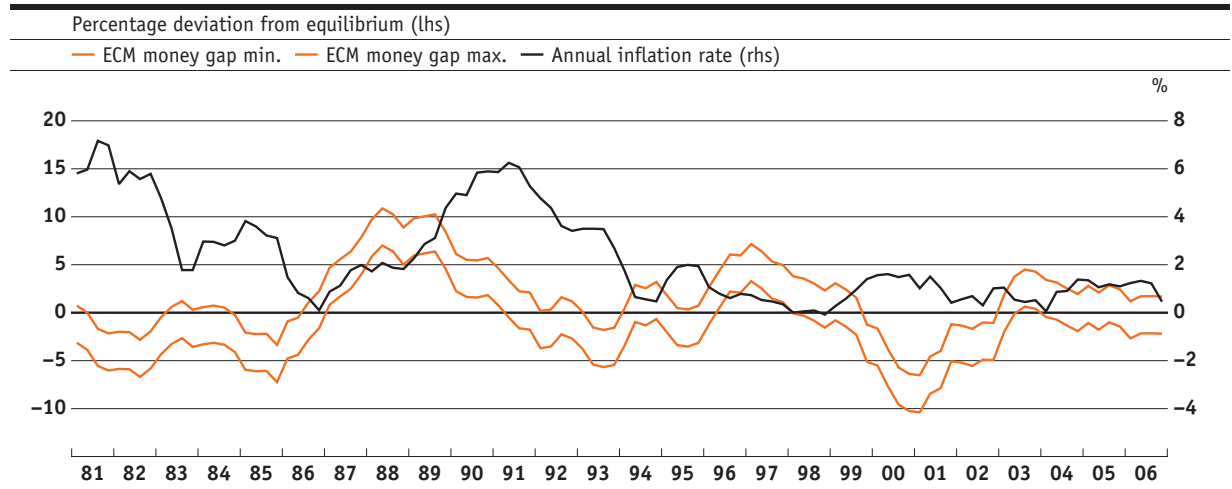
1 1995 definition

2 Level in CHF billions

3 Year-on-year change in percent

Source: SNB

Graph 3.18
 Money gap and annual inflation rate



Source: SNB

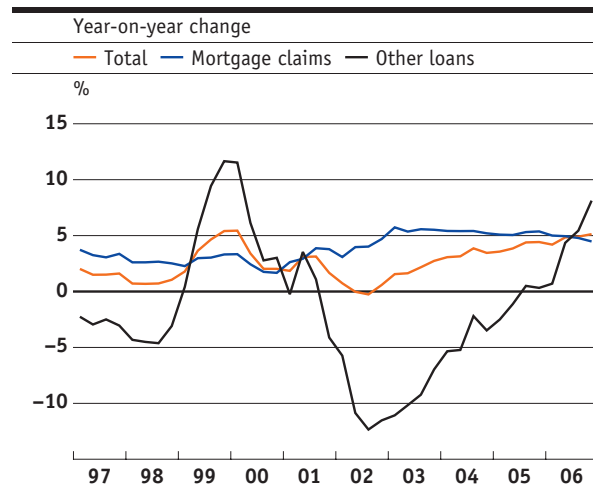
3.5 Loans

Stronger growth in lending

In the fourth quarter of 2006, loans followed mixed trends depending on the type of use. As graph 3.19 shows, mortgages, which account for the great majority (80%) of all bank loans, grew at an annual rate of 4.5%, i.e. less than in the third quarter of 2006 (4.8%). Mortgage lending to households expanded significantly again, though at a slightly slower pace than in the previous quarter, while growth in mortgage loans extended to companies remained sluggish (0.7%). After having contracted until mid-2005, other loans rose by a substantial 8.1% in the fourth quarter, mainly due to the steep increase in unsecured lending. Unsecured loans rose by 13.4%, following 9.3% in the previous quarter and negative growth rates from the third quarter of 2001 through to the first quarter of 2006. The brisk growth in unsecured loans indicates that the banks have been more willing to grant loans without requiring collateral in the current boom.

Overall, at 5.1%, growth in lending was up slightly on the previous quarter. As table 3.2 shows, this growth is attributable to a combination of increased lending to households and a faster rise in corporate loans.

Graph 3.19
Bank loans



Source: SNB

Bank loans

Year-on-year change in percent

Table 3.2

	2005	2006	2005 Q4	2006 Q1	Q2	Q3	Q4	November	December	2007 January
Total	4.1	4.8	4.4	4.2	4.8	4.9	5.1	5.2	5.2	5.0
Households	6.5	6.1	7.2	6.0	6.6	5.8	5.9	6.6	5.5	5.2
Companies	0.9	1.6	0.2	0.2	1.0	2.4	3.4	3.0	4.1	3.5
Mortgage claims	5.2	4.8	5.4	5.0	4.9	4.8	4.5	4.5	4.3	4.2
of which households	6.9	5.5	6.9	5.7	5.7	5.4	5.3	5.4	5.0	4.8
of which companies	3.1	1.2	2.8	1.8	1.5	1.3	0.7	0.2	0.6	0.8
Other loans	-0.7	4.6	0.3	0.7	4.4	5.4	8.1	8.7	9.6	8.9
of which secured	2.6	2.5	4.0	3.5	4.4	0.6	1.5	1.1	3.2	8.0
of which unsecured	-3.1	6.3	-2.4	-1.4	4.3	9.3	13.4	14.8	14.9	9.6

Source: SNB

Delay between money supply growth and growth in lending

In the euro area, recent quarters have seen a strongly positive increase both in the money supply aggregates and in lending. By contrast, Switzerland's money supply aggregates have either declined (M1 and M2) or have expanded only slightly (M3), while growth in lending has continued to increase. The connection between the money supply and lending can be determined more precisely on the basis of correlations.

