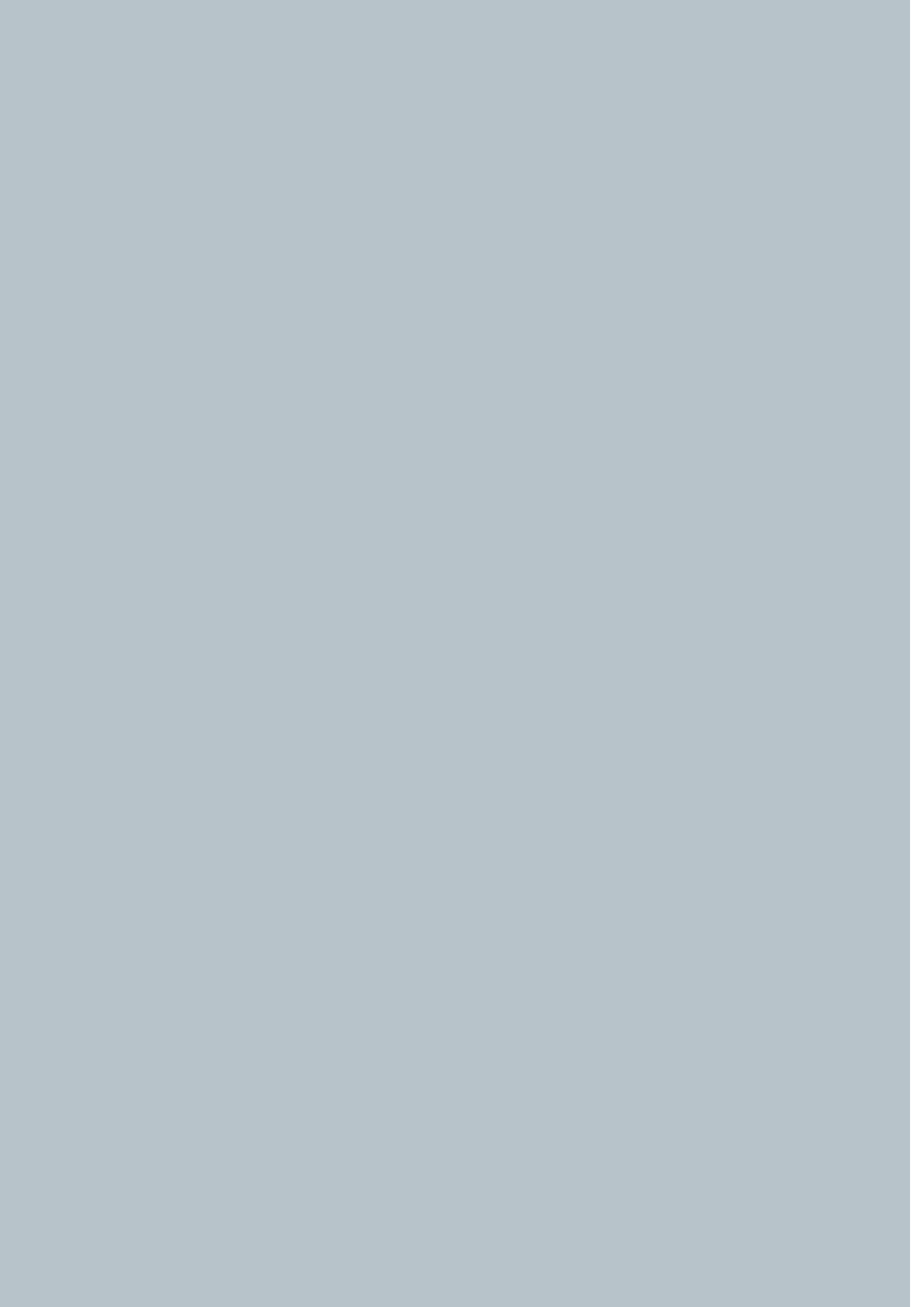


SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK



Quarterly Bulletin



Swiss National Bank Quarterly Bulletin

September 3/2007 Volume 25

Contents

5	Overview
6	Monetary policy report
44	The economic situation from the vantage point of the delegates for regional economic relations
48	Swiss National Bank Working Papers and Swiss National Bank Economic Studies: Summaries
52	Chronicle of monetary events

Overview

Monetary policy report (p. 6)

The global economy maintained its brisk pace of growth in the first half of 2007, with Europe and Asia accounting for the greatest part of this advance. The US economy, by contrast, exhibited moderate growth during the same period. On the whole, prospects for all three economic areas remained favourable. However, given the financial market turmoil in August, which led to a significant rise in premiums on high-risk investments, the downside risks to growth dominate.

In Switzerland, the economic upswing continued during the second and third quarters of 2007. In the second quarter, real GDP was 3% above that of the previous period, thus exceeding the corresponding year-earlier level by 2.8%. Both domestic and export demand contributed to the economy's rapid growth. The strong expansion of equipment investment was noteworthy. Employment continued to rise, and unemployment figures declined. The SNB still expects GDP growth in the vicinity of 2.5% for 2007, although the cyclical risks have increased as a result of the financial market turbulence.

At the September quarterly assessment, the SNB decided to target a three-month Libor of approximately 2.75% for the time being, after this rate had risen to 2.9% at the beginning of September due to particularly high credit risk premiums. In making this decision, the SNB was aiming to calm the Swiss franc money market. The target range for the three-month Libor was adjusted by 0.25 percentage points to 2.25–3.25%.

The economic situation from the vantage point of the delegates for regional economic relations (p. 44)

The talks held by the SNB delegates for regional economic relations with around 150 representatives from various economic sectors and industries in the period from June to August yielded a picture of a broad-based economic boom. Most representatives reported robust to strong growth in turnover and orders; some even spoke of a record year. Prospects were viewed as positive. There was little mention of any foreseeable slowdown in business. However, in some cases a certain amount of concern was evident with regard to the financial market turmoil in August. Given the high level of capacity utilisation and the positive earnings situation, many companies have invested in expansion or plan to do so. Difficulty recruiting qualified employees was regularly mentioned. Overall, the scope for price adjustments seems to have increased, making it more possible to pass higher commodity and energy prices on to customers. Once again, capacity shortages and problems with the procurement of commodities and primary products were cited as the main concern.

Swiss National Bank Working Papers and Swiss National Bank Studies (p. 48)

Abstracts of three articles: Hans-Jürg Büttler, An orthogonal polynomial approach to estimate the term structure of interest rates, *SNB Working Paper* 2007-8; Raphael Auer, The colonial origins of comparative development: Comment. A solution to the settler mortality debate, *SNB Working Paper* 2007-9; Ernst Baltensperger, Philipp M. Hildebrand and Thomas J. Jordan, The Swiss National Bank's monetary policy concept – an example of a 'principles-based' policy framework, *SNB Economic Study* No. 3 2007.

Monetary policy report

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

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

Contents

8	About this report
9	Key developments
11	1 Developments in the global economy
15	2 Developments in the Swiss economy
15	2.1 Overview
17	2.2 Foreign trade, consumption and investments
20	2.3 Employment and labour market
21	2.4 Capacity utilisation
23	2.5 Goods prices
28	3 Monetary developments
28	3.1 Interest rates and inflation expectations
31	3.2 Exchange rates
34	3.3 Equity, commodity and real estate prices
37	3.4 Monetary aggregates
39	3.5 Credit
41	4 SNB inflation forecast
41	4.1 Assumptions for global economic developments
43	4.2 Inflation forecast Q3 2007 to Q2 2010
26	Exchange rate pass-through in Switzerland
32	The Swiss franc – a tendency to appreciate in bear markets and in periods of high market uncertainty
42	Inflation forecasting as part of the monetary policy concept

About this report

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

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

Sections 1–3 of the present report were drawn up for the Governing Board's assessment of September 2007. The key developments and section 4 (inflation forecast) take due account of the Governing Board's monetary policy decision of mid-September 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 maintained its brisk pace of growth in the first half of 2007, with Europe and Asia accounting for the greatest part of this advance. The US economy, by contrast, exhibited moderate growth during the same period. On the whole, prospects for all three economic areas remained favourable. However, given the financial market turmoil in August, which led to a significant rise in premiums on high-risk investments, the downside risks to growth dominate.

At the root of the financial market problems is the mortgage and real estate crisis in the US, which has been smouldering for quite some time now. Major price corrections to sub-prime mortgages have burdened the financial sector, causing some US and European banks to run into serious difficulties. In order to avert the threatened liquidity shortage in the money market, most central banks temporarily increased the supply of liquidity in August. In addition, the Fed reduced its discount rate in mid-August by half a percentage point to 5.75%, thus underscoring its commitment to maintaining orderly conditions on the money market. Moreover, looking ahead to the next scheduled meeting of the Federal Open Market Committee in mid-September, it suggested the possibility of a reduction in its key interest rate.

In the global economic scenario upon which it bases its September inflation forecast, the SNB assumes that US growth momentum will decline next year as a result of the turbulence in the financial markets. In Europe, however, robust growth will probably be maintained.

In Switzerland, the economic upswing continued during the second and third quarters of 2007. In the second quarter, real GDP was 3% above that of the previous period, thus exceeding the corresponding year-earlier level by 2.8%. Both domestic and export demand contributed to the economy's rapid growth. In particular, the strong expansion of equipment investment was noteworthy. Employment continued to rise, and unemployment figures declined. The talks held by the SNB delegates for regional economic relations with around 150 representatives from various economic sectors and industries support the picture of a broad-based economic boom. Capacity shortages and problems with the procurement of commodities and primary products were once again cited as the main concern. Overall, the scope for price adjustments seems to have risen, making it

increasingly possible to pass higher commodity and energy prices on to customers. When asked about the financial market turmoil in August, some respondents were somewhat concerned, however.

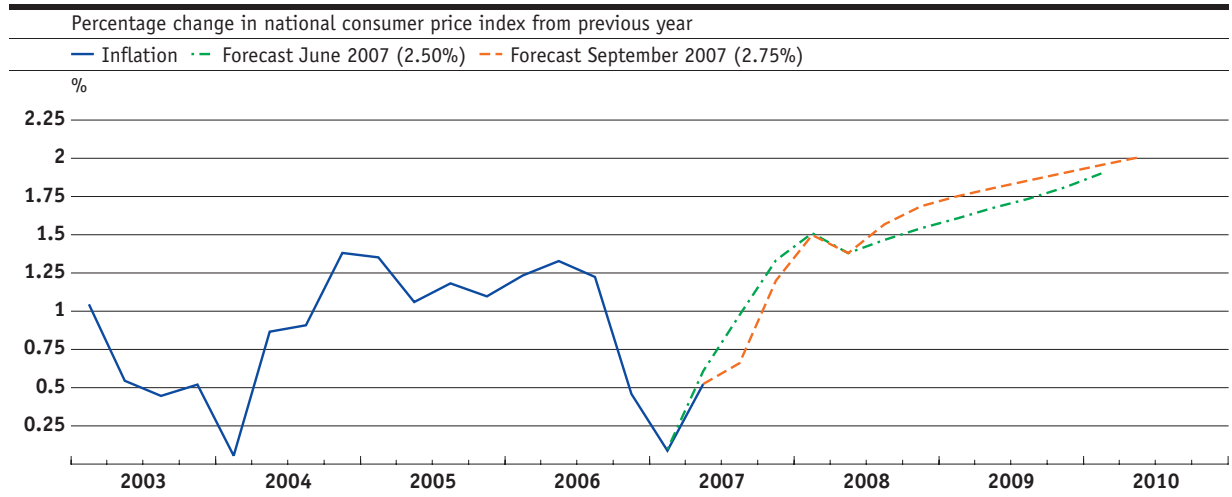
The SNB still expects GDP growth in the vicinity of 2.5% for 2007, although the cyclical risks have increased as a result of the financial market turbulence. The most important contributions to demand in the next few quarters are likely to come from exports and domestic demand. While the favourable income trend underpins private consumption, higher interest rates and construction costs are having a dampening effect on in the construction industry. Equipment investment, by contrast, should expand considerably against the backdrop of high capacity utilisation and solid corporate earnings.

At the September quarterly assessment, the SNB decided to target a three-month Libor of approximately 2.75% for the time being, after this rate had risen as high as 2.9% at the beginning of September due to particularly high credit risk premiums. In making this decision, the SNB was aiming to calm the Swiss franc money market. The target range for the three-month Libor was adjusted by 0.25 percentage points to 2.25–3.25%

To date, the turmoil on the financial markets has scarcely affected the inflation outlook. However, inflation prospects have deteriorated slightly due to the good state of the economy, the continued high price of oil and the low level of the Swiss franc, while the level of uncertainty associated with the forecast is greater. Because the target range has been shifted upwards, the inflation outlook remains almost unchanged. According to the September inflation forecast, which is based on the assumption that the three-month Libor remains steady at 2.75% over the next three years, inflation will continue to rise, but only slightly.

The assessment of the inflation outlook involves more uncertainty than usual. Various risks could affect inflationary trends in either direction. The threat of increased inflation is being exacerbated by brisk aggregate demand, the high price of oil and the relatively low level of the Swiss franc. However, other developments are working against higher inflation, in particular the US mortgage crisis, which may lead to a slowdown in the global economy. In addition, both the opening up of the Swiss labour market and the greater pressure on margins caused by international competition, are factors that are still helping to hold down prices.

Inflation forecast of June 2007 with Libor at 2.50% and of September 2007 with Libor at 2.75%



Inflation forecast of September 2007 with Libor at 2.75%

	2007	2008	2009
Average annual inflation in percent	0.6	1.5	1.8

1 Developments in the global economy

The global economy maintained its brisk pace of growth in the first half of 2007, with Europe and Asia accounting for the greatest part of this advance. The US economy, by contrast, exhibited moderate growth during the same period. On the whole, prospects for all three economic areas remained favourable. However, given the financial market turmoil in August – which led to a significant rise in premiums on high-risk investments – the downside risks to growth dominate.

At the root of the financial market problems is the mortgage and real estate crisis in the US, which has been smouldering for quite some time now. Major price corrections to sub-prime mortgages have burdened the financial sector, causing some US and European banks to run into serious difficulties. In order to offset an impending liquidity shortage in the money market, most central banks temporarily raised the liquidity supply in August.

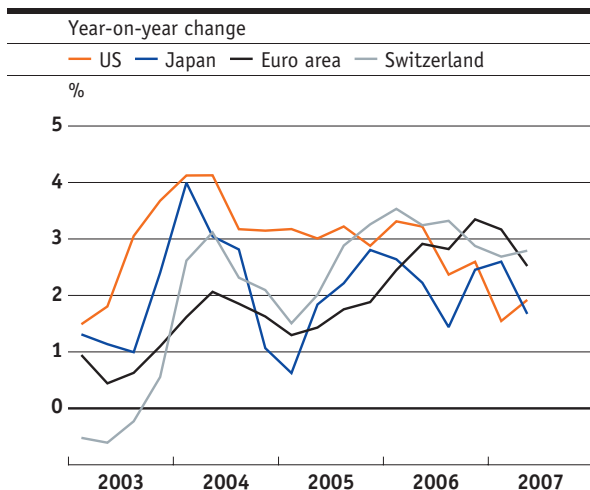
US economy shows moderate growth

Following an exceptionally weak first quarter, the US economy expanded by 4% in the second quarter; its strongest growth rate since the beginning of 2006. Growth was underpinned in particular by foreign trade as well as commercial and indus-

trial construction activity. Growth in private consumption, by contrast, slowed considerably, after having been high in the second half of 2006 in the wake of a strong rise in incomes. Residential investment also held down growth, albeit to a lesser extent than in the previous four quarters.

