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Quarterly Bulletin

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Overview

Monetary policy assessment at year-end (p. 8)

On 13 December 2002, the Swiss National Bank decided to leave the target range for the three-month Libor rate at 0.25%–1.25%. Owing to the low level of inflation, the National Bank has been able to ease monetary policy substantially since March 2001, having since then lowered the target range for the three-month Libor by a total of 2.75 percentage points. The National Bank took decisive steps in response to declining economic growth and the upward trend of the Swiss franc. The imponderables with respect to the development of the global economy remain considerable, and a sustained economic upswing in Switzerland is not likely until some time in the second half of 2003. The National Bank is therefore maintaining its expansionary monetary policy and will keep the attractiveness of Swiss franc investments low. This does not jeopardise price stability.

Economic and monetary developments (p. 12)

In the second half-year 2002, the economic recovery in the OECD countries remained weak. In the US, real GDP rose significantly in the third quarter; however, given the sluggish economic development in autumn, economic growth is likely to have slowed down again in the fourth quarter. In Europe, the economic situation remained dismal. The Japanese economy expanded considerably in the third quarter, although the recovery was not yet broad-based. The preconditions for an economic revival in the OECD area in 2003 have, however, improved. Positive stimuli are in particular likely to emanate from the stabilisation of the financial markets and interest rate reductions by the Fed and the European Central Bank.

In Switzerland, the economic recovery continued at a restrained pace. Real GDP in the third quarter rose by just over 1% from the previous period, thus exceeding the corresponding year-earlier level by 0.6%. Consumption and exports were engines of growth, while investment activity remained depressed. Business activity in industry persisted at an unsatisfactory level; nevertheless, the indicators available for the fourth quarter inspire some confidence. As a result of continuously weak economic growth, unemployment increased still further in all parts of the country.

Monetary conditions in Switzerland became more expansive between August and November. Even though the target range for the three-month Libor rate remained unchanged, money market rates edged downwards. Capital market rates fell much more steeply; in November, they averaged just under 2.8%, i.e. 0.4 percentage points less than in August. The exchange rate of the Swiss franc exhibited little movement.

Development of direct investment in 2001 (p. 44)

Swiss capital outflows for direct investment abroad totalled Sfr 29 billion in 2001, compared with Sfr 75 billion a year earlier. Switzerland's stock of direct investment abroad expanded by 9% to Sfr 416 billion. Income from direct investment abroad diminished by almost one-third to Sfr 32 billion.

Capital inflows decreased by more than half to Sfr 15 billion in 2001 from the previous year. The stock of foreign capital rose by 5% to Sfr 150 billion. At Sfr 13 billion, income from foreign direct investment in Switzerland fell one-quarter short of the year-earlier level.

Switzerland's international investment position in 2001 (p. 68)

Switzerland's net international investment position abroad rose by Sfr 80 billion to Sfr 602 billion in 2001, after having declined by Sfr 48 billion in the previous year. Foreign assets diminished by Sfr 12 billion to Sfr 2220 billion, while foreign liabilities dropped by Sfr 92 billion to Sfr 1618 billion due to heavy price losses on stocks. A 14% share (previous year: 13%) of all foreign assets and 52% (53%) of liabilities were held in Swiss francs.

Search theory and applied economic research (p. 76)

Recent years have seen the development of a new approach to monetary theory known as the search approach. It looks into the conditions for the creation or failure of money. One of the central theses of search theory is that information frictions and the microeconomic structure in the economy have an influence on the effectiveness of monetary policy measures. Even though the search-theoretical approach has established itself in monetary theory within a very short space of time, it has so far hardly been considered in the empirical models of central banks. The "SNB-Fed Cleveland Workshop on Monetary Economics" therefore focused on linking search theory with applied economic research. This article first presents the search theory approach before discussing the conference delegates' papers.

Übersicht

Geldpolitische Lagebeurteilung am Jahresende (S. 8)

Die Schweizerische Nationalbank beschloss am 13. Dezember 2002, das Zielband für den Dreimonats-Libor bei 0,25%–1,25% zu belassen. Dank tiefer Teuerung konnte die Nationalbank die Geldpolitik seit März 2001 stark lockern und das Zielband für den Dreimonats-Libor seither um insgesamt 2,75 Prozentpunkte senken. Die Nationalbank reagierte deutlich auf den Rückgang des Wirtschaftswachstums und die Aufwertungstendenzen des Frankens. Die Unsicherheiten über die Entwicklung der Weltwirtschaft bleiben gross und ein nachhaltiger Konjunkturaufschwung in der Schweiz dürfte erst im Laufe der zweiten Hälfte von 2003 eintreten. Die Nationalbank führt deshalb ihre expansive Geldpolitik fort und will die Attraktivität von Frankenanlagen weiter tief halten. Die Preisstabilität wird damit nicht gefährdet.

Wirtschafts- und Währungslage (S. 12)

Im zweiten Halbjahr 2002 blieb die Konjunkturerholung in den OECD-Ländern schwach. In den USA nahm das reale Bruttoinlandprodukt im dritten Quartal zwar erheblich zu, doch dürfte sich das Wirtschaftswachstum im vierten Quartal infolge der schleppenden Wirtschaftsentwicklung im Herbst wieder verlangsamt haben. In Europa blieb das Konjunkturbild düster. Die japanische Wirtschaft wuchs im dritten Quartal beträchtlich, doch war die Erholung noch nicht breit abgestützt. Die Voraussetzungen für eine konjunkturelle Belebung im OECD-Raum im Jahre 2003 besserten sich jedoch. Positive Impulse dürften insbesondere von der Stabilisierung der Finanzmärkte und von den Zinssenkungen der amerikanischen Notenbank und der Europäischen Zentralbank ausgehen.

In der Schweiz setzte sich die Konjunkturerholung verhalten fort. Das reale Bruttoinlandprodukt stieg im dritten Quartal gegenüber der Vorperiode um gut 1% und lag damit 0,6% über dem entsprechenden Vorjahresstand. Konjunkturstützen waren der Konsum und die Exporte, während die Investitionstätigkeit weiter gedrückt blieb. Der Geschäftsgang der Industrie verharrte auf einem unbefriedigenden Stand, doch stimmen die für das vierte Quartal verfügbaren Indikatoren etwas zuversichtlicher. Infolge des weiterhin schwachen Wirtschaftswachstums nahm die Arbeitslosigkeit in allen Landesteilen weiter zu.

Die monetären Rahmenbedingungen in der Schweiz wurden von August bis November expansiver. Obwohl das Zielband für den Dreimonats-Libor unverändert blieb, sanken die Geldmarktsätze leicht. Deutlich stärker bildeten sich die Kapitalmarktsätze zurück; im November lagen sie mit durchschnittlich knapp 2,8% um 0,4 Prozentpunkt tiefer als im August. Der Wechselkurs der Frankens veränderte sich nur wenig.

Die Entwicklung der Direktinvestitionen im Jahr 2001 (S. 44)

Die schweizerischen Kapitalexporte für Direktinvestitionen im Ausland betrugen im Jahr 2001 29 Mrd. Franken, verglichen mit 75 Mrd. Franken im Vorjahr. Der Direktinvestitionsbestand im Ausland erhöhte sich um 9% auf 416 Mrd. Franken. Die Erträge auf dem Direktinvestitionskapital im Ausland verminderten sich um knapp einen Drittel auf 32 Mrd. Franken.

Die Kapitalimporte sanken im Jahr 2001 gegenüber dem Vorjahr um mehr als die Hälfte auf 15 Mrd. Franken. Der ausländische Kapitalbestand erhöhte sich um 5% auf 150 Mrd. Franken. Die Erträge auf dem Direktinvestitionskapital in der Schweiz fielen mit 13 Mrd. Franken um einen Viertel tiefer aus als im Vorjahr.