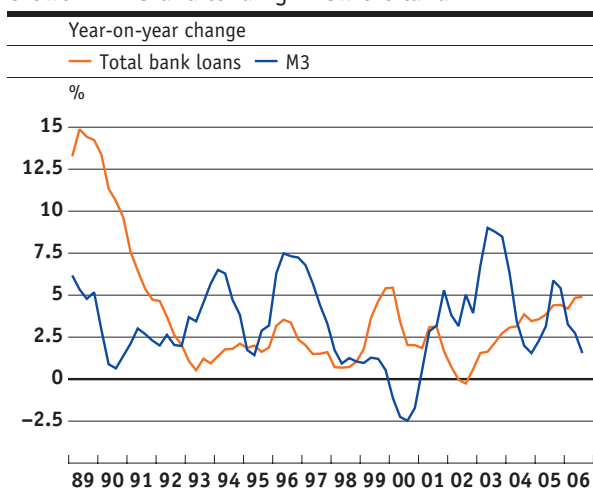
Graph 3.21 shows the cross-correlations between the M3 money supply growth and growth in lending in both Switzerland and the euro area.³ We confine ourselves to the money supply aggregate M3, as the ECB uses this as a benchmark along with the definition of price stability. An increase in the money supply should immediately lead to a rise in deposits with the commercial banks and hence to an increase in their balance sheet assets and liabilities. The commercial banks could convert the more extensive liquidity on the asset side into loans without delay. However, the lending portfolio responds more rigidly because the loans represent

financial contracts with differing maturities and low liquidity. Graph 3.21 shows that there is indeed no positive simultaneous correlation between growth in the money supply and growth in lending. Rather, the graph shows that the commercial banks wait several months before increasing their lending. The cross-correlations suggest that growth in the money supply has a delayed impact on lending: increasing growth in M3 in Switzerland and the euro area is not accompanied by an increase in lending until twelve quarters later. By the same token, this also means that a slowdown in the growth of M3 is only reflected in lower growth in lending twelve quarters later.

This might explain the current differences in the trends in the euro area and Switzerland. The euro area has seen pronounced growth in M3 over the last three years. This means that lending should also continue to increase. In Switzerland, M3 has been rising less substantially since mid-2006, but the time lag described above gives an indication of why lending is still expanding faster when viewed over time.

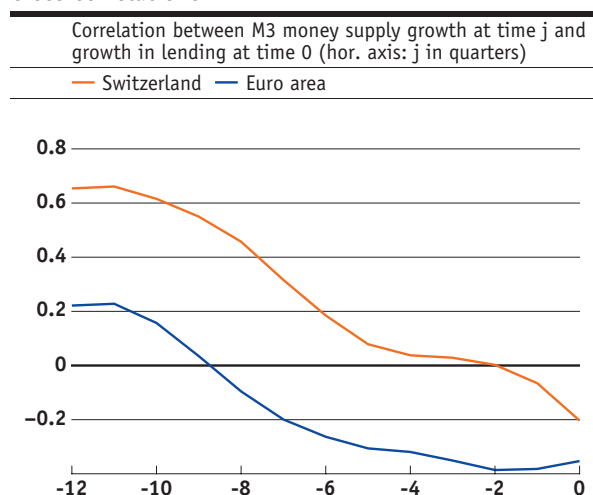
³ Data for lending in the euro area have only been available since 1998. The calculations are based on data from Q3 1998 to Q3 2006.

Graph 3.20
Growth in M3 and lending in Switzerland



Source: SNB

Graph 3.21
Cross correlations



Source: SNB

4 The SNB inflation forecast

Monetary policy impacts on production and prices with a considerable time lag. In Switzerland, monetary policy stimuli have their maximum effect on inflation after a period of approximately three years. For this reason, the SNB's monetary policy is guided not by current inflation, but by the inflation rate to be expected in two to three years if monetary policy were to remain unchanged. The inflation forecast is one of the three key elements of the SNB's monetary concept, together with its definition of price stability and the target corridor for the three-month Libor.

4.1 Assumptions for global economic developments

The SNB's inflation forecasts are embedded in an international economic scenario. This represents what the SNB considers to be the most likely development over the next three years. Table 4.1 contains the main exogenous assumptions and the corresponding assumptions underlying the December forecast.

Global economy remains robust

The global economic environment has only changed slightly compared with the last quarterly assessment in December. In light of persisting weakness in the real estate market and the automotive industry, the forecasts for US GDP growth have been corrected downwards slightly for 2007 and 2008, but there has been no change in the assumptions about the economic situation in Europe. In both economic regions, growth is still expected to be robust in the medium term, trending towards the potential growth rate of approximately 3% (US) and 2% (EU) by the end of the forecasting period. The assumption regarding the price of oil has been revised downwards slightly. A constant USD/EUR exchange rate of 1.30 is now assumed, as against December's assumption of USD/EUR 1.27.

Assumptions for inflation forecasts

Table 4.1

	2007	2008	2009
Inflation forecast of March 2007			
GDP US ¹	2.8	3.1	3.0
GDP EU15 ¹	2.3	2.2	2.1
Exchange rate USD/EUR ²	1.30	1.30	1.30
Oil price in USD/barrel ²	55.0	55.0	55.0
Inflation forecast of December 2006			
GDP US ¹	2.9	3.2	3.0
GDP EU15 ¹	2.3	2.2	2.1
Exchange rate USD/EUR ²	1.27	1.27	1.27
Oil price in USD/barrel ²	58.0	58.0	58.0

1 Change in percent

2 Level

Inflation forecasting as part of the monetary policy concept

The Swiss National Bank (SNB) has the statutory mandate to ensure price stability while at the same time taking due account of economic developments.

The SNB has specified the way in which it exercises this mandate in a three-part monetary policy concept. First, it regards prices as stable when the national consumer price index (CPI) rises by less than 2% per annum. This allows it to take account of the fact that the CPI slightly overstates actual inflation. At the same time, it allows inflation to fluctuate somewhat with the economic cycle. Second, the SNB summarises its

assessment of the situation and of the need for monetary policy action in a quarterly inflation forecast. This forecast, which is based on the assumption of a constant short-term interest rate, shows the CPI development expected by the SNB over the next three years. Third, the SNB sets its operational goal in the form of a target range for the three-month Swiss franc Libor. The target range provides the SNB with a certain amount of leeway, enabling it to react to unexpected developments in the money and foreign exchange markets without having to change its basic monetary policy course.

4.2 Inflation forecast for Q1 2007 to Q4 2009

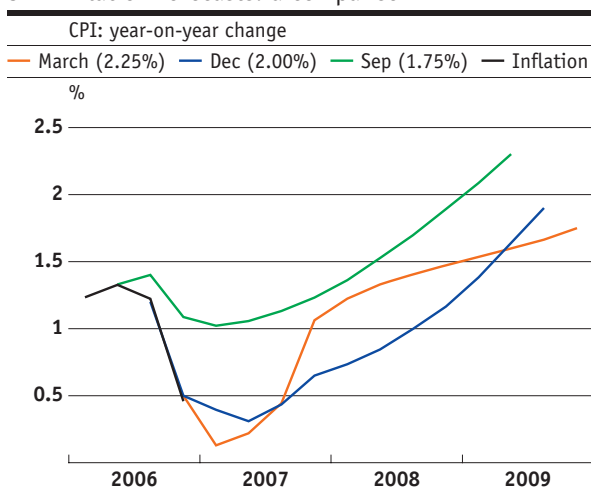
The quarterly inflation forecast is derived from the analysis of different indicators, model estimates and the assessment of any special factors. It maps the future development of prices on the assumption that the three-month Libor will remain constant over the forecasting period. Graph 4.1 depicts the inflation forecast of March 2007 alongside those of December and September 2006. The new forecast, which covers the period from the first quarter of 2007 to the fourth quarter of 2009, is based on a steady three-month Libor of 2.25%. This rate corresponds to the mid-point in the 1.75–2.75% target range for the three-month Libor rate, which the SNB lifted by 0.25 percentage points on 15 March. The December and September forecasts were based on a three-month Libor of 2.00% and 1.75% respectively.