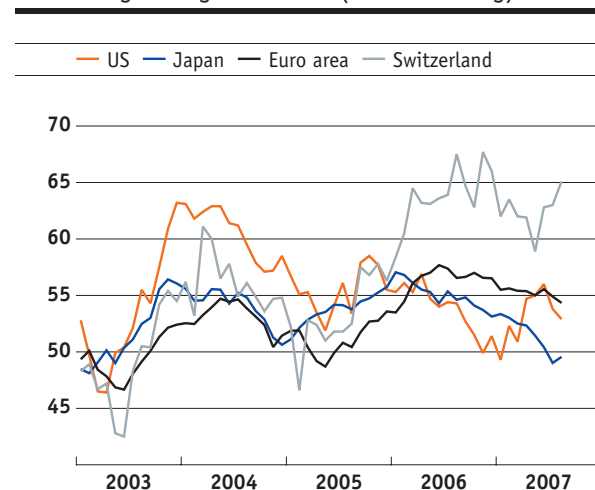
The indicators currently available for the third quarter suggest that the US economy will expand moderately. While it appears that the period of weakness observed in the manufacturing industry has been overcome, the correction in the housing market has yet to be weathered. The situation has been further exacerbated by a deterioration in the financing conditions that followed in the wake of the mortgage crisis, with the result that the decline in residential investment looks set to continue into 2008. The situation in the labour market has also taken a slight turn for the worse of late. Nevertheless, incomes have continued to rise; this development should buoy up private consumption further as well as limit the negative impact that the absence of capital gains would have on spending behaviour. In light of the continued brisk pace of global economic growth, foreign trade is also likely to be a growth driver. On the whole, however, the economic outlook has worsened and the economic risks have increased. Accordingly, the GDP consensus forecast for 2007 fell from 2.1% to 1.9% between May and August.

Graph 1.1
Real GDP



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

Graph 1.2
Purchasing managers' indices (manufacturing)



Source: Thomson Datastream

Temporary slowdown in euro area

In contrast to the US, growth in the euro area slackened in the second quarter, despite the fact that the economic environment had essentially remained positive. GDP growth slipped to 1.4%, as compared with 2.9% in the first quarter. A slowdown in growth was observed in all the major economies of the euro area. The decline in construction investment and the negative contribution to growth made by inventories had a particularly marked effect. Private consumption, meanwhile, staged a recovery, after having stagnated in the first quarter following the increase in German value added tax.

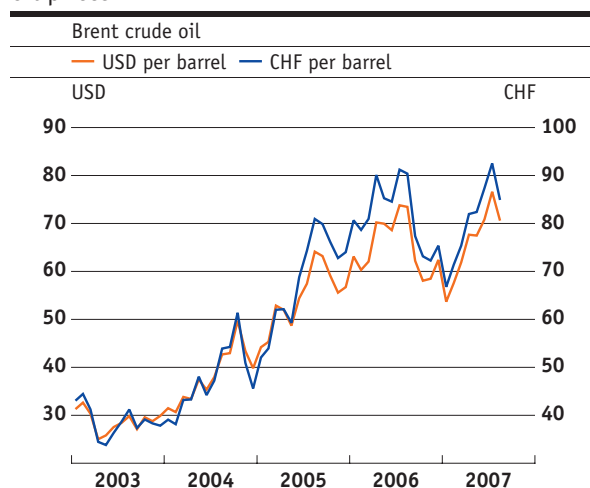
A number of indicators – such as the rise in new orders in industry, the high level of corporate earnings and the continued high degree of confidence among consumers and producers – suggest that economic activity in the euro area will remain brisk. Private consumption is likely to benefit particularly from a stronger increase in wages and rising employment levels. The GDP consensus forecast for 2007 climbed yet further from 2.5% in May to 2.7% in August.

Asia's economy remains upbeat

After having surged ahead in the previous two quarters, real GDP in Japan fell by 1.2% in the second quarter. The downturn occurred right across the board, with a stronger decline in construction investment and a slowdown in equipment investment growth having a particularly dampening effect. Owing to robust corporate earnings, the falling unemployment rate and the fact that sentiment in the corporate sector continues to be optimistic, the economic outlook for the second half of the year remains upbeat. The consensus forecast for GDP growth in 2007 rose from 2.2% to 2.4% between May and August.

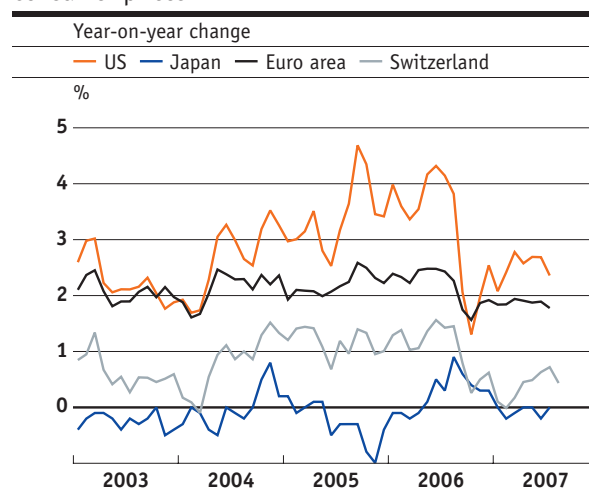
China's economic boom continues unabated. Real GDP in the second quarter was up almost 12% on the year-earlier level. Spurred by a high liquidity supply and rising corporate earnings, investment activity remained a driving force. Although the government has now introduced a number of measures to slow the country's burgeoning investment, they have yet to have any significant effect. In fact, the consensus forecast for GDP growth in 2007 was higher in August (11.3%) than in May (10.3%). In

Graph 1.3
Oil prices



Sources: Reuters, SNB

Graph 1.4
Consumer prices



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

other emerging economies of East Asia (Hong Kong, Korea, Singapore and Taiwan), annual GDP growth climbed to 5.5% in the second quarter. This was due in large part to the manufacturing industry, where growth in industrial production had been on a steady downward trend since mid-2006.

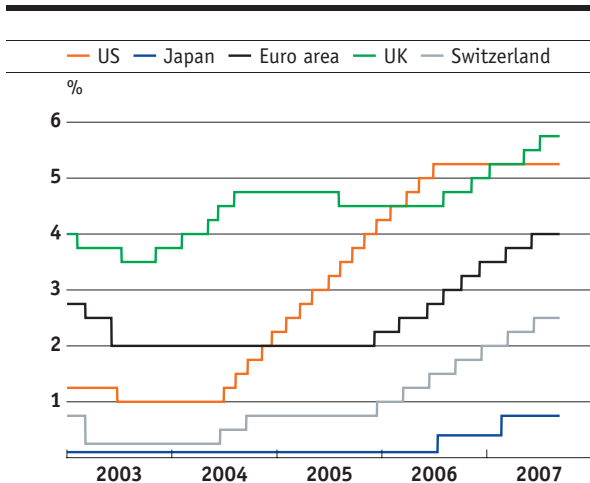
Inflation rates almost unchanged

Despite the brisk pace of growth and rising energy prices, inflationary pressure did not grow any further in the major industrialised countries. While annual inflation (as measured by consumer prices) in the US remained at a high level until June, it fell to 2.4% in July as fuel prices began to subside. Likewise, core inflation – which factors out energy and food prices – declined slightly to 2.2%. In the euro area, annual inflation dropped marginally to 1.8% in July, having remained at 1.9% since February. At 1.9%, core inflation in the single-currency zone is virtually the same as total consumer price inflation. Despite rising oil prices, consumer prices in Japan persisted at their year-earlier levels between April and July, while core inflation remained in the negative range (-0.5%).

Central banks react quickly to financial market turbulence

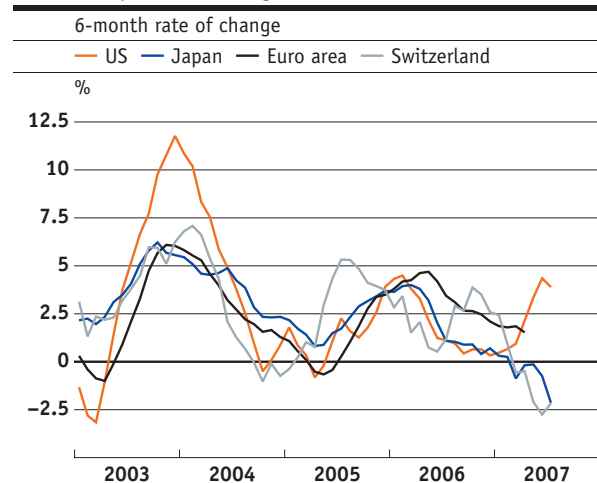
In the third quarter, monetary policy at central banks reflected the turmoil in the international financial markets. In a move to restore calm to the money market, the US Federal Reserve, the European Central Bank (ECB) and the Bank of Japan all temporarily injected the banking system with liquidity in August. In addition, the Fed reduced its discount rate in mid-August by half a percentage point to 5.75%, thus underscoring its commitment to keeping money market conditions on an even keel. With a view to the next scheduled meeting of the Federal Open Market Committee in mid-September, it also indicated the possibility of a reduction in its key interest rate. The ECB left its main refinancing rate unchanged at 4% at the beginning of September, after having signalled an interest rate rise in August. The reason behind its decision was the increased uncertainty associated with the recent financial market turmoil. The Bank of Japan also left its overnight call money rate unchanged (0.5%). China's central bank, meanwhile, maintained its more restrictive monetary policy with further interest rate hikes and a renewed rise in the minimum reserve rate of half a percentage point to 12.0%.

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			
	May		August		May		August	
	2007	2008	2007	2008	2007	2008	2007	2008
United States	2.1	2.8	1.9	2.6	2.4	2.3	2.8	2.4
Japan	2.2	2.2	2.4	2.1	0.1	0.5	0.0	0.4
Euro area	2.5	2.2	2.7	2.3	1.9	1.9	2.0	2.0
Germany	2.4	2.3	2.7	2.4	1.8	1.5	1.9	1.6
France	2.1	2.1	2.1	2.3	1.4	1.6	1.4	1.7
Italy	1.8	1.6	1.9	1.7	1.8	1.9	1.8	1.9
United Kingdom	2.7	2.3	2.8	2.2	2.3	1.9	2.4	2.0
Switzerland	2.2	2.0	2.5	2.2	0.5	1.1	0.6	1.2

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

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

Source: Consensus Forecasts, May 2007, August 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

GDP growth remains strong

In Switzerland, the economic upswing continued during the second and third quarters of 2007. According to estimates by SECO, real GDP in the second quarter rose by 3.0% from the previous period and was 2.8% above its level a year earlier. Both domestic and export demand contributed to the economy's rapid growth. In particular, the strong expansion of equipment investment was noteworthy.

In August, the Swiss Federal Statistical Office (SFSO) published its 2006 annual GDP estimates. These showed a 3.2% GDP growth rate for 2006. SECO's quarterly estimates had previously suggested a rise of 2.7%. The 2004 and 2005 figures were revised upwards as well. Based on the new figures, the average GDP growth for the period 2004–2006 was approximately 2.7%. This was the fastest growth rate recorded since the period 1988–1990, when GDP rose by an average of 3.9% per annum.

Broad-based economic boom

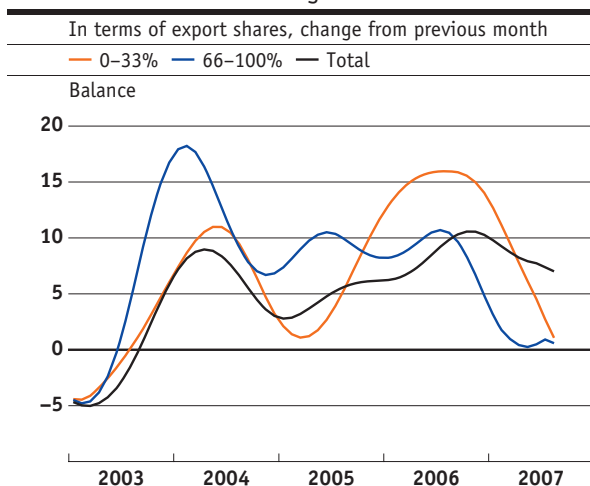
Output-side figures for GDP confirm the picture of a broad-based economic boom. Contributing almost one percentage point, the banking industry was again the most significant driver of GDP growth. Manufacturing and the other service industries, such as trade, hospitality and transportation also made a significant contribution to growth, however.

The buoyant industrial activity is reflected in the SFSO's production figures. Manufacturing output rose by 9.0% in the second quarter compared with the previous period, though it was still 10.3% higher than a year earlier. Demand also continued to be robust, which was reflected in a high level of orders in hand. Manufacturing companies are expecting order books to continue to swell and production to increase in the months ahead.

Bright outlook

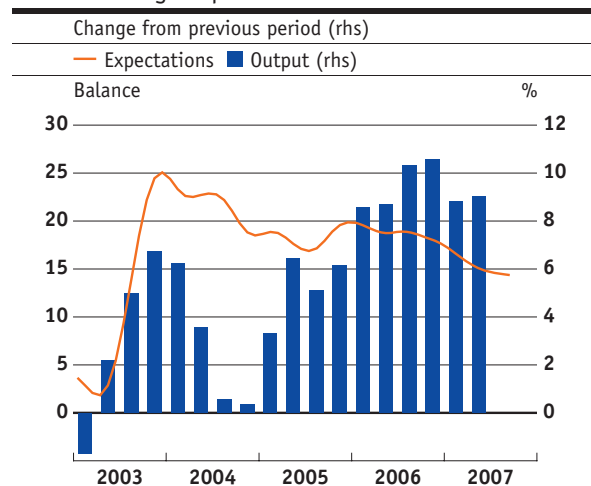
The talks held by the SNB delegates for regional economic relations with around 150 representatives from various economic sectors and industries held between June and August suggest that the Swiss economy grew rapidly across all sectors during the summer months. Capacity shortages and problems with the procurement of commodities

Graph 2.1
New orders in manufacturing



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

Graph 2.2
Manufacturing output



Sources: SFSO, KOF/ETH

Real GDP and components
Growth rates on previous period, annualised

Table 2.1

	2003	2004	2005	2006	2005		2006				2007	
					Q3.	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Private consumption	0.9	1.6	1.8	1.5	3.9	2.9	-0.2	2.2	0.2	1.1	3.0	1.9
Government consumption	1.9	0.8	0.5	-1.4	-2.7	-0.7	0.0	-6.1	1.4	0.3	-1.9	-0.3
Investment in fixed assets	-1.2	4.5	3.8	4.1	7.4	7.3	-0.0	5.1	0.9	7.3	-2.4	11.0
Construction	1.8	3.9	3.5	-1.4	-4.4	-4.1	-5.9	0.5	-2.0	5.9	-1.5	-13.8
Equipment	-3.6	5.0	4.0	8.9	18.9	17.9	5.3	8.9	3.2	8.4	5.7	34.0
Domestic final demand	0.6	2.1	2.1	1.7	3.8	3.5	-0.2	1.8	0.5	2.4	2.3	3.7
Domestic demand	0.5	1.9	1.8	1.4	2.9	6.6	-2.6	5.0	-5.9	8.6	-8.3	4.0
Total exports	-0.5	7.9	7.3	9.9	2.6	7.6	16.9	-0.2	12.1	15.7	10.2	1.9
Goods	-0.1	7.3	5.8	11.1	-2.3	8.5	21.1	0.3	14.2	14.9	13.0	-2.0
Excluding valuables ¹	0.5	7.3	6.5	11.3	-3.1	8.5	15.8	8.5	9.3	17.3	8.5	3.5
Services	-1.4	9.7	11.2	6.8	16.7	5.1	6.6	-1.4	6.4	18.1	3.0	13.0
Aggregate demand	0.2	3.8	3.6	4.3	2.8	6.9	3.8	3.1	0.2	11.1	-1.8	3.2
Total imports	1.3	7.3	6.7	6.9	1.7	14.9	4.6	4.4	-6.9	34.6	-10.9	3.6
Goods	1.9	5.8	5.6	7.8	2.3	13.0	9.9	4.0	-12.5	46.1	-13.4	3.6
Excluding valuables ¹	2.4	5.9	5.3	7.4	3.9	8.4	10.9	3.0	-7.9	36.7	2.2	2.1
Services	-1.9	14.7	11.6	2.7	-1.1	23.6	-16.7	6.4	23.6	-8.0	1.7	3.5
GDP	-0.2	2.5	2.4	3.2	3.2	3.8	3.4	2.6	3.4	2.2	2.6	3.0

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

and primary products were once again cited as the main concerns. Economic prospects continued to be viewed as positive. This notwithstanding, the turbulence in the international financial markets in August caused concern in some cases (cf. *The economic situation from the vantage point of the delegates for regional economic relations*, September 2007).

The SNB projects GDP growth to remain in the vicinity of 2.5% for 2007. However, as a result of the turmoil in the financial markets, the risks of an unfavourable economic trend have increased.