Das Auslandvermögen der Schweiz im Jahr 2001 (S. 68)

Das schweizerische Nettovermögen im Ausland stieg im Jahre 2001 um 80 Mrd. auf 602 Mrd. Franken, nachdem es im Vorjahr um 48 Mrd. Franken zurückgegangen war. Die Auslandguthaben verminderten sich um 12 Mrd. auf 2220 Mrd. Franken, während die Auslandverpflichtungen wegen massiven Kursverlusten auf den Aktien um 92 Mrd. auf 1618 Mrd. Franken zurückgingen. Der Anteil der Anlagen in Schweizer Franken betrug bei den Aktiven 14% (Vorjahr: 13%) und bei den Passiven 52% (53%).

Search-Theory und angewandte Wirtschaftsforschung (S. 76)

In den letzten Jahren hat sich in der Geldtheorie ein neuer Ansatz entwickelt, der als search-theoretischer Ansatz bekannt wurde. Er beschäftigt sich mit den Voraussetzungen zur Entstehung oder zum Scheitern von Geld. Eine zentrale These der Search-Theorie ist, dass die Informationsfriktionen und die mikroökonomische Struktur in der Wirtschaft einen Einfluss auf die Effektivität geldpolitischer Massnahmen haben. Obwohl sich der search-theoretische Ansatz in kürzester Zeit in der Geldtheorie etabliert hat, wurde er in den empirischen Modellen der Zentralbanken bisher kaum berücksichtigt. Am «SNB-Fed Cleveland Workshop on Monetary Economics» wurde deshalb der Schwerpunkt auf die Verbindung der Search-Theorie mit der angewandten Wirtschaftsforschung gelegt. Im vorliegenden Artikel wird zuerst der search-theoretische Ansatz vorgestellt. Danach werden die Konferenzbeiträge diskutiert.

Sommaire

Sommario

Valutazione della situazione monetaria alla fine dell'anno (p. 8)

Il 13 dicembre 2002, la Banca nazionale svizzera ha deciso di mantenere il margine di oscillazione del Libor a tre mesi allo 0,25%–1,25%. Dal mese di marzo 2001, il basso tasso d'inflazione ha consentito alla Banca nazionale di allentare fortemente la sua politica monetaria e di ridurre complessivamente la fascia-obiettivo di 2,75 punti percentuali. L'istituto d'emissione ha dunque reagito con decisione al rallentamento della crescita economica e alle tendenze di rivalutazione del franco svizzero. Le incertezze relative all'evoluzione economica mondiale persistono; una ripresa duratura della congiuntura svizzera non subentrerà presumibilmente che nella seconda metà del 2003. La Banca nazionale continuerà perciò a seguire una politica monetaria espansiva e a mantenere ai livelli attuali l'attrattiva dei depositi in franchi svizzeri. Questa politica non mette in pericolo la stabilità dei prezzi.

Situazione economica e monetaria (p. 12)

La ripresa economica nei Paesi dell'OCSE è rimasta debole durante la seconda metà del 2002. Negli Stati Uniti il prodotto interno lordo reale è aumentato considerevolmente nel corso del terzo trimestre, ma gli indicatori economici lasciano prevedere un rallentamento per il quarto trimestre. La situazione congiunturale in Europa rimane debole. L'economia giapponese ha registrato, durante il terzo trimestre, una crescita considerevole, ma non ancora fondata su ampie basi. I presupposti per un rilancio congiunturale nel 2003 nella zona dell'OCSE sono tuttavia migliorati. La stabilizzazione dei mercati finanziari nonché le riduzioni dei tassi operate dall'istituto d'emissione statunitense e dalla Banca centrale europea hanno fornito i principali impulsi positivi.

La ripresa congiunturale in Svizzera è proseguita lentamente. Nel terzo trimestre, il prodotto interno lordo reale è aumentato di oltre l'1%, superando dello 0,6% il livello dell'anno precedente. La congiuntura ha tratto sostegno soprattutto dai consumi e dalle importazioni, mentre gli investimenti si sono ulteriormente contratti. L'andamento degli affari nell'industria si è mantenuto ad un livello insoddisfacente. Gli indicatori disponibili per il quarto trimestre lasciano intravedere un miglioramento. A causa della debole crescita economica, la disoccupazione è aumentata in tutte le regioni del Paese.

Da agosto a novembre, le condizioni monetarie quadro in Svizzera sono diventate più espansive. Sebbene il margine di oscillazione del Libor a tre mesi sia rimasto invariato, i tassi sul mercato monetario si sono leggermente ridotti. Una contrazione più pronunciata si è invece verificata sul mercato dei capitali: in novembre la loro media si situava al 2,8% circa, 0,4 punti percentuali sotto il livello di agosto. Il tasso di cambio del franco ha subito solo piccole variazioni.

Investimenti diretti nel 2001 (p. 44)

Le esportazioni di capitali per investimenti diretti svizzeri all'estero sono calate da 75 miliardi di franchi nel 2000 a 29 miliardi nel 2001. La consistenza degli investimenti diretti all'estero è aumentata del 9%, passando a 416 miliardi di franchi. Il relativo reddito da capitale si è ridotto di quasi un terzo, scendendo a 32 miliardi di franchi.

Le importazioni di capitale, più che dimezzate rispetto all'anno precedente, ammontavano nel 2001 a 15 miliardi di franchi. La consistenza del capitale estero è aumentata del 5%, salendo a 150 miliardi di franchi. I redditi del capitale impiegato in investimenti diretti in Svizzera, pari a 13 miliardi di franchi, sono risultati di un quarto inferiori all'anno precedente.

Averi all'estero nel 2001 (p. 68)

Il volume netto degli averi svizzeri all'estero, ridottosi di 48 miliardi nel 2000, è aumentato di 80 miliardi nel 2001, portandosi a 602 miliardi di franchi. Gli averi svizzeri all'estero sono diminuiti di 12 miliardi a 2220 miliardi di franchi; nel contempo, le consistenti perdite registrate sui mercati azionari si sono tradotte in un calo di 92 miliardi di franchi degli impegni verso l'estero, il cui totale è sceso a 1618 miliardi di franchi. La quota degli investimenti denominati in franchi svizzeri è stata del 14% per gli attivi (13% nel 2000) e del 52% per i passivi (53% nel 2000).

Search-Theory e ricerca economica applicata (p. 76)

In questi ultimi anni, si è diffuso un nuovo approccio alla teoria monetaria, noto con il nome di «search-theory». Oggetto di ricerca è l'analisi delle condizioni che determinano il sorgere e la scomparsa della moneta. Secondo una tesi centrale di questa teoria, le frizioni in ambito informativo e la struttura microeconomica influiscono sull'efficacia dei provvedimenti monetari. Sebbene sia stato rapidamente accolto nella teoria monetaria, l'approccio della search-theory non ha finora praticamente trovato applicazione nei modelli empirici delle banche centrali. La relazione tra la search-theory e la ricerca economica applicata ha perciò costituito il tema centrale del colloquio di economia monetaria «BNS-Riserva federale di Cleveland». Il presente articolo descrive in un primo tempo l'approccio della search-theory e successivamente esamina i contributi presentati alla conferenza.

Monetary policy assessment at year-end

Remarks by Jean-Pierre Roth, Chairman of the Governing Board of the Swiss National Bank, at the News Conference of the Governing Board in Zurich on 13 December 2002

The National Bank has decided to leave the target range for the three-month Libor rate unchanged at 0.25%–1.25%. For the time being, the three-month Libor is to be kept in the middle of the target range. Owing to the low level of inflation, we have been able to ease monetary policy substantially since March 2001, having since then lowered the target range for the three-month Libor by a total of 2.75 percentage points. We took decisive steps in response to declining economic growth and the upward trend of the Swiss franc. Interest rates were last lowered on 26 July of this year. The imponderables with respect to the development of the global economy remain considerable, and a sustained economic upswing in Switzerland is not likely until some time in the second half of 2003. We are therefore maintaining our expansionary monetary policy and shall keep the attractiveness of Swiss franc investments low. This does not jeopardise price stability. Assuming that the three-month Libor rate will remain stable at 0.75%, average annual inflation is expected to lie between 0.7% and 1.6% in the next three years. For 2003, we are anticipating economic growth of just over 1%, while zero growth is to be expected in the current year.

Economic activity

In Switzerland, economic activity has stabilised somewhat in the last two quarters despite the delay in the global economic upswing. After having been on a decline during four quarters, GDP slightly exceeded the previous period's level in the second and third quarters 2002. Positive stimuli emanated from the development of exports and from consumption.