The inflation prospects have changed since the monetary policy assessment in December 2006. In the current year, the inflation rate will be lower than expected at that time. Once the dampening effect on inflation emanating from the decline in oil prices in the second half of 2006 has waned, annual inflation will start to pick up again in the middle of 2007. This rise will be more significant than the SNB expected at the last assessment. The reason for this is the softening of the Swiss franc,

which has partially neutralised the impact of the last interest rate hike. This development in the Swiss franc will push up future inflation by stimulating the economy and increasing import prices. During the course of 2009, the new forecast will drop below the previous one again. This reflects the dampening effect of the latest interest rate decision. Although the inflation rate will remain below 2% until the end of the forecasting period – and thus within the range that the SNB equates with price stability – inflation dynamics will still be trending upwards over time. This shows that, even with a three-month Libor of 2.25%, monetary policy still has a slightly expansionary effect.

With its decision to increase the three-month Libor by 0.25 percentage points, the SNB has maintained its monetary policy course of gradual normalisation. In order to ensure long-term price stability, it will probably have to continue with this policy. However, any assessment of the inflation outlook is subject to greater uncertainty than in the past. While, on the one hand, structural changes in the economy are having more of a dampening effect on prices, the high level of utilisation of resources and exchange rate movements, on the other, are exacerbating the risk of higher production costs increasingly being passed on to prices. Should circumstances change, the National Bank will take appropriate measures.

Graph 4.1
SNB inflation forecasts: a comparison



The economic situation from the vantage point of the delegates for regional economic relations

Summary report to the attention of the Governing Board of the Swiss National Bank for its quarterly assessment of March 2007

The Swiss National Bank's delegates for regional economic relations are constantly in touch with a large number of enterprises from the different industries and economic sectors. Their reports, which contain the subjective evaluations of these companies, are an important additional source of information for assessing the economic situation. In the following, the most important results of the talks held from December 2006 to February 2007 on the current and future economic situation are summarised.

Summary

The talks held by the SNB delegates for regional economic relations with around 150 representatives from various economic sectors and industries were marked by optimism in the period from December 2006 to February 2007. Almost all participants thought that 2007 had got off to a good start after a largely excellent year in 2006 and most said they were expecting the current year to see further substantial sales growth. There was

little if any mention of a slowdown in business. In particular, there was greater optimism among representatives of the retail sector, who had been cautious until recently.

High capacity utilisation led to a greater willingness to expand capacity and personnel numbers in many sectors. Rising prices and lengthening delivery times for commodities and primary products were once again cited as the main concern. However, difficulty recruiting qualified employees was also increasingly mentioned.

1 Production

Manufacturing

Most of the industrial companies surveyed said the year had got off to a promising start. The high order rate was continuing and the backlog of orders, which many respondents described as being at record levels, was expected to drive production until well into 2007. Demand remained broad-based, with sales to Europe (Germany, Eastern Europe), Asia and Latin America following a particularly gratifying trend, while orders from the US were tending to lose momentum. The very high utilisation of production capacity was regularly mentioned. There were concerns over the lengthening delivery times for commodities and primary products which were leading to delays in companies' own deliveries.

The boom in the manufacturing sector benefited virtually all sectors, but especially plastics, medical technology and watchmaking. Manufacturers closely linked to the construction sector were also very satisfied with sales. The upturn was now extending to structurally weak companies with a strong focus on the domestic market. There was relief, too, at the decline in the value of the Swiss franc against the euro, which was putting companies in a better position to compete with strong foreign rivals.

Services

There was an improvement in sentiment in the retail sector. After a predominantly gratifying Christmas season, momentum continued into the new year, with little sign of any January lull. For the most part, footfall rates and spending per shopper were also up on the previous year. Weather-related falls in sales of winter clothing – some of them dramatic – were in many cases offset by higher sales of other sportswear. Most respondents attributed setbacks in specific segments to the huge expansion of retail floor space in 2006. Retailers in Switzerland's border regions benefited from the softening of the Swiss franc against the euro as this made cross-border shopping less attractive. The expansion of the luxury and low-price segments at the expense of the medium price range now appears to have been accepted, along with the sustained pressure on the price of many day-to-day necessities.

Most representatives of the hotel and hospitality sector took a positive view of the 2006–2007 winter season and remained optimistic about 2007. The lack of snow was causing problems for the lower-altitude mountain railways/cableways, but the losses in the hospitality sector were often less serious than feared as guests switched to other activities. In general, there was an increase not only in occupancy rates, but also in spending per guest. After an excellent fourth quarter, the representatives of the city tourism sector were very pleased with the trend of business and leisure tourism in the new year.

A positive picture also emerged from the talks with representatives of the business services sector, including the transportation, consultancy and IT service sectors. The companies surveyed in the IT sector had detected a substantial need for modernisation of both hardware and software and a resulting rise in demand for training. However, prices remained under pressure in all segments of the IT sector.

After an excellent year in 2006, the representatives of the banks were expecting another good financial year. Here, too, there was no mention of any foreseeable slowdown in business. Both the lending and asset management segments had been doing well thus far. The competitive pressure in the mortgages as well as the corporate loans segment was judged to be as great as ever, which meant that margins remained under pressure.

Construction

The construction companies surveyed still thought that business was going well, with high levels of new orders and orders in hand. Capacity was well utilised, leading to delays at times. In addition to the positive development of volumes, there was also evidence that customers were spending more, for example on interior finishing work. Some of the companies questioned thought that residential construction activity had peaked, but this was clearly not yet a source of concern. Some reported an increase in industrial construction activity, while assessments of the situation in the civil engineering segment differed from region to region.

