Quarterly Bulletin

December 2007

4

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

Swiss National Bank
Quarterly Bulletin

December 4/2007 Volume 25

Contents

Overview

Monetary policy report (p. 6)

The global economy remained in good shape at the start of the second half of 2007, so that the growth of real gross domestic product exceeded the long-term trend in most industrialised countries. However, a number of indicators are now pointing to a clear slowing of growth in the fourth quarter in the US and Europe. Alongside the smouldering financial markets crisis, a further massive rise in the price of oil has contributed to the deterioration in economic sentiment. The strong downturn in the dollar exchange rate against the euro is an additional source of risks for the European economy. The SNB is therefore making a slight downward adjustment to its 2008 growth forecast for the US and the euro area.

Like most industrial countries, Switzerland recorded strong growth in the third quarter. Real GDP was up 3.3% on the previous quarter, thus advancing 2.9% year-on-year. Both the demand and the output side of GDP continued to display all the characteristics of a broad-based cyclical boom. The SNB is forecasting a real GDP growth figure of at least 2.5% in 2007. Given a little slackening in the global economy, Swiss growth is likely to flatten off a little next year to approximately 2%.

On 13 December, following its quarterly assessment, the Swiss National Bank decided to leave the target range for the three-month Libor unchanged at 2.25–3.25%. The inflation outlook for 2009 and 2010 will improve as a result of the expected flattening in economic growth in Switzerland. Although there are considerable uncertainties linked to this forecast, due to the continuing weakness in the Swiss franc and the increase in commodity prices, it nevertheless permits the SNB to maintain its current monetary policy course.

The economic situation from the vantage point of the delegates for regional economic relations (p. 40)

Once again, the talks held by the SNB delegates for regional economic relations with around 170 representatives from various economic sectors and industries yielded a favourable view of the economy. While representatives from the retail sector reported a clear upturn in sales, those from industry indicated that business was very buoyant through to the end of the period reviewed. The majority of representatives had not detected any specific signs of a slowdown and remained confident about 2008. Nevertheless, many assume that next year will be more difficult than 2007, which generated further record results in many sectors. Distinct nervousness was particularly evident among representatives of the financial sector. In view of the increased cyclical uncertainty, the broadly based rise in the price of energy, industrial and agricultural raw materials and preliminary products give cause for concern. Another recurrent issue was the increasing shortage of personnel.

Swiss National Bank Working Papers and Swiss National Bank Studies (p. 44)

Abstracts of five articles: Franziska Bignasca und Enzo Rossi, Applying the Hirose-Kamada filter to Swiss data: Output gap and exchange rate pass-through estimates, *SNB Working Paper* 2007-10; Angelo Ranaldo und Enzo Rossi, The reaction of asset markets to Swiss National Bank communication, *SNB Working Paper* 2007-11; Lukas Burkhard und Andreas M. Fischer, Communicating policy options at the zero bound, *SNB Working Paper* 2007-12; Katrin Assenmacher-Wesche, Stefan Gerlach and Toshitaka Sekine, Monetary factors and inflation in Japan, *SNB Working Paper* 2007-13; Jonas Stulz, Exchange rate pass-through in Switzerland: Evidence from vector autoregressions, *SNB Economic Study* No. 4 2007.

Monetary policy report

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

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

Contents

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 provide regular information on 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 December 2007. The key developments and section 4 (inflation forecast) take due account of the Governing Board's monetary policy decision of mid-December 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 remained in good shape at the start of the second half of 2007, so that the growth of real gross domestic product exceeded the long-term trend in most industrialised countries. However, a number of indicators are now pointing to a clear slowing of growth in the fourth quarter in the US and Europe. Alongside the smouldering financial markets crisis and the related deterioration in financing conditions, a further massive rise in the price of oil has contributed to the deterioration in economic sentiment. The strong downturn in the dollar exchange rate against the euro is an additional source of risks for the European economy. The SNB is therefore making a slight downward adjustment to its 2008 growth forecast for the US and the euro zone.

Like most industrialised countries, Switzerland recorded strong growth in the third quarter. Real GDP was up 3.3% on the previous quarter, thus advancing 2.9% year-on-year. Both the demand and the output side of GDP continued to display all the characteristics of a broad-based cyclical upswing. Simultaneously, employment rose sharply and unemployment again declined. A number of indicators, such as further increases in production and higher orders in manufacturing, also suggest that growth will remain robust in the fourth quarter. In the discussions with representatives of various industries conducted between September and November 2007, most service sector respondents said they were very satisfied with business trends.

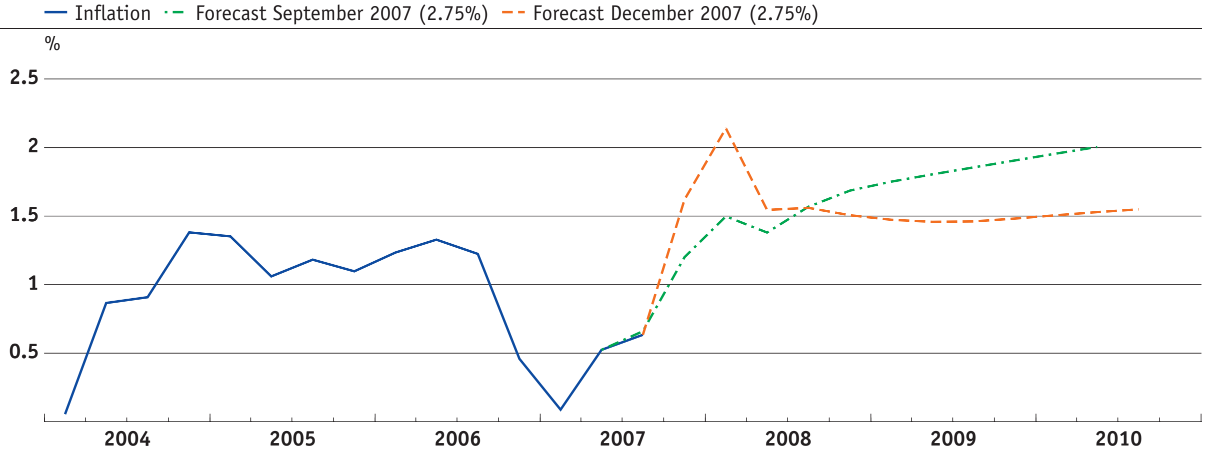
The SNB is forecasting a real GDP growth figure of at least 2.5% in 2007. Given a little slackening in the global economy, Swiss growth is likely to flatten off somewhat next year to approximately 2%. Significant impetus may still be expected from private consumption, driven by the healthy employment market and increasing incomes. Equipment investment will probably remain a major economic driver, in view of high capacity utilisation and the good earnings situation. A slowdown in growth is to be expected in the case of exports, and construction investment is likely to record another minor decline. However, due to the turbulence on the international financial markets, there are a number of risks inherent in this generally favourable economic scenario.

At its quarterly assessment in December, the SNB decided to leave the target range for the three-month Libor unchanged at 2.25%–3.25%. It intends to hold the rate in the middle of this target range for the time being.

The inflation outlook for 2009 and 2010 will improve as a result of the expected flattening in economic growth in Switzerland. However, oil price hikes will temporarily push up inflation in the first half of 2008 and it is likely that even the 2% level will be exceeded. Nevertheless, this upsurge will be short-lived and mainly attributable to oil price increases. Once the peak has passed in the first half of 2008, inflation should stabilise below 2%. Assuming an unchanged three-month Libor of 2.75%, the SNB forecasts average inflation of 0.7% in 2007, 1.7% in 2008 and 1.5% in 2009, which implies a medium and long-term path below that of the September forecast. Although there are considerable uncertainties linked to this improvement in the medium-term inflation forecast, due to the continuing weakness in the Swiss franc and the increase in commodity prices, it nevertheless permits the SNB to maintain its current monetary policy course.

Inflation forecast of September 2007 with Libor at 2.75% and of December 2007 with Libor at 2.75%

Percentage change in national consumer price index from previous year



Inflation forecast of December 2007 with Libor at 2.75%	2007	2008	2009
Average annual inflation in percent	0.7	1.7	1.5

1 Developments in the global economy

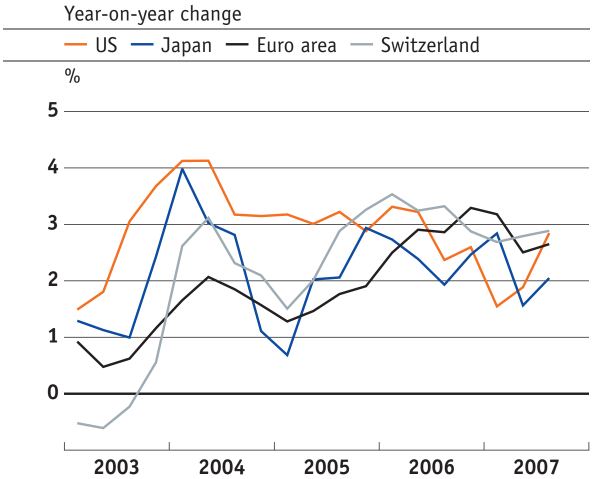
The global economy remained in good shape at the start of the second half of 2007, so that real GDP growth exceeded the long-term trend in most industrialised countries. A number of indicators are now pointing to a clear slowing of growth in the fourth quarter in the United States and Europe. Alongside the smouldering financial markets crisis and the related deterioration in financing conditions, a further massive rise in the price of crude oil to over USD 90 per barrel has contributed to the deterioration in economic sentiment. Other risk factors are the substantial depreciation of the US dollar against the euro and other currencies. Although this development is helping to reduce international current account imbalances, the strong downturn in the dollar exchange rate is dampening the economic outlook in Europe. The deterioration in economic prospects is also reflected in the GDP consensus forecasts for 2008: The forecasts for the US, the euro area and Japan were lower in November than in August.

Credit crisis has worsened outlook for US economy

US GDP grew by 4.9% in the third quarter compared with the previous period. Aside from housing construction, which continued to decline, this strong growth was driven by all domestic demand components and by foreign trade. Economic conditions have deteriorated since the summer, though, as a result of higher risk premiums on corporate bonds, more restrictive lending by banks and the sharp hike in the oil price. This is likely to cause a clear slackening of GDP growth in the fourth quarter. While the reduction in new housing starts points to a further decline in investment in residential property, flagging consumer confidence, the sustained drop in house prices and the sharp rise in fuel prices are indicative of a marked slowdown in consumer spending.

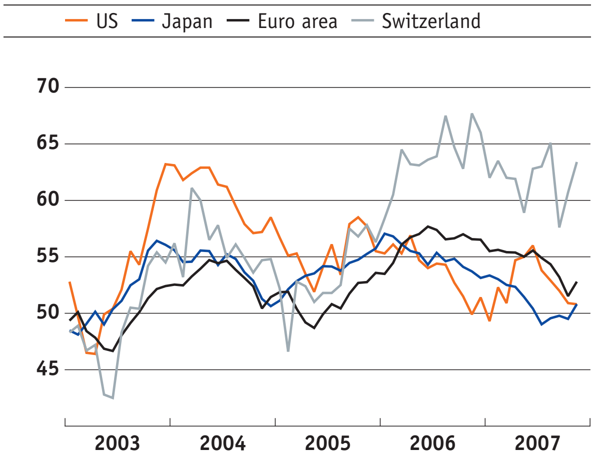
The credit squeeze and high oil price will probably hold back growth in the US economy in 2008 as well. In view of the depreciation of the dollar and robust demand from major US trading partners, foreign trade can now be expected to provide positive impetus. While the various institutes were predicting an average real growth rate of 2.6% for next year back in August, the consensus forecast in November put GDP growth at 2.3%.

Graph 1.1
Real GDP



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

Graph 1.2
Purchasing managers' indices (manufacturing)



Source: Thomson Datastream

Signs of slower growth in Europe as well

Like the United States, the euro area posted strong economic growth in the third quarter. Real GDP grew by 2.9% compared with the prior period, following growth of just 1.2% in the second quarter. Economic activity gathered strength in all major economies in the euro area except Spain. Domestic growth was broadly based, with consumer spending and investment proving the main driving forces. As a rule, capacity utilisation remained high. At the same time, there were growing signs of a shortage of labour and, especially, skilled staff.

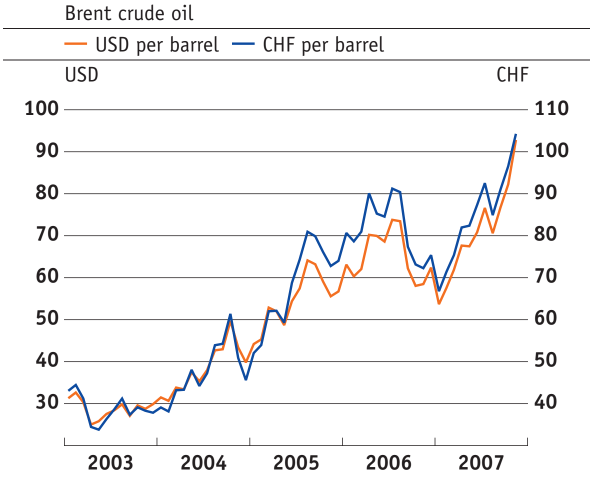
Both the business climate and consumer confidence deteriorated during the fourth quarter. Alongside the massive rise in the oil price, this was attributable to the strong appreciation of the euro against the dollar, which threatens to make European exports less competitive. At the same time, there were signs that the banks were adopting a more restrictive stance on lending to companies and households in the wake of the turbulence on the financial markets. This is likely to dampen capital spending and could result in a further cooling of the property market in some countries, especially Spain and Ireland. By contrast, consumer spending should be buttressed by modest pay rises and rising employment. The GDP consensus forecast for the euro area for 2008 dropped from 2.3% in August to 2.0% in November.

Robust economic trend in Asia

Asia's economy has remained robust. In Japan, real GDP grew by 1.5% in the third quarter, having contracted by 1.8% in the second quarter. Growth was supported by strong foreign trade and higher equipment investment and consumer spending. By contrast, construction spending exerted downward pressure, dropping sharply as a result of more restrictive building legislation. Overall, economic growth should continue its moderate pace, supported principally by the sustained strong uptrend in exports to eastern Asia. By contrast, domestic demand seems to be losing momentum. The GDP consensus forecast for 2008 was 1.8% in November, slightly below the August level (2.1%).