The most important contributions to demand in the next few quarters are likely to emanate from both exports and domestic demand. While the favourable income trend underpins private consumption, higher interest rates and construction costs are having a dampening effect on the construction industry. Equipment investment, by contrast, is likely to expand considerably against the backdrop of high capacity utilisation and solid corporate earnings.

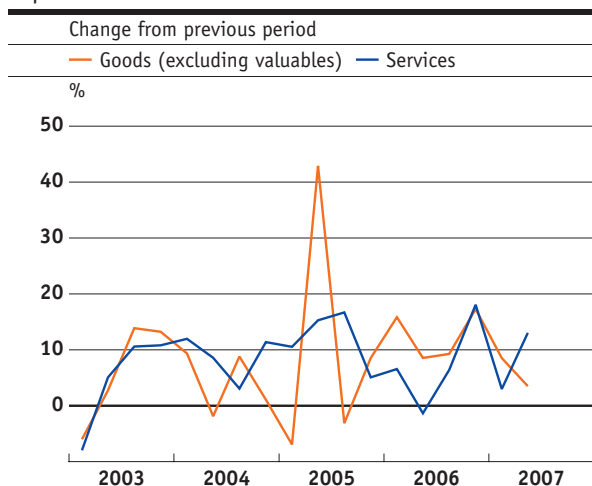
2.2 Foreign trade, consumption and investments

Growing exports...

The Swiss economy continued to benefit from the excellent shape of the global economy and the favourable exchange rate of the Swiss franc against the euro. In the second quarter, exports of both goods and services saw an increase compared with the previous period. Overall, they exceeded the year-back level by 10.5%, after having registered a year-on-year rise of 9.3% in the first quarter. In the case of services, it was mainly commission income from banking transactions with foreign customers and receipts from merchanting that went up. However, income from tourism and receipts from transportation also followed positive trends.

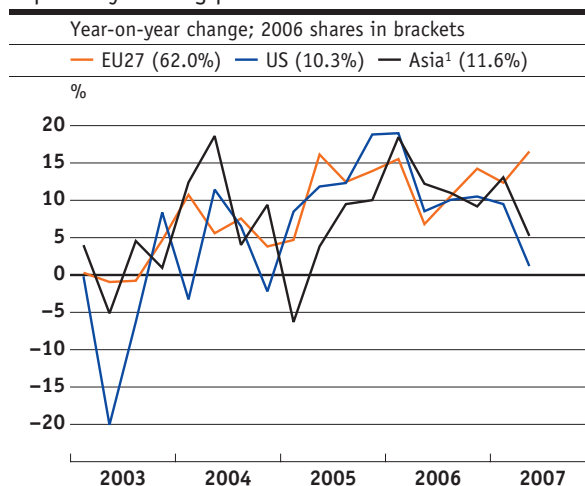
While exports of services rose sharply vis-à-vis the previous period, exports of goods lost momentum after having seen nearly two years of substantial growth rates. Growth in exports of industrial machinery and precision instruments slowed, while exports of chemical commodities and elements declined significantly. By contrast, other exports of semi-manufactured goods and consumer goods continued their upward trend; in the case of watches

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)

even at a slightly accelerated pace. Broken down by region, deliveries of goods to the EU area continued to surge ahead, with exports to Germany, France and Italy, as well as to the countries of central Europe advancing at an above-average pace. By contrast, goods exports to Asian countries, in particular to Japan, grew at a slower pace, while those to the US contracted.

... and imports

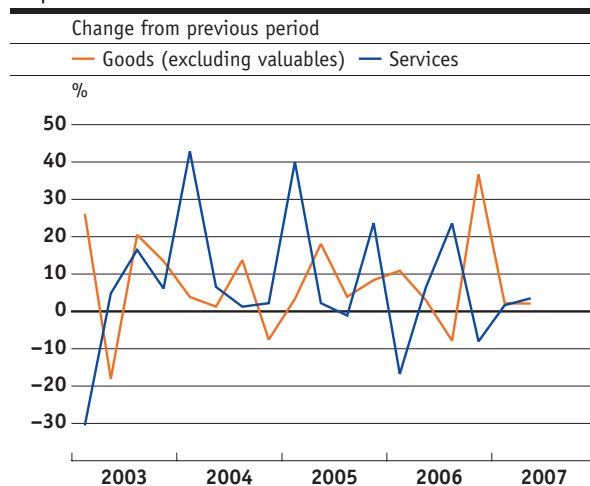
Imports of both goods and services continued their upward trend in the second quarter. Overall, they exceeded the corresponding year-earlier level by 6.6%. In the case of services imports, expenditure in tourism, transport and licences and patents in particular mounted. As regards imports of goods (excluding valuables), imports of capital goods recorded a particularly sharp increase. However, this development was slightly overstated on account of the large-scale imports of aircraft. Imports of raw materials and semi-manufactures registered a significant increase as well, while imports of consumer goods stagnated at a high level and energy imports fell once again.

Moderate growth in consumption

After having risen by 3% in the first quarter, private consumption increased by just under 2% quarter-on-quarter, and thus stood at 1.5% above the year-earlier level. Consumer demand remained broad-based. On the goods side, retail sales rose by 4.7% on the previous quarter, with larger quantities of both non-durables and durables being sold. The number of newly registered passenger cars was up sharply until July, confirming the picture of robust consumer demand. On the services side, where there are not a great many indicators available, the number of overnight stays by domestic guests went up again after a slack period at the beginning of the year. According to the quarterly KOF/ETH survey in the hospitality industry, hotels continue to take an optimistic view of business development in the coming months.

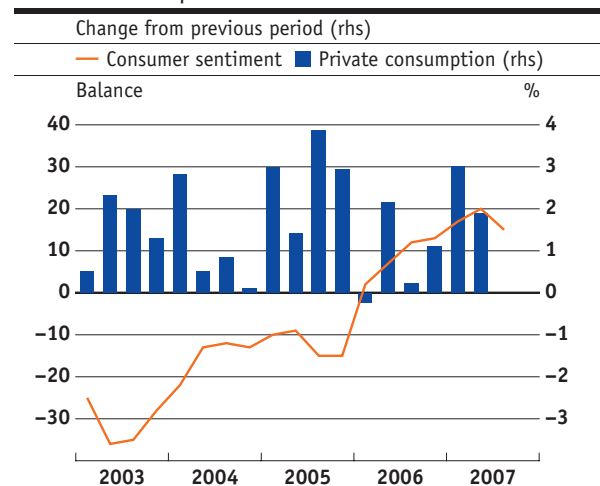
The income trend is currently a strong driver of private consumption. Incomes of wage and salary earners are likely to rise by 3.1% in real terms in 2007. This increase can be ascribed in practically equal parts to the increase in both employment and real wages (including bonus pay-

Graph 2.5
Imports



Source: SECO

Graph 2.6
Private consumption



Source: SECO

ments). Consumer confidence, by contrast, appeared to have returned to a certain level of normality. After having risen steadily during the past year and a half, the consumer sentiment index lost some ground for the first time again in July. Households surveyed took a somewhat less optimistic view of the general economic situation and of their personal financial situation than they had in the previous survey. Accordingly, the households questioned believed that job security had not continued to improve.

Sharp rises in equipment investment

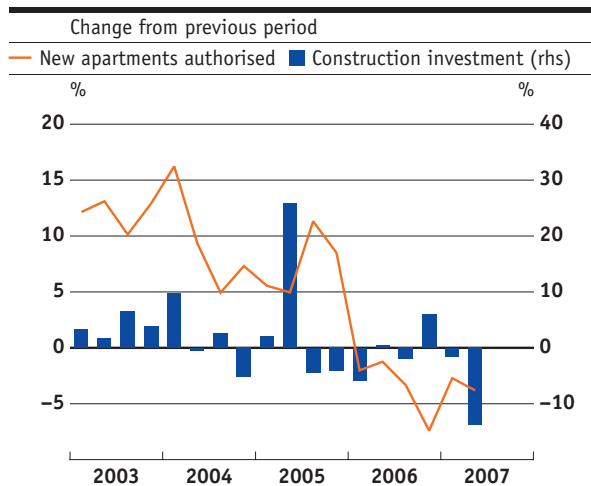
Equipment investment increased sharply in the second quarter compared with the previous period (34%) and was 12.2% above the corresponding year-earlier level. The figures for the previous quarters were revised upwards as well. As a result, investment activity is decidedly brisker than it had appeared so far. This is in line with the robust economic growth and high capacity utilisation of recent years. Consistent with the healthy corporate earnings situation and the extensive utilisation of production capacity, equipment investment is

expected to continue rising in the next few quarters. In line with the associated expansion of production capacity, utilisation of technical capacity – which has been above its long-term average in the industrial sector for three years now – is expected to gradually return to normal.

Construction investment receding

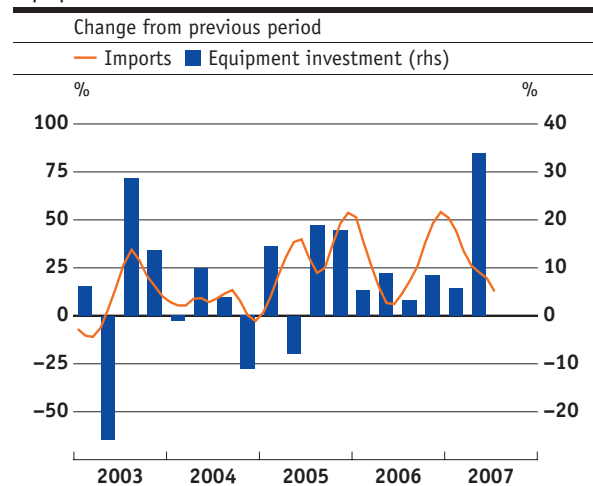
Construction investment was the only demand component to decrease in the second quarter, thus continuing the trend which has been observed for a year now. It plummeted by almost 14% vis-à-vis the previous period, coming to rest at 3.4% below the corresponding year-earlier level. According to the quarterly survey of the Swiss Association of Builders (SBV/SSE), investment activity slowed down in residential construction and civil engineering, while commercial and industrial construction expanded. A downward trend in construction investment can be expected in the coming quarters as well. This applies mainly to residential construction, where the number of new building permits for apartments has been receding since the beginning of 2006.

Graph 2.7
Construction



Sources: SFSO, SECO

Graph 2.8
Equipment



Sources: FCA, SECO

2.3 Employment and labour market

More people employed

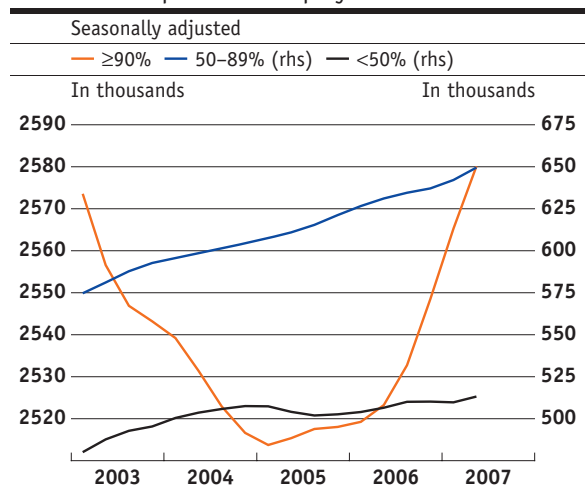
The number of persons in employment rose strongly again in the second quarter. It grew 2.1% from the previous period, and was thus 2.4% above the corresponding year-earlier level. This corresponds to an increase of 19,000 jobs, with both full-time and part-time positions registering growth. Converted into full-time positions, the volume of work rose by 2.2% compared with the previous quarter, exceeding the year-back level by 2.5%.

Employment growth was broad-based across all sectors, with the largest proportion of additional jobs being created in the service sector. The wholesale trade and the hospitality and financial industries, in particular, added jobs. The increasing number of job vacancies suggests that demand for labour will continue to grow. The service sector is likely to be the main driver of employment, also in the second half of 2007. However, construction and manufacturing should make a positive contribution as well.

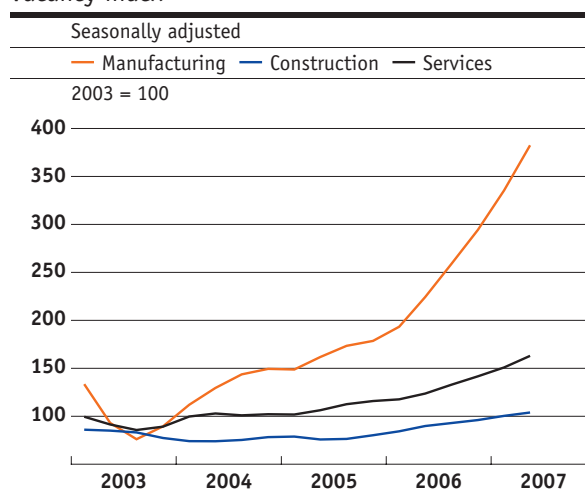
Unemployment rate down

After adjustment for seasonal factors, the number of people registered as unemployed with regional employment offices decreased to 105,900 between May and August, which corresponds to a drop in the unemployment rate from 2.8% to 2.7%. At the same time, the number of job seekers receded. In addition to the unemployed registered at employment offices, this number includes persons participating in training and work creation programmes. The proportion of job seekers dipped by 0.2 percentage points to 4.1% from May to August. The seasonally adjusted rate of unemployed persons and job seekers is expected to decline further to approximately 2.5% and 4.0% respectively by the end of 2007.

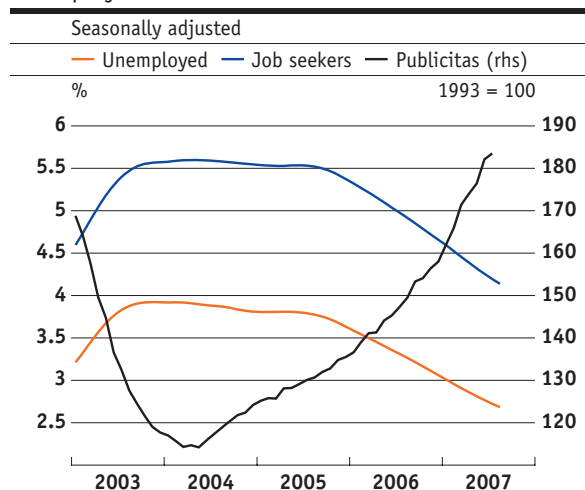
Graph 2.9
Full-time and part-time employment



Graph 2.10
Vacancy index



Graph 2.11
Unemployment rates and vacancies



Graphs 2.9 und 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

So as to avoid an inflationary or deflationary trend, aggregate demand must grow in step with aggregate supply in the medium term. 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.

Capacity utilisation in industry and construction down slightly

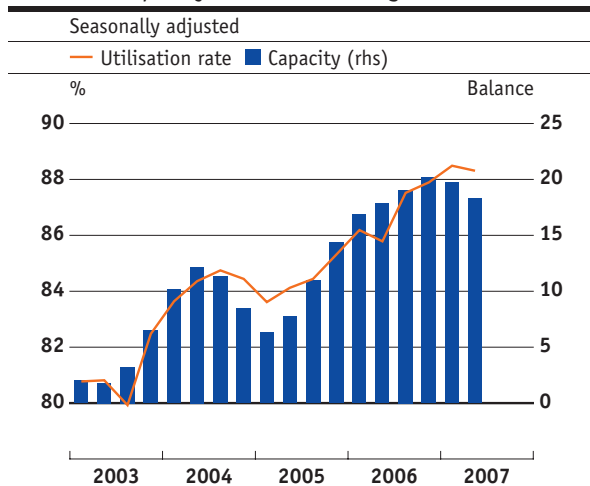
An initial group of indicators which may be used to assess capacity utilisation comes from the KOF/ETH surveys. According to these surveys, utilisation of technical capacity in manufacturing fell slightly to 88.3% in the second quarter, which is still clearly above the long-term average. At the same time, however, the proportion of companies

reporting insufficient technical capacity did not grow further. In fact, the proportion declined in the construction industry. This suggests that increased investment activity is gradually reducing the pressure on technical capacity. By contrast, a growing share of manufacturing and construction companies felt that the labour shortage was holding back production.

Where they were available, the KOF/ETH survey results revealed heavily utilised capacity in the service industries as well. However, there are significant differences between the various industries. The hospitality and retail trades as well as the banking industry judged staff levels to be sufficient, while insurance companies reported labour shortages.