2 Labour market

Many of the companies surveyed intended to recruit more staff, often in conjunction with investment in expansion. There were frequent references to serious shortages of qualified staff which were an obstacle to further expansion. Respondents regularly sought specialist personnel in the EU area.

Pay trends were increasingly an issue. A number of representatives from the manufacturing and service sectors reported sharp increases in wages, fuelled mainly by stiff competition when looking for technical and other specialist staff. Most companies saw this as an adjustment process after a long phase of modest pay rises.

3 Prices, margins and earnings situation

Most of the manufacturing companies surveyed found that profitability had improved significantly, mainly thanks to the good volume of business. By contrast, margins remained under pressure as sharp rises in the price of commodities, primary products (steel and plastic components) and energy could only partly be passed on to selling prices. Nevertheless, in comparison with previous rounds of discussions, more companies raised selling prices, or reported that price rises were on the cards. Strong international competition was still cited as the main reason why there was still little scope overall for price hikes.

Retail prices remained under pressure, particularly in the lower price segment. Wholesalers responded to the rise in the value of the euro with lower price offers on their procurement markets. Various representatives from the consumer goods sector also thought that there was no longer much scope for imposing higher product prices in Switzerland than abroad and attributed this mainly to the tremendous increase in price transparency brought about by the Internet.

The decline in the value of the Swiss franc against the euro provided an opportunity to improve margins in the manufacturing sector. At the same time, importers from the euro area experienced the downside of the Swiss franc's depreciation.

Seventy years after: The final collapse of the gold standard in September 1936

Jean-Pierre Roth,
Chairman of the Governing Board, Swiss National Bank

Opening remarks at the Conference "Seventy Years After: The Final Collapse of the Gold Standard in September 1936", University of Zurich, 15 December 2006.

I am pleased and honoured to open this conference on the final collapse of the gold standard in September 1936.¹ This event, 70 years ago, marks one key date in the history of the Swiss National Bank.

From the middle of the nineteenth century, gold played a pivotal role in Switzerland's monetary regime. It was central, as the foundation of the international monetary system and the anchor of the Swiss franc. And what is more, people took it for granted that the gold-based system would prevail. A hundred years later, after the Second World War, its role began to fade, although a gold parity of the franc continued to exist until 2000.

When the Swiss National Bank was created, in 1907, the international gold standard stood as a potent symbol of a world characterised by free markets and free movement of capital and labour. In the memorable words of Keynes "The inhabitant of London (...) could secure forthwith, if he wished it, cheap and comfortable means of transit to any country or climate without passport or other formality, could despatch his servant to the neighbouring office of a bank for such supply of the precious metals as might seem convenient, and could then proceed abroad to foreign quarters (...) bearing coined wealth upon his person (...). But, most important of all, he regarded this state of affairs as normal, certain, and permanent, except in the direction of further improvement, and any deviation from it as aberrant, scandalous, and avoidable."²

When Keynes wrote these words in 1919, the First World War had destroyed the old economic order. The international monetary system was in shambles, international trade was disrupted, and social and political unrest was making it hard to achieve any progress on economic issues. At the beginning of the war, Switzerland, like most other countries, had suspended the convertibility of its currency. Such a suspension, in a wartime emergency, was in line with gold standard thinking, as long as convertibility was resumed once the emergency had passed. After the end of the war, however, misalignments in price levels made it necessary to leave flexible exchange rates in place for the time being. Later, Switzerland was one of the countries to restore pre-war parity. In 1924, the SNB moved the exchange rate towards that goal, finally achieving it by the end of the year. Thus Switzerland was part of the gold-exchange standard that constituted the international monetary

system from about 1925 to 1931. In 1929, legislation was adopted to prepare the ground for a return to a pure gold standard, with convertibility of notes into gold coins. While this pure standard never actually came about, it demonstrates that Switzerland regarded gold as the natural foundation of its monetary regime.

The gold standard in the Great Depression

In 1929, at the outset of the worldwide economic downturn that led to the Great Depression, the dominant view in the Swiss government, and certainly in the SNB, was that depressions were unavoidable. A downturn must run its course until good times returned, as they inevitably would. But as the depression worsened, a hands-off policy of this kind became increasingly difficult to pursue. From 1931 onwards, the situation in Switzerland was aggravated by the decision of a large number of countries to come off gold. The British suspension of convertibility in the autumn of 1931 was followed by the countries of the Empire and the Scandinavian states. Then, in 1933, the United States allowed the dollar to float, before stabilising it again one year later at a vastly lower rate.

With the Swiss franc greatly overvalued against key currencies, the options were either deflation or devaluation. As the Swiss later realised, it would have been better to follow the British example. In 1931 and 1933, however, that option was not seen as the appropriate response. The SNB saw Britain's suspension of convertibility in 1931 as a regrettable step that could not last. Empirical evidence showing that Britain and others had fared better after devaluing their currencies was routinely dismissed with the argument that the structure of the Swiss economy was different, since it was highly dependent on imports. It seemed to both the SNB and the Swiss government that gold was the only stable element in a turbulent world, and that the only way to restore the competitiveness of the Swiss economy, therefore, was reducing domestic costs and prices.

As it turned out, the advocates of deflation miscalculated on several accounts. For one, they did not foresee that deflation would make very little progress over the coming years. Deflation policies were strongly opposed by labour and other special interest groups. Backed by the threat of referendum, this undermined the willingness of government and parliament to take an uncompromising stance. As a consequence, state interven-

1 These remarks have been prepared with the help of Mathias Zurlinden, Economic Analysis unit, Swiss National Bank.

2 John Maynard Keynes, "The Economic Consequences of the Peace", Harcourt Brace Jovanovich, 1920 (reprinted by Penguin Books, 1988).

tionism was on the rise, self regulation of markets was hampered and rigid price and cost structures protracted the depression. At the same time, it appears that the advocates of deflation policies overestimated the inflationary consequences of devaluation in the countries that did devalue. The SNB repeatedly warned of the inflationary effects of devaluation, yet price increases in the UK and the US were moderate and – until World War Two – neither country regained pre-depression CPI levels. As a result, the Swiss franc remained overvalued right through to 1936, with the extent of the overvaluation changing little throughout this period.

From a modern-day perspective, it may appear surprising that markets largely considered the Swiss government capable of staying the course, despite these difficulties. Most indicators suggest that the credibility of Switzerland's commitment to the gold standard was still intact after 1933. Its gold stocks had risen – modestly at first in 1929 and 1930, and then more dramatically in 1931, when many currencies had come under pressure and had to come off gold. Between 1933 and 1935 stocks decreased significantly but were still considerably larger at the time of the devaluation in September 1936 than they had been before 1931. The movement in forward premiums on the foreign exchange market suggests the same interpretation. The premium for the British pound against the Swiss franc was modest even at the time Belgium was forced to devalue in 1935, as well as during the spring and summer of 1936. Thus the likelihood of a devaluation of the Swiss franc was seen as relatively small.