Nevertheless, the economic situation in Switzerland remains tight. The deterioration on the labour market and the fall in stock market prices are depressing consumer sentiment and available income. Incoming orders and the order backlog in the export sector remain at an unsatisfactory level, a sign that the recovery in exports is still uncertain. Capacity utilisation in manufacturing and in construction continues to fall short of the desired level, while corporate investment activity is currently at a very low ebb.

The present growth slump in Switzerland can only be overcome if both exports and equipment investment increase consistently. We expect exports to grow markedly in line with the international economic upswing in the second half of 2003. Equipment investment should follow with a slight time lag. Until the middle of next year, however, the Swiss economy is likely to grow only very moderately. Until then, unemployment could therefore continue to rise. Private consumption, which has long been the mainstay of economic activity, will pick up only slowly next year. Real economic activity should increase by just over 1% in 2003, while for this year we expect zero growth.

Inflation forecast

I shall now turn to the course of inflation and our new inflation forecast. Our inflation forecast of June 2002 (the red dash-dotted curve in the graph) shows that at that time we assumed, based on a stable three-month Libor rate of 1.25%, that inflation would gradually rise to 1.9% in the first quarter 2005.

Year-on-year inflation, as measured by the national consumer price index, dropped to 0.3% in the third quarter 2002 from 0.7% in the second quarter. In October and November it rose to approximately 1%. These fluctuations are due mainly to changes in the exact points in time when data on clearance sales prices are collected. This is also the main reason why our forecast of June 2002 over-estimated the development of inflation in the third quarter 2002.

Our new inflation forecast (red dashed curve) is based on the assumption that growth in the US will pick up again from the second quarter 2003 onward. The US economy is likely to achieve its growth potential stepwise until the beginning of 2004. In the EU, the upswing will take a little longer. We are not expecting a significant acceleration of growth before the end of 2003. We assume that the dollar/euro rate will remain at about the current level and that the oil price will be around $25 per barrel.

On the assumption that the three-month Libor rate will remain stable at 0.75% during the next three years, inflation should average 0.7% in 2003, move up to 0.9% in 2004 and reach 1.6% in 2005. Forecast inflation will remain below 1% until the end of 2004 except in the fourth quarter of 2002. In the course of 2005, however, a marked acceleration will set in, with forecast inflation reaching the 2% mark in the fourth quarter of 2005.

The new forecast is consistently below that of June 2002. It reflects the delay in the economic upswing. In the new forecast, inflation will rise more markedly at the end of the forecasting horizon due to an even more expansionary monetary policy since June.

Expansionary monetary policy to be continued

At our last media conference, I pointed out that the National Bank must be prepared to react quickly to changes in the economic situation. When the delay in economic recovery became discernible in summer, we acted immediately by again lowering interest rates. Since then, nothing of basic significance has changed in our assessment of the situation. We shall adhere to our expansionary monetary policy in the foreseeable future. We will thus contribute to the economic rebound and continue to keep Swiss franc investments unattractive. The low interest rate level and the relatively strong growth of monetary aggregates currently do not represent a threat to price stability. Once a sustained economic recovery becomes discernible, we shall have to review our monetary policy and adjust it to the new circumstances. There is still no sign, however, that the time for this is approaching. On the contrary, the risks still point downward. Should the recovery in the US and in Europe be delayed or should the Swiss franc appreciate markedly, the expected upswing in Switzerland would be threatened. In such a case, the National Bank is ready to react by appropriate means. Under present conditions, however, our monetary policy is sufficiently expansionary.

Currently, the risk of deflation is being widely discussed. As can be seen from our forecast, this risk is likely to be negligible in Switzerland in the medium term. Certainly, in the short term it is always possible for special effects, e.g. a marked reduction in the oil price, to lead to negative inflation rates in individual quarters. Nevertheless, we consider a continuously falling price level in conjunction with a strong decline in the demand for goods and in production improbable in the present circumstances. Our expansionary monetary policy and the flexibility of the Swiss economy would prevent such a development.

In the present situation, however, other efforts are needed besides an expansionary monetary policy in order to maintain or to enhance the attractiveness of Switzerland as an industrial and business centre. The efforts aimed at a further liberalisation of the domestic economy may not be abandoned. Sectors suffering from structural problems must improve their competitiveness by means of consistent adjustments.

Our experience with the monetary policy concept

Let me briefly describe the experience gained with our monetary policy concept. We introduced this concept exactly three years ago. You are acquainted with the main elements: definition of price stability, inflation forecast as main indicator and target range for the three-month Libor rate as operational target.

Overall, our experience with our monetary policy concept has been good. Recently, this experience was discussed at an internal conference. Since the new concept was adopted, we have widened the basis of our monetary policy decisions and further developed our analysis of indicators and models. The more extensive use of relevant information enabled us to react more swiftly and with more foresight than formerly to changes in the economic situation.

Our monetary policy concept met with a positive public reception in Switzerland. The same applies to the financial markets and international organisations such as the IMF and the OECD. The concept has vastly improved transparency. By publishing studies on internal decision-making processes and the forecasting models used, we have made further relevant information accessible. The public is thus in a better position to understand the reasoning behind monetary policy decisions.

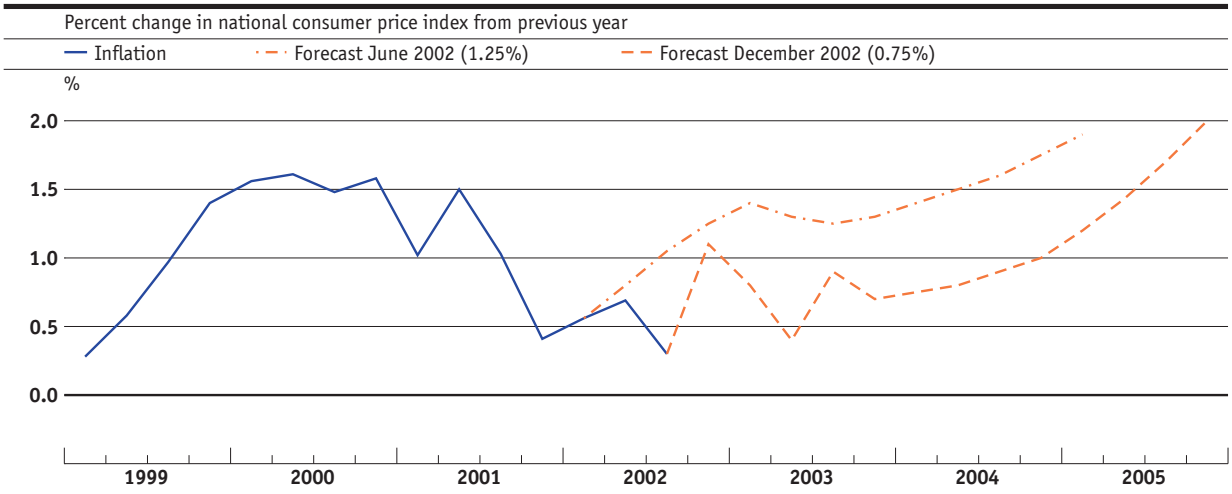
So far, we have published our inflation forecasts regularly in June and December. We should like to take this a step further and will in future publish an updated inflation forecast after every quarterly assessment of the situation. This will further help to improve transparency. From 2003 onwards, we will also inform the public of our monetary policy by publishing new inflation forecasts in March and September. As in the past, we shall present our June and December inflation forecasts at our media conferences. In March and September, the inflation forecast will be published within the context of the press release on the quarterly assessment of the situation.

Gold sales

On 22 September this year, the Swiss people and the cantons rejected both the gold initiative and the counter-proposal. The National Bank, however, continues to implement its programme for the sale of half of its gold reserves. For the time being, the surplus gold reserves will still figure in our balance sheet. To date, approximately 660 tonnes of a total of 1,300 tonnes of gold have been sold. We see no reason to change our strategy: these assets are surplus reserves which are no longer needed for monetary policy and which may be put to another use. In order to use the reserves for other purposes, the gold is sold and the proceeds are invested in securities.