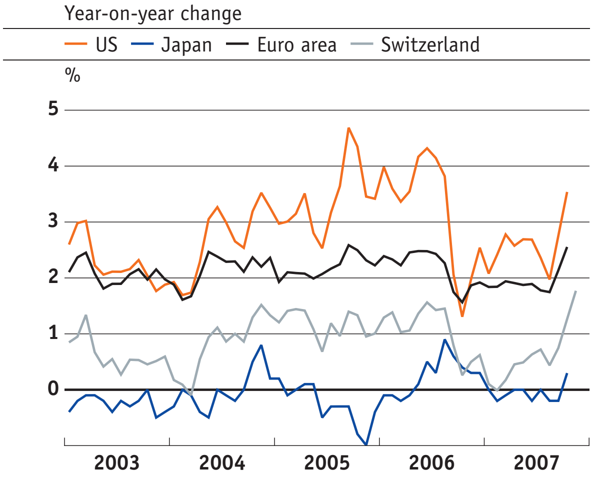
The Chinese economy remained very dynamic in the third quarter. Real GDP was 11.5% higher than in the previous year, with the main impetus still coming from investment and exports. In view of the booming property market, there was a particularly strong rise in construction spending. The trade surplus rose to a new record of USD 73 billion (10% of GDP) in the third quarter. Although the government has taken steps to dampen economic growth, the GDP consensus forecast for 2008 is still 10.5%, only slightly below the forecast for 2007. Hong Kong, Korea, Taiwan and Singapore also reported strong economic growth in the third quarter, partly because of rising global spending on IT. On average, real GDP in these economies was up

Graph 1.3
Oil prices



Sources: Reuters, SNB

Graph 1.4
Consumer prices



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

6.1% year-on-year, compared with a rise of 5.5% in the second quarter. Owing to its strong intrinsic momentum, the economic outlook for this region remains good. Nevertheless, cooling demand in the US is likely to result in slightly flatter growth.

Higher inflation

Measured by consumer prices, annual inflation rose in the United States and the euro area between July and October. This was fuelled by the baseline effect of energy prices – which had dropped sharply the previous year – compounded by higher food prices. In the US, the annual inflation rate had increased by 1.1 percentage points to 3.5% in the period to October. By contrast, the core inflation rate excluding energy and food prices remained at 2.2%. In the euro area, the annual inflation rate rose by 0.8 percentage points to 2.6% between July and October, while the core rate remained unchanged at 1.9%. Annual inflation also climbed by 0.3 percentage points to 0.3% in Japan in the period to October, while the core inflation rate was negative (–0.3%). In November, inflation is likely to pick up again as a result of another substantial rise in energy prices in all three regions.

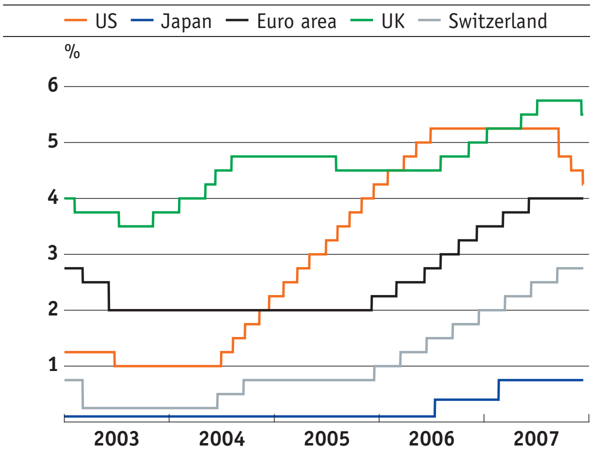
Monetary policy dominated by turbulence on financial markets

Since the start of August, monetary policy at central banks has reflected the turbulence on the international financial markets. While the US Federal Reserve cut key interest rates, the European Central Bank (ECB) tightened its monetary policy further. The Fed reduced its overnight funds rate by a total of 1 percentage point in September, October and December to 4.25%. At the same time, it reduced the discount rate by a further 100 basis points to 4.75% at the last count. This was justified by the nervousness in financial markets and the increased risk to the real economy.

At its meetings in November and December, the ECB left its main refinancing rate unchanged at 4.0%. The principal factor behind its decisions was the uncertainty arising from the revaluation of certain risks on the financial markets. The normalisation of the European money market only made halting progress and the three-month Euribor remained high relative to the main refinancing rate. The ECB therefore continued its policy of concluding additional money market transactions with relatively long maturities.

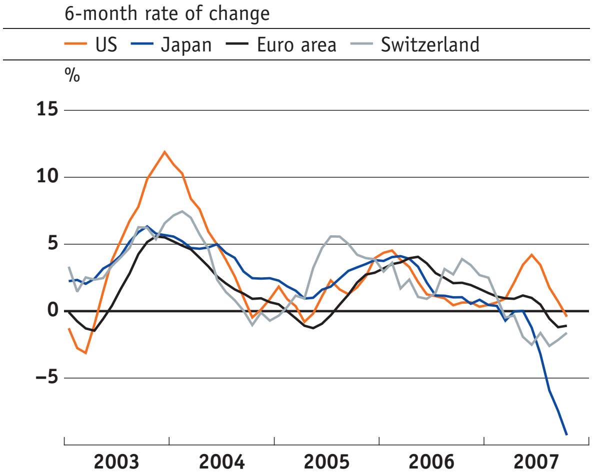
The Bank of Japan left its overnight call money rate unchanged (0.5%), having raised it by 0.25 percentage points in February. By contrast, China's central bank tightened its monetary policy through further interest rate hikes and increased its minimum reserve rate by a total of 1.5 percentage points to 13.5%. Other central banks in the region, including the central banks in Taiwan and Singapore, also continued their more restrictive monetary policy.

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]			
	August		November		August		November	
	2007	2008	2007	2008	2007	2008	2007	2008
United States	1.9	2.6	2.1	2.3	2.8	2.4	2.8	2.6
Japan	2.4	2.1	2.0	1.8	0.0	0.4	0.0	0.4
Euro area	2.7	2.3	2.6	2.0	2.0	2.0	2.0	2.1
Germany	2.7	2.4	2.6	2.1	1.9	1.6	2.0	1.8
France	2.1	2.3	1.8	1.9	1.4	1.7	1.4	1.8
Italy	1.9	1.7	1.8	1.3	1.8	1.9	1.8	2.2
United Kingdom	2.8	2.2	3.0	1.9	2.4	2.0	2.3	2.0
Switzerland	2.5	2.2	2.6	2.0	0.6	1.2	0.6	1.3

1 Real GDP, year-on-year change in percent
2 Consumer prices, year-on-year change in percent
Source: Consensus Forecasts, August 2007, November 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 Developments in the Swiss economy

2.1 Overview

Strong GDP growth in third quarter

Like most industrialised countries, Switzerland registered strong economic growth in the third quarter. According to estimates by SECO, in the third quarter real GDP increased by 3.3% from the previous period and was 2.9% above the level a year earlier. The main impetus came from consumer spending and exports. By contrast, investments were lower than in the previous period.

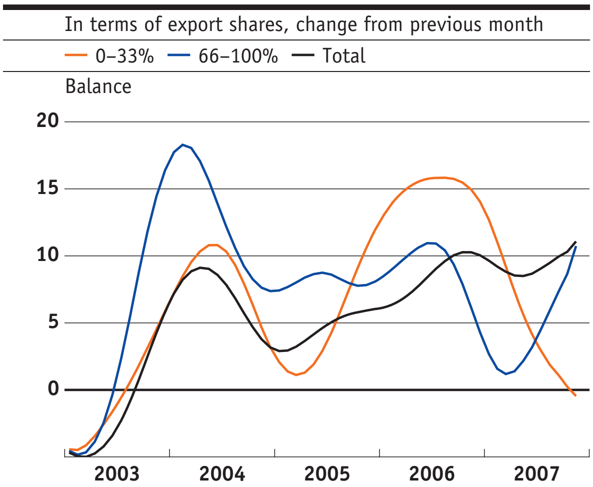
Output-side figures for GDP continued to show a broad-based economic upswing. Although the US mortgage crisis of summer 2007 had a clear impact on the big Swiss banks in the form of high write-downs and a marked drop in profits, value creation in the domestic banking sector increased further. It now accounts for around 8% of added value and nearly one-third of GDP growth. This was driven by both of the value-added components in the banking sector, i.e. revenues from securities trading and asset management, on the one hand, and income from deposits and lending business, on the other.

Although companies' valuation gains and losses are not included when calculating added value, they are of significance for the economy. As a rule of thumb, external financing of companies becomes more expensive if the quality of their balance sheet deteriorates. If the company is a bank, this may also mean it has to raise the price of loans or ration lending. Since households and many companies cannot raise funding on the capital market and are therefore dependent on external financing by banks, a tighter lending policy affects many areas of the economy and entails corresponding risks for GDP growth.

A range of indicators points to further robust economic growth in the fourth quarter. Industry reported a further sharp rise in output and higher orders. In the talks held by the SNB delegates for regional economic relations with representatives of various sectors between September and November 2007, most service sector respondents were very satisfied with business trends.

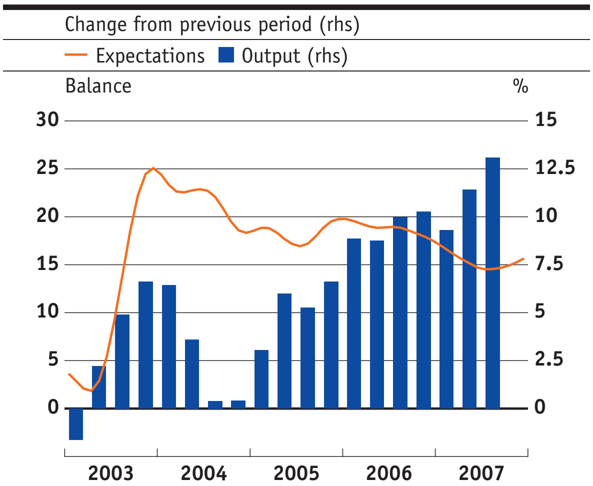
The representatives of most industries were also optimistic about the outlook for 2008. Nevertheless, many companies seem to be preparing for a more difficult time in 2008 after a year of further earnings records for many. Moreover, distinct nervousness was apparent among representatives of the financial sector. In view of this growing uncer-

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 Table 2.1

Growth rates on previous period, annualised

	2003	2004	2005	2006	2005	2006				2007		
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Private consumption	0.9	1.6	1.8	1.5	3.2	–0.1	2.4	–0.7	1.7	3.2	2.0	3.5
Government consumption	1.9	0.8	0.5	–1.4	–0.7	–0.0	–6.4	1.9	0.3	–2.0	–0.6	–1.2
Investment in fixed assets	–1.2	4.5	3.8	4.1	6.4	–0.4	4.4	3.0	6.2	1.8	10.2	–11.6
Construction	1.8	3.9	3.5	–1.4	–4.7	–6.4	–0.1	0.3	4.9	–2.4	–14.6	–6.0
Equipment	–3.6	5.0	4.0	8.9	16.7	5.1	8.3	5.2	7.3	5.4	33.2	–15.5
Domestic final demand	**0.6**	**2.1**	**2.1**	**1.7**	**3.4**	**–0.2**	**1.8**	**0.5**	**2.5**	**2.2**	**3.6**	**–0.8**
Domestic demand	**0.5**	**1.9**	**1.8**	**1.4**	**6.1**	**–3.3**	**4.8**	**–4.7**	**8.0**	**–6.5**	**3.3**	**–1.3**
Total exports	–0.5	7.9	7.3	9.9	6.9	17.3	–0.5	12.1	17.1	10.2	3.8	9.7
Goods	–0.1	7.3	5.8	11.1	7.6	21.6	–0.2	14.8	16.1	12.5	0.0	9.2
Excluding valuables[1]	0.5	7.3	6.5	11.3	8.8	16.7	8.8	7.8	17.1	7.8	5.5	9.0
Services	–1.4	9.7	11.2	6.8	5.1	6.6	–1.3	4.9	19.9	4.2	14.9	11.0
Aggregate demand	**0.2**	**3.8**	**3.6**	**4.3**	**6.4**	**3.5**	**2.9**	**1.0**	**11.2**	**–0.6**	**3.5**	**2.8**
Total imports	1.3	7.3	6.7	6.9	12.8	3.3	3.5	–4.0	34.7	–7.6	4.2	1.5
Goods	1.9	5.8	5.6	7.8	10.2	8.3	2.5	–8.5	45.9	–10.3	4.1	–1.8
Excluding valuables[1]	2.4	5.9	5.3	7.4	7.0	10.8	1.1	–5.3	31.5	4.3	1.5	–0.0
Services	–1.9	14.7	11.6	2.7	24.8	–17.0	8.5	20.0	–7.3	6.6	5.2	18.6
GDP	**–0.2**	**2.5**	**2.4**	**3.2**	**3.8**	**3.5**	**2.6**	**3.2**	**2.2**	**2.7**	**3.1**	**3.3**

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

Source: SECO

tainty, the rising price of energy sources, raw materials and intermediates is giving cause for concern (cf. *The economic situation from the vantage point of the delegates for regional economic relations,* December 2007).

The SNB is forecasting GDP growth of around 2% in 2008, following an estimated rise of slightly above 2.5% in 2007. Significant impetus should continue to come from consumer spending, supported by the buoyant labour market situation and rising incomes. Given the high capacity utilisation and good earnings position, equipment investment is likely to become a key driving force. By contrast, export growth could slow considerably and construction spending is expected to decline slightly. In view of the ongoing problems on the international financial markets, however, Switzerland also faces considerable economic risks.