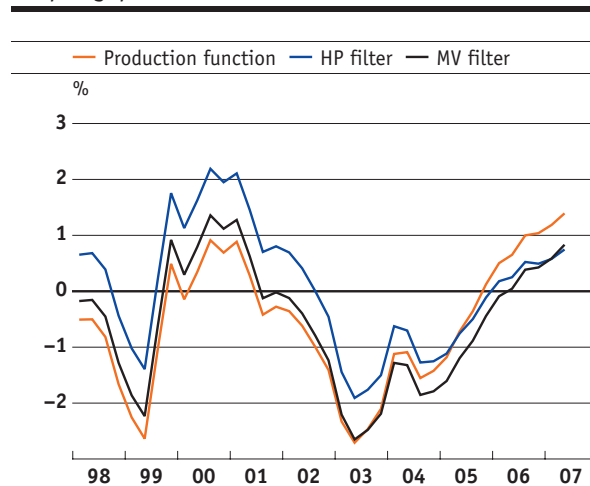
Talks held by SNB delegates with representatives from various industries in the period from June to August yielded a similar picture to the KOF survey results. Overall, company representatives reported that capacity utilisation continued to be high. At the same time, repeated mention was made of the fact that there is a shortage of skilled labour. Against the background of fully-utilised capacity, companies appear to have greater leeway in setting prices.

Graph 2.12
Technical capacity in manufacturing



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, computed in percentage terms. Graph 2.10 shows three estimates of the output gap based on different methods of estimating production potential: production function (PF), Hodrick-Prescott filter (HP) and multivariate filter (MV). All three estimates suggest that the positive output gap seen since the beginning of 2006 has continued to widen. A production function approach shows that the production overhang was 1.4% in the second quarter, while using the two filter processes it came to 0.7% and 0.8% respectively. This development is reflected in the fact that at 3%, growth in real GDP was more pronounced than production potential. GDP growth, which had been revised upwards in

2006, was another factor contributing to the rise in the output gap.

The positive output gap is a reflection of the above-average utilisation of technical capacity. By contrast, utilisation of the supply of labour is now close to normal, after a long period of under-employment. The SNB assumes that the production overhang will stabilise at approximately the current level in the next few quarters, since the expected GDP growth of about 2% roughly corresponds to the anticipated potential growth path. At approximately 2%, the latter is still somewhat higher than the long-term average (1.7%). This is due mainly to two factors. Firstly, strong investment activity should boost growth in capital stock. Secondly, the immigration of foreign workers, the rise in the participation rate and the continued slight decline in unemployment should bring about an above-average increase in the supply of manpower.

2.5 Goods prices

Continued pressure from producer and import prices

The price pressure exerted by producer and import prices on the downstream consumer level mounted between April and July. The annual inflation rate for domestic producer prices increased from 2.1% in April to 2.4% in July. Annual inflation for imported goods climbed by 0.1 percentage points to 3.5% during the same period. Looking at the different types of goods, a mixed picture emerges. While price increases for intermediate goods came down somewhat from a high level, prices for energy sources and agricultural goods picked up. Annual inflation for investment and consumer goods continued to rise, suggesting a gradual transmission of past price rises in the areas of energy and commodities.

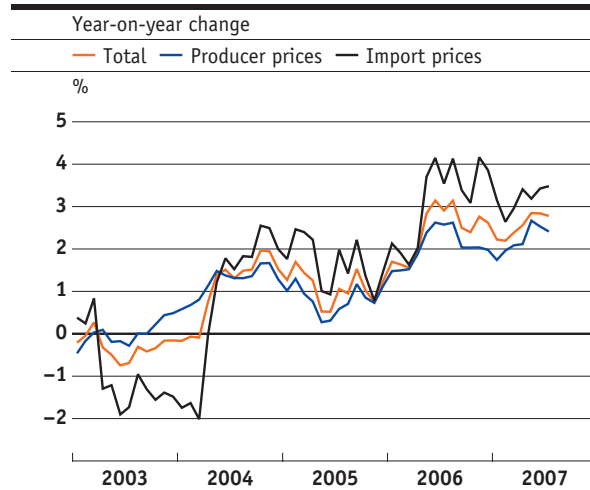
Consumer price inflation still low

Annual inflation, as measured by the national consumer price index (CPI), initially moved up from 0.5% to 0.7% between May and July and dropped back to 0.4% in August. On the whole, consumer price inflation was below the SNB's inflation forecast of mid-June. The unexpected decline in inflation for services and petroleum products had a particularly marked effect.

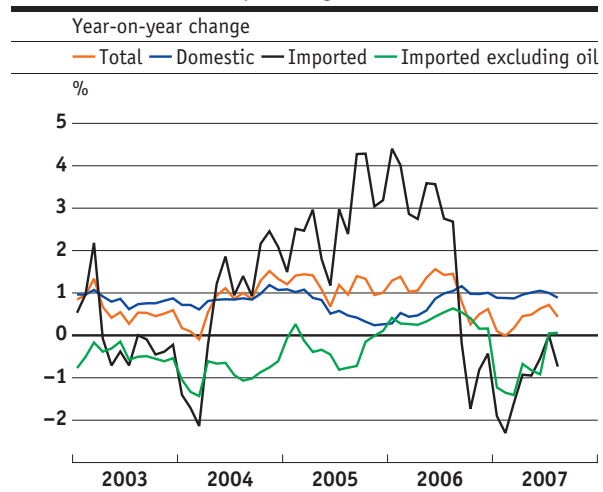
Domestic inflation slightly lower

Inflation for domestic consumer goods was 0.9%, which was slightly lower than in May (1.0%). The downward trend in domestic inflation, however, was the result of conflicting forces. The decline in goods prices, which had begun two and half years ago, came to a standstill, and inflation moved into positive values in July and August, at 0.2% in both months. Unlike in many other countries, foodstuffs were not drivers of inflation. Contrary to expectations, the residential rent price index compiled on a quarterly basis remained at its May level in August. As a result, the annual rate of rent increases fell by 0.4 percentage points to 2.1%. Prices for other private services receded from 0.6% in May to 0.4% in August. Finally, prices for public services slipped from 1.5% to 1.1%, which was mainly attributable to declining hospital costs.

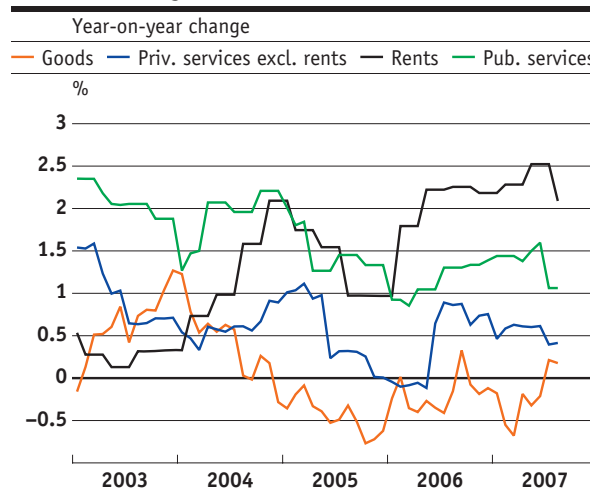
Graph 2.14
Prices of total supply



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

Further price-dampening effects of foreign consumer goods

Foreign consumer goods once again had a dampening effect on annual inflation, albeit to a lesser extent than in the first quarter. Their prices fell by 0.7% in August compared with 0.9% in May. While the decline in the prices of fuel and heating accelerated to 4.4% by August, the price level of other foreign consumer goods exceeded its year-earlier level somewhat (0.1%), after having fallen since January. This was mainly the result of the exclusion of the negative contribution to inflation in the areas of clothing, shoes and drugs.

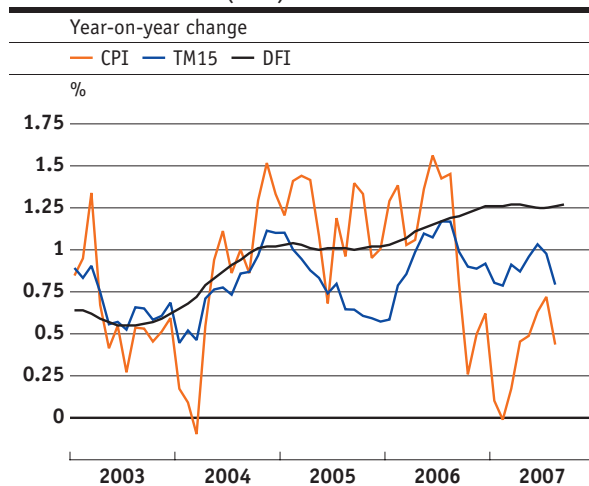
Contrasting movements in core inflation rates

Inflation, as measured by the CPI, undergoes numerous short-term fluctuations that may distort perceptions of the general inflation trend. For this reason, core inflation rates are calculated with the aim of capturing the underlying inflation 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 subcomponents and other real economic data, financial market indicators and monetary variables (cf. *Quarterly Bulletin 2*, 2006, p. 24). By contrast, 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 (SFSO1), these are food, beverages, tobacco, seasonal products, energy and fuel. Core inflation 2 (SFSO2) also factors out products with administered prices.

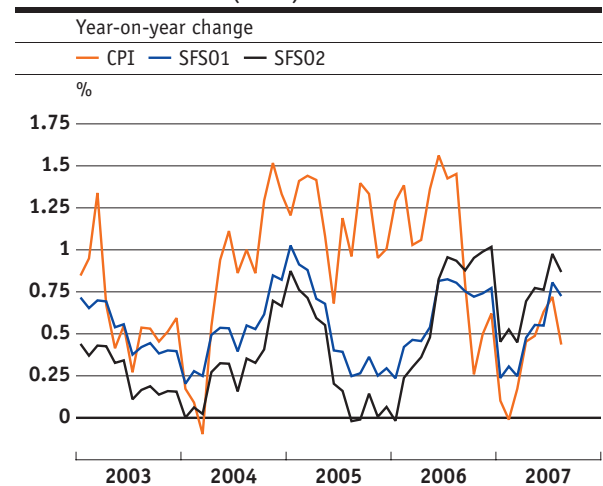
The core inflation rate calculated on the basis of the trimmed means method stood at 1.0% between May and July and dropped to 0.8% in August. By comparison, at just under 1.3%, dynamic factor inflation remained virtually unchanged, thus portraying the picture of an unchanged general inflation trend. However, the two core inflation rates calculated by the SFSO rose by 0.1 percentage points each to 0.7% and 0.9% respectively.

Graph 2.17
Core inflation rates (SNB)



Sources: SFSO, SNB

Graph 2.18
Core inflation rates (SFSO)



Source: SFSO

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

Table 2.2

	2006	2006	2007		2007			
		Q4	Q1	Q2	May	June	July	August
Overall CPI	1.1	0.5	0.1	0.5	0.5	0.6	0.7	0.4
Domestic goods and services	0.8	1.0	0.9	1.0	1.0	1.1	1.0	0.9
Goods	-0.2	-0.1	-0.5	-0.2	-0.3	-0.2	-0.2	-0.2
Services	1.1	1.3	1.3	1.4	1.4	1.4	1.2	1.1
Private services excluding rents	0.4	0.7	0.6	0.6	0.6	0.6	0.4	0.4
Rents	2.0	2.2	2.2	2.4	2.5	2.5	2.5	2.1
Public services	1.2	1.4	1.4	1.5	1.5	1.6	1.1	1.1
Imported goods and services	1.9	-1.0	-1.9	-0.8	-0.9	-0.5	0.0	-0.7
Excluding oil products	0.4	0.2	-1.3	-0.8	-0.8	-0.9	0.0	0.1
Oil products	9.3	-6.3	-4.9	-1.0	-1.7	1.0	-0.5	-4.4

Sources: SFSO, SNB

Exchange rate pass-through in Switzerland

Exchange rate pass-through to prices often distinguishes between two levels: pass-through to import prices on the producer level and pass-through to consumer prices.

Graphs 2.19 and 2.20 show the rates of change of the nominal effective Swiss franc exchange rate together with the rates of change of import or consumer prices during the period of January 1976 to December 2006. The exchange rate index is defined so that a positive rate of change indicates a depreciation of the Swiss franc in the foreign exchange markets. The graph suggests a close, yet imperfect correlation between changes in the exchange rate and import prices. By contrast, the correlation between the exchange rate and the consumer price index is significantly looser. This is because the consumer price index is based on a basket of goods which – in addition to imports – mainly includes goods and services produced in Switzerland.

The results of empirical estimates of the pass-through to import and consumer prices are depicted in graphs 2.21 and 2.22,¹ demonstrating the impact of an unexpected depreciation of the effective Swiss franc exchange rate by 1% after a period of three and twelve months. The estimated cumulated effect of an exchange rate change reaches its peak after approximately twelve months. In order to judge the results over time, two partial periods are distinguished: January 1976 to April 1993 and May 1993 to December 2006. The second partial period coincides with the phase of low and stable inflation witnessed until today.

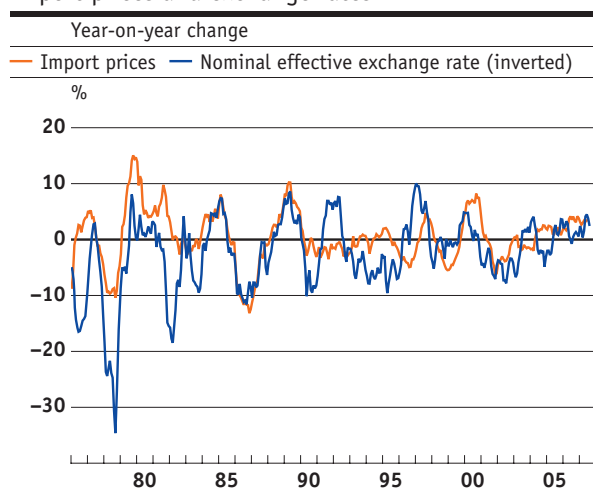
¹ For a description of the method, cf. J. Stulz (2007), "Exchange rate pass-through in Switzerland: Evidence from Vector Autoregressions", *SNB Economic Study 2007*, forthcoming.

The results confirm that the pass-through is not complete: changes in the exchange rate are not fully reflected in the prices even after twelve months. Moreover, the pass-through to import prices – as expected – is significantly more substantial than that to consumer prices. In the first partial period, for example, an unexpected depreciation of the Swiss franc is reflected in an increase in import prices, after three and twelve months, of 33% and 47% respectively. The corresponding rates for the exchange rate pass-through to consumer prices, by contrast, amount to a mere 7% and 13% respectively.

Moreover, the results suggest that the exchange rate pass-through to consumer prices has trended downward during the past three decades. In the second partial period, this pass-through only amounts to 1% and 3% respectively after three and twelve months. While estimates of the pass-through to import prices are not identical in both partial periods, the changes are smaller by comparison and – contrary to the pass-through to consumer prices – of no statistical significance. This difference suggests that the pass-through of changes in the import prices to the consumer price level has slowed down after 1993. Empirical estimates of the pass-through of import prices to consumer prices confirm this assumption: while an unexpected rise in import prices during the first partial period was reflected in the consumer prices at 67% after twelve months, the rate of transmission in the second partial period was only 14%.

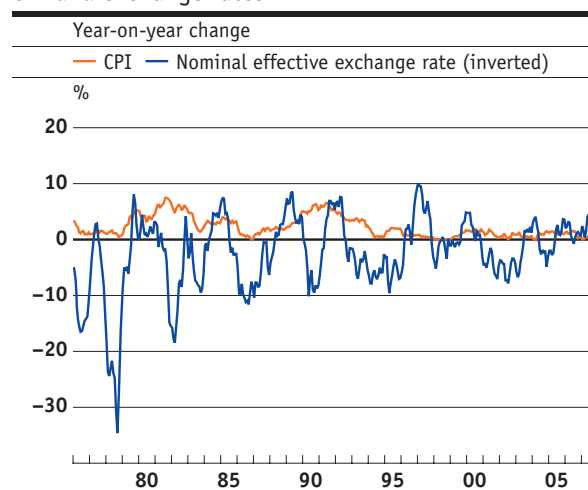
Overall, the results of the study are in line with the majority of studies that have been made for other industrialised countries. This applies in particular to the lower exchange rate or import

Graph 2.19
Import prices and exchange rates



Sources: SFSO, SNB

Graph 2.20
CPI and exchange rates



Sources: SFSO, SNB

price pass-through to consumer prices. However, as regards the exchange rate pass-through to import prices, results only give a clear indication for a decline in the case of developing countries. In industrialised countries, the differences between countries and sectors are so wide-ranging that no clear trend is discernible.