We invest the proceeds from the gold sales in Swiss and foreign securities. The portfolio from the surplus reserves is thus less exposed to exchange rate fluctuations than the foreign exchange reserves. The earnings deriving from invested gold proceeds flow into the SNB's income statement and thus become available for profit distribution in favour of the Confederation and the cantons. As from 2003, annual profit distribution will amount to Sfr 2.5 billion. The profit distribution agreement concluded with the Confederation last April need not be revised. It already provides for an automatic revision of the situation in the event that the National Bank's earnings should permanently exceed the expected level.

Inflation forecast of June 2002 with Libor at 1.25% and of December 2002 with Libor at 0.75%



Inflation forecast December 2002 with Libor at 0.75%	2002	2003	2004	2005
Annual average inflation in %	0.7	0.7	0.9	1.6

The main ticks on the horizontal axis indicate the beginning of the first quarter of the respective year.

Economic and monetary developments in Switzerland

Report to the attention of the Governing Board with a view to its quarterly assessment of the situation and to the attention of the Bank Council

The report was passed on 12 December 2002. Data which became available at a later date has been included whenever possible. Unless indicated otherwise, quarter-on-quarter comparisons are always based on data adjusted for seasonal and random variations.

1 International environment

1.1 Economic development

In the second half-year 2002, the economic recovery in the OECD countries remained weak, as expected. In the US, real gross domestic product (GDP) rose significantly in the third quarter; however, in view of the sluggish economic development in autumn, economic growth is likely to have slowed down again in the fourth quarter. In Europe, the economic situation remained predominantly dismal. Exports, which had gained momentum in numerous countries in the first half of the year, lost some of their driving force, and investment activity still showed no signs of a pickup. Overall, real GDP is expected to have risen only negligibly in the euro area. The Japanese economy expanded considerably in the third quarter, although the recovery was not yet broad-based.

Nevertheless, the preconditions for an economic rebound in 2003 improved in the second half-year. Positive stimuli are in particular expected to emanate from the stabilisation of the share markets in the fourth quarter. The Fed and the European Central Bank made a major contribution by lowering the key rates by half a percentage point in November and in December respectively. The relaxation of monetary policy by the two central banks in order to mitigate fears of a protracted economic slump occurred against a background of continuously low inflation. The main economic stimuli in the next few months are still expected to issue from the US, since at present a self-supporting upswing is not in sight either in Europe or in Japan.

Hesitant recovery in the US

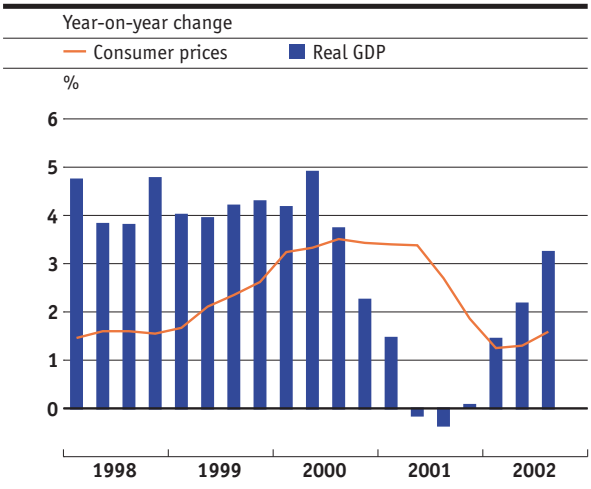
In the US, real GDP rose at an annualised rate of 4.0% in the third quarter compared with 1.3% in the previous period. It thus exceeded the corresponding year-earlier level by 3.2%. The rise was chiefly due to vigorously growing private consumption, which was boosted by the discount offers of the car industry. To a lesser extent, government consumption and the build-up of stocks also contributed to growth. Corporate investment activity continued to decline, while residential construction increased slightly. Export growth levelled off due to sluggish business activity abroad.

According to the available indicators, real GDP rose much less steeply in the fourth quarter than in the previous period. Private consumption lost momentum when the discount offers were discontinued, with export activity remaining weak. The unemployment rate increased to 6% in November.

Growth in the EU remained weak

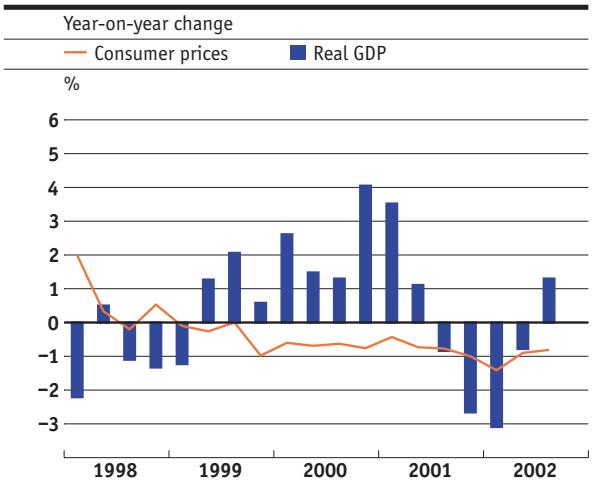
In the euro area, real GDP rose at an annualised rate of 1.3% in the third quarter, approximately at the same pace as in the previous period. This is a year-on-year rise of 0.8%. While consumption exhibited modest growth, investment activity stagnated. In Germany, economic growth picked up somewhat following a weak second quarter, whereas France witnessed a slowdown. In Italy, too, as in most of the

United States Graph 1.1



Source: Bank for International Settlements (BIS)

Japan Graph 1.2



Source: BIS

smaller countries in the euro area, economic activity showed muted development. A series of indicators point to weak growth in the fourth quarter. Consumer sentiment clouded over, and exports suffered from slack foreign demand and the rise of the euro, which had commenced in spring. Against this background, investment activity also remained depressed. Unemployment moved up slightly to 8.4% between August and November.

In the UK, the economic picture appeared more favourable. Investment and export activity, however, lost dynamism. In the fourth quarter, private consumption – the chief pillar of the economy – also seems to have weakened with the result that economic growth is expected to slow down. The unemployment figure remained at a level of 3.1% right into October.

Fragile growth in Japan

In Japan, real GDP rose markedly for the second time in succession in the third quarter, exceeding the year-earlier level for the first time in four quarters. The recovery was largely attributable to accelerating private and government consumption. Exports, which had still expanded vigorously in the previous period, rose only negligibly, and investment diminished even more markedly than in the previous period.

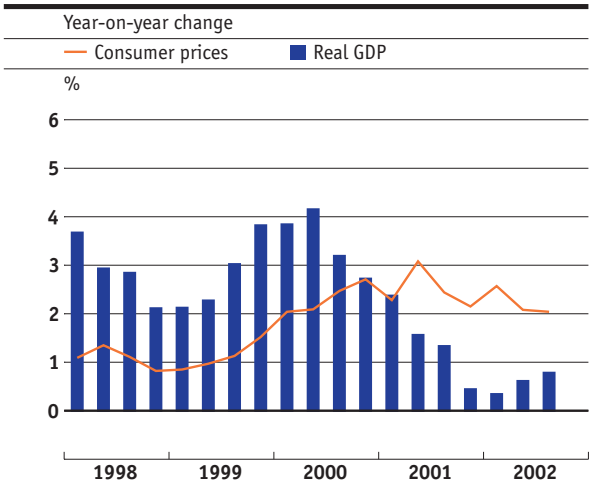
The latest surveys point to a further increase in consumer demand in the fourth quarter. There was no indication, however, of a revival of exports and investments. Industrial production recorded muted growth only, and employment receded. The unemployment rate held steady at 5.5%.

Difficult situation in Argentina continues – stabilisation in Brazil

In Argentina, the economy showed signs of stabilising at a low level in the second half of 2002. In the third quarter, real GDP increased slightly compared with the previous period. An early end to the economic crisis is, however, not in sight. The conclusion of a new economic and credit programme with the International Monetary Fund (IMF) was delayed. In November, Argentina fell into arrears vis-à-vis the World Bank after the servicing of private foreign debts had already been suspended at the beginning of the year.