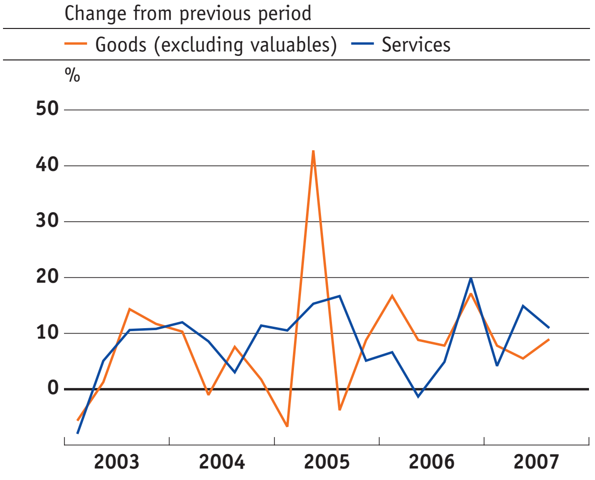
2.2 Foreign trade, consumption and investments

Sustained rise in exports …

The Swiss economy continued to benefit from the excellent shape of the global economy and the low exchange rate for the Swiss franc against the euro in the third quarter. While exports of goods were higher than in the previous period, exports of services slowed. The clearest weakening was in growth in commission income on banking services for foreign clients. Overall, exports exceeded the year-back level by a good 10%.

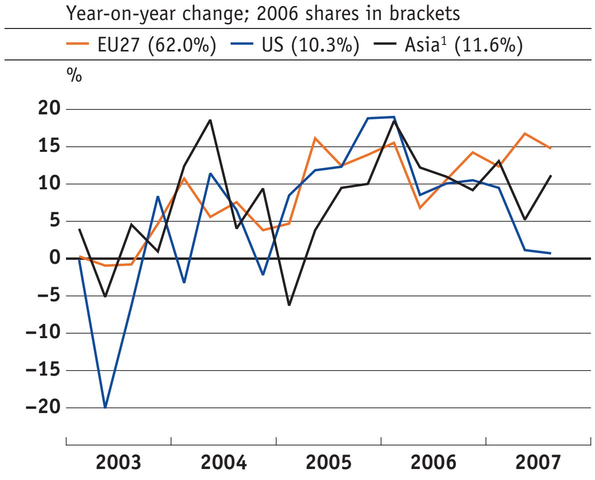
There was an above-average rise in exports of investment and consumer goods, while exports of semi-finished goods – mainly chemical intermediates and base chemicals – were more sluggish. Demand varied by region. There was a further rise in goods exported to Europe, Asia and most oil-exporting companies, whereas shipments to the US and Japan declined. Although exports of goods continued to rise in October, the capital goods sector in particular saw its momentum slow down.

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)

… and imports

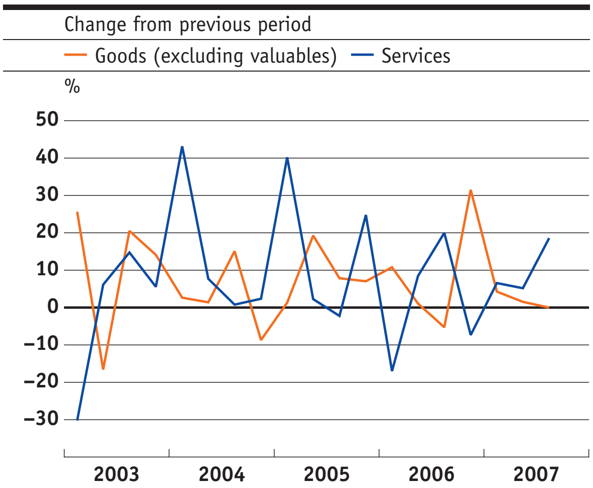
In real terms, imports were 7.6% higher than a year earlier in the third quarter thanks to strong growth in imported services. There was a particularly sharp rise in spending on tourism and transport. By contrast, imports of goods were unchanged. While there was a rise in imports of consumer goods and – for the first time in three quarters – energy sources, imports of capital goods eased markedly following a steep rise in the second quarter. There was also a slight reduction in imports of raw materials and semi-finished goods.

Strong growth in consumption

Consumer spending advanced strongly in the third quarter, rising 3.5% compared with the previous period and 2.7% compared with the year-ago period. On the goods side, retail sales rose by nearly 4% while the number of newly registered cars was nearly 9% higher than in the previous period. The number of overnight stays by domestic guests – an indicator of the consumption of services – increased less sharply, probably influenced by the inclement weather in the summer. By contrast, high bookings in the autumn point to a good winter season.

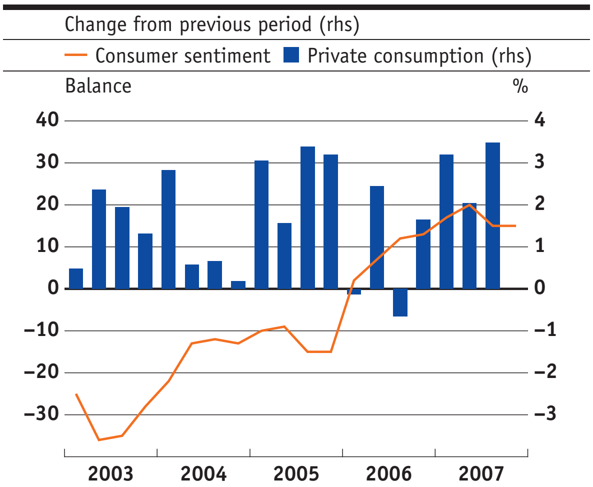
Despite the turbulence on the financial markets, consumer confidence measured by the consumer sentiment index remained high in the autumn. Although the households surveyed were slightly more pessimistic about the general economic situation, they were more optimistic about their personal financial position and job security than in the previous period. In real terms, wages and salaries rose by a total of 5.3% in 2007, following an increase of 2.9% in the previous year. This rise was driven mainly by fuller employment and to a lesser extent by higher real wages and salaries.

Graph 2.5
Imports



Source: SECO

Graph 2.6
Private consumption



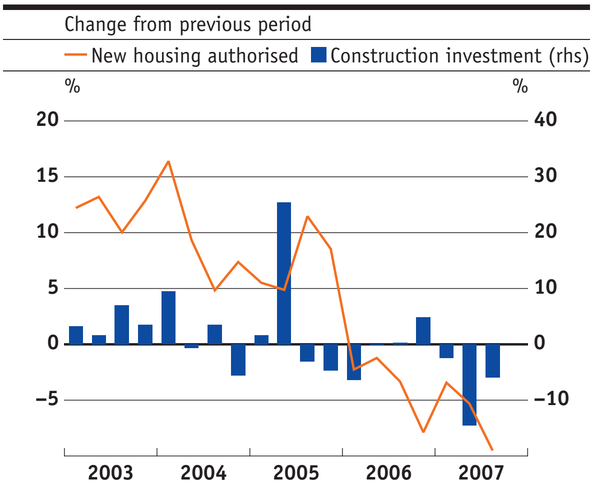
Source: SECO

Decline in equipment investment and construction spending

Having risen sharply in the second quarter, investment in equipment dropped back in the third quarter and was only 6.3% above the corresponding year-earlier figure. While investment in the transport sector declined as expected following a sharp rise in aircraft purchases in the second quarter, the drop in IT investment and stagnating purchases of industrial machinery came as a surprise. The breakdown by origin shows that imports of capital goods contracted, while demand for domestic capital goods continued to rise. The declining demand for imported capital goods may be attributable to the strength of the euro, prompting investors to stay on the sidelines.

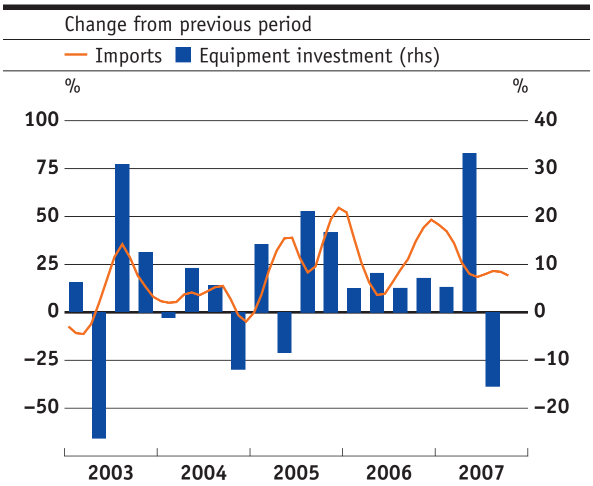
Construction investment contracted further in the third quarter, continuing the trend that has been observed since the start of 2007, and was 5.1% lower than in the previous year. The downtrend affected both residential building and civil engineering, but commercial construction stagnated. Since permits for residential construction have been declining for a number of quarters, a further reduction in construction volume is to be expected, especially in the housing sector.

Graph 2.7
Construction



Sources: SFSO, SECO

Graph 2.8
Equipment



Sources: FCA, SECO

2.3 Employment and labour market

Sharp rise in employment

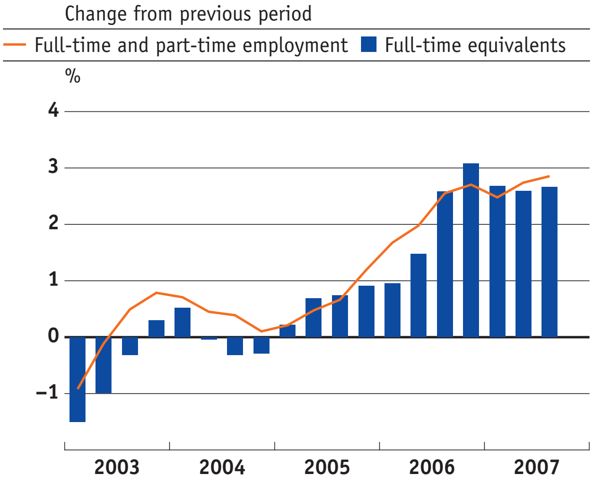
There was a further strong rise in employment in the third quarter. This indicator grew by 2.9% compared with the previous period and 2.7% compared with the previous year. The service sector was the main growth driver, with the retail and hospitality sectors accounting for a particularly strong rise in jobs. By contrast, the increase in employment slowed in the financial sector, with insurance companies actually shedding jobs. Converted into full-time positions, the volume of work rose by 2.7% compared with both the previous period and the previous year.

The SFSO survey, which was published for the first time in the third quarter of 2007, shows a strong rise in the proportion of companies reporting difficulty recruiting skilled staff. It emerged from the talks held by the SNB delegates for regional economic relations that there is a particular shortage of technical staff and IT specialists. Since these qualifications are in high demand in the EU as well, recruitment opportunities abroad are limited.

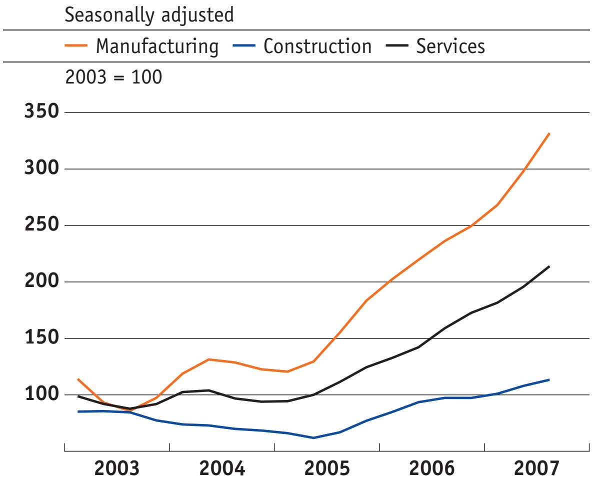
Further reduction in unemployment – good outlook for employment

After adjustment for seasonal factors, the number of people registered as unemployed with regional employment offices decreased to 103,350 between August and November, which corresponds to a drop in the unemployment rate from 2.7% to 2.6%. The number of job seekers also declined slightly, so the corresponding rate dropped to 4%. The vacancy index prepared by the SFSO increased significantly across all sectors in the third quarter, pointing to sustained high demand for labour. Consequently, the number of unemployed should continue its downward trend.

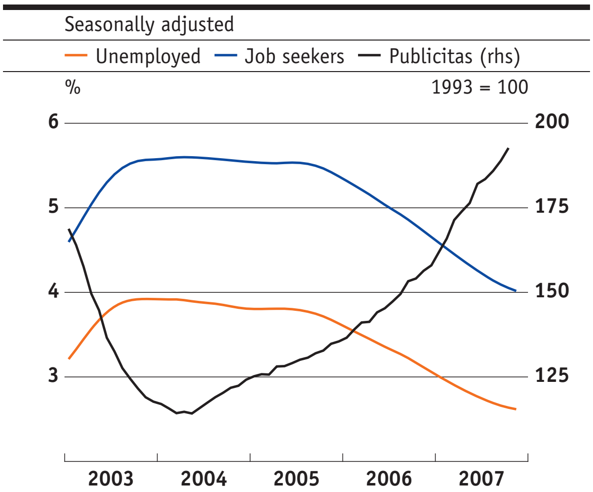
Graph 2.9
Employment



Graph 2.10
Vacancy index



Graph 2.11
Unemployment rates and vacancies



Graphs 2.9 and 2.10:
Source: SFSO

Graph 2.11:
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 Capacity utilisation

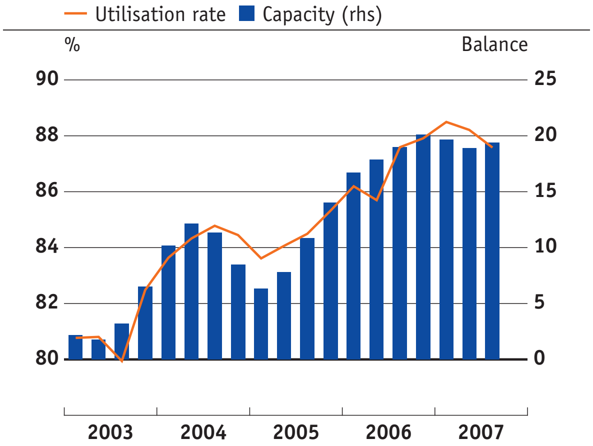
To avoid an inflationary or deflationary trend, aggregate demand must grow in step with aggregate supply. As a rule, aggregate supply – which is determined by the availability of capital and labour as well as technological progress – is relatively static in the short term. Changes in demand, therefore, are reflected in a change in the utilisation of technical capacity and staffing levels. If their utilisation rate exceeds the normal level for an extended period of time, this points to excess demand and, consequently, to an increase in inflationary pressure. Conversely, a supply overhang suggests deflationary pressure.