What explanations can be offered for the widespread weakening in the pass-through in the 1990s? In most debates, three main reasons are cited:²

- **Changes in import structure:** The share of energy and commodities in imports has receded in most countries since the 1990s. As a result, the composition of imports has changed, moving away from standardised products with a high degree of exchange rate pass-through to differentiated products with low rates of exchange rate pass-through. Campa and Goldberg (2005) supply empirical evidence supporting this explanation.³
- **Lower inflation trend:** Most central banks, in the last fifteen years or so, have been successful in reducing inflation significantly and anchoring inflation expectations on a lower level. Taylor (2000) argues that along with the decline in the level of inflation, its persistence is also lower, thus implying that companies no longer view changes in the exchange rate and other cost factors as a permanent phenomenon to quite the same extent as they did previously. As a result, after there

has been a change in the exchange rate or other costs, the effect on prices is weaker so that the pass-through falls.⁴

- **Structural reforms:** Many countries have carried out reforms which have strengthened competition on the goods and factor markets. Companies have therefore less leeway for setting prices. This development has been evident also in Switzerland, where the pressure of adjusting the inflated domestic price level to the price level abroad mounted in the 1990. Many companies found it more difficult to raise their prices. They therefore often did not adjust prices for fear of losing market share.

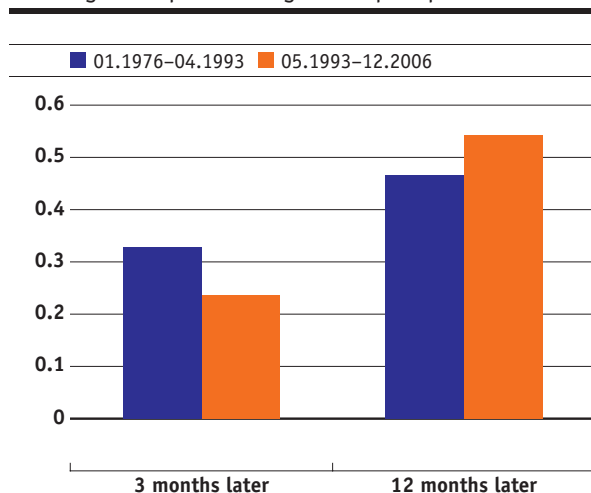
How will the pass-through change in the near future? First, this will depend on how the three factors mentioned above evolve. Second, it will also depend on which of these three factors dominates. While changes in the inflation trend have a permanent impact on the pass-through, the corresponding effects of changes in the import structure and those of structural reforms are probably only temporary. Stronger competition has a permanent effect on profit margins. As a result, companies find themselves less able to absorb changes in the cost by adjusting profit margins out of consideration for customer relations or market share. If indeed structural reforms or the altered composition of imports were responsible for the decline in the pass-through in the 1990s, a renewed rise is to be expected in the short or long term.

² Cf., for example, International Monetary Fund, *World Economic Outlook*, April 2006, 114–115.

³ J.M. Campa and L.S. Goldberg (2005), “Exchange rate pass-through into import prices”, *The Review of Economics and Statistics* 87(4), 679–690

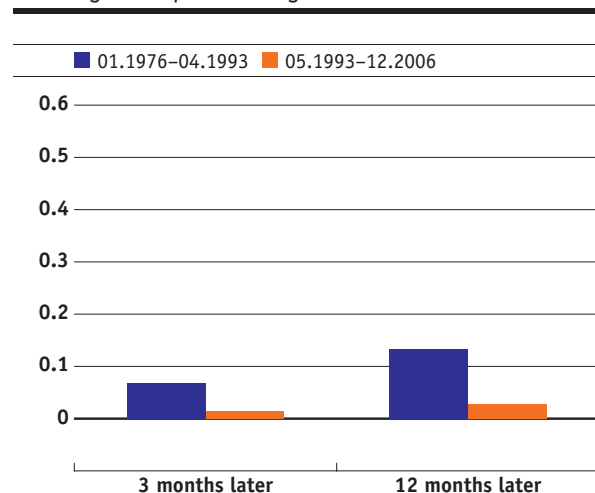
⁴ J.M. Campa and L.S. Goldberg (2000), “Exchange rate pass-through into import prices”, *The Review of Economics and Statistics* 44(7), 1389–1408

Graph 2.21
Exchange rate pass-through to import prices



Sources: SNB

Graph 2.22
Exchange rate pass-through to the CPI



Sources: SNB

3 Monetary developments

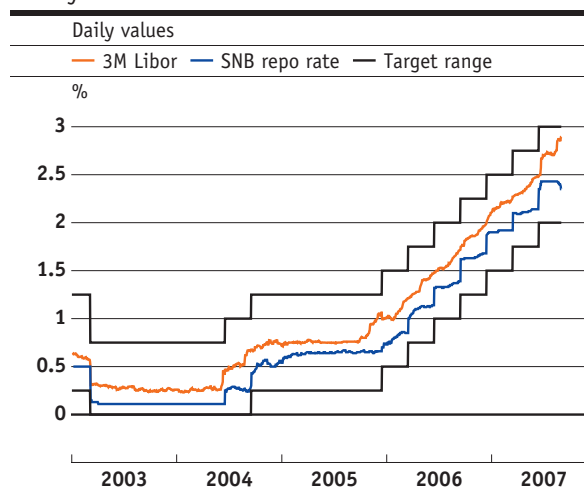
3.1 Interest rates and inflation expectations

At its monetary policy assessment in June 2007, the SNB decided to increase the target range for the three-month Libor by 0.25 percentage points to 2.00–3.00% with immediate effect. It drew attention to the fact that it would probably have to raise interest rates further in the coming months if economic momentum remained unchanged or the movement of the Swiss franc were to relax monetary conditions further.

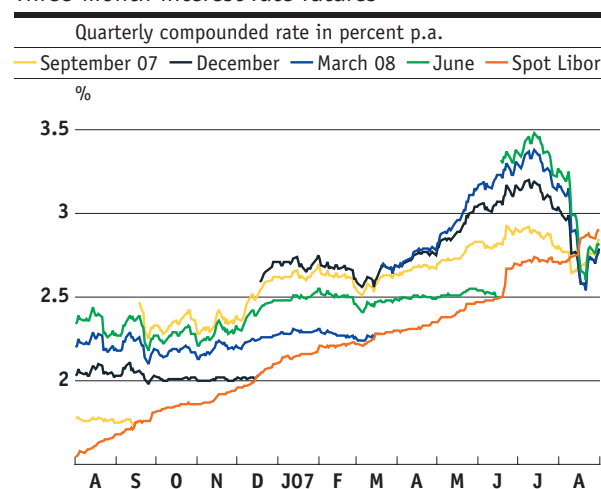
Shortly after the last assessment in mid-June, the three-month Libor rose by around 20 basis points (cf. graph 3.1). This was due partly to clearly mounting market expectations that the SNB was going to make an unscheduled interest rate change and partly to the fact that the SNB raised the one-week repo rate by about 29 basis points within the space of a few days.

Developments in the financial markets in the months following the last monetary policy assessment have been dominated by the crisis in the US mortgage market. In July, it became evident that the crisis in the US market for sub-prime mortgages was spreading: two prominent hedge funds managed by Bear Stearns collapsed and more than two dozen financial institutions, especially those operating in the sub-prime mortgage market, were taken over by others due to the threat of insolvency. When global equity prices started to drop in late July and early August and the financial markets were confronted with a threat of liquidity bottlenecks, the central banks injected additional liquidity into their money markets. In particular, the ECB channelled a total of EUR 156 billion into the market on 9 and 10 August. The SNB reacted on the same two days by injecting overnight liquidity to the tune of CHF 1.44 billion and CHF 1.7 billion respectively. However, the additional liquidity was absorbed the following week. In mid-August, the crisis spread to the two leading prime mortgage providers, both of which were downgraded significantly by the Moody's rating agency overnight. On 17 August, the US central bank (the Fed) made an unexpected cut in its discount rate by 50 basis points to 5.75% at an extraordinary meeting, but left the federal funds rate unchanged at 5.25%. The Fed's justification for this was the mounting financial crisis and the increased threat to growth. To reduce market turbulence, the Fed agreed to grant liquidity for up to 30 days at the discount rate and

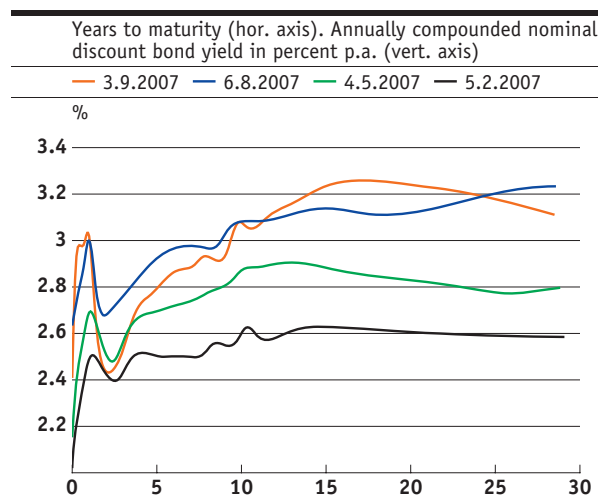
Graph 3.1
Money market rates



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

to accept a wide range of collateral, including mortgages and mortgage-backed securities.

At the beginning of September, the three-month Libor continued its rise, due to high demand for liquidity, moving up to 2.90%.

Swiss money market not expecting any further rise in three-month Libor

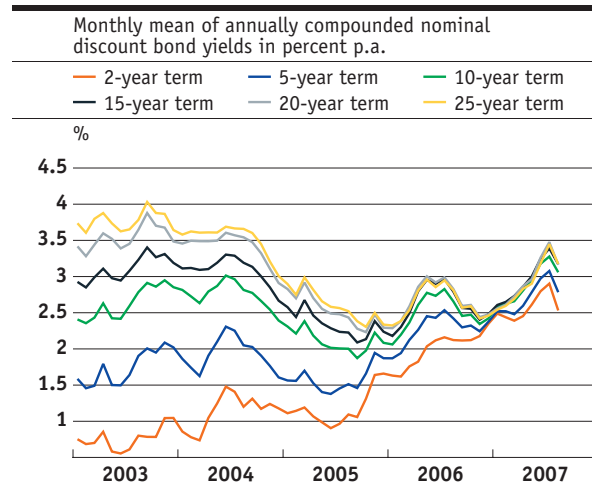
When the last monetary policy assessment was made in mid-June, the regular consensus forecast indicated that the market expected a rate of 2.7% at end-September. In the second half of June, interest rates on futures maturing in December 2007 and in March and June 2008 rose significantly in response to the hike in the three-month Libor. However, they dropped back significantly from mid-July, especially following the worsening of the US mortgage crisis (cf. graph 3.2). At the end of August, the three-month rate for June 2008 futures was 2.8%, compared with a high of around 3.5% in the second week of July. The rates for December 2007 and March 2008 futures were around the same level. Until mid-June 2008, the markets thus expected the three-month Libor to remain virtually unchanged.

Lower long-term yields in Switzerland

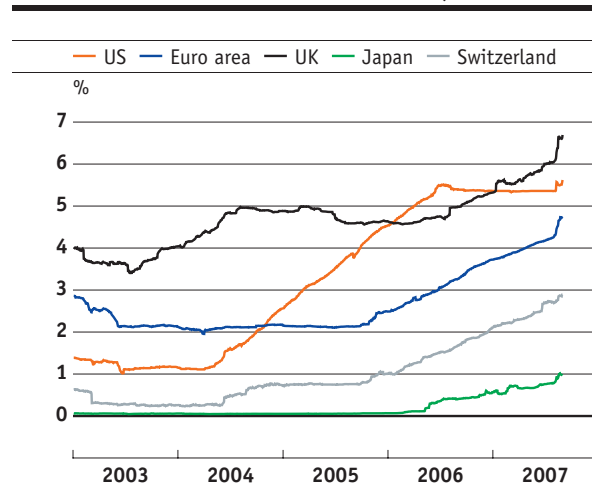
Fixed-interest government bonds became steadily less attractive in the period to end-June as the equity markets continued to rise, pushing the yield on ten-year government bonds up to around 3.4%. But in July, as the crisis in the US mortgage market spread, the outlook for the equity markets started to deteriorate. This, coupled with increased risk-awareness, meant that fixed-income investments with good credit standing around the world became more attractive again. As a result, the yield on ten-year Swiss Confederation bonds was pushed down to an average of 3% in August. At the same time, there was a rise in credit risk premiums for bonds issued by banks, mortgage bond institutions, cantons and foreign issuers. By contrast, corporate bonds were hardly affected by the crisis.

The rise across the entire yield curve over the past twelve months has not been without impact on the mortgage market. The interest rate for existing floating-rate mortgage agreements, which – owing to statutory provisions – governs the price of rented property, rose significantly in August. This was the first rise since October 2005 in this rate, which firmed to 3.21% by mid-September. The interest rate for new mortgage agreements already started to rise after the last monetary policy assessment and stood at 3.23% by mid-September. Since the interest paid on savings deposits has not risen as fast as interest on existing floating-rate mortgage agreements, August saw a slight increase

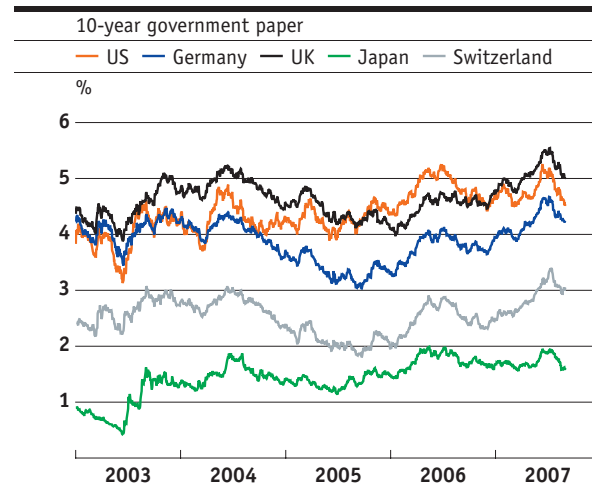
Graph 3.4
Swiss Confederation bond yields



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

in the banks' margins – measured as the difference between rates for existing mortgage agreements and savings deposits – for the first time in about three years. Nevertheless, the spread was still well below the ten-year average.

Rising short-term interest rates outside Switzerland

Although the liquidity injected by the ECB in July and August stabilised the overnight rate, this did not prevent a continued rise in the three-month interest rate for euro investments (cf. graph 3.5). The interest spread between three-month investments in EUR and CHF was 185 basis points in mid-September, compared with 166 basis points in mid-June. However, the spread between three-month USD and CHF investments narrowed continuously between mid-June and mid-September, by which time it stood at 280 basis points. The enormous uncertainty in the money markets was also reflected in the three-month USD rate on September futures, which was already close to the spot rate at the start of August.

Decline in long-term yields abroad

Owing to the turbulence in the US sub-prime mortgage market, the attraction of risk-free government bonds increased significantly between July and August (cf. graph 3.6). In August, the average yield on ten-year US treasury bonds was 4.7% compared to 5.1% in June, while the average yield on ten-year German government bonds was 4.3% in August, as against 4.6% in June.

The yield spread between ten-year USD and CHF bonds and between CHF and EUR bonds nar-

rowed between June and August. By the latter month, the average spread between USD and CHF bonds had fallen to 164 basis points, while the spread between EUR and CHF bonds averaged 126 basis points.