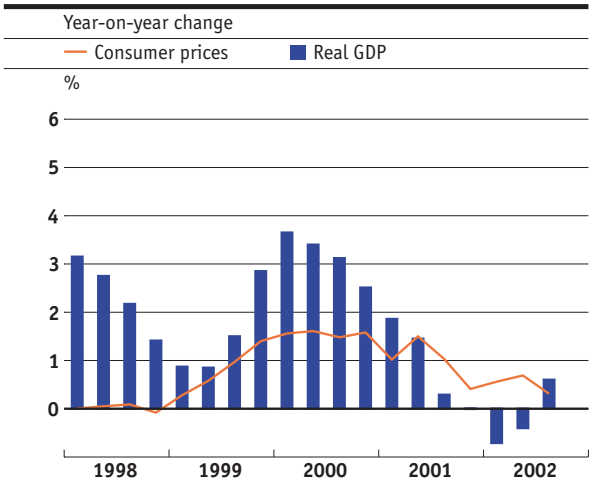
In Brazil, calm set in on the financial and foreign exchange markets in the course of the fourth quarter following a marked increase in risk premiums on Brazilian government paper in the run-up to the presidential elections in October. In the wake of the massive depreciation of the Brazilian currency between April and mid-October, inflation accelerated. Therefore, the Brazilian central bank significantly raised the key rates in October and November.

Euro area Graph 1.3



Source: BIS

Switzerland Graph 1.4



Sources: Swiss Federal Statistical Office (SFSO)
State Secretariat for Economic Affairs (seco)

1.2 Monetary development

Inflation remained low

In the OECD area (without high-inflation countries), annual inflation measured by consumer prices rose to 1.8% between July and October after having eased in the second quarter. While prices for foodstuffs remained fairly stable, energy prices increased by 2% year-on-year in October. Core inflation (inflation without foodstuffs and energy) remained unchanged at 2.0%.

In the US and the UK, inflation edged up to 1.6% and 2.0% respectively in the third quarter while remaining steady at 2.0% in the euro area. In October and November, it again moved up slightly both in the US and in Europe.

In Japan, deflation gradually receded. In the third quarter, consumer prices dropped by 0.8% compared with a decline of 0.9% in the second quarter and 1.4% in the first quarter; in October, however, prices again recorded a somewhat steeper drop.

Key rate cuts

The central banks of the major industrialised countries left their key rates unchanged until November. On 6 November, the Fed lowered the target for the call money rate by half a percentage point to 1.25% in order to counter fears concerning a further slowdown in economic activity. The prospect of persistently slow growth and the negligible inflationary threat led to interest rate reductions also in Europe. The Swedish Riksbank lowered the key rate in mid-November and early December by 0.25 percentage points each to 3.75%. The Norwegian central bank made the cut in December from 7% to 6.5%. On 5 December, the European Central Bank reduced the minimum bid rate for main refinancing operations by half a percentage point to 2.75%. The Bank of England, by contrast, left the repo rate unchanged. The call money rate of the Bank of Japan remained steady at 0.0%.

Lower long-term interest rates

Long-term interest rates increased slightly in October and November following a marked decline in the third quarter. In the US, the yield on ten-year government bonds amounted to 4.1% in November, compared with 4.3% in August. During the same period, the euro area and the UK registered a decline of 0.1 percentage points; in November, ten-year government bonds yielded 4.6%. Considerably lower in nominal terms is the long-term interest rate level in Japan. The yield on ten-year government bonds fell by 0.3 percentage points to 1.0% between August and November.

1.3 Economic outlook

The OECD based its autumn forecast on the assumption that economic activity will continue to pick up in 2003, while at the same time expecting significantly lower growth rates than in spring notably for Europe and the US. The organisation now estimated real growth in the EU to amount to 1.9% (−0.9 percentage points), in Switzerland to 1.4% (−0.9 percentage points) and in the US to 2.7% (−0.8 percentage points). By contrast, the Japanese economy should grow somewhat more rapidly – at 0.8% – than had been anticipated in spring (+0.5 percentage points). The average inflation forecast for the OECD countries also turned out to be somewhat higher than six months ago.

The forecast growth rates of the OECD are largely consistent with the consensus forecast[1] of November. The participants in the consensus survey had also lowered their growth forecasts for 2003 in the previous three months.

Forecasts Table 1

	Economic growth[2]				Inflation[3]			
	OECD		Consensus		OECD[4]		Consensus	
	2002	2003	2002	2003	2002	2003	2002	2003
European Union	0.9	1.9	1.0	1.9	2.4	2.2	2.1	1.9
Germany	0.2	1.4	0.4	1.3	1.6	1.3	1.4	1.4
France	1.0	2.0	1.0	1.8	1.9	1.8	1.8	1.6
United Kingdom	1.5	2.1	1.6	2.5	2.0	2.1	2.2	2.3
Italy	0.1	1.5	0.4	1.7	2.4	2.2	2.4	2.0
United States	2.4	2.7	2.3	2.7	1.6	2.2	1.6	2.2
Japan	−0.7	0.8	−0.9	0.8	−1.1	−1.1	−1.0	−0.7
Switzerland	−0.2	1.4	−0.1	1.1	0.6	0.5	0.6	0.8

1 Consensus forecasts are monthly surveys conducted among approximately 200 leading companies and economic research institutes in roughly 20 countries, covering predictions for the development of GDP, prices, interest rates and other relevant economic indicators. The results are published by Consensus Economics Inc., London.

2 Real GDP, change from previous year in percent

3 Consumer prices, change from previous year in percent

4 Inflation EU: euro area; inflation UK: excluding mortgage costs

Sources: OECD: Economic Outlook November 2002;
Consensus: November Survey

2 Monetary development

Monetary conditions in Switzerland became more expansive between August and November 2002. Even though the target range for the three-month Libor rate has remained unchanged since 26 July 2002, money market rates declined slightly. Capital market rates diminished markedly while the exchange rate of the Swiss franc remained mostly stable.

The monetary aggregates continued to rise. The low interest rates led to a further switch of time deposits into more liquid investment forms, and this resulted in large increases in M_1 and M_2. Domestic lending stagnated.

2.1 Interest rates

Slightly declining money market rates

Since 26 July 2002, the interest rate target range of the National Bank for three-month Swiss franc investments on the London interbank market (Libor) has amounted to 0.25% to 1.25%. Nevertheless, Swiss money market rates receded somewhat between August and November. While in August the three-month Libor rate mostly exceeded the middle of the target range of 0.75%, it fell distinctly short of this level in November. On average, it amounted to 0.75%. Long-term money market rates with maturities of up to twelve months fell more markedly than the three-month rate. Between August and November, the call money rate stood 15 basis points and the issuing yield on federal money market debt register claims 28 basis points below the three-month Libor rate.

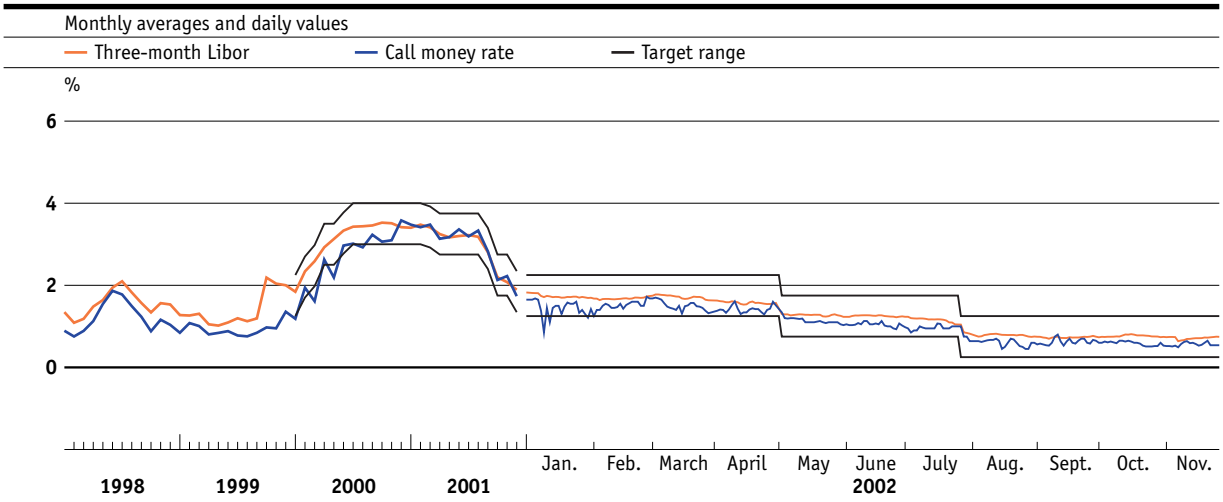
The dollar and euro rates exhibited stronger downtrends between August and November than the corresponding Swiss franc rates. The reasons for this were the Fed's interest rate cut of 6 November and expectations of interest rate reductions in Europe. This caused interest rate differentials between foreign and domestic money market rates to narrow somewhat. Measured by the Libor with a maturity of three months, the average interest rate differential vis-à-vis the dollar amounted to 0.95 percentage points, vis-à-vis the euro to 2.51 percentage points and −0.68 percentage points vis-à-vis the yen.