Nineteen thirty-six

The devaluation, when it came in September 1936, was widely regarded in Switzerland as an externally imposed step. To many, it came as a shock, since over the course of many years the Federal Council and the SNB had been constantly emphasising their view that devaluation was no remedy. The decision to devalue by about 30 per cent was taken in the early afternoon of September 26, a Saturday, shortly after the devaluation of the French franc. This was followed the next day by a radio address to the nation, given by the President of the Confederation in order to reassure the Swiss people. His famous sentence, "One franc remains one franc," was intended to boost the public's confidence in the value of money. In the

following week, on the Monday and the Wednesday, respectively, the two chambers of parliament endorsed the decision of the federal government. After some heated debate in the parliamentary groups, voting on the issue had been by and large along party lines.

It is interesting to note how the policy reversal was explained to the public. The trigger, of course, was the French devaluation. Attention was drawn to a number of consequences of the French decision. First, the devaluation of the French franc was a further blow for the export industry and for tourism. Second, an unchanged Swiss franc parity would increase the risk of speculative attacks. Although the gold reserves were regarded as sufficiently large to hold out for some time, it could be assumed that speculation against the Swiss franc would begin right away. It was better, therefore, not to use up the gold reserves in a struggle that in all probability could not be won. The authorities conceded that the policy of the preceding years had not succeeded in restoring the competitiveness of the economy vis-à-vis the countries which had already devalued. Finally, they pointed out that the Tripartite Agreement between the American, British and French governments opened up the way for a new beginning and a more cooperative international framework. Surprisingly, perhaps, this argument was put forward as a crucial one in the early statements. However, it rapidly became clear that the hopes placed in the Tripartite Agreement might have been excessive.

With the devaluation of the Swiss franc, Switzerland's monetary authorities had reneged on a fundamental commitment. But in most other ways the monetary standard remained unchanged. The currency continued to be gold-backed, and the gold parity continued to be essential. The operating procedures had not changed and, in contrast to some other countries in that period, the relationship between government and central bank was not altered at the expense of the central bank. Thus, the devaluation was seen as a painful setback in Switzerland's monetary history, but not as the dawn of a new era.

Fixed exchange rates, of course, were carried over to the Bretton Woods system in the post-World War II world. And although Bretton Woods differed in many ways from the interwar gold-exchange standard, a central banker of the 1930s would have adapted without major difficulties to the world of the 1960s. The collapse of the Bret-

ton Woods system and the subsequent move to flexible exchange rates in 1973 were far more important events in the SNB's 100-year history than the devaluation of 1936. Indeed, the crisis of the international monetary system in the early 1970s essentially transformed the SNB's task and scope for action. Switzerland gained full control of its money supply, price stability became the primary objective of monetary policy and the legal framework of the SNB was gradually amended accordingly.

Beyond the gold standard

As I said at the outset, the role of gold has faded over the years. But gold had an afterlife long after it ceased to be relevant in any form for the conduct of monetary policy. First and foremost, the legal link between the Swiss franc and gold continued to exist until very recently. The constitutional changes that severed this link took effect in 2000, followed, within the same year, by the corresponding changes in the relevant law. The new law no longer includes an obligation on the part of the SNB to redeem banknotes for gold – an obligation which – in practice – had been suspended for decades. Moreover, it has abolished the minimum gold coverage of the banknotes in circulation and the gold parity of the Swiss franc. With these changes, gold finally became a normal and marketable asset for the SNB. In May 2000, the SNB began to sell part of its gold stock. About 50 percent of the gold once owned by the SNB has now been sold. I should emphasise that the SNB will continue to hold gold as a monetary reserve, but the legal relics of the gold standard era no longer immobilize the gold stock as they did for decades.

A second aspect of the afterlife of the gold standard is its presence in discussions on domestic and international monetary standards. In the 1970s and 1980s, when inflation was high and exchange rates volatile, a small but vocal group endorsed the gold standard as an alternative to the paper standard of the post-Bretton Woods era. Judged by practice, they were on the losing side. There appears to be a widespread consensus – both among economists and central bankers – that a gold standard generates few positive things that cannot be provided by other means. For one, the gold standard has all the drawbacks of fixed exchange rates. That is, monetary policy cannot be used to achieve domestic goals and the parities

are vulnerable to speculative attacks. Also, the gold standard has all the disadvantages of a commodity standard. In other words, the system is not only expensive to maintain, it also allows the supply and demand conditions for the commodity in question to affect the general price level.

Some advocates of the gold standard did not propose the gold standard as an international system but promoted it as a tool for solving domestic problems. In particular, they argued that the link to gold, by providing a credible anchor, would keep inflation under control. This argument is valid as far as it goes, but ignores the fact that a gold standard has its own credibility problems. If countries can tie their currencies to gold, they can also untie their currencies from gold. This is what happened in the 1930s. The markets know that and form their expectations accordingly.

For this reason, countries preferred to go other ways. In recent years, many of them have adopted clear mandates for their central banks which specify price stability as the primary goal. They then try to achieve this goal with some form of inflation target – be it implicit or explicit. Results have been good so far, although not all can be attributed to improved policy making. Some have argued that globalisation and the move towards more competitive markets have reduced inflationary pressures, thus making inflation targets easier to reach. But whatever the reasons, the results in recent years have been encouraging. I believe that as long as this continues, and central banks succeed in keeping inflation under control, the appeal of the gold standard will remain limited. But I have no illusions that commodity money will be discussed again as an alternative should central banks fail to achieve their goals and inflation rise to high levels.

In concluding, let me re-emphasise the fact that the devaluation of the franc was a major event in our monetary history. But although this devaluation was considered to be of great importance, it was not seen to herald the end of the gold-backed system. It took about 40 years – and many other difficulties – before flexible exchange rates were regarded as a feasible option, and more than 60 years before the gold parity of the franc was removed.

Today the 1936 devaluation remains vivid in the memory of the general public. The Swiss like to remember that their currency has only been devalued once since its creation in 1850. With or with-

out the gold standard, the history of the Swiss National Bank has been marked by a continuous search for a stable anchor. In order to protect the purchasing power of money and the price competitiveness of a country largely dependent on exports, monetary stability has been the overriding target of SNB policy throughout its one hundred year history. Of course, seen from a modern-day perspective, mistakes have been made and decisions taken too late – the 1936 devaluation can be seen as an example of this – but the fact that we can still use the set of coins introduced in 1850, when the franc was created, shows that Switzerland, thanks to prudent policy, has succeeded in avoiding the monetary disorders that have plagued so many European countries since the nineteenth century.