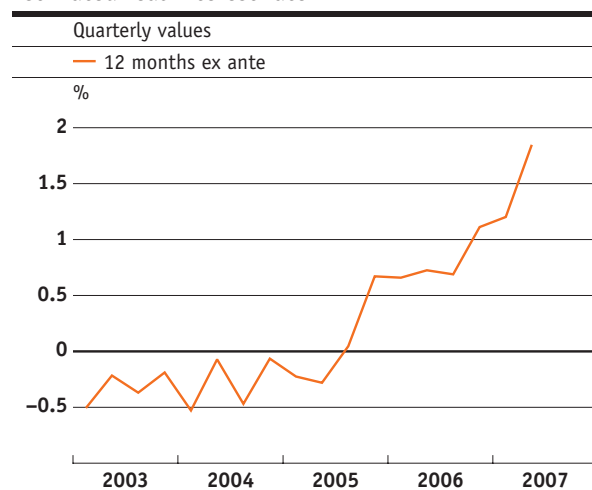
Further rise in real short-term interest rates

Graph 3.7 shows movements in the one-year real interest rate. 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, August 2007).⁵ The real interest rate measured in this way stood at 1.85% in the second quarter of 2007 and was thus considerably higher than in the previous quarter (1.2%). This was due to the firming of nominal interest rates. However, the rise was dampened somewhat by higher inflation expectations in the wake of dearer crude oil prices. The one-year real interest rate is now above the historical average of 1.6% for the first time since the start of 2001. Nevertheless, the 65 basis-point rise that took place between the first and second quarters is nothing unusual in a phase of monetary tightening.

The upward revision of inflation expectations is also reflected in the data on consumer sentiment published by SECO in August. 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) and a sharp drop in those expecting prices to remain stable.

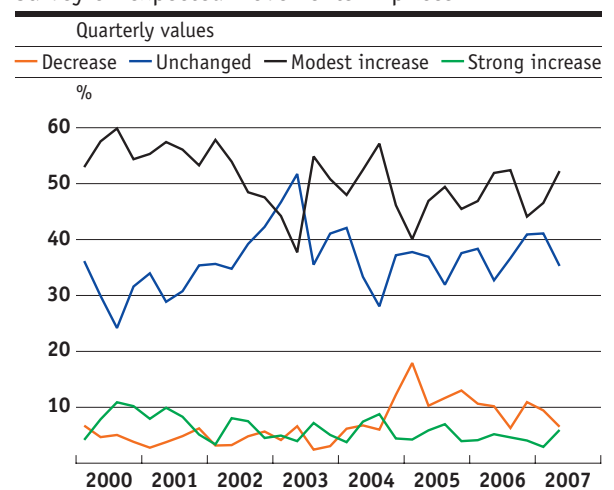
5 Cf. table 1.1.

Graph 3.7
Estimated real interest rate



Source: SNB

Graph 3.8
Survey on expected movements in prices



Sources: SECO, SNB

3.2 Exchange rates

Stronger Swiss franc

At the end of July, the euro was trading at an all-time high against both the US dollar and the Swiss franc (respective exchange rates: 1.38 USD/EUR and 1.67 CHF/EUR). It temporarily slipped against both currencies as the crisis in the US mortgage market spread, but then firmed again. In mid-September, the euro was trading more than 4% higher against the dollar than it had been in mid-June. Between mid-2006 and mid-2007, the Swiss franc lost about 1 centime per month against the euro, but it made up ground again between early and mid-August. It subsequently eased again to 1.64 CHF/EUR in mid-September – about 1 centime lower than at the last assessment. The Swiss franc has thus remained low against the euro, increasing the risk of imported inflation. In relation to the dollar, however, the Swiss currency has gained 5% since the last monetary policy assessment.

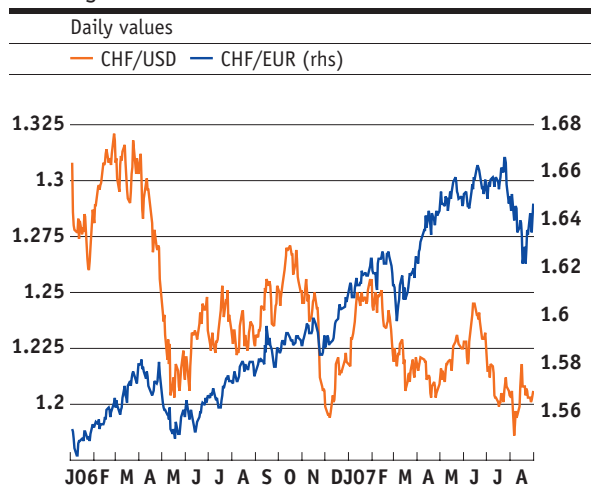
Graph 3.10 shows the real export-weighted external value of the Swiss franc, which takes into account the varying price movements between the currency areas. Since the beginning of 2007, the franc has weakened against the euro and Switzerland's 24 most important trading partners. The drop in value relative to the euro was more pronounced than against the 24 most important trading partners. This shows that the Swiss franc's weakness was partly due to the strength of the euro, and that the franc has stood up better against other currencies. In nominal terms, it has actually risen against

the US dollar since the start of the year. The United States accounts for around 15% of Swiss exports. Moreover, various Asian countries, which account for about 10% of Swiss exports, have tied their currencies to the dollar to varying extents. Around 60% of Swiss exports go to the euro area.

Trends and market turbulence

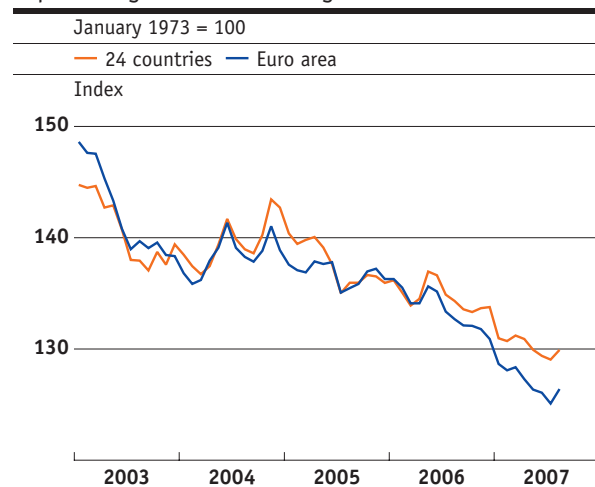
The EUR has trended upwards against the USD since the start of 2006. This trend could be attributable to strong economic growth accompanied by low inflation rates in the euro area, while the US economy has developed more modestly as a result of lower consumer demand and the correction in the real estate market. Moreover, the US current account deficit has probably taken its toll on the dollar. By contrast, the euro's appreciation against the Swiss franc seems more surprising. With lower inflation rates and interest rates in Switzerland, and given similar monetary policies and growth trends, an appreciation of the Swiss franc might have been expected. The section headed 'The Swiss franc – a tendency to appreciate in bear markets and in periods of high market uncertainty' on page 32 shows that the Swiss franc tends to depreciate in periods of low market volatility and during stock market rallies. If these two factors alter, the opposite is true. Carry trades have probably intensified the depreciation of the Swiss franc. The nervousness on the financial markets has prompted many investors to close out carry trades. That is also reflected in recent movements in the Japanese yen, another popular currency for financing carry trades.

Graph 3.9
Exchange rates



Source: SNB

Graph 3.10
Export-weighted real exchange rate of Swiss franc



Source: SNB

The Swiss franc – a tendency to appreciate in bear markets and in periods of high market uncertainty⁶

The short-term behaviour of the Swiss franc in foreign exchange markets is frequently affected by two different phenomena. The first is that the Swiss franc generally tends to depreciate (appreciate) in a bull (bear) market. The second is that when market risks increase (share prices become more volatile), an appreciation in the Swiss franc can often be observed. This was the case, for example, following the Russian crisis and also after the terrorist attacks of 11 September 2001.

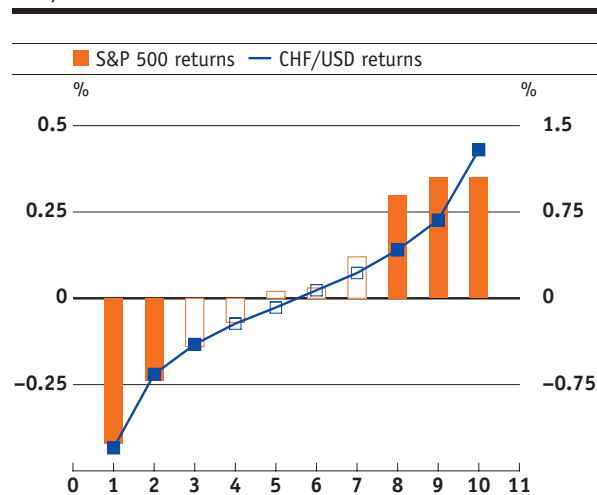
The first phenomenon can be tested empirically on the basis of the relationship between CHF/USD exchange rate returns, on the one hand, and yields on the S&P 500 index, on the other. The sample period lasts from the beginning of 1993 to the end of 2005. The daily exchange rate returns are sorted from the highest level of appreciation to the highest level of depreciation, and then divided up into ten equal groups. For each group, the average exchange rate return and the associated average realised yield for the S&P 500 index are calculated. In addition, t-statistics are shown in order to identify any groups whose average figures deviate significantly from the overall average for the sample. In graph 3.11, S&P 500 index yields are shown on the left-hand side and exchange rate returns on the right. In cases where the S&P 500 yields for a given group deviate signifi-

cantly from the overall average at the 1% level, the bar in question is fully coloured in orange. Similarly, major deviations in exchange rate returns are indicated by means of fully coloured blue boxes. Non-coloured bars or boxes indicate deviations that are not significant in statistical terms. The graph clearly shows that while a weaker Swiss franc is associated with higher S&P 500 returns, appreciation in the Swiss franc is linked with a downward trend on the US stock market. It should be noted that this relationship is clearly monotonic.

Graph 3.12 illustrates the second ‘safe haven’ currency phenomenon, by relating the CHF/USD exchange rate returns to the market risk. The daily volatility of the S&P 500 index is used as a measure of market risk. For practical reasons, realised volatility is extrapolated to a period of a full year. In graph 3.12, exchange rate returns are again shown on the right-hand side and the realised volatility of the S&P 500 for each group on the left. As before, filled orange bars and filled blue boxes indicate significant deviations from average values. Non-coloured bars signify normal levels of market risk. Where the market risk is particularly high, the Swiss franc clearly appreciates. However, the opposite does not apply. The most marked depreciation in the Swiss franc occurs in situations where the level of market risk is normal.

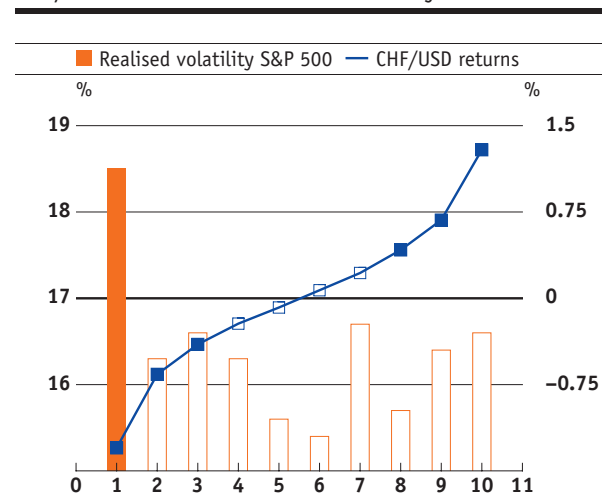
6 Cf. Angelo Ranaldo and Paul Söderlind, *Safe Haven Currencies, Swiss National Bank Working Papers*, forthcoming, and University of St. Gallen, May 2007, Discussion Paper no. 2007–22.

Graph 3.11
CHF/USD and S&P 500 returns



Sources: Thomson Datastream, Swiss-Systematic Asset Management SA

Graph 3.12
CHF/USD returns and realised volatility



Sources: Thomson Datastream, Swiss-Systematic Asset Management SA

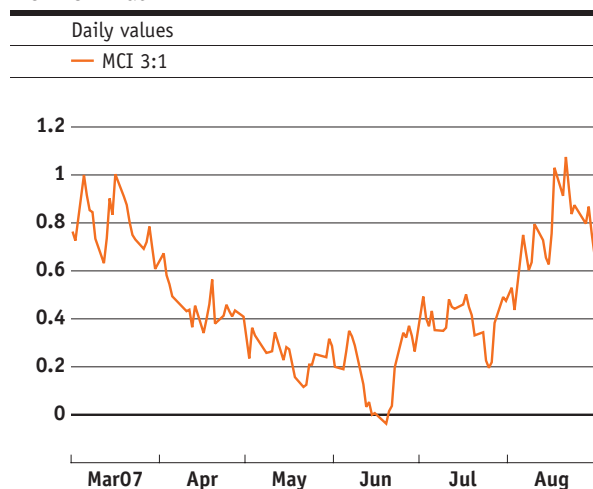
The two phenomena described here appear to be specific characteristics of the Swiss franc that go at least some way towards explaining its movements. For example, in the bull market with low volatility that persisted until just a few weeks ago, the Swiss franc was trending downwards. When these two factors of influence change, as has occurred in the recent past, the Swiss franc should tend to appreciate. A higher level of uncertainty will also reduce the attractiveness of carry trades, which represent another factor preventing the Swiss franc from appreciating again.

More restrictive monetary conditions

The Monetary Conditions Index (MCI) 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).

Immediately after the last monetary policy assessment, the MCI – which weights the change in the three-month Libor and the export-weighted nominal external value of the Swiss franc in a ratio of 3:1 – increased sharply due to the rise in the three-month Libor. The index rose further at the end of July and the start of August, reflecting the renewed strength of the Swiss franc resulting from the turbulence on the credit and financial markets. At the end of August, the MCI stood at 76 basis points, which meant that monetary policy in Switzerland was more restrictive (cf. graph 3.13).

MCI nominal



Source: SNB

3.3 Equity, commodity and real estate prices

Equities, real estate and commodities 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, the price of these assets is affected by inflation expectations. Since changes in inflation expectations alter the price of equities, real estate and commodities, 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.

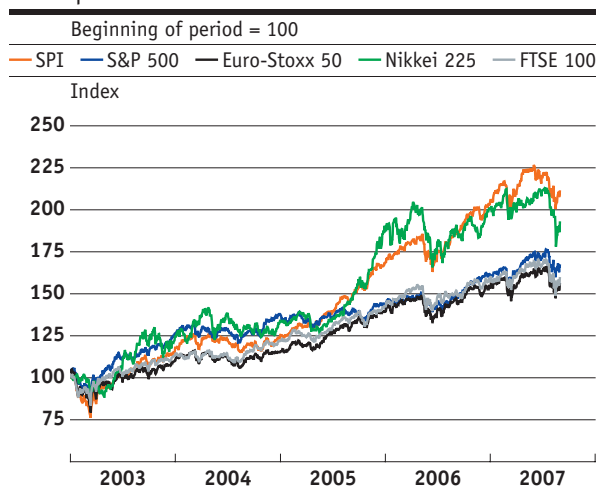
Turbulence in the stock markets

While the international equity markets rose to new all-time highs in June and July, the upward trend came to an abrupt halt in the week of 23–27 July, triggered by the crisis in the mortgage and credit markets. That week, the S&P 500 index in the

US posted its sharpest correction for five years (–5%). The wave of corrections also spilled over to international markets, with the Swiss Performance Index (SPI), for example, slipping 5.4% in the same week. Large and mid-cap prices declined the most. These two segments have been hit the hardest because they face higher refinancing costs. Banking and technology stocks sustained the heaviest falls. The market turbulence continued in the following weeks, and liquidity shortages forced many central banks to inject additional liquidity into the markets. On 17 August, the Nikkei index slipped 5%, the largest drop recorded in a single day since April 2000. On the same day, the Fed intervened and cut its discount rate by 0.5 percentage points to 5.75%. This intervention triggered a temporary market rally. In mid-September, the S&P 500, the Euro-Stoxx 50 index in Europe and the SPI were only slightly above their levels at the start of the year, while the Nikkei was about 9% lower.