Further reduction in technical capacity utilisation

An initial group of indicators which may be used to assess capacity utilisation comes from the KOF/ETH surveys. According to these surveys, utilisation of technical capacity in industry fell slightly in the third quarter (cf. graph 2.12), although it was still well above the long-term average (84%). At the same time, the proportion of companies reporting insufficient technical capacity declined. This reflects the substantial expansion of capacity in recent quarters (cf. graph 2.12). Unlike the manufacturing industry, the construction industry reported further growth in capacity utilisation. In both industries, there was an increase in the proportion of companies reporting a shortage of staff. The picture is similar in the service sectors. A growing number of companies from the hospitality sector, insurance and front office areas of the banking sector, reported insufficient staff. The situation only seems to have relaxed in the retail industry.

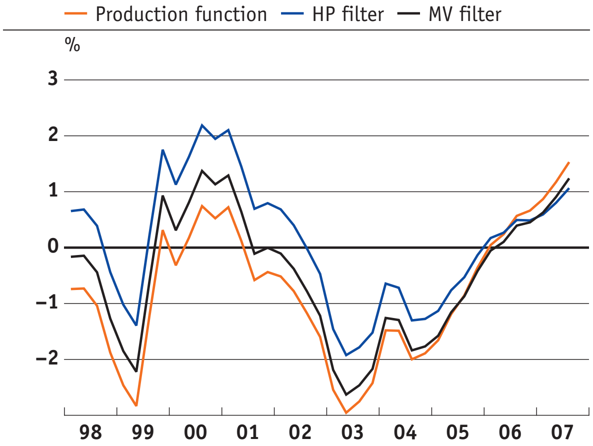
Graph 2.12
Technical capacity in manufacturing

Seasonally adjusted



Source: KOF/ETH

Graph 2.13
Output gap



Source: SNB

Positive output gap widening

A more comprehensive measure of capacity utilisation in the economy is the output gap, which is calculated as the difference between real GDP and estimated production potential in Switzerland. Graph 2.13 shows three estimates of the output gap based on different methods of estimating production potential: production function (PF), Hodrick-Prescott filter (HP), and multi-variant filter (MV). Real GDP rose by 3.3% in the third quarter, which was far faster than production potential, so the output gap measured by all three estimates continued to increase. The PF method shows that the production overhang was 1.5% while using the two filter processes it came to 1.1% (HP) and 1.3% (MV).

The positive output gap is mainly a reflection of above-average utilisation of technical capacity. By contrast, utilisation of the supply of labour is now normal, after a long period of under-employment. The SNB assumes that the production overhang has peaked and will stabilise at approximately the current level in the next few quarters, since expected GDP growth is slightly slower than the potential growth path. At approximately 2%, the latter is still somewhat above the long-term average (1.6%). This is mainly due to two factors. Firstly, strong investment activity should boost growth in the capital stock. Secondly, the immigration of foreign workers and the rise in the participation rate should lead to a growth in potential working hours at above the long-term average rate.

2.5 Goods prices

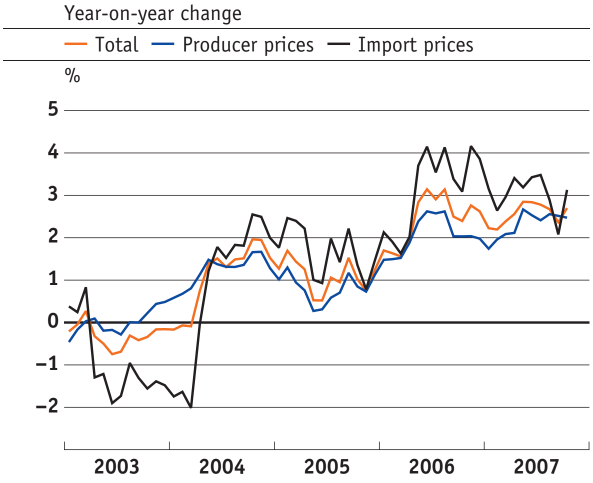
Continued pressure from producer and import prices

The price pressure exerted by producer and import prices at the downstream consumer level continued to mount between July and October. The annual inflation rate for domestic producer prices increased from 2.4% in July to 2.5% in October. At the same time, annual inflation for imported goods rebounded to 3.1% after having dropped to 2.1% in August. Looking at the different types of goods, a mixed picture emerges. While price pressure on energy sources and agricultural products picked up, investment goods inflation remained fairly stable and price pressure on intermediates declined. However, annual inflation for investment and imported goods increased further, indicating that earlier price rises for energy sources and raw materials are having a knock-on effect, but also that another factor driving inflation is the weakening of the Swiss franc against the euro.

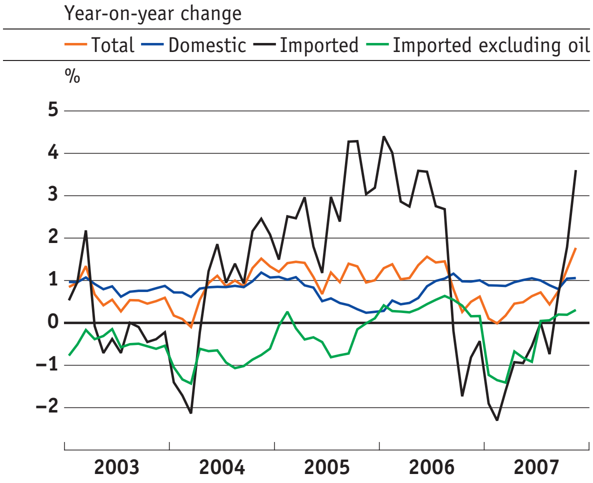
Substantially higher consumer price inflation

Annual inflation, as measured by the national consumer price index (CPI), increased from 0.4% to 1.8% between August and November. Consumer price inflation was thus above the SNB's forecast of mid-September. This was principally attributable to the sharp hike in the oil price: this impacted heating fuel and petrol prices, which are factored into the CPI. Excluding oil components, consumer price inflation edged up from 0.7% to 0.9% between August and November. This suggests that suppliers have more scope to pass on cost rises to consumers in the light of high demand and high capacity utilisation.

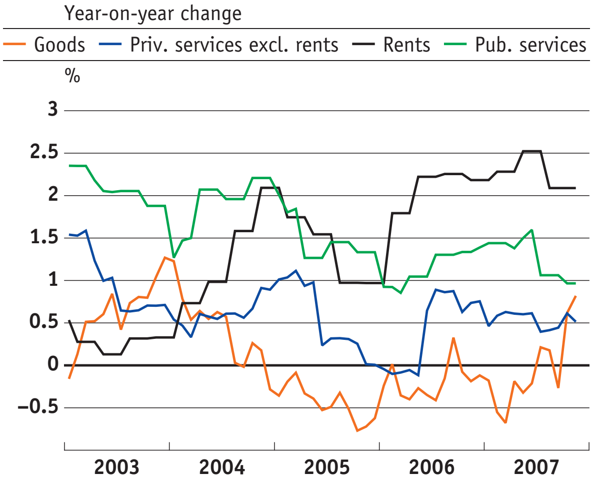
Graph 2.14
Prices of total supply



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

Increase in domestic inflation

Annual inflation for domestic consumer goods was 1.1% in November, which was slightly higher than in August (0.9%). While the annual inflation rate for services hardly altered, the inflation rate for goods rose from 0.2% in August to 0.8% in November. The increase was due almost exclusively to higher prices for foodstuffs, which make up 50% of the domestic basket of goods. In November, the annual inflation rate for food was 1.5%, compared with 0.2% in August. The price of bread, vegetables and meat rose particularly fast. Food price inflation is nevertheless low compared with other countries so it is likely to rise in the next few months. The residential rent price index, which is compiled on a quarterly basis, rose by 0.5% in November, though the annual rate of rent increases remained at 2.1%. Prices for other private services edged up slightly compared with August to 0.5% in November while prices for public services slipped by 1.0% to due a slight decline in the cost of hospital services.

Imported inflation driven by oil prices

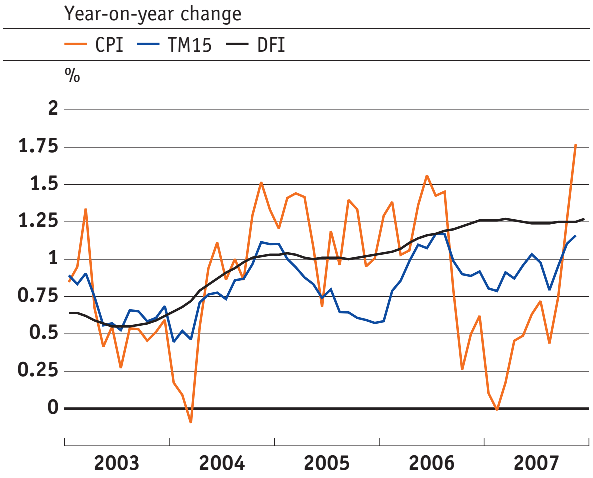
Foreign consumer goods dampened the annual inflation rate between September 2006 and August 2007. However, inflation for this group of goods moved into positive territory in September and was 3.6% in November. This was almost entirely due to the price of oil products (heating oil and fuel), which topped their year-back level by 19.9% in November, having posted a slight decline of 4.4% in August. By contrast, the inflation rate for other foreign consumer goods increased only marginally to 0.3% between August and November. Price rises were mainly registered on clothing and some foodstuffs.

Core inflation rates point to a rising inflation trend

Inflation, as measured by the CPI, undergoes numerous short-term fluctuations that may distort perceptions of the general price trend. For this reason, core inflation rates are calculated with the aim of capturing the underlying trend. 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 considers those changes in the CPI that are reflected both in a large number of CPI components and other real economic data, financial remarket indicators and monetary variables (cf. *Quarterly Bulletin* 2/2006, p. 24). The two core inflation rates calculated by the SFSO always exclude the same goods from the commodities basket in each period (cf. graph 2.18). In the case of core inflation 1 (SFS01), these are food, beverages, tobacco, seasonal products, energy and fuel. Core inflation 2 (SFS02) also factors out products with administered prices.

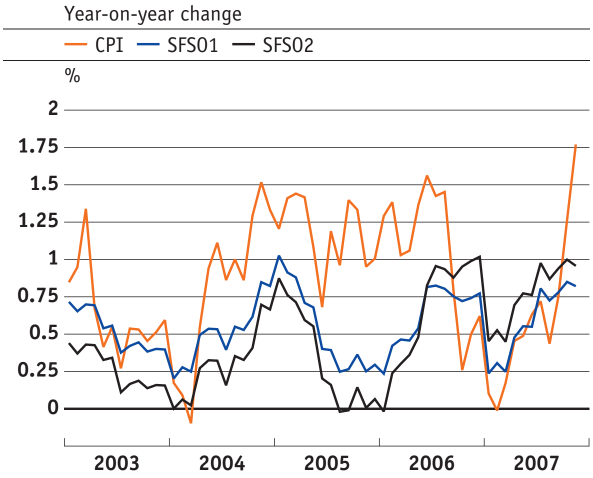
The core inflation rate calculated on the basis of the trimmed means method rose from 0.8% to 1.2% between August and November, indicating that the general inflation rate is rising but remains moderate. The two core inflation rates calculated by the SFSO showed substantially the same picture, rising by 0.1 percentage points each to 0.8% and 1.0% respectively. By contrast, dynamic factor inflation, which only increased marginally to 1.25%, indicates a stable price trend.

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

Table 2.2

Year-on-year change in percent

	2006	2007			2007			
		Q1	Q2	Q3	August	September	October	November
Overall CPI	**1.1**	**0.1**	**0.5**	**0.6**	**0.4**	**0.7**	**1.3**	**1.8**
Domestic goods and services	0.8	0.9	1.0	0.9	0.9	0.8	1.0	1.1
Goods	–0.2	–0.5	–0.2	0.0	0.2	–0.3	0.6	0.8
Services	1.1	1.3	1.4	1.1	1.1	1.1	1.2	1.1
Private services excluding rents	0.4	0.6	0.6	0.4	0.4	0.4	0.6	0.5
Rents	2.0	2.2	2.4	2.2	2.1	2.1	2.1	2.1
Public services	1.2	1.4	1.5	1.1	1.1	1.1	1.0	1.0
Imported goods and services	1.9	–1.9	–0.8	–0.0	–0.7	0.7	1.8	3.6
Excluding oil products	0.4	–1.3	–0.8	0.1	0.1	0.2	0.2	0.3
Oil products	9.3	–4.9	–1.0	–0.8	–4.4	2.6	9.5	19.9

Sources: SFSO, SNB

3 Monetary developments

3.1 Interest rates and inflation expectations

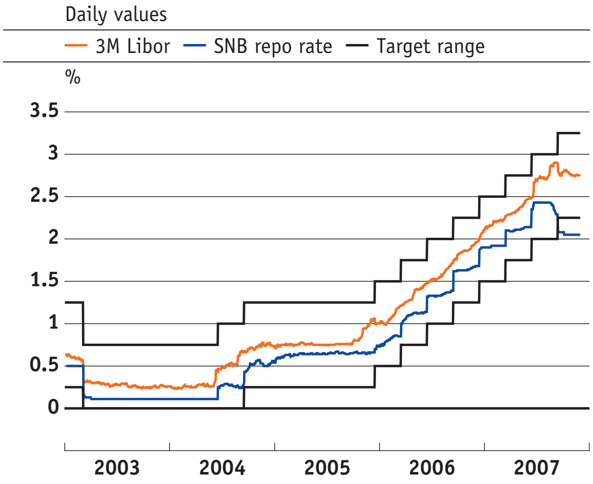
The SNB's monetary policy assessment in September 2007 was strongly affected by the global financial market turbulence triggered by the crisis on the US mortgage market. Although this had not had any concrete impact on real economic trends in Switzerland at the time of the assessment, the risk of a significant economic slowdown could not be completely dismissed. Conversely, it could not be ruled out that the sustained weakness of the Swiss franc might stimulate the economy and boost inflation. Moreover, the SNB faced an unusual situation on the money market. The three-month Libor had risen to 2.9% in the weeks before the assessment. That was well above the mean for the previous target corridor (2.5%). Since the three-month Libor is a market rate, it is perfectly normal that it should respond to expected monetary political decisions, and this phenomenon is not generally unwanted. However, the rise to 2.9% also reflected the acute crisis of confidence in the money markets at the time, as well as the associated liquidity bottlenecks. Monetary conditions had therefore become more restrictive without any action on the part of the SNB.