The pricing behaviour of Swiss companies: Results of a survey conducted by the SNB delegates for regional economic relations

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The price-setting behaviour of companies has become the subject of increasing attention in the past few years. This is largely due to two developments. Firstly, the trend towards micro-based models has resulted in analysts needing more detailed information about the behaviour of companies. Secondly, the growing competition unleashed by deregulation and globalisation may have changed pricing behaviour so that we felt it would be useful to know how things currently stand on this front.

The question of pricing behaviour is important for monetary policy because the imperfect flexibility of prices is the reason why output and employment can be influenced – temporarily at least – by monetary impulses. Central banks would like to know what impact their actions have on the economy and – in particular – how quickly inflation adjusts to its new equilibrium value after a monetary policy shock. One of the key determinants of the speed of this adjustment is the pricing behaviour of companies.

In practice, two approaches for investigating the pricing behaviour of companies have developed. The first approach is based on an analysis of the individual price observations that are collected for the purposes of compiling the consumer price index or the producer price index. Under the second approach companies are asked directly by questionnaire in an anonymous survey. The two approaches are mutually complementary and the SNB is currently continuing to work on both.

This paper is based on interviews which the SNB delegates for regional economic relations held with 67 companies between August and October 2006. The interviews concentrated on how these companies set the price of their main product. To facilitate the evaluation, a brief questionnaire was prepared to serve as a basis for the interviews.

1 Selection of companies

All told, 67 private sector companies from all regions of Switzerland were surveyed. Of these companies, 9% were from the construction industry. The remainder were divided almost equally between industry and the services sector. In terms of payrolls, the largest number of businesses surveyed were medium-sized companies (101–500 employees), followed by large companies (more than 500 employees) and small companies (less than 100 employees). This means that compared to the structure of the Swiss economy, small businesses and services companies are under-represented, while large businesses and industrial companies are over-represented.

For around half of the companies surveyed exports account for 50% or more of their total turnover. Just over two-thirds of the companies also state that the proportion of their turnover accounted for by long-term business relationships amounts to more than 50%. The intensity of competition is perceived by most of the contacts as intense. Around a half described the competition facing them in their primary market as “very strong” while 39% described it as “strong” and the remaining 12% as “weak”.

2 Results

2.1 Frequency of price reviews and changes

In order to investigate the degree of price flexibility, the companies were asked how frequently they review and adjust the prices of their main product. The answers to both questions cover a wide range. Most companies (44%) review the price of their main product once a year. Around a fifth said that they review their prices on a daily basis. Large companies tend to review their prices somewhat more frequently than smaller companies. The business sector and the degree of intensity of competition, on the other hand, appear to have had no significant effect on the answers. The reason most often cited for the frequency chosen was that more frequent reviews would upset the relationship with the customer (31%). It was also often mentioned that the frequency was not self-determined or that circumstances did not change so rapidly that more frequent reviews would make sense.

Overall, actual price adjustments occur less frequently than price reviews. Just over half the companies surveyed had adjusted the price of their main product either not at all or only once in the previous twelve months. The median was one. Various firms did, however, say that they adjust their prices more frequently than they review them. These probably include some which subject their price structure to an in-depth review perhaps once a year but in the periods in between allow their front-line staff some scope to set prices. A company may also decide to change prices and do so in several stages.

Companies were also asked whether they adjust their prices in accordance with a fixed cycle or whether the price-setting process is set in motion by specific events. These questions were prompted by the distinction between “time-dependent pricing” and “state-dependent pricing” which has figured prominently in the academic literature in recent years. According to this literature, the response of inflation dynamics to structural changes depends on which of the two forms of pricing predominates. With state-dependent pricing, a decline in trend inflation, for example, results in a flatter Phillips curve, whereas with time-dependent pricing the slope of the Phillips curve is not

affected by trend inflation (cf. Bakhshi, Khan and Rudolf, 2005). The answers from the companies surveyed suggest that most prices are adjusted periodically. Nevertheless, a quarter of those surveyed say that they do not only adjust their prices periodically but also react to events, and just under a quarter say that they react only to events.

In response to the question asking what factors are taken into account when setting the new price, most companies (43%) replied that they apply a margin to costs (mark-up pricing). A typical answer also frequently given was that the prices charged by their competitors played the main role in pricing (38%). This is the most frequent answer for companies which describe competition as "very strong". The remaining companies describe prices as being regulated or as being set by customers. The first group includes mainly companies in the pharmaceuticals sector.

Almost all companies grant discounts on list prices subject to certain conditions. These are generally bulk discounts. In many cases, though, discounts are also granted according to the time of the year or the state of the market. Some companies also state that they grant price reductions for strategically important orders or customers.

2.2 What prompts price adjustments

In order to obtain a better understanding of the reasons for price adjustments, the companies surveyed were asked what prompted them to change their prices. The answers reveal that the three most important factors are: the prices being charged by their competitors, the prices of intermediate products and the demand situation. Around 82%, 74% and 73% respectively describe changes in these three factors as either "very important" or "important" (cf. Table 1). Pressure from customers is also described by a majority (62%) as "very important" or "important". It therefore ranks well ahead of wage costs or the exchange rate. General inflation and interest rates are at the bottom of the rankings, which is likely to be attributable mainly to the fact that at present they are both close to historic lows.

The various factors are not of equal importance in all sectors of economic activity. Changes in demand appear to be more important as triggers for price adjustments in the services sector than in industry. The same applies to changes in wage costs. Precisely the opposite is true, however, for prices of intermediate products, the exchange rate or pressure from major customers. Changes in these three factors are more important as triggers for price adjustments in industry than the services sector.

In addition, an analysis by types of company suggests that companies that are exposed to very strong competition pay greater attention to changes in the prices charged by competing companies and to changes in demand than companies operating in a less competitive market. The opposite is true for changes in the prices of intermediate products. Such changes are regarded as playing a less important role by companies that are exposed to very strong competition than by companies that are exposed to less intense competition.

The proportion of long-term business relationships in total turnover also plays a role in the weighting of the individual reasons. Thus it emerges that companies with a high proportion of long-term business relationships are less inclined to mention changes in demand as a "very important" or "important" reason for adjusting prices than companies with a low proportion of long-term business relationships.