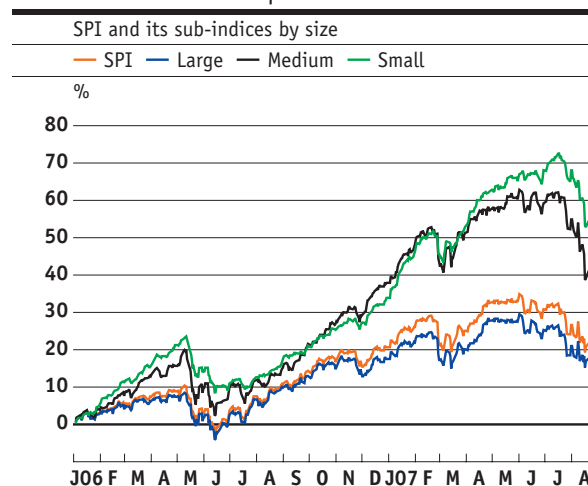
The jitters in the financial markets are reflected in higher volatility. Graph 3.17 shows the expected volatility in the next thirty days based on the Chicago Board Options Exchange Volatility Index (VIX) and the realised volatility measured by the annualised standard deviation in monthly

Graph 3.14
Stock prices



Sources: Thomson Datastream, Bloomberg

Graph 3.15
Performance of Swiss equities



Source: SWX Swiss Exchange

returns on the SPI and S&P 500. Both expected and realised volatility increased significantly at the end of July. This did not only affect the equity markets; a similar phenomenon was observed in other financial markets, for example the bond and foreign exchange markets. Higher volatility signifies a higher investment risk, which is reflected in higher risk premiums. A flight into safer investments is also observable.

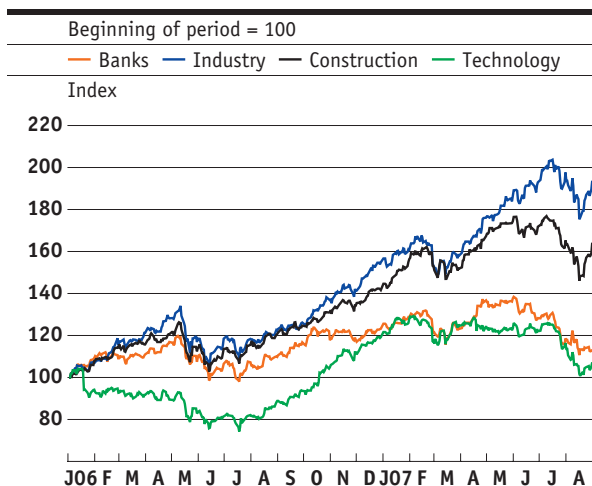
Sharp fluctuations in commodity prices

Commodities have moved in parallel with the equity markets since the last monetary policy assessment in June. An uptrend to the end of July was followed by a downward correction. In mid-August, the Goldman Sachs Commodity Index was back at its mid-June level. Since the start of the year, the overall index has risen, mainly due to lead, which is used in the production of car batteries. The oil price trend was similar. On 20 July, oil was fetching a record price of about USD 79 per barrel. But then the price plummeted – by mid-August, it had fallen below USD 70 per barrel, almost the same level as at the last monetary policy assessment. In September, the oil price resumed its rise. By the middle of the month, it stood at USD

77 per barrel. Fundamental factors such as population growth, the buoyant economic conditions and globalisation, which have a tendency to push up oil prices, have not changed.

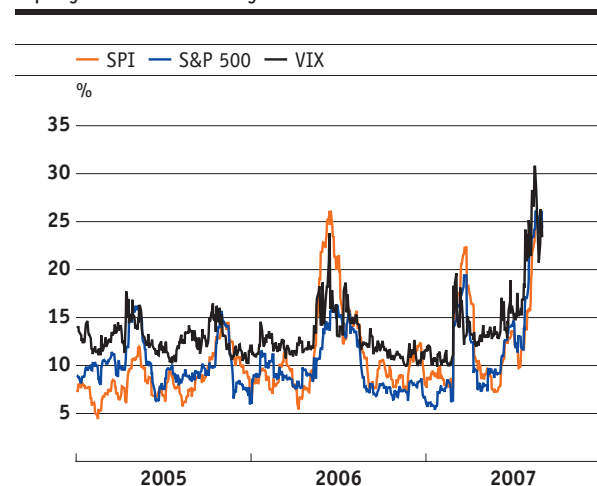
Contrary to the common belief that gold is a safe haven, the gold price moved in tandem with equity prices during this year's turbulence in the financial markets. Expressed in Swiss francs, the gold price dropped by around 6% in the week of 27 February to 5 March and by around 2% in the week of 23–27 July. The SPI slipped roughly 6% and 5% in the same periods.

Graph 3.16
Selected SPI sectors



Source: Thomson Datastream

Graph 3.17
Equity return volatility



Sources: Thomson Datastream, SNB

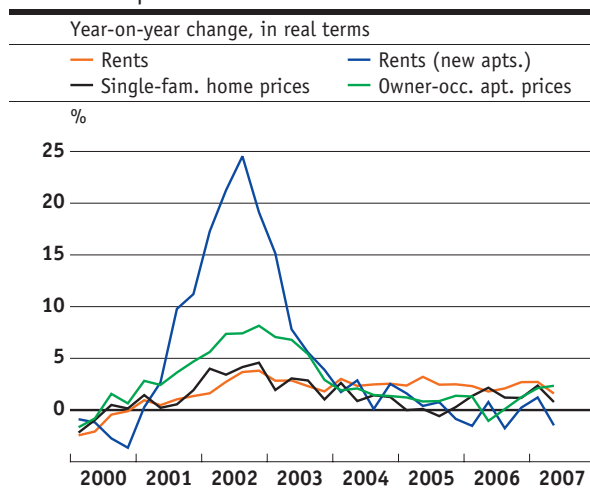
Stable real estate market

The brisk economy and the agreement with the EU on the free movement of people have increased demand for housing, suggesting that real estate prices will rise.

However, the figures for the second quarter of 2007 still point to only moderate price pressure. 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 1.6% in real terms, i.e. in relation to the CPI. The rise was thus lower than in the previous quarter. However, this figure applies mainly to

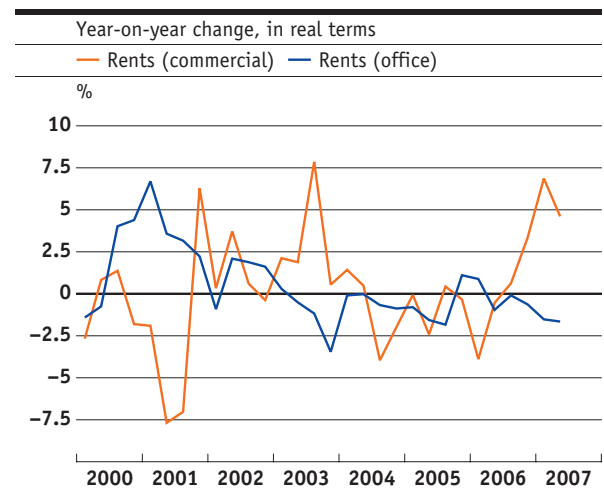
the existing housing stock. Rents for new apartments dropped by 1.5%, having risen for two consecutive quarters. Moreover, the trends in the single-family home and owner-occupied apartment segments may also be considered, although they account for a smaller share of the overall market. Prices for single-family homes rose at a far slower pace of 0.8%, while prices for owner-occupied apartments rose slightly faster than in the previous quarter. In the market for commercial property, the sustained decline in office rents contrasts with the clear rise in rents for other commercial property (cf. graph 3.19).

Graph 3.18
Real estate prices and rents



Source: Wüest & Partner

Graph 3.19
Commercial and office rents



Source: Wüest & Partner

3.4 Monetary aggregates

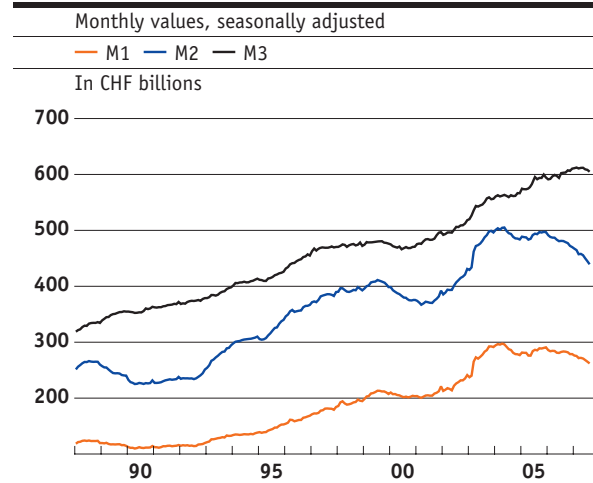
M1 and M2 still declining

As shown in graph 3.20, 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 August 2007, M1 was 7.5% below the year-back level, while M2 was 8.6% lower than a year previously. By contrast, M3 (M2 plus time deposits) expanded over the same period, growing at an admittedly modest rate of 0.3% in August. In the late-1980s/early 1990s and at the end of 1990/start of 2000, lower or negative growth in the monetary aggregates indicated a more restrictive monetary policy.

One way of assessing potential inflationary threats owing to an excessive supply of liquidity to the economy is to calculate the monetary overhang. There are various ways of 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 3.21 shows the percentage deviations of the M3 money stock from the calculated equilibrium value. In order to take account of statistical uncertainty, the monetary overhang is presented as a range that

spans one standard deviation. If the range were above the zero line, it would indicate an expectation of price pressure in the coming quarters. However, since the range has been situated on either side of the zero line since the start of 2004, this indicator suggests that there will be no inflationary pressure in the new few quarters.

Graph 3.20
Monetary aggregates



Source: SNB

Monetary aggregates¹

Table 3.1

	2005	2006	2006			2007		2007		
			Q2	Q3	Q4	Q1	Q2	June	July	August
Monetary base²	41.9	43.1	43.3	42.3	43.6	44.6	44.0	44.0	43.6	43.5
<i>Change³</i>	0.4	3.0	4.2	2.6	2.2	3.1	1.5	1.3	3.1	2.7
M1²	284.2	282.4	281.8	280.5	281.0	276.0	270.0	267.2	262.6	259.8
<i>Change³</i>	-1.5	-0.6	1.1	-1.4	-3.4	-3.6	-4.2	-4.4	-6.1	-7.5
M2²	491.6	481.6	483.3	477.1	474.1	465.9	453.9	448.4	441.8	436.9
<i>Change³</i>	-0.8	-2.0	-0.7	-2.9	-4.7	-5.3	-6.1	-6.4	-7.5	-8.6
M3²	585.9	600.3	597.5	600.4	607.9	613.4	611.6	609.3	606.0	603.1
<i>Change³</i>	4.2	2.5	2.8	1.6	2.0	3.0	2.4	2.6	1.0	0.3

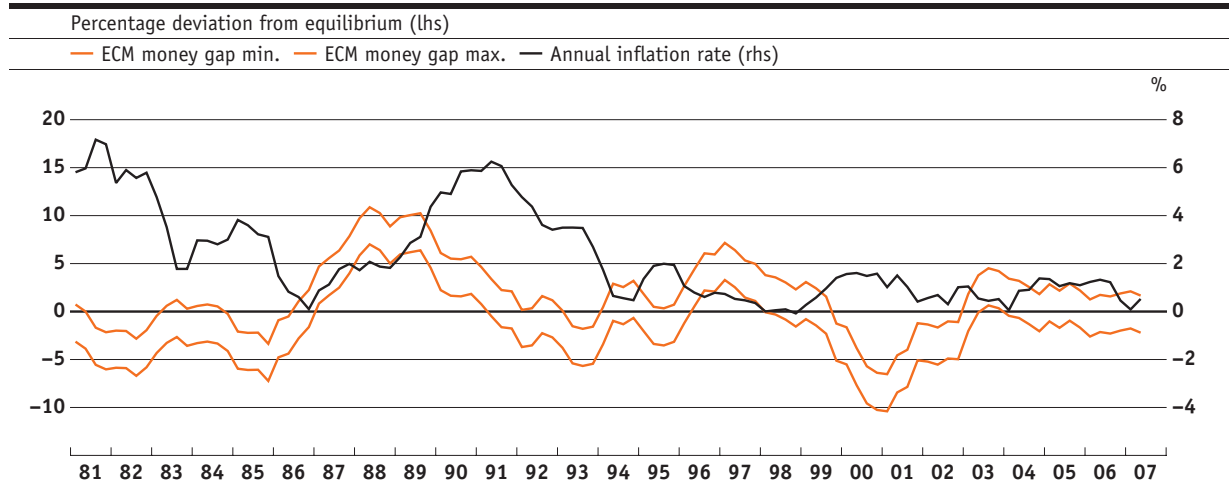
1 1995 definition

2 Level in CHF billions

3 Year-on-year change in percent

Source: SNB

Graph 3.21
 Money gap and annual inflation rate



Source: SNB

3.5 Credit

Stronger growth in other loans

In the second quarter of 2007, lending remained robust with an annual growth rate of 5.3%. As in the previous quarter, there was a difference between loans to households and companies. Growth in mortgages, which are mainly granted to households, remained at 4.2% as in the first quarter. That was 0.7 percentage points below the level registered in the second quarter of 2006. Since growth rates remain positive, mortgage lending has reached a new record.

Other loans, which are mainly to companies, grew by 10.3% in the second quarter, which was above the 9.6% growth rate registered in the first quarter. However, that has only brought other loans back to around the same level as at the start of 2002. Unsecured loans, which account for just under 60% of 'other loans', increased by as much as 12.6% year-on-year in the second quarter, compared with 11.5% in the first quarter.

The different growth rates for lending to households and companies reflects the fact that lending to private individuals responds principally to interest rate trends, while loans to companies mainly take account of expected future economic trends. Graph 3.22 shows the three-month Libor against annual growth in mortgage lending. Clearly, growth in lending declines (rises) when interest rates rise (fall), so it is probable that the slower growth in mortgage lending observed here is principally due to the recent tightening of monetary policy.⁷

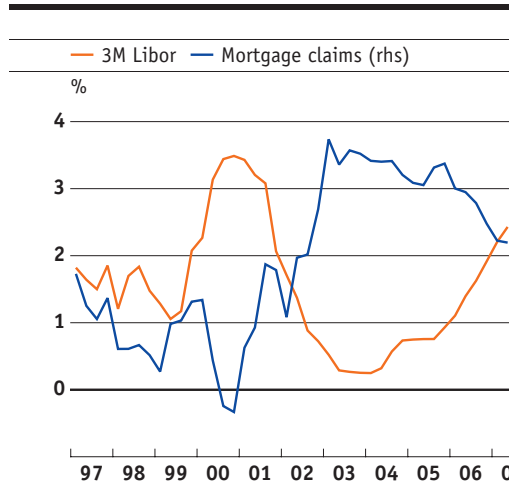
Graph 3.23 shows the output gap estimated using the production function approach⁸ together with annual growth in unsecured loans. It is clear that faster credit growth is a typical sign of an economic upswing. This presumably reflects increased investment by companies when they expect the economy to pick up.⁹ The current data thus suggest that companies and banks are optimistic about the economic outlook for the coming quarters.

7 Over the past ten years, the correlation between these two variables was -0.79.

8 Cf. section 2.4.

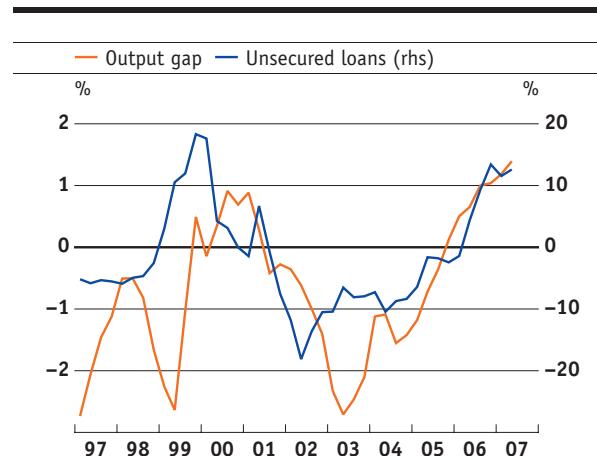
9 Cross-correlations show that the relationship between growth in unsecured loans today and the output gap in three quarters is highest (correlation of 0.59).