In the light of this, the SNB endeavoured to normalise the situation on two fronts. Firstly, it provided ample liquidity to the banking system in order to bring about a reduction in interest rates. At the same time, the SNB's decision to raise its target monetary range by 0.25 percentage points to 2.25–3.25% and the announcement of the mean of 2.75% as its new target suggest that the rise in the three-month Libor rate since June has been justified on monetary policy grounds.

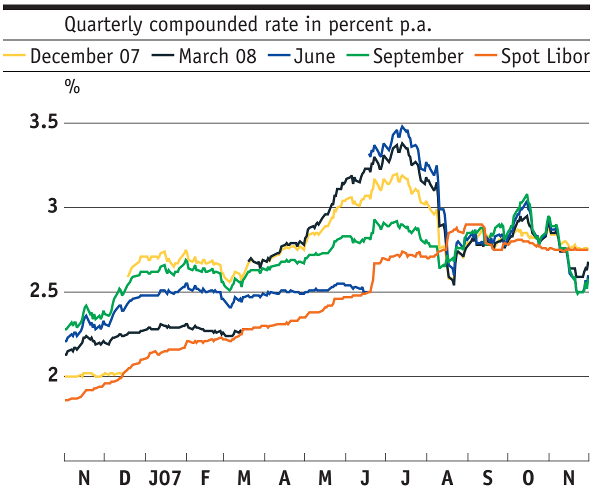
SNB expected to cut interest rates next year

Following the monetary policy decision, the three-month Libor rapidly dropped back to the SNB's target of 2.75% and remained around this level until mid-December (cf. graph 3.1). According to the regular Consensus Forecast, at the time of the last monetary policy assessment the markets were anticipating a three-month Libor of 2.9% at the end of December. The interest rates for futures maturing in March, June and September 2008 also stood at around 3% in mid-October. They then declined and

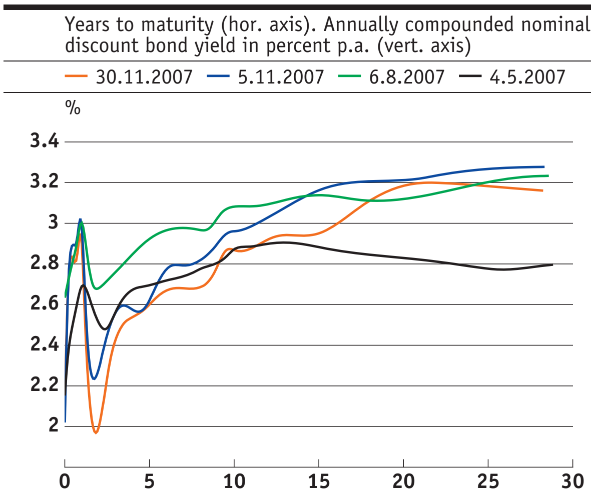
Graph 3.1
Money market rates



Graph 3.2
Three-month interest rate futures



Graph 3.3
Term structure of Swiss Confederation bonds



Graphs 3.1, 3.2 and 3.3:
Source: SNB

were up to 25 basis points below the three-month Libor by end-November (cf. graph 3.2). This indicated that, at the end of November, the market was expecting the target corridor to be reduced by 25 basis points by mid-September 2008.

Slightly steeper yield curve on the Swiss capital market

As graph 3.3 shows, yields on Swiss Confederation bonds with maturities of more than ten years have increased considerably in the past six months, while yields on bonds with shorter maturities have hardly altered. The previously very flat yield curve has thus become slightly steeper again. In November, five-year Confederation bonds were yielding an average of 2.6% while ten-year bonds yielded 3% and 20-year bonds yielded 3.2%.

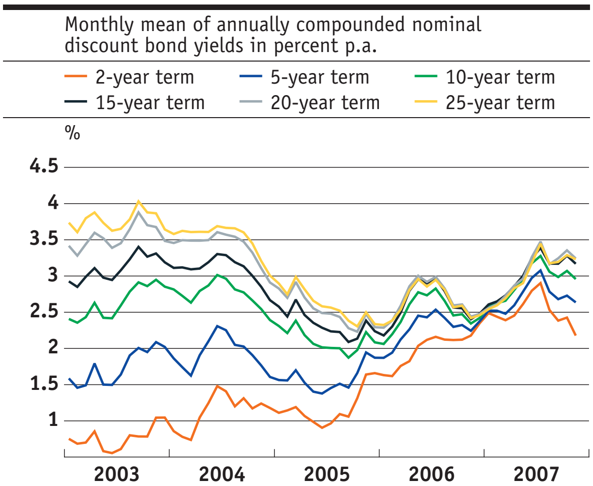
The rise in bond yields was also reflected in interest rates on mortgages and savings deposits. The interest rate for existing floating rate mortgage agreements with the cantonal banks which – owing to statutory provisions – governs the price of rented property, and the more flexible rates for new mortgages rose slightly and were around 3.24% (for existing mortgages) and 3.27% (for new mortgages) in mid-December. Interest rates on savings deposits rose a little less, and as a result the interest spread between existing mortgages and savings deposits, which is relevant for traditional refinancing of mortgages, increased slightly. The spread is still well below the long-term average.

Declining short-term interest rates in the US

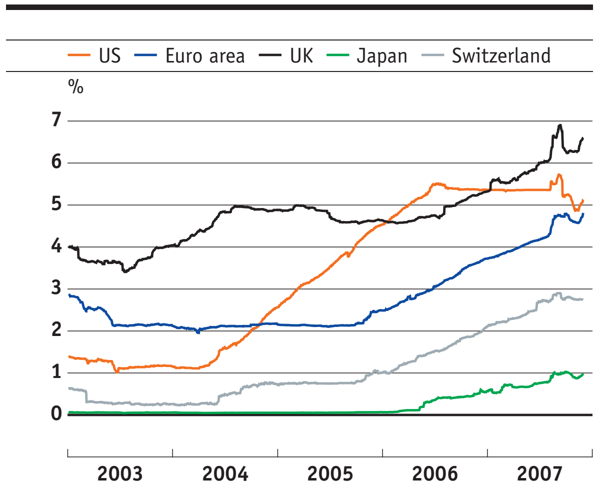
The situation on foreign money markets eased temporarily after the last monetary policy assessment in mid-September, partly because of the willingness of central banks to inject additional liquidity. In addition, the Fed reduced its key interest rate in three steps to 4.25%. The three-month rate for dollar investments dropped after the last monetary policy assessment and was 5.11% in mid-December (cf. graph 3.5). There was a further reduction in the interest spread between three-month dollar and franc investments, which has been declining since the middle of last year. It contracted from 285 to 233 basis points between mid-September and mid-December.

The three-month interest rate on euro investments was higher in mid-December than it had been in mid-September. Since the three-month Libor in Switzerland declined in the same period,

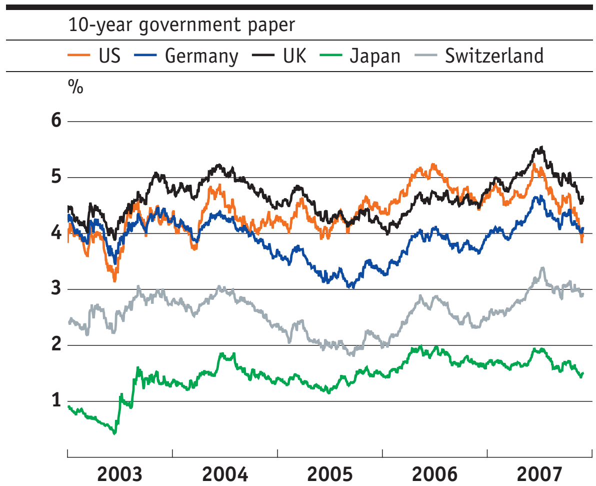
Graph 3.4
Swiss Confederation bond yields



Graph 3.5
International short-term interest rates (three months)



Graph 3.6
International interest rates



Graphs 3.4 and 3.5:
Source: SNB

Graph 3.6:
Sources: Thomson Datastream, SNB

the yield spread between euro and franc investments had increased to 215 basis points by mid-December.

Decline in long-term yields abroad

Reflecting changing sentiment on the international equity markets, yields on risk-free government bonds rose between mid-September and mid-October and then dropped again (cf. graph 3.6). Yields on ten-year US treasury bonds averaged 4.1% in November, which was about 40 basis points lower than in September. Ten-year German government bonds were also yielding an average of 4.1% in November as against 4.2% in September. Since yields on ten-year Swiss Confederation bonds hardly changed in that period, the spread to dollar and euro bonds had narrowed to an average of about 1.1 percentage points by November.

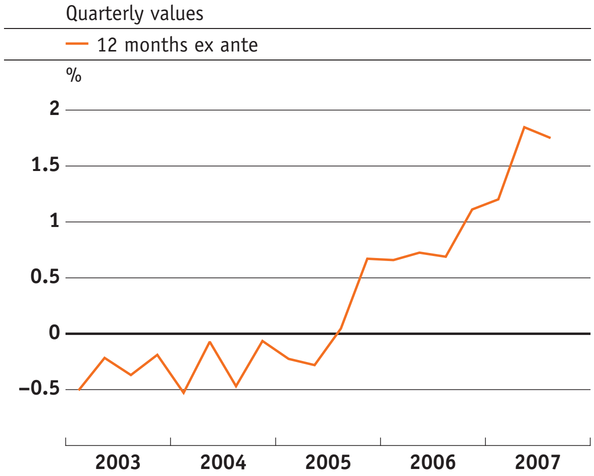
Real short-term interest rates stabilising at a high level

Graph 3.7 shows movements in the one-year real interest rate in Switzerland. This rate is defined as the difference between the twelve-month nominal interest rate and the expected rise in consumer prices during the period in question. Inflation expectations are taken as the average of the forecasts published by a number of different institutions (Consensus Forecast, November 2007).[1] The real interest rate measured in this way stood at 1.75% in the third quarter compared with 1.85% in the second quarter. The decline mainly reflects the upward revision of short-term inflation expectations. The one-year real interest rate stabilised slightly above its historical average of 1.6%.

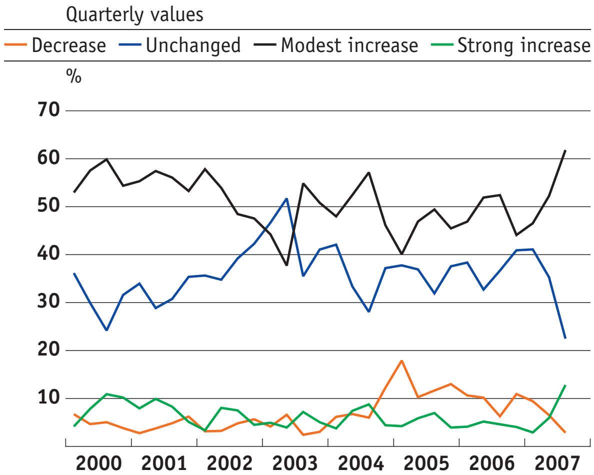
The upward revision of inflation expectations is confirmed by the data on consumer sentiment published by SECO in November. As compared to the previous quarter, there was an increase in the proportion of consumers expecting prices to rise in the next twelve months (cf. graph 3.8).

1 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

Decline in the dollar

The dollar has declined steadily against the euro since mid-August 2007 and this trend has continued since the last monetary policy assessment. In November, it dropped to a new all-time low against the euro. The dollar has also slipped considerably against the Swiss franc since the monetary policy assessment of September. Following a temporary recovery, the downturn accelerated from mid-October and in November the exchange rate temporarily slipped below the previous all-time low of CHF/USD 1.11 registered in 1995.

The Swiss franc also fluctuated against the euro over this period. At first it steadily lost value against the euro, dropping to lows in mid-October and early November. It subsequently picked up and was back at 1.66 CHF/EUR in mid-December. As outlined in the last *Quarterly Bulletin* (3/2007, p. 32), the Swiss franc tends to appreciate in a bear market and when market risks increase.

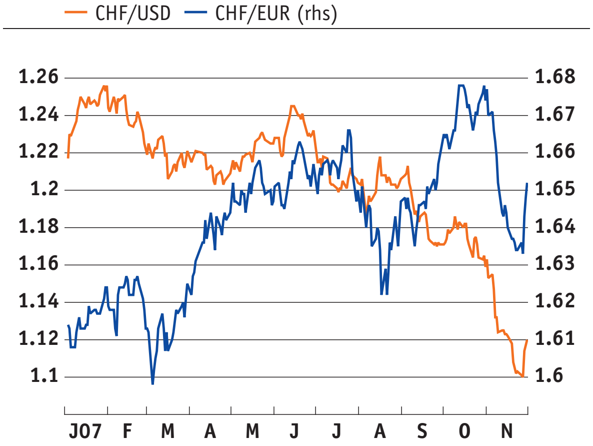
Longer-term trends

The USD/EUR exchange rate was basically stable between the beginning of 2004 and early 2007. During this period, it fluctuated between 1.2 and 1.3 USD/EUR and seldom moved out of this band. However, the dollar has dropped substantially since the start of this year. Similarly, the USD originally traded in a range of 1.2–1.3 CHF/USD at first, rarely moving above or below this corridor and then only for relatively short periods. However, since September 2007, it has been trading at increasingly low rates.