Marked decline in bond yields

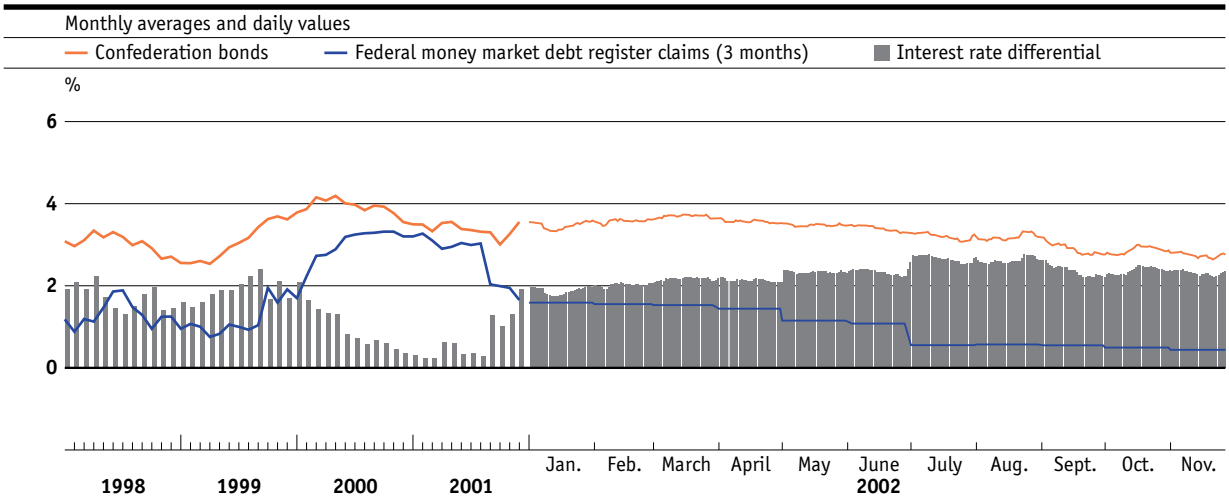
The yields on long-term government bonds were on a marked decline in all industrialised countries between August and November. The estimated yield on a Swiss federal discount bond with a maturity of 10 years dropped from 3.18% to 2.75%. The maturity premium of long-term government bonds, i.e. the differential vis-à-vis the yield on federal money market debt register claims with a maturity of three months, also receded further. In November, it stood at 2.31% as against 2.61% in August.

The differential between yields on foreign and Swiss federal government bonds developed irregularly between August and November. The differential in relation to US and Japanese bonds narrowed slightly, whereas it widened somewhat in relation to EU bonds. During the months August to November, the yield differential to US bonds averaged 1.10 percentage points, vis-à-vis EU bonds 1.69 percentage points and −1.81 percentage points in relation to Japanese bonds.

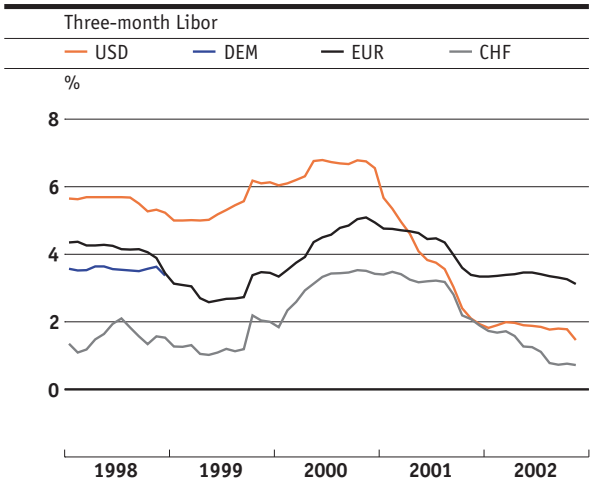
Money market rates — Graph 2.1



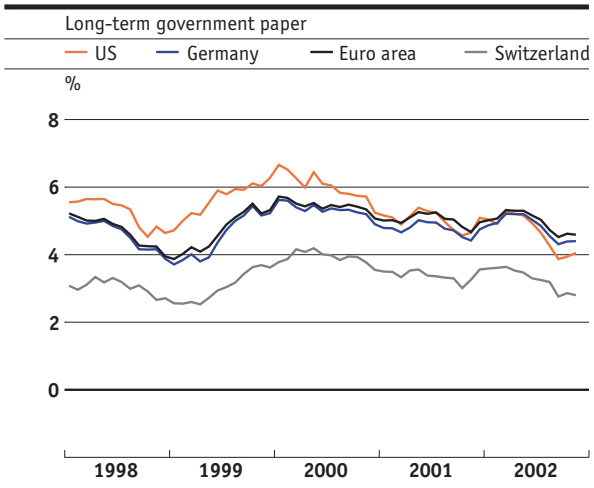
Bond yield and interest rate structure — Graph 2.2



Interest rates abroad — Graph 2.3



Interest rates abroad — Graph 2.4



Graphs 2.1 and 2.3: Source: SNB

Graph 2.2: Confederation bonds: until the end of 2000, average yield calculated by maturity: as of 2001, spot interest rate of 10-year discount bonds. Money market debt register claims: yield at auction. If several auctions per month: the last of the month. Source: SNB

Graph 2.4: US: yield on 10-year US treasury paper, secondary market. Germany: current yield on quoted 10-year German Federal securities. Switzerland: Confederation bonds; see graph 2.2. Source: BIS

Falling mortgage rates

The yield on medium-term notes of cantonal banks as a rule follows the yield on long-term Confederation bonds with a time lag of approximately one month and on a slightly lower level. This rule was also confirmed in the months August to November. The yield on medium-term notes of cantonal banks diminished from 2.72% at the beginning of August to 2.28% at the beginning of November. The interest rate on savings deposits at cantonal banks usually follows money market rates, albeit with significantly weaker fluctuations and also on a lower level. This, too, was substantiated. The interest rate on savings deposits sank from an average of 1.20% in August to 1.04% in November. The decline in money market rates creates favourable refinancing conditions for long-term loans, and this led – with a time lag – to a first conspicuous easing on the market for old and new mortgages. Interest rates for old mortgages fell from the start of August until the beginning of November by 20 basis points to 3.83%, interest rates for new mortgages decreased by 24 basis points to 3.78%. At the end of November a number of banks ushered in a new round of interest rate reductions.

Stock market crash and hesitant recovery

Until the beginning of October, the share markets had suffered heavy price losses worldwide. Subsequently prices recovered appreciably (except in Japan). From the start of the year until November, however, all major share indices lost considerable ground. The German DAX exhibited the steepest fall (–36%), followed by the US S&P 500 index (–21%), the Swiss share index (SPI: –19%) and the Nikkei index (–17%). Following the recent downward slide, most stock markets with the exception of the Japanese stock market approximately reached their index level of 1997/98. The Nikkei is on the level of the early 1980s.

2.2 Exchange rates

Lower dollar rate

Between August and November, the development on the international foreign exchange markets was characterised by a stabilisation of the dollar on a lower level and by price losses of the yen.