Graph 3.22
Interest rates and annual mortgage growth



Source: SNB

Graph 3.23
Business activity and annual growth in the unsecured loans



Source: SNB

Bank loans
Year-on-year change in percent

Table 3.2

	2005	2006	2006			2007		2007		
			Q2	Q3	Q4	Q1	Q2	May	June	July
Total¹	4.1	4.8	4.8	4.9	5.1	5.2	5.3	5.1	5.6	5.1
Households ²	6.5	6.1	6.6	5.8	5.9	5.1	5.0	4.7	4.8	4.3
Companies ²	0.9	1.6	1.0	2.4	3.4	3.9	4.5	4.5	6.0	5.3
Mortgage claims ¹	5.2	4.8	4.9	4.8	4.5	4.2	4.2	4.1	4.0	3.8
of which households ¹	6.9	5.5	5.7	5.4	5.3	4.9	4.8	4.8	4.6	3.9
of which companies ¹	3.1	1.2	1.5	1.3	0.7	0.8	1.2	1.0	1.3	2.8
Other loans ¹	-0.7	4.6	4.4	5.4	8.1	9.6	10.3	9.7	13.1	11.2
of which secured ¹	2.6	2.5	4.4	0.6	1.5	7.1	7.2	8.7	7.7	4.5
of which unsecured ¹	-3.1	6.3	4.3	9.3	13.4	11.5	12.6	10.5	17.1	16.0

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 largely 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 June forecast.

Global economy still robust

Compared to the last monetary policy assessment, growth momentum is set to slow in the US and the downside risks have increased. This is due to the housing market correction in the US and the recent turbulence in the credit and financial markets – which pose substantial risks to the future growth contribution from private consumption and investment. The favourable economic situation in Europe, by contrast, looks set to continue. Overall, global economic activity is expected to remain robust.

Assumptions for inflation forecasts

Table 4.1

	2007	2008	2009
Inflation forecast of September 2007			
GDP US ¹	1.9	2.9	3.1
GDP EU15 ¹	2.7	2.2	2.1
Exchange rate USD/EUR ²	1.35	1.37	1.37
Oil price in USD/barrel ²	69.4	76.0	76.0
Inflation forecast of June 2007			
GDP US ¹	2.2	3.0	2.9
GDP EU15 ¹	2.6	2.2	2.0
Exchange rate USD/EUR ²	1.34	1.35	1.35
Oil price in USD/barrel ²	65.2	68.0	68.0

1 Change in percent

2 Level

Inflation forecasting as part of the monetary policy concept

The SNB has the statutory mandate to ensure price stability while 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 Q3 2007 to Q2 2010

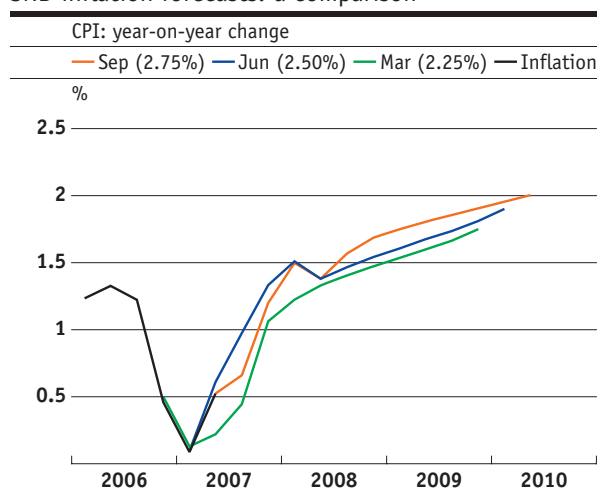
The quarterly inflation forecast is derived from the analysis of different indicators, model estimates and the assessment of any special factors. It maps the future development of prices on the assumption that the three-month Libor will remain constant over the forecasting period. Graph 4.1 depicts the inflation forecast of September 2007 alongside those of June and March. The new forecast, which covers the period from the third quarter of 2007 to the second 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 lifted by 0.25 percentage points on 13 September. The June and March forecasts were based on a three-month Libor of 2.50% and 2.25% respectively.

The recent turmoil in the financial markets has so far hardly led to any change in the inflation prospects. They have in fact deteriorated slightly due to the good state of the economy, the continued

high price of oil and the relatively weak Swiss franc. The new inflation forecast shows that, with a three-month Libor of 2.75%, the inflation outlook is almost unchanged. Inflation is projected to increase until the first quarter of 2008, and then decline slightly in the second quarter. In essence, the reason why the forecast follows this path is because of movements in oil prices in the year-earlier quarter (baseline effects). Based on an unchanged three-month Libor of 2.75%, the forecast inflation will rise to a level of 2% from mid-2008.

However, the uncertainties associated with the assessment of the inflation outlook are greater than usual. Structural changes in the economy are still having a favourable impact on inflation. A cooling in the global economic climate triggered by the mortgage and loan crisis would also hold down prices. A downturn in oil prices and a strengthening in the Swiss franc would have similar effects. By contrast, the high degree of resource utilisation and the rise in import prices are having an inflationary effect. Overall, the risk of an unexpected rise in inflation is just as great as the risk that inflation will be lower.

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 September 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. On the following pages, the most important results of the talks held from June to August 2007 on the current and future economic situation are summarised.

Summary

The talks held by the SNB delegates for regional economic relations with around 150 representatives from various economic sectors and industries yielded a picture of a broad-based economic boom in the period from June to August. Most representatives reported robust to strong growth in turnover and orders; some even spoke of a record year. Prospects were viewed as positive. There was little mention of any foreseeable slowdown in business. In view of the financial market turmoil in August, some respondents were somewhat concerned, however.

Given the high level of capacity utilisation and the positive earnings situation, many companies have invested in expansion or plan to do so. Difficulty recruiting qualified employees was regularly mentioned. Overall, the scope for price adjustments seems to have increased, making it more possible to pass higher commodity and energy prices on to customers. Once again, capacity shortages and problems with the procurement of commodities and primary products were cited as the main concern.

1 Production

Manufacturing

In the manufacturing sector, production was buoyant and orders increased strongly. In general, utilisation of personnel and technical resources is high, and the order backlog is sufficient to guarantee full employment until well into 2008. In terms of turnover and earnings, this therefore looks set to be another successful year. Demand is geographically broad-based, with the EU (and especially Germany) being mentioned first in most cases. However, the representatives also viewed business in Asia (in particular China and India) and Eastern Europe (Russia) as positive. Their opinions on the situation regarding the US differed more and were overall more restrained. In order to cope with the volume of orders, many companies introduced extra shifts or had to cancel company vacation closures. In view of continued procurement problems and delays in delivery of commodities and primary products, various respondents considered a (costly) increase in stocks. Some registered a deterioration in the quality of primary products and, in a few cases, also of their own products.

The healthy economic situation was felt in almost all industries. There was no indication of a slowdown in business activity. This was also confirmed in talks with representatives of the casting industry, which is regarded as a leading indicator for mechanical engineering and which reported a continued high level of new orders. The following categories recorded particularly good results: energy technology (including alternative energies), air conditioning technology, medical technology and manufacturing for the aviation industry. But also suppliers of the automobile industry, which operate in a particularly competitive area, reported satisfactory to good business results. In the consumer goods industry, watchmaking remained in the lead, with other categories, such as the furniture and textile industries, also benefiting from strong demand.

Services

Discussions with retail business representatives showed that the mood in this industry was also upbeat. Despite a continued price decline in certain product ranges, turnover of wholesalers and shopping malls was in most cases above the year-back level. Customers are free-spending, which particularly benefits the low and high price segments. Retailers in Switzerland's border regions continue to profit from the softening of the Swiss franc against the euro, which makes shopping in Switzerland more attractive.

Representatives of the tourism and hospitality trades have also been satisfied with the results of the summer season to date. Despite the somewhat unfavourable weather conditions, hoteliers from the different regions reported healthy levels of bookings and rising turnover per guest. Guests from Switzerland proved to be particularly free-spending. This also applies to companies, which have again organised many seminars and events. In general, prices are no longer a primary criterion. Various representatives mentioned the low CHF/EUR exchange rate, which made prices in Swiss tourism more competitive, and all respondents were optimistic about the coming winter season. Talks with representatives of other consumer and business-related service industries – in particular the IT industry, but also airlines, travel agencies and transport companies – confirmed the steady broad-based economic upswing.

The representatives of the banking industry also remained optimistic. The mortgage business flourished, as did investment and trading. The corporate clients business was more subdued. The representatives of the banks attributed this fact mainly to their customers' high levels of liquidity. Consequently, many loans were paid off. Given the favourable business situation of their clients, the banks made fewer value adjustments. It was not surprising that the banks in particular were somewhat concerned by the financial market turmoil in August.

Construction and real estate

Most representatives of the construction industry reported good business results, with residential construction being the driving force. In both the construction industry proper and the finishing industry, capacity utilisation is very high and order books are full. As a result of strong demand, competitive pressure seems to have abated, and price increases have thus become possible. The respondents' opinions on the outlook differed, however. Some expected construction activity to slow down in the coming months. Particularly in the area of commercial construction, they identified clear signs of such a development. Others assume that construction activity will remain robust. Notably, a strong rise in foreign demand for second homes in excellent locations was registered.

2 Labour market

Most representatives reported that they intended to further increase staff numbers. Difficulty recruiting qualified employees was regularly mentioned. Staff shortages seem to be particularly acute for technical professions, financial market specialists and project management. The agreement on the free movement of persons with the EU has eased the situation somewhat, but meanwhile, the EU is also suffering from a shortage of qualified employees. Internal training and continued education of staff, including programmes for women returning to work, have become more important in this tight environment. By contrast, representatives of employment offices confirmed that placement of untrained job seekers was difficult, since there are not enough low-skilled jobs.

Growing wage pressure is an issue that was frequently mentioned, although it does not seem to be a major cause for concern yet. For 2008, most respondents expect substantial salary increases. A rise in staff turnover has also been observed. In particular, employees from the EU who only recently moved to Switzerland are now looking for better-paid jobs. In certain industries, such as the hospitality trade, foreign workers have increasingly demanded compensation for the weaker Swiss franc.

3 Prices, margins and earnings situation

Most representatives reported a positive development in the earnings situation. In many cases, it has since become possible to raise prices, and thus pass on higher commodity and energy prices to customers. As an alternative to price increases, discounts and special rates were abolished at times. The environment for price increases seems to be more favourable, not least because competitors nowadays tend to follow such adjustments and because price is no longer the decisive factor for clients, but rather availability and delivery times. Several representatives indicated their intention to further increase prices next year. Once again, retail trade was an exception, since stiff competition especially puts pressure on prices of day-to-day necessities. Export-oriented companies continued to benefit from the weak Swiss franc against the euro. However, the respondents pointed out on a number of occasions that their calculations were still based on a considerably stronger Swiss franc.

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

The Swiss National Bank Working Papers and the Swiss National Bank Economic Studies are available in electronic form on the National Bank's website (www.snb.ch) under *Publications/Economic publications*.

Hard copies of both series are also available. Free subscriptions or individual issues can be ordered at: Swiss National Bank, Library, Fraumünsterstrasse 8, CH-8022 Zurich, fax +41 44 631 81 14, email: library@snb.ch.

An orthogonal polynomial approach to estimate the term structure of interest rates

Hans-Jürg Büttler
Working Paper 2007-8

The term structure of interest rates or the yield curve, respectively, is a key variable in economics and finance. By definition, it relates zero-coupon rates or spot interest rates, respectively, to the terms to maturity (tenors) of zero-coupon bonds or discount bonds, respectively. Unfortunately, spot interest rates can rarely be observed, except for short tenors. The task, therefore, is to estimate the yield curve from a given set of quoted prices of coupon-bearing bonds, independently of any term structure model.

Several approaches have been proposed in the literature, including bootstrapping, a regression of the bond prices, various spline functions to approximate the unknown spot rate function, a small number of exponential functions to approximate the unknown forward rate function, Fourier series and the 'forward-rate' method. Some known methods are clearly model-dependent.

This paper introduces a new algorithm to estimate the term structure of interest rates. It is independent of any term structure model, that is, the estimated spot interest rate converges to the true yet unobservable spot interest rate. The estimated spot interest rate is obtained from a constrained optimisation, where the objective is to minimise the integral of squared first derivatives of the instantaneous forward interest rate, subject to the condition that the estimated bond prices lie within the range of observed bid and ask prices. We use a finite series of ordinary Laguerre polynomials to approximate the unknown function of the instantaneous forward interest rate. The objective function can be written explicitly as a quadratic form of the Laguerre constants, and the nonlinear constraints can be obtained from a recurrence relationship. The solution is both unique and a global minimum. The estimation error is less than one basis point, given a sufficient number of bonds.

The colonial origins of comparative development: Comment. A solution to the settler mortality debate

Raphael Auer

Working Paper 2007-9

Acemoglu, Johnson and Robinson's (2001) seminal work builds a strong case for property rights institutions as the major determinant of income differences. Their main contribution is to construct an instrumental variable – the mortality rates of European settlers in former colonies – that is strongly related to institutional quality, yet has no direct impact on income differences. Albouy (2006) criticises their data and argues that it is assembled and extrapolated inconsistently. He also argues that the mortality rates are collected from very different populations and are thus not comparable.

This working paper resolves the debate on the accuracy of settler mortality rates by instrumenting for the mortality rates that are collected from historical sources with a geographic model of the determinants of disease environment during colonisation. It is first established that the geographic model of disease is a strong predictor of mortality and is otherwise excludable to institutions. Next, the empirical analysis of Acemoglu et al. is repeated, instrumenting for their mortality rates with the geographic projection of disease environment. The instrumented mortality rate is a highly significant predictor of institutional quality and this result is true when instrumenting for either the original data or the revised mortality series of Albouy. While accounting for the population that the historical data was sampled from improves the model of disease environment, it does not alter the relationship

between settler mortality rates and institutions. Finally, the paper establishes that institutions are the major determinant of international income differences. Moreover, this finding holds true when using either of the two historical series and when accounting for the population that the historical data was sampled from. The paper thus concludes that the empirical results presented in Acemoglu et al. indeed reflect their early institution building hypothesis rather than measurement error.

References:

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review* 91(5), December, 1369–1401.

Albouy, David. 2006. The Colonial Origins of Comparative Development: An Investigation of the Settler Mortality Data. Center for International and Development Research. University of California Berkeley, *Working Paper* C04'138, May.

The Swiss National Bank's monetary policy concept – an example of a 'principles-based' policy framework

Ernst Baltensperger, Philipp M. Hildebrand and Thomas J. Jordan

Economic Study No. 3 2007

The practice of monetary policy has evolved a great deal since the early 1990s. This evolution was significantly influenced by rapid developments in the theory of monetary policy. Inflation targeting became the dominating theoretical monetary policy framework in the 1990s and exerted a strong influence on central bank practice. The original inflation targeting concept was defined as a rather strict 'rules-based' monetary policy framework that aims at maintaining a low inflation rate and emphasises transparency and accountability. More recently, a more flexible policy approach which can be characterised as a 'principles-based' monetary policy framework has become popular. This new view marries the firm long-term anchor for nominal stability rooted in the original ideas behind inflation targeting with short-term flexibility rooted in a more discretionary and pragmatic approach to monetary policy.

Although the SNB's monetary policy framework which was adopted in December 1999 shares important similarities with the ideas and principles of inflation targeting, it also differs from inflation targeting in a significant number of ways. The SNB therefore does not refer to its monetary framework as inflation targeting. However, the emerging consensus about 'best-practice' monetary policy is remarkably similar to the SNB's concept in many respects. The flexibility granted by the new concept

enabled the SNB to adequately respond to a series of negative and positive shocks to the world economy since 2000, without departing from its firm commitment to price stability. With its successful seven-year track record, the SNB's concept may thus serve as an interesting case study for a policy aiming at an intermediate position between full discretion and rigidly defined short-term inflation targeting. However, a high level of credibility and an excellent reputation are prerequisites for the success of such a policy approach.

The study reviews the evolution of the 'best-practice' monetary policy discussion since the 1990s and the consensus principles which emerged from it. It then presents the basic elements of the SNB's monetary policy concept and outlines the experiences gained with it so far. It then reviews important parallels between the SNB's concept and the emerging 'best practice' consensus and addresses some of the outstanding controversial issues.

Chronicle of monetary events

SNB aiming to calm the money market

On 13 September 2007, following the quarterly monetary policy assessment, the Swiss National Bank took decisions aimed to calm the Swiss franc money market. It is targeting a three-month Libor of approximately 2.75%, after this rate had previously risen to 2.9%. The target range was adjusted by 0.25 percentage points to 2.25–3.25%.

Published by

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

Design

Weiersmüller Bosshard Grüniger WBG, Zurich

Composition

Neidhart + Schön AG, Zurich

Copyright

Reproduction permitted with reference to source
Specimen copies requested

Languages

The *Quarterly Bulletin* is published in German, French and English. The English version is only available on the SNB website.

Website

www.snb.ch
ISSN 1662-257X (online version)