The recent depreciation of the US dollar is consistent with the key economic data. While signs that America's economic growth rates are slowing as a result of lower consumer demand, the correction on the housing market and the resultant turbulence, the economy in the euro area and Switzerland should prove more robust. Moreover, interest rates dropped considerably in the United States in September and October, narrowing the gap between the US and other industrialised countries. This, together with the fact that inflation is higher than in the euro area and Switzerland plus America's large trade deficit, has exerted downward pressure on the dollar.

Graph 3.9
Exchange rates

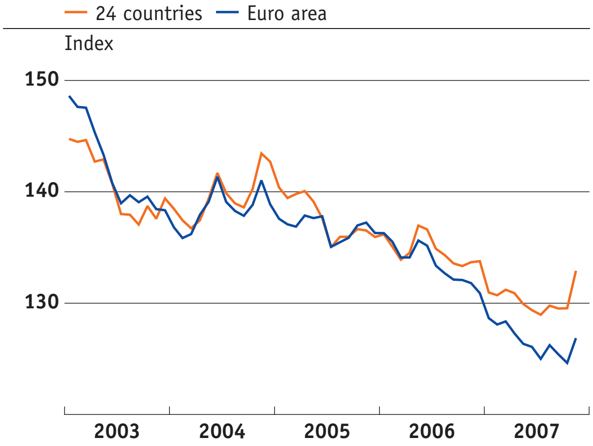
Daily values



Source: SNB

Graph 3.10
Export-weighted real exchange rate of Swiss franc

January 1973 = 100



Sources: SECO, SNB

Real external value of the franc unchanged against the euro

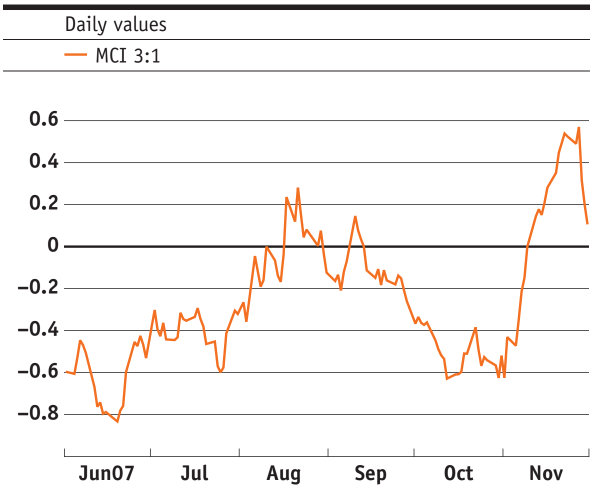
Graph 3.10 shows the real export-weighted external value of the Swiss franc, which factors in the varying price movements between the currency areas. The euro area accounts for 60% of Swiss exports, while the US absorbs 15% and most of the remaining 25% goes to Asia, i.e. a region in which many currencies are linked to the US dollar. The real export-weighted external value of the Swiss franc stabilised against the euro between mid-September and mid-December. Although it declined in real terms in October because of a sharp drop in its nominal value against the euro, this trend was reversed in November and the Swiss franc rose against the euro. The franc rose against the dollar and dollar area currencies in the reporting period. As a result, its real trade-weighted value relative to its 24 most important trading partners increased.

More restrictive monetary conditions

Graph 3.11 shows the Monetary Conditions Index (MCI) for Switzerland. This combines the three-month Libor and the trade-weighted nominal value of the Swiss franc. It provides a measure of the monetary conditions with which businesses in Switzerland have to contend. The MCI is reset to zero immediately after each monetary policy assessment. An increase to positive values (decline to negative values) thus signifies a tightening (loosening) of monetary policy conditions (cf. box, "The Monetary Conditions Index (MCI)" *Quarterly Bulletin* 1/2004, p. 27).

The MCI has risen slightly since the last monetary policy assessment in September. It declined until the end of October, but the subsequent appreciation of the Swiss currency against the euro and the US dollar, accompanied by stable short-term interest rates, resulted in a sharp improvement in the index. At the end of November, the MCI stood at 10 basis points, which meant that monetary policy was more restrictive.

Graph 3.11
MCI nominal



Source: SNB

3.3 Equity, commodity and real estate prices

Equities, commodities and real estate are investments. Their prices are relevant for an analysis of the economic situation for two main reasons. Firstly, price fluctuations on these markets trigger changes in corporate and household assets, which then have repercussions for their credit standing and more generally their savings and investment policies. Secondly, changes in inflation expectations alter the price of equities, real estate and commodities, so their prices in turn reveal inflation expectations. Commodities are also of interest for a third reason: they are inputs for the production process for many goods. Consequently, their prices affect costs and thus exert pressure on general price levels.

Volatile equity markets

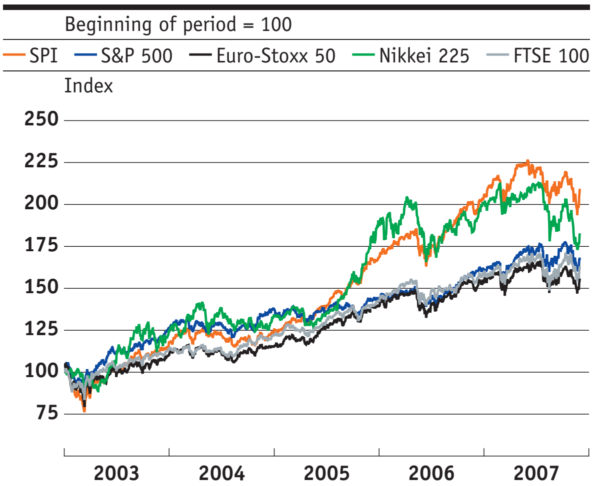
The most important equity indices – for example the S&P 500 in the US and the Euro Stoxx 50 in Europe – stabilised after the downtrend in summer 2007 and made up a good deal of ground between mid-September and mid-October 2007. This was followed by a renewed correction phase. The Swiss Performance Index (SPI) was also very volatile between mid-September and mid-December.

Looking at the individual components of this index, the credit crisis had the strongest impact on financial services companies. Between mid-September and end-November, Swiss banking stocks slipped by around 11%. By contrast, industrial and technology stocks rose by 5% and 4% respectively in this period, reflecting good export conditions.

There were three principal reasons for the market correction in October/November 2007: Firstly, the results reported by many international banks were below expectations. Losses on mortgage-backed securities and collateralised debt obligations forced many banks, including UBS and Credit Suisse, to make significant write-downs. Moreover, the banks suffered setbacks in other areas such as investment banking. Secondly, signs of slower economic growth in the United States coincided with a threat of inflation in various countries. Thirdly, mounting uncertainty led to an increase in risk premiums, exerting downward pressure on equity prices and resulting in the sudden restructuring of portfolios to shift assets into safer investments.

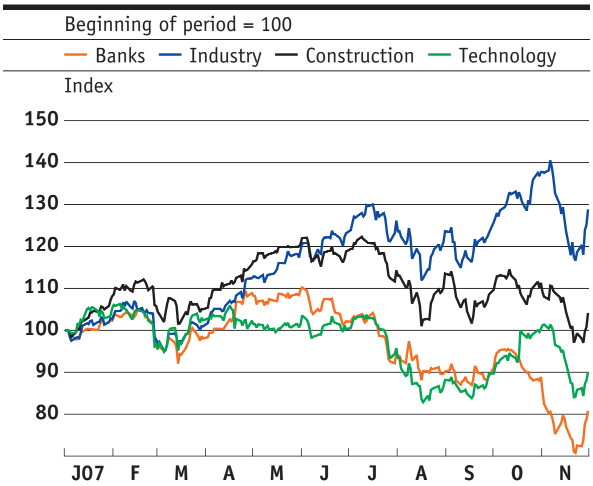
The nervousness on the financial markets is reflected in higher volatility. This has affected the currency, bond and commodity markets as well as equities. Graph 3.14 shows the expected volatility in the next thirty days based on the Chicago Board

Graph 3.12
Stock prices



Sources: Thomson Datastream, Bloomberg

Graph 3.13
Selected SPI sectors



Source: Thomson Datastream

Options Exchange Volatility Index (VIX) and the actual volatility measured by the annualised standard deviation in monthly returns on the SPI and S&P 500. In September, volatility declined from the high level registered in August. Intervention by central banks, especially the rate cut by the US Federal Reserve, gave rise to more optimistic sentiment on the equity markets. However, fears that the credit crisis could prove more serious and more prolonged than originally anticipated resurfaced in mid-October. Graph 3.14 shows that in November the equity market investment risk was considered only negligibly lower than during the credit squeeze in summer 2007.

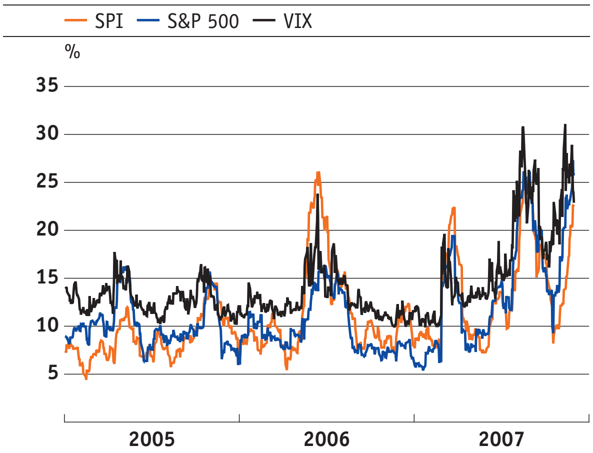
Higher commodity prices

Most commodity prices have increased since the last monetary policy assessment in mid-September 2007. The Goldman Sachs Commodity Index rose 10% between mid-September and mid-December, chiefly as a result of higher energy and precious metals prices. The oil price rose to a new all-time high during the past three months and was USD 89 per barrel in mid-December. This may well have been due to speculation, geopolitical uncertainty, a shortage of stocks and the risk of supply bottlenecks. The gold price increased sharply to a new high, gaining 12% between mid-September and mid-December in response to the weakness of the dollar, increasing fears of inflation and the volatility of the financial markets.

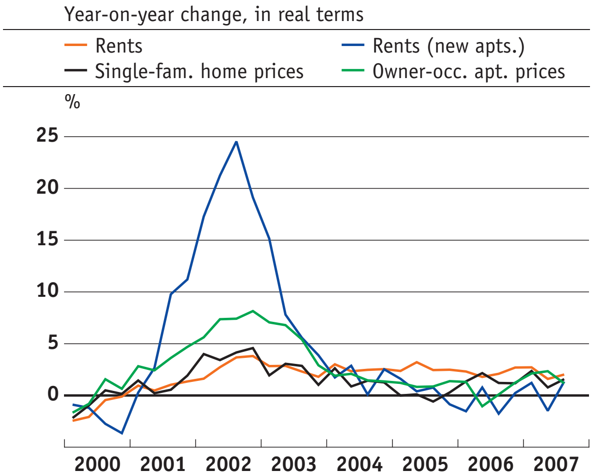
Moderate rise in real estate prices

The sustained moderate uptrend in real estate prices continued in the third quarter of 2007. Year-on-year, apartment rents, which make up the biggest segment of the Swiss housing market and also the largest component of the CPI (around 20%), rose by 2.0% in real terms, slightly more steeply than in the previous quarter. However, this figure applies mainly to the existing housing stock. Rents for new apartments, which are a better reflection of market forces, increased by a comparatively moderate 1.3%. Growth rates are still far lower than in 2002 and 2003. The situation is similar with regard to single-family homes and owner-occupied apartments, although they account for a smaller share of the overall market. Prices for single-family homes increased by 1.6% while prices for owner-occupied apartments advanced by 1.2%. By contrast, office rents continued to decline.

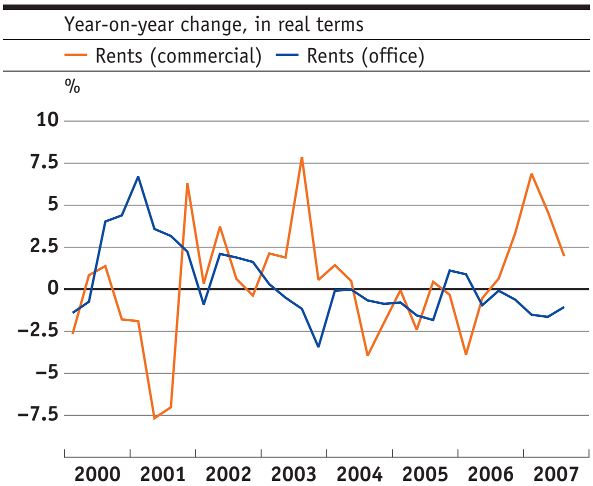
Graph 3.14
Volatility of equity returns



Graph 3.15
Real estate prices and rents



Graph 3.16
Commercial and office rents



Graph 3.14:
Sources: Thomson Datastream, SNB

Graph 3.15:
Source: Wüest & Partner

Graph 3.16:
Source: Wüest & Partner

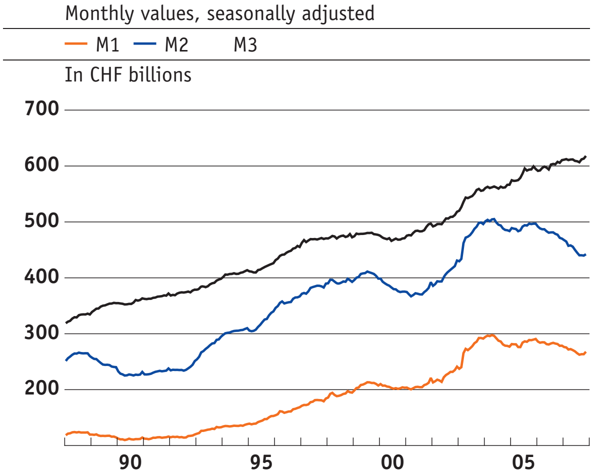
3.4 Monetary aggregates

M1 and M2 declining

As shown in graph 3.17, M1 (note and coin circulation, sight deposits and transaction accounts) and M2 (M1 plus savings deposits) have both declined since the beginning of 2006. In November 2007, M1 was 3.8% lower than a year previously, while M2 was 6.2% lower. M3 (M2 plus time deposits) increased by 2.0% in November. As in the late 1980s/early 1990s and at the end of 1990/start of 2000, lower or negative growth in the monetary aggregates indicates a more restrictive monetary policy.