Reasons for price changes

Table 1

	Percentages “very important” or “important”
Price changes by competitors	82%
Change in prices of intermediate products	74%
Change in demand for product/service	73%
Pressure from major customers	62%
Change in wage costs	49%
Change in quality	48%
Change in exchange rates	46%
Sales campaigns	26%
Directives from parent company or authority	18%
Change in taxes and other charges	16%
General inflation (e.g. consumer price index)	16%
Change in financial costs	12%

Theories of price rigidities

Table 2

Theory	Description	Percentages “very important” or “important”
Customer relation	Prices cannot be changed more frequently without the customer relation being harmed.	69%
Cost-based pricing	Prices depend on costs and do not change unless costs change.	66%
Explicit contracts	Fixed-price contracts make it difficult to adjust prices frequently.	45%
Kinked demand curve	Company loses relatively many customers when it increases prices and gains few when it cuts prices.	42%
Non-price adjustments	Companies adjust other product features rather than the price.	40%
Coordination failure	Companies do not want to be the first to raise prices.	31%
Pricing thresholds	There are psychologically important price thresholds (e.g. 49.95 versus 50.05 francs).	21%
Cash flow	Prices must be kept up in a recession in order to generate sufficient cash flow for investment.	12%
External financing premium	Prices must be kept up in a recession since the costs of external financing increase.	11%
Menu costs	It would be too expensive to change prices more often (e.g. information gathering, reprinting catalogues, etc.).	10%

2.3 Factors explaining price rigidity

Economic theory offers a number of explanations for the imperfect flexibility of prices. In order to find out which of these theories are regarded by the companies as relevant, the theories were described in simple language and submitted to the contacts. The question was then whether the argument in question could prevent the company from adjusting the price. This approach was first used by Alan Blinder (1991) in an interview study of US companies. A number of investigations for other countries followed this example. Our selection and description of the theoretical explanations is mainly based on Amirault et al. (2004) and Apel et al. (2005).

The results, summarised in Table 2, reveal that the risk that the customer relationship might be harmed if prices were to be adjusted is seen as the strongest argument for not adjusting prices ("customer relation"). This suggests that implicit contracts provide a good explanation for nominal rigidities. Another finding which points in the same direction is that evidently companies often refrain from adjusting prices unless costs have changed ("cost-based pricing"). This reveals that it is important for those companies to be able to cite checkable reasons for adjusting prices. It also emerges from the SNB delegates' detailed reports on selected companies that it is easier for companies to increase prices if they are able to cite a rise in costs than if there has simply been a change in demand.

It also emerges, as expected, that concern for customer relationships is cited as a reason for the relative rigidity of product prices more frequently by companies that are exposed to less intense competition than by companies who are faced with very strong competition. Much the same is true for companies with a large proportion of long-term business relationships. These companies view the risk that the customer relationship could be harmed as a stronger argument against adjusting prices than companies whose long-term business relationships account for a small proportion of their turnover.

The costs associated with reviewing and adjusting prices ("menu costs") appear not to play any great role in the eyes of the companies surveyed. This is noteworthy, since in the literature (General Equilibrium Models) menu costs are the most popular way of modelling nominal price rigidities. The theories that attribute price rigidities to imperfect financial markets ("cash flow", "external financing premium" in Table 2) find little support either.

Concluding remarks

All in all, a very wide spectrum of behaviour emerges from the interviews with the companies on their pricing. A number of trends did become clear, however. Most companies adjust their prices at fixed intervals, with the average (median) company changing the price of its main product once a year. Nevertheless, a significant proportion also, or even only, reacts to special events. This means that, although so-called time-dependent pricing is the rule, state-dependent pricing also plays an important role. Whereas mark-up pricing still dominates when it comes to setting the new price, the most frequently mentioned triggers for price adjustments are changes in the prices charged by competitors. Changes in the prices of intermediate products and changes in demand follow only a short way behind, however, suggesting that both supply and demand factors play an important role. The most frequently cited arguments for not adjusting prices are implicit and explicit contracts and cost-based pricing. Concern for the customer relationship therefore appears to play a key role in companies' thinking on pricing.

Overall it is evident that the typical firm surveyed operates in a market in which imperfect competition prevails, which ultimately offers scope for individual pricing behaviour. Although changes in pricing behaviour over time were not a primary concern of the survey, they were mentioned occasionally. A great deal of evidence suggests that competition has become more intense. As a consequence, traditional mark-up pricing (with a constant mark-up) is tending to lose ground. In some cases it is also associated with more frequent reviews of prices.

A comparison of these findings with those of similar foreign studies reveals that there is little difference between them. This is true not only of the most frequently cited price-change frequency, which in foreign surveys is also once a year. The same also applies to mark-up pricing as the dominant pricing behaviour and to the factors that are mentioned as triggers for price adjustments or as arguments for not adjusting prices. The top positions are occupied in the foreign studies by much the same factors that are most frequently mentioned in the interviews conducted by the SNB's delegates for regional economic relations (see, for example, Apel et al., 2005, for Sweden or Fabiani et al., 2005, for the euro area).

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Do FX traders in Bishkek have similar perceptions to their London colleagues? Survey evidence of market practitioners' views

**Andreas M. Fischer, Gulzina Isakova
and Ulan Termechikov**
Working Paper 2007-1

Do currency traders from a low-income country with a low level of financial development hold similar views about the influence of fundamentals on exchange rate movements to their colleagues from developed financial markets? The question's relevance stems from the common belief that currency traders in underdeveloped financial markets exhibit myopic behaviour. One view is that uncertainty stemming from poor macroeconomic policy and a lack of central bank credibility is responsible for such behaviour. Indirect evidence for the macroeconomic view stems from the "fear of floating" observation – many emerging market countries resort to pegging strategies, despite counter claims by the countries' monetary authorities that the domestic currency floats freely. Currency traders in such an environment feel that (unpredictable) long-term fundamentals do not help them predict exchange rate trends. Another view emphasises that short-sightedness stems from market structure. The so-called microstructure view of exchange rates claims that currency traders are intermediaries who primarily redistribute incoming customer orders. According to this view, variables such as order flow or bid-ask spreads have a larger impact on exchange rates than do macroeconomic variables. If true, then large market spreads and exchange rate volatility in underdeveloped markets is explained by market structure (i.e., low liquidity, lack of derivative products).