Following a decline in the first half of the year, the dollar stabilised in the second half. It fluctuated around parity against the euro between August and November and hovered around 0.64 pounds vis-à-vis the pound sterling during the same period after still having been quoted at 0.70 pounds at the beginning of the year. The dollar reached an annual low of 116 yen vis-à-vis the Japanese currency in July, but rose again to 123 yen by the end of November.

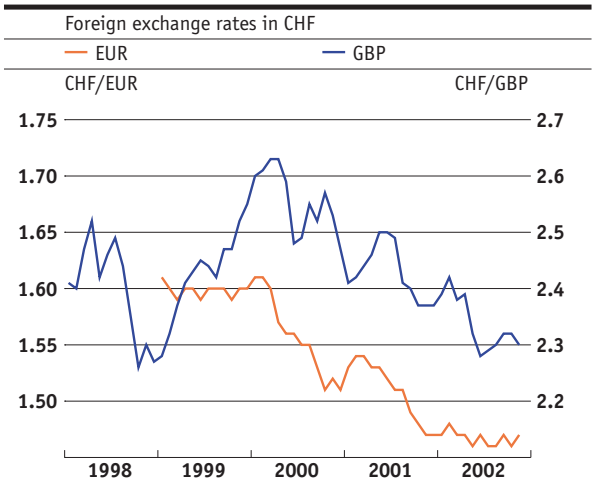
In September, the yen began to weaken against the major currencies. It fell against the euro from 0.86 euros in August to 0.82 euros in October and November.

Slightly rising Swiss franc

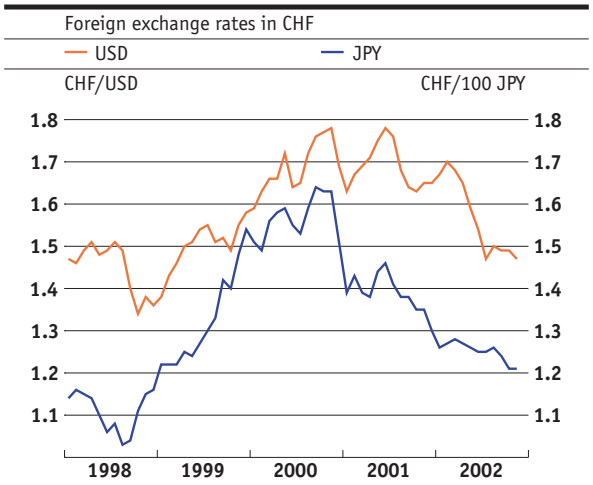
The export-weighted external value of the Swiss franc moved up slightly between August and November. Of decisive importance were the gains of the Swiss franc vis-à-vis the dollar and the yen, while the currency remained stable vis-à-vis the euro. At first, the dollar moved within a narrow band around Sfr 1.50, then temporarily dropped to Sfr 1.45 at the beginning of November and recovered again by the end of the month to Sfr 1.48. At the start of the year, the dollar had cost more than Sfr 1.65 and thus lost 10%. The yen depreciated by just under 7% vis-à-vis the Swiss franc between mid-August and mid-October, stabilising at approximately Sfr 1.20 by the end of November. The currency was last traded so cheaply in spring 1999. In the period under review, the euro fluctuated within a narrow band of Sfr 1.46 to Sfr 1.47. The exchange rate of the pound sterling rose slightly between the end of June and the end of October and fell to Sfr 2.30 in November. At the beginning of the year, the pound had still been traded for Sfr 2.40.

The export-weighted real Swiss franc exchange rate increased from the start of the year until October by 2.1%. It appreciated most significantly against the Asian trading partners (9.5%) and North America (9.1%). Vis-à-vis European trading partners, however, the Swiss franc declined by 0.2% in real terms.

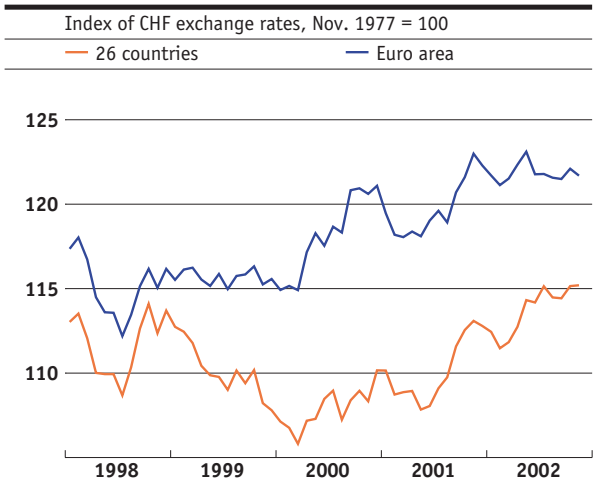
Exchange rates — Graph 2.5



Exchange rates — Graph 2.6



Real exchange rate indices — Graph 2.7



Graphs 2.5, 2.6 and 2.7:
Source: SNB

2.3 Monetary aggregates

Renewed rise in the monetary base

The seasonally-adjusted monetary base amounted to Sfr 38.3 billion in the third quarter. The two components of the monetary base, banknote circulation and sight deposits of the banks, totalled Sfr 34.4 billion and Sfr 3.4 billion respectively.

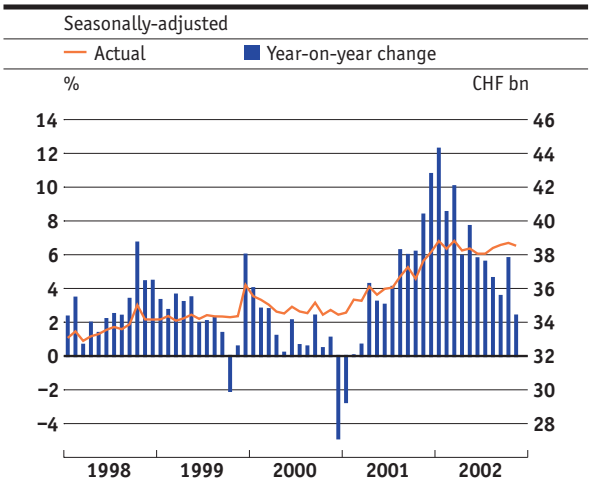
Following a slight decline from the beginning of the year to mid-year, the seasonally-adjusted monetary base again rose slightly and in October fell just marginally short of the record values registered at the beginning of the year. In the third quarter, it exceeded the year-earlier level by 4.6%. Compared with the previous year, banknote circulation increased by 5.2%, and sight deposits shrank by 1.6%. Sight deposits, however, fluctuated so strongly that this decline must not be seen as a trend.

The positive growth of the monetary base compared with the previous year is attributable to the expansion of banknote circulation, i.e. notably to the increase in 1,000-franc notes: as already in the previous quarters, the 1,000-franc notes accounted for approximately two-thirds and the medium denominations for around one-third of the growth of banknote circulation, while the small banknotes stagnated. In October, the small denominations (10-franc to 50-franc notes) fell 0.8% short of their previous year's level, the medium notes (100-franc to 500-franc notes) expanded by 3.0% and the large denominations (1,000-franc notes) even topped the year-back level by 4.3%.

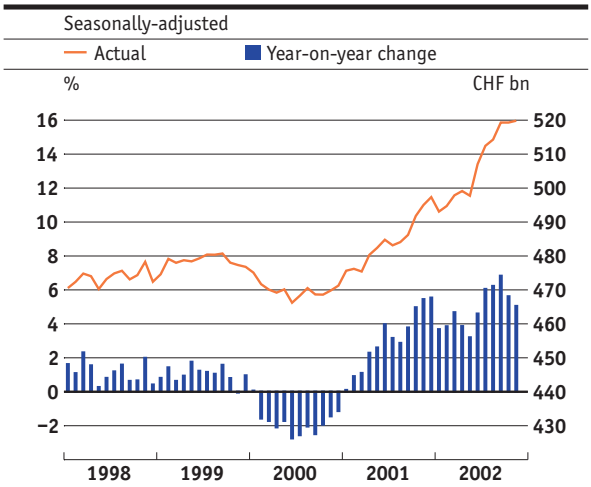
Strong growth of sight deposits

The broadly defined monetary aggregates continued their rise, which had begun in 2001 (M_1, M_2) and 2000 (M_3) respectively, from August to November. In November, the money stock M_1 exceeded the previous year's level by 12.3%. The strong growth of M_1 is due mainly to the vigorous increase in sight deposits (18.2%). The other components of M_1 are currency in circulation, which rose by 0.6%, and transaction accounts, which increased by 9.1%. Falling interest rates made term deposits less attractive, and this led to further shifts in savings deposits: in November, savings deposits surpassed the year-earlier level by 13.9% or Sfr 23.4 billion. The money stock M_2 accordingly expanded by 13.0%. In November, term deposits contracted by 22.1% or Sfr 24.9 billion from the previous year's level. The money stock M_3 thus grew by 5.1%, i.e. at a significantly slower pace than M_1 and M_2.