One way of assessing the potential inflationary threats emanating from an excessive supply of liquidity to the economy is to calculate the monetary overhang. Various methods exist for doing this. Here, the EC approach is used (cf. box, "Money supply growth and inflation", *Quarterly Bulletin* 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. 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. If the range is below the zero line, as is currently the case, this indicates an expectation of lower price pressure in the medium term.

Graph 3.17
Monetary aggregates



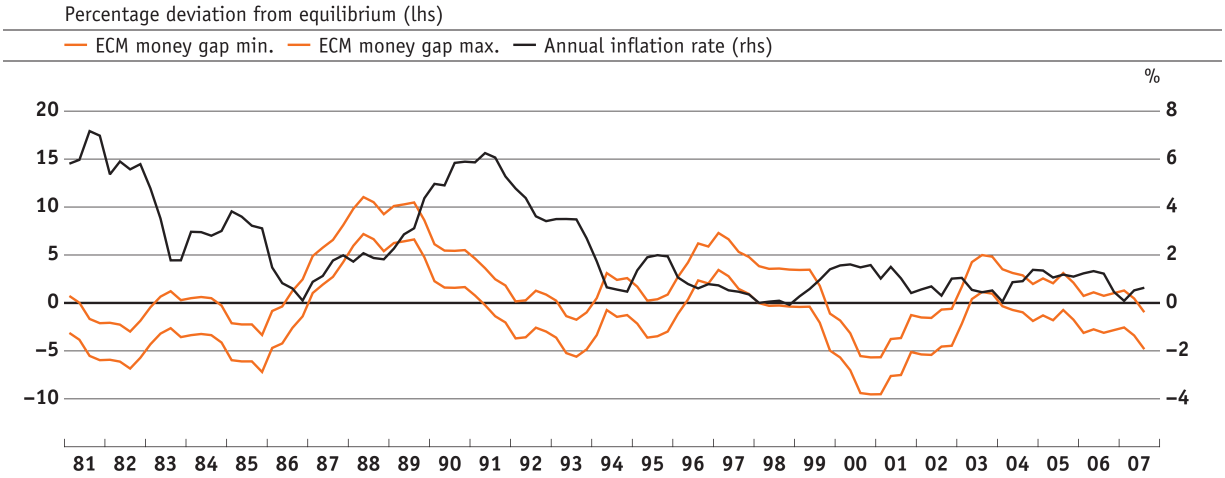
Source: SNB

Monetary aggregates[1] Table 3.1

	2005	2006	2006 Q3	Q4	2007 Q1	Q2	Q3	2007 September	October	November
Monetary base[2]	**41.9**	**43.1**	**42.3**	**43.6**	**44.6**	**44.0**	**43.4**	**43.1**	**43.4**	**44.2**
Change[3]	*0.4*	*3.0*	*2.6*	*2.2*	*3.1*	*1.5*	*2.7*	*2.1*	*2.0*	*3.4*
M1[2]	**284.2**	**282.4**	**280.5**	**281.0**	**276.0**	**270.0**	**261.5**	**262.1**	**263.9**	**271.9**
Change[3]	*–1.5*	*–0.6*	*–1.4*	*–3.4*	*–3.6*	*–4.2*	*–6.7*	*–6.6*	*–6.4*	*–3.8*
M2[2]	**491.6**	**481.6**	**477.1**	**474.1**	**465.9**	**453.9**	**439.0**	**437.9**	**439.0**	**446.3**
Change[3]	*–0.8*	*–2.0*	*–2.9*	*–4.7*	*–5.3*	*–6.1*	*–8.0*	*–7.9*	*–7.8*	*–6.2*
M3[2]	**585.9**	**600.3**	**600.4**	**607.9**	**613.4**	**611.6**	**606.4**	**609.2**	**612.1**	**619.1**
Change[3]	*4.2*	*2.5*	*1.6*	*2.0*	*3.0*	*2.4*	*1.0*	*1.5*	*0.9*	*2.0*

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 Credit

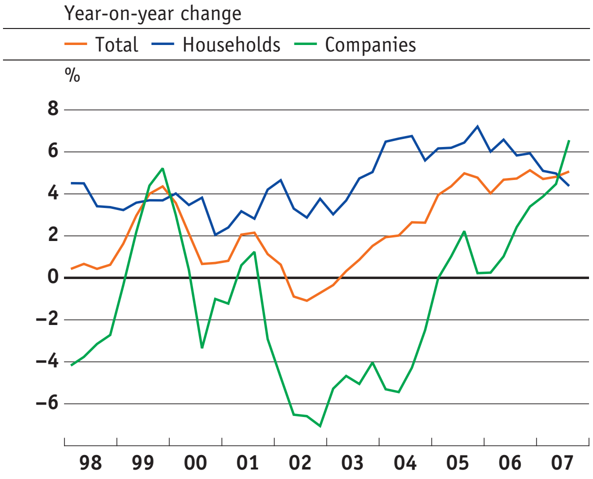
Mixed credit signals

In the third quarter, lending increased by about 5.5% compared with the third quarter of the previous year. That was slightly above the growth rate in the second quarter. The discrepancy in the growth in loans to households and companies continued. As graph 3.19 shows, growth in loans to households dropped from 5.0% in the second quarter to 4.4% in the third quarter, while growth in loans to companies increased from 4.5% to 6.6%.

If lending is subdivided into mortgages and other loans, it becomes clear that mortgages, which are mainly granted to households, grew slightly more slowly than in the previous quarter (3.8% versus 4.2%). This reflects the tighter monetary policy. Other loans, which are mainly to companies, increased faster (13.1% versus 10.3%).

So far, the financial markets crisis has not been reflected in lending figures. The monthly data in table 3.2 show continued robust growth in corporate lending. The other loans expanded by 15.7% year-on-year in October, which was approximately as fast as in August. In particular, there was strong growth in unsecured loans (20.2%), indicating that in October the banks were still prepared to grant loans without collateral. In October, utilised unsecured loans amounted to CHF 100.7 billion, corresponding to the level of July 2001 and about CHF 16 billion below the peak attained in April 2001.

Graph 3.19
Bank loans



Source: SNB

Bank loans
Year-on-year change in percent

Table 3.2

	2005	2006	2006 Q3	Q4	2007 Q1	Q2	Q3	2007 August	September	October
Total[1]	**4.1**	**4.8**	**4.9**	**5.1**	**5.2**	**5.3**	**5.5**	**6.1**	**5.5**	**6.0**
Households[2]	6.5	6.1	5.8	5.9	5.1	5.0	4.4	4.6	4.3	4.4
Companies[2]	0.9	1.6	2.4	3.4	3.9	4.5	6.6	7.8	6.6	7.8
Mortgage claims[1]	5.2	4.8	4.8	4.5	4.2	4.2	3.8	3.9	3.8	3.8
of which households[1]	6.9	5.5	5.4	5.3	4.9	4.8	4.0	4.1	3.9	3.8
of which companies[1]	3.1	1.2	1.3	0.7	0.8	1.2	3.0	3.0	3.1	3.4
Other loans[1]	–0.7	4.6	5.4	8.1	9.6	10.3	13.1	15.6	12.5	15.7
of which secured[1]	2.6	2.5	0.6	1.5	7.1	7.2	5.6	8.5	3.8	9.3
of which unsecured[1]	–3.1	6.3	9.3	13.4	11.5	12.6	18.6	20.9	18.9	20.2

1 Monthly balance sheets
2 Credit volume statistics
Source: SNB

4 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 essentially 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 September forecast.

Global economy still robust despite increased financial market uncertainty

Compared to the last monetary policy assessment in September, lower growth momentum is assumed in the United States in both 2008 and 2009 as a result of the sustained turbulence on the US housing and financial markets, which involves substantial risks to growth in consumer spending and investment. The risks of slower growth in Europe have also increased. Consequently, the current forecast has also been reduced compared to the last assessment in September. Despite the increased uncertainty on the international financial markets, solid growth is anticipated in both regions, moving into line with potential of around 3% (US) and 2% (EU) at the end of the forecasting period.

The current scenario assumes an oil price of USD 94 per barrel in the next few quarters and USD 82 in the long term. Internationally, slightly higher inflation rates are forecast for 2008 and 2009 due to energy prices. However, the strength of the euro should dampen cost pressure in the euro area. In the US, by contrast, inflation is expected to rise more steeply owing to the depreciation of the currency.

The dollar/euro exchange rate has been increased slightly in the current scenario, being estimated to hold constant at 1.42 in 2008 and 2009.

Assumptions for inflation forecasts Table 4.1

Inflation forecast of December 2007	**2007**	**2008**	**2009**
GDP US[1]	2.1	2.4	2.8
GDP EU15[1]	2.7	2.0	2.0
		Short term	**Long term**
Exchange rate USD/EUR[2]		1.42	1.42
Oil price in USD/barrel[2]		94.0	82.0

Inflation forecast of September 2007	**2007**	**2008**	**2009**
GDP US[1]	1.9	2.9	3.1
GDP EU15[1]	2.7	2.2	2.1
		Short term	**Long term**
Exchange rate USD/EUR[2]		1.37	1.37
Oil price in USD/barrel[2]		69.0	76.0

1 Change in percent
2 Level
Source: SNB

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.

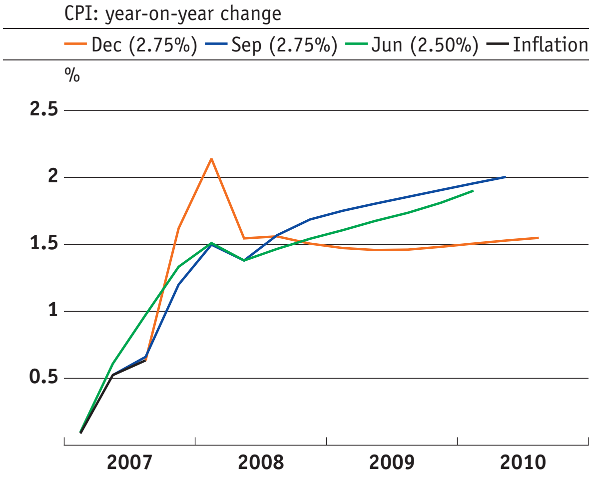
4.2 Inflation forecast Q4 2007 to Q3 2010

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 December 2007 alongside those of September and June. The new forecast, which covers the period from the fourth quarter of 2007 to the third quarter of 2010, is based on a steady three-month Libor of 2.75%. This rate corresponds to the mid-point of the 2.25–3.25% target range for the three-month Libor, which the SNB confirmed on 13 December. Last September's inflation forecast was also based on a fixed three-month Libor of 2.75%. The June forecast, however, was based on a three-month Libor of 2.50%, corresponding to the level the SNB was aiming for when the target range was 2.00–3.00%.

The inflation outlook for 2009 and 2010 will improve as a result of the expected slowdown in the global economy and thus also in economic growth in Switzerland. However, oil price hikes will result in a temporary increase in inflation in the first half of 2008. Once the peak is passed, inflation is likely to drop back to about 1.5%, and then edge slowly back up until the end of the forecast period. Assuming an unchanged three-month Libor of 2.75%, the SNB is forecasting average inflation of 0.7% in 2007, 1.7% in 2008 and 1.5% in 2009.

The uncertainties associated with the assessment of the inflation outlook are greater than usual, due to the convergence of a number of factors with differing effects on the economy. First, there are factors that slow down Swiss economic growth and simultaneously hold back inflation. These include the expected deterioration in the international growth outlook associated with a widening of the impact of the US real estate crisis. Second, there are some possible developments that would simultaneously slow the economy and threaten price stability. These include the rise in oil prices, if it should prove to be persistent. In this event, the SNB will need to limit the knock-on effects of the price upsurge. Finally, a continued weakening of the Swiss franc could further stimulate an economy which is already booming, thereby increasing the risk of inflation.

Graph 4.1
SNB inflation forecasts: a comparison



Source: SNB

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 December 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 September to November 2007 on the current and future economic situation are summarised.

Summary

The talks held by the SNB delegates for regional economic relations with around 170 representatives from various economic sectors and industries again pointed to a good economic situation in the period from September to November. While representatives from the retail sector in particular reported a clear upturn in sales, those from industry indicated that business was very buoyant through to the end of the period reviewed.

The majority of representatives, apart from those from the construction sector, had not detected any specific signs of a slowdown and were confident about 2008. Nevertheless, many assume that next year will be more difficult than 2007, which generated further record results in many sectors. Moreover, distinct nervousness was apparent among representatives of the financial sector. In view of the increased cyclical uncertainty, the broadly based rise in the price of energy, industrial and agricultural raw materials and preliminary products give cause for concern. Another recurrent issue was the increasing shortage of personnel.

1 Production

Manufacturing

Most respondents from the manufacturing sector reported a further rise in orders. Order books for 2008 are already well-filled at many firms and budgets are generally in line with 2007. Demand from the EU, especially Germany, and from Eastern Europe and Asia, remained strong and some companies had registered a further increase in momentum. The view on US demand was more sceptical, however. Construction suppliers noted that the crisis in the US construction sector had already had a clear impact on business and consumer goods suppliers are preparing for a drop in demand for consumer goods in the US. Utilisation of technical and staff capacity remained very high across all sectors. Long lead times for preliminary products, product delays at companies' own plants and a deterioration in quality due to overwork were commonly referred to. In view of the high capacity utilisation, a number of companies reported plans to invest in expansion of capacity.

There were few differences between industries. Business trends were particularly good in the watchmaking industry, energy technology, transport and – given the global boom in the agricultural sector – agricultural machinery. Respondents from other sectors of the capital and consumer goods industries also indicated a very positive situation, even though representatives of the textile machinery industry, which is regarded as a typical early-cycle indicator, registered a slight slowing of business.