The objective of this paper is to report findings from a foreign exchange (FX) survey that sheds light on whether currency traders from a low-income country have similar perceptions on the influence of fundamentals, speculation and foreign exchange interventions on exchange rate movements to their colleagues from developed financial centres. FX surveys document the extent to which FX traders are heterogeneous in their beliefs and behaviour and seek to uncover various links between the microstructure of the currency market and macroeconomic variables. Perceptions of Kyrgyz FX dealers in the interbank market are tested using detailed survey data against survey information from five major financial centres: New York, London, Tokyo, Hong Kong and Singapore. We treat the FX traders' views from Bishkek, Kyrgyzstan as representative for an underdeveloped financial market and low-income economy. The survey evidence finds that the FX dealers' responses from the Kyrgyz interbank market differ from those from other international financial centres. Stark differences arise in the perceptions concerning the effectiveness of central bank interventions and the influence of speculation. These differences in the spot market are attributed to macroeconomic factors in Kyrgyzstan and to the structure of the foreign exchange market in Bishkek.

Federal Reserve policy viewed through a money supply lens

Ibrahim Chowdhury and Andreas Schabert
Working Paper 2007-2

This study re-examines postwar U.S. Federal Reserve policy by looking at the supply of nonborrowed reserves. Applying ex-post and real-time data, evidence is provided that the Federal Reserve's money supply has responded to changes in expected inflation and the output gap. In essence, the approach chosen in the present study corresponds to studies which estimate forward-looking feedback rules for the federal funds rate.

By estimating forward-looking money supply reaction functions for the pre-1979 (pre-Volcker) and the post-1979 (Volcker-Greenspan) period, the present study finds that money supply responded negatively to a widening output gap in both periods. In contrast, the empirical analysis reveals substantial differences in the way the Federal Reserve has adjusted money supply in response to changes in the expected inflation rate between the pre-1979 and the post-1979 period. The Volcker-Greenspan regime was characterised by a highly anti-inflationary policy stance, indicated by a significantly negative feedback from expected inflation. Conversely, a positive feedback from expected inflation is found for the pre-Volcker regime, indicating a less anti-inflationary policy stance. The qualitative shift in the money supply behaviour is further found to be robust for various specifications of the forward-looking inflation component and for the output gap. These findings thus confirm related evidence based on analysis of the federal funds rate, namely that Federal Reserve policy in the pre-Volcker era was less strongly oriented to stabilising inflation than in the Volcker-Greenspan era.

The study further provides a theoretical analysis of the stabilising properties of forward-looking money supply reaction functions in a standard New Keynesian framework. As a central principle it is shown that money supply should satisfy a restriction on the inflation feedback which corresponds to the well-known "Taylor principle". Applying this criterion to assess the stability implications of the estimated money supply reaction functions, it is found that Federal Reserve policy never allowed for macroeconomic instability, which contrasts with conclusions drawn from the analysis of federal funds rate reaction functions.

Segmentation and time-of-day patterns in foreign exchange markets

Angelo Ranaldo
Working Paper 2007-3

This paper provides striking evidence on spot exchange rates: Home currencies depreciate systematically during domestic working hours and appreciate during the working hours of the foreign counterpart country. The high-frequency database used in this study spans more than a decade and it consists of several currency pairs (including CHFUSD). A clear picture emerges from this study: first, this pervasive time-of-day pattern is highly significant, both statistically and economically; second, it spans many years and overrides calendar effects.

After having documented the statistical and economic significance of this phenomenon, we attempt to explain why it exists. On the basis of a simple microstructural framework, we argue that the main explanation is derived from a combination of two factors: first, the prevalence of domestic currencies in the portfolio allocations of domestic investors and second, market segmentation. The domestic-currency bias means that the domestic trader's portfolio is typically biased in domestic assets and currency. Market segmentation refers to the fact that investors have a tendency to trade mainly in their country's working hours. In a trading environment with an imperfectly elastic supply, the combination of these two factors gives rise to a cyclical pattern: the home currency depreciates during domestic working hours and appreciates during foreign working hours. In aggregate, the geographic segmentation, coupled with the domestic-currency bias, creates sell-price (buy-price) pressure during domestic (counterpart) working hours.

The empirical analysis largely supports our explanation. The fact that exchange rates follow cyclical patterns during the day challenges the random walk and market efficiency hypothesis. On the one hand, one can try to explain these patterns by evoking liquidity premia, "Herstatt risk" or settlement issues. On the other hand, it is hard to explain why traders systematically incur larger transaction costs instead of taking full advantage of a round-the-clock global and liquid market. Furthermore, this anomaly appears to be profitable, even after accounting for reasonably competitive transaction costs and using elementary trading rules.

Forecasting Swiss inflation using VAR models

Caesar Lack

Economic Study No. 2 2006

At the core of the Swiss National Bank's monetary policy concept is its quarterly inflation forecast. This forecast assumes a constant figure for the SNB's key interest rate. In other words, it is a conditional forecast. Conditional inflation forecasts are generated using various structural macro models of the Swiss economy.

The SNB, however, also bases its decision-making on unconditional inflation forecasts – i.e. forecasts that take account of the monetary policy response of the SNB itself. In addition to the structural models, the unconditional inflation forecasts also make use of non-structural models. Vector autoregressive (VAR) models are a popular type of non-structural forecasting model. The present study describes one of the methods used by the SNB for generating unconditional inflation forecasts on the basis of VAR models.

To test the forecasting quality of the VAR method, this study retroactively generated quarterly inflation forecasts for the years 1987–2005. A comparison of the results produced by a number of different variants of the method shed light on the optimum specifications for VAR inflation-forecasting models and on the determinants of Swiss inflation.

It can be seen that a combination of forecasts significantly improves forecasting quality. The most important explanatory variables for inflation are mortgage loans and the M3 money aggregate. Real variables, such as economic growth, exports, consumption and industrial output, contain little information that is not already contained in the money aggregate, mortgage loan, interest rate or exchange rate data. In addition, the study shows that a combination of classic and Bayesian VAR models is superior to classic VAR models alone.

Compared with a benchmark forecast that always predicts an unchanged inflation rate, the optimised forecasting method produces an error sum of squares that is lower by two thirds. The reduction in forecasting error, however, can be traced primarily to the first half of the investigation period. For inflation rates of 0–2%, as experienced in Switzerland since 1995, the quality of the inflation forecast is only slightly better than the benchmark forecast.

Chronicle of monetary events

Increase in the target range for the three-month Libor

At its monetary policy assessment on 15 March 2007, the Swiss National Bank decided to lift the target range for the three-month Libor rate with immediate effect by 0.25 percentage points to 1.75–2.75%. The SNB intends to hold the rate in the middle of the target range for the time being.

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