Monetary base — Graph 2.8



Money stock M_3 — Graph 2.9



Graphs 2.8 and 2.9:
Source: SNB

Monetary base and its components

Table 2

	2000	2001	2001		2002					
			Q3	Q4	Q1	Q2	Q3	Sept.	Oct.	Nov.
Banknote circulation[1]	31.6	33.0	32.7	34.6	35.9	34.9	34.4	34.2	34.5	34.5
Change[2]	2.4	4.7	5.5	8.7	10.8	7.3	5.2	4.4	3.5	2.3
Sight deposit accounts[1]	3.2	3.3	3.4	3.3	3.1	3.3	3.3	3.6	3.6	3.4
Change[2]	−12.0	0.2	4.9	6.0	0.1	−0.3	−1.6	−6.0	30.9	1.1
MB[1,3]	34.8	36.3	36.1	37.8	39.0	38.1	37.8	37.8	38.0	38.0
SAMB[1,4]	**34.8**	**36.3**	**36.7**	**37.5**	**38.7**	**38.2**	**38.3**	**38.6**	**38.7**	**38.5**
Change[2]	1.1	4.1	5.4	8.4	10.3	6.5	4.6	3.5	5.8	2.4

Broadly defined monetary aggregates and their components[5]

Table 3

	2000	2001	2001		2002					
			Q3	Q4	Q1[p]	Q2[p]	Q3[p]	Sept.[p]	Oct.[p]	Nov.[p]
Currency in circulation	2.4	5.1	5.7	9.6	10.5	6.8	3.6	3.8	1.9	0.6
Sight deposits	−4.6	−0.7	0.2	2.8	4.7	6.5	17.5	18.6	17.8	18.2
Transaction accounts	0.4	1.6	2.9	7.0	8.1	8.3	9.7	8.8	8.6	9.1
M_1	**−1.9**	**1.0**	**2.0**	**5.3**	**6.8**	**7.2**	**12.5**	**12.8**	**12.1**	**12.3**
Savings deposits	−9.0	−6.1	−5.8	−1.2	3.8	8.7	12.8	13.6	14.3	13.9
M_2	**−5.3**	**−2.3**	**−1.7**	**2.3**	**5.4**	**7.9**	**12.7**	**13.2**	**13.1**	**13.0**
Term deposits	17.9	26.9	23.7	17.2	−0.6	−9.3	−14.3	−14.6	−19.1	−22.1
M_3	**−1.8**	**3.1**	**3.3**	**5.3**	**4.1**	**3.9**	**6.4**	**6.8**	**5.6**	**5.1**

1 In billions of Swiss francs; average of monthly values; monthly values are averages of daily values
2 From previous year in percent
3 MB = monetary base = banknote circulation + sight deposit accounts
4 SAMB = seasonally-adjusted monetary base = monetary base divided by the corresponding seasonal factors
5 Definition 1995, change from previous year in percent
p Provisional

2.4 Loans and capital market borrowing

Stagnating domestic loans

Domestic loans comprise loans by the banks to borrowers resident in Switzerland and the Principality of Liechtenstein. They include unsecured customer claims, secured customer claims and mortgage claims. With a share of 77%, mortgage claims account for the bulk of domestic loans. Mortgage claims and secured customer claims together make up the secured domestic loans.

After the total of domestic loans had still fallen short of the previous year's level in the third quarter, they again expanded slightly in October compared with the level obtaining in October 2001 (0.44%). In October, mortgage claims rose by 4.2% year-on-year. Customer claims, by contrast, declined by 10.4%. Secured customer claims exhibited the biggest decrease (−12.5%). Unsecured customer claims were also on the decline, falling by 9.0% from the previous year to reach their lowest level since August 1990.

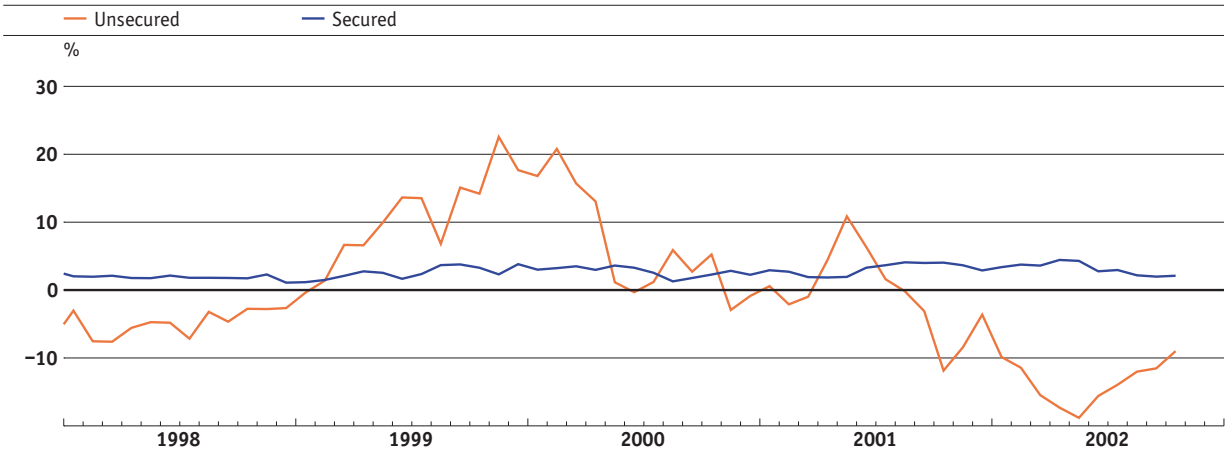
The decrease in customer claims is probably due to the course of the stock market rather than a changed credit policy of the banks. Loan statistics show that most of the decline is attributable to reduced lending by the big banks (3rd quarter: −19.5%), particularly in sectors closely linked with the stock market: in the third quarter, loans to finance institutions and insurance companies plunged by 37.7% year-on-year, while loans to the real estate and IT industries diminished by 21.4%. Moreover, foreign-currency loans exhibited a stronger decline in percent than Swiss franc loans. The decrease in customer claims beginning in August 2000 succeeded an uptrend lasting from December 1998 to March 2000, when customer claims grew by Sfr 30 billion. Most of this increase (Sfr 26.6 billion) was accounted for by a rise in foreign-currency loans and in lending business with securities.

Capital redemptions at a peak

The Swiss capital market was characterised by large capital redemptions in the third quarter 2002. Two developments contributed significantly to this result: the two Swiss big banks' reduction in share capital and coinciding regular maturities of several bond issues by foreign borrowers. Loan redemptions by Swiss borrowers took their ordinary course. Repayments of issues by the Confederation reached an extraordinarily high level of Sfr 3.4 billion.

The volume of bond issues no longer attained the relatively high values of the first half-year. This applies to bond issues of both domestic and foreign borrowers. After the Confederation had raised large amounts of almost Sfr 5 billion in each of the first two quarters, the amounts it borrowed on the capital market in the third quarter only totalled approximately Sfr 1.8 billion. No single event was responsible for the decline in bond issues of foreign borrowers: all types of bonds and groups of countries exhibited lower issuing volumes compared with the previous quarter.

Annual rates of change: secured and unsecured loans — Graph 2.10



Capital marked borrowing in billions of