Services

Representatives of both consumer and business-oriented service sectors were very satisfied with business trends, while the mood in the retail trade was very upbeat. Consumer confidence is regarded as excellent and all areas of the consumer goods industry are benefiting from this. Record turnover was reported by many companies. Turnover had been above-average at the top of the price bracket, benefiting in part from free spending by tourists. However, signs of mounting concern among clients in the financial sector were reported. Overall, sentiment on the upcoming Christmas season is very optimistic. In border regions, the retail sector continued to benefit from a fall-off in purchases by Swiss residents in neighbouring countries.

Representatives of the tourism and hospitality trades were also very satisfied with the trend in overnight stays and spending patterns. Following a pleasing summer season, the early onset of winter led to a sharp hike in bookings at holiday destinations. The hospitality sector in urban areas benefited, among other things, from higher spending by the corporate sector. Airport operators and airlines, especially those specialising in business travel, also reported an excellent level of business. IT service providers pointed to companies' continued high willingness to invest.

The situation in the financial sector was more downbeat than it had been three months earlier. Business in the mortgage sector and with corporate clients remained positive and a credit squeeze was denied by representatives across the board. On the contrary, further business expansion with the corporate sector had been hampered in many cases by companies' high liquidity and high levels of equity. This tallies with the statements by respondents from all sectors, who had not detected any tightening in lending conditions. The stock market downtrend has led to a loss of momentum at banks specialising in asset management. Predictions for 2008 varied, but sentiment was generally more subdued, especially in the private equity sector.

Construction and real estate

Representatives of the construction industry again reported good business results and a comfortable level of orders on hand, but the consensus view was that the construction cycle has peaked. The majority pointed to signs of a slowdown and consolidation in residential construction, which was previously the driving force in this sector. By contrast, industrial and commercial construction were satisfactory. An excellent trend was reported for interior construction work due to the large number of new properties nearing completion and the continued buoyancy of the renovation market. Civil engineering remains a source of concern: many major infrastructure projects are nearing completion and there is a lack of follow-on projects. Opinions are divided on the outlook for the real estate market: while prices are still rising rapidly at the high end of the market, the upward pressure is slowing at the lower end.

2 Labour market

Many representatives reported plans to raise staff numbers further. However, the increasing shortage of skilled staff is causing concern in all industries. There is a particularly acute shortage of technical staff, IT specialists and skilled construction workers. The construction sector reported increasing difficulty recruiting foreign employees, as outflows of labour into other European countries have been accelerating. The depreciation of the Swiss franc versus the euro has made it more difficult to recruit staff from the EU. In the low-wage sector, in particular, a sharp rise had been registered in the number of workers wanting to be paid in euros or asking for compensation for the reduction in the Swiss franc's purchasing power. In border areas, in particular, commuters had seen a contraction of the wage differential, making Switzerland less attractive as a place of work.

The general expectation was that pay rises would be higher in 2008 than in 2007, with most representatives predicting a rise in the order of 2–2.5%. In addition, staff in all industries tend to receive bonus payments. According to personnel consultancies, a particularly marked increase in salaries can be seen in mid to upper management positions.

3 Prices, margins and earnings situation

The sharp rise in procurement prices was a recurrent theme. Alongside higher energy and raw material costs, a broad-based advance in the prices of agricultural products and processed foods is now apparent. Although the higher costs can easily be passed on to customers in the present environment, the prospect of a cyclical downturn is giving rise to concern. Despite some sharp price rises in the food sector, the retail trade is only expecting modest hikes. One reason cited for this was the unrelenting pressure from competition. Moreover, some companies are still facing a slide in selling prices. These include, first and foremost, producers of generics and other medical products, which are feeling the effects of the savings drive in the healthcare sector. Representatives of the construction sector are also expecting lower prices and margins in the light of the expected business slowdown.

The exchange rate situation was back in the forefront as well. The sharp depreciation of the dollar is causing concern as it is also making Asian suppliers more competitive. Various representatives indicated that they intended to shift costs to the dollar zone if there is no let-up in the dollar's weakness.

Swiss National Bank Working Papers and Swiss National Bank Economic Studies: Summaries

Applying the Hirose-Kamada filter to Swiss data: Output gap and exchange rate pass-through estimates

Franziska Bignasca and Enzo Rossi
Working Paper 2007-10

Measures of potential output and consequently of the output gap, in terms of levels and growth rates, convey important information. For monetary authorities, in particular, this information is of great interest when appraising inflation risks.

Potential output and output gaps cannot be observed, and have to be estimated using available macroeconomic data. A large number of methods have been developed for this purpose. Yet in spite of methodological abundance, there is substantial murkiness about the potential output. In the light of these considerations, the present article applies three filters. Filtering methods can be divided into two categories. The first comprises univariate approaches. These estimate the potential output by extracting the trend component from the series. One very widely used method is the Hodrick-Prescott filter. The second category comprises methods which attempt to extract the trend component using the information in the output series in conjunction with information contained in other variables, notably inflation. In doing so, these techniques typically attempt to take into account empirical relationships, such as the short-run Phillips Curve. They are referred to as multivariate filters. By conditioning the Hodrick-Prescott filter estimate of the output gap on additional relevant information, a more precise estimate of potential output and hence the output gap should be obtained.

In this working paper, a multivariate filter proposed by Hirose and Kamada is applied to quarterly Swiss data from 1981 to 2005 to estimate potential output and the output gap. The filter presents interesting features. First, it embeds economic information in the process of determining potential output. Second, it affords good results. Third, it allows for the construction of confidence intervals around the estimates of potential output. The results are compared with those obtained by using the multivariate Laxton and Tetlow filter and the univariate Hodrick-Prescott filter. The paper shows that, from the mid-1990s onwards, the estimates obtained with the Hirose-Kamada filter diverge from those obtained with the other two filters, which are very similar. In particular, the Hirose-Kamada filter suggests a more marked underutilisation of resources than the other two filters. Apart from a short spell in 2000/01, during which the output gap was closed, the output gap has been negative since 1994. Overall, potential output grew by 1.9% between 1981 and 2005.

Finally, the transmission of exchange rate movements to Swiss consumer prices is analysed. To this end, a model-consistent Phillips Curve for an open economy is derived from simple economic relationships. Based on the Hirose-Kamada filter, only a weak transmission of exchange rate fluctuations to consumer prices is found.

The reaction of asset markets to Swiss National Bank communication

Angelo Ranaldo and Enzo Rossi
Working Paper 2007-11

Communication provides monetary policy authorities with an effective means of explaining their thinking and decisions. As such, communication is potentially an important avenue for central bankers to disseminate valuable information. Communication by central banks is nowadays seen as instrumental in achieving transparency and accountability, and – by affecting the expectations of financial market participants – in increasing the effectiveness of monetary policy.

Despite the significance of central bank communication, relatively little research has been done to study its effects on asset markets. This working paper contributes to the literature by analysing whether the Swiss National Bank (SNB) affects Swiss asset markets through its communication. To this end, intraday high-frequency data from 2000 to 2005 are used. The paper goes beyond previous studies in three important respects. First, it investigates the reactions of asset markets not only to official policy announcements but also to speeches and interviews. Second, it analyses the reaction of three financial assets: foreign exchange (the USD/CHF exchange rate), stocks and bonds. Third, it provides a new database derived from internal SNB information and external newswire reports.

The authors' findings are that SNB communication does indeed affect asset markets, which react to official policy statements as well as speeches and interviews. Market participants actively monitor and promptly respond to SNB communication. The bond market is the most responsive, followed by the currency market, while the stock exchange is the least sensitive.

While official policy announcements are bound by certain constraints, speeches and interviews allow the SNB management to inform market participants flexibly about past and ongoing economic activity as well as about impending policy.

Communicating policy options at the zero bound

Lukas Burkhard and Andreas M. Fischer
Working Paper 2007-12

The objective of this study is to examine the financial markets' response to strongly worded statements by central bank officials that make direct reference to foreign exchange interventions (hereafter, intervention references). To make robust statements about such a communication policy, the authors test the following hypotheses. Intervention references by central banks sway exchange rates. The first reference is more important than other same-day reports. Financial markets respond equally to central bank communication of potential FX interventions under different monetary policy environments. To test these hypotheses, the authors first construct an index of intervention references based on newswire reports. Next, event study analysis is used to determine whether intervention references correspond with high-frequency movements in the exchange rate.

The empirical analysis examines a special episode between 2002 and 2005, when the Swiss National Bank (SNB) made references to the potential use of FX interventions. The SNB intervention references referred to the unconventional policy of non-sterilised interventions and should be viewed as communicating a new policy option when interest rates are zero. This study thus extends the empirical literature by Bernanke and Reinhart (2004) and Bernanke et al. (2004). These studies, which rely on theoretical work by Eggertsson and Woodford (2003) and others, argue that communication is an effective tool in shaping policy expectations when nominal interest rates are close to or equal to zero. Bernanke et al. (2004) provide evidence that Fed references to policy inclinations about the future path of interest rates are able to move asset prices. The authors' contribution is to extend the empirical literature on communication effectiveness at the zero bound beyond the United States and Japan to a small open economy setting, Switzerland.

The empirical results based on the direction criterion using intra-daily data for the period 2002 to 2005 provide strong evidence that strongly worded references are capable of generating a market response that leads to a depreciation of the Swiss franc for a few hours. This result is robust to controls for seasonality and multiple news arrivals. The empirical evidence also supports a communication strategy where central bankers talk frequently to markets and do so well before interest rates reach the lower bound.

References:

Bernanke, Ben S. and Vincent R. Reinhart. 2004. Conducting Monetary Policy at Very Low Short-Term Interest Rates. *American Economic Review Papers and Proceedings* 94(2), May: 85-90.

Bernanke, Ben S., Vincent R. Reinhart, and Brian P. Sack. 2004. Monetary policy alternatives at the zero bound: An empirical Assessment. *Brookings Papers on Economic Activity* 2: 1-95.

Eggertsson, Gauti G. and Michael Woodford. 2003. The Zero Bound on Interest Rates and Optimal Monetary Policy. *Brookings Papers on Economic Activity* 1: 139-233.

Monetary factors and inflation in Japan

Katrin Assenmacher-Wesche, Stefan Gerlach and Toshitaka Sekine
Working Paper 2007-13

Recently, the Bank of Japan (BOJ) outlined a "two perspectives approach" to the conduct of monetary policy that focuses on risks to price stability over different time horizons. Interpreting this as pertaining to different frequency bands, the authors use band spectrum regression to demonstrate that the relationship between money growth and inflation varies across frequency bands or, loosely speaking, "time horizons".

The authors find that, at low frequencies of four years or more, inflation is determined by the growth rate of money minus the growth rate of real GDP, as well as changes in interest rates that capture shifts in money demand. Furthermore, the correlation between money growth and inflation reflects unidirectional Granger causality from money growth to inflation, implying that money growth contains information about future inflation that is not already embedded in inflation.

At high frequencies of four years or less, inflation is correlated with the output gap, whereas monetary factors appear to be of little significance. Moreover, there is unidirectional Granger causality from the output gap to inflation.

Since the band spectrum regressions show that the relationship between inflation, money and output growth and the output gap varies by frequency, a model for headline inflation is proposed that focuses on the low-frequency components of money and output growth, and on the output gap. The results indicate that, in the long run, a one percentage point increase in the growth rate of money at low frequencies leads to an equal increase in headline inflation. An increase in the low-frequency component of output growth depresses inflation proportionally, as suggested by the quantity theory.

While these results support the notion that money growth does contain information useful for predicting future inflation, since they say nothing about whether money growth is controllable, they do not imply that it would be desirable for the BOJ to target money growth. Nor do they imply that money growth should have any "special" status in the conduct of policy; like other macroeconomic variables, the weight attached to it in the policy process should presumably depend on how closely it is related to inflation.

Exchange rate pass-through in Switzerland: Evidence from vector autoregressions

Jonas Stulz
Economic Study No. 4 2007

The extent to which exchange rate changes are reflected in prices of goods and services, generally referred to as the exchange rate pass-through relationship, has been of interest in international economics since the breakdown of the Bretton Woods system in 1973. For monetary policymakers, a thorough understanding of the pass-through relationship is important, as it has an impact on both the transmission mechanism of monetary policy and on inflation forecasts.

In spite of the high relevance of this issue, the empirical evidence for Switzerland is rather scarce. The aim of this study is thus to provide pass-through estimates for Switzerland. It exploits the information in macroeconomic time series in order to estimate the exchange rate pass-through to both import prices and consumer prices. The baseline analysis relies on recursively identified vector autoregressive (VAR) models. The degree of pass-through at different time horizons is quantified by means of impulse response functions. In a first step, the transmission of exchange rate and import price shocks to different prices is examined over a long time period ranging from January 1976 to December 2004 (full-sample analysis). In a second step, the changes in pass-through mechanisms over time are investigated. In order to achieve this objective, the study examines two sub-samples: January 1976 to April 1993 and May 1993 to December 2004. Special attention is paid to the link between the degree of pass-through to consumer prices and the inflation environment, i. e. the possible role of monetary policy in influencing the pass-through.

In the full-sample analysis the exchange rate pass-through to import prices is found to be substantial, yet incomplete. By contrast, exchange rate shocks cause only moderate responses in consumer prices. These results are remarkably robust to different specifications of the empirical model. Furthermore, the sub-sample estimates indicate that the degree of pass-through fell in the 1990s below the levels recorded in previous decades. This is particularly true for the pass-through to consumer prices, and it coincides with a change in the inflationary environment, i.e. a shift towards lower and more stable inflation. This finding is in line with a recent body of literature which claims that a decrease in the exchange rate pass-through to consumer prices may be attributed to increased emphasis on inflation stabilisation by central banks.

Chronicle of monetary events

Target range for three-month Libor left unchanged

On 13 December, following its quarterly assessment, the Swiss National Bank decided to leave the target range for the three-month Libor unchanged at 2.25–3.25%. It intends to hold the three-month Libor in the middle of this target range for the time being.

Table of contents, volume 25, 2007

Published by
Swiss National Bank
Economic Affairs
Börsenstrasse 15
P.O. Box
CH-8022 Zurich

Design
Weiersmüller Bosshard Grüninger WBG, Zurich

Composition
Neidhart + Schön AG, Zurich

Website
www.snb.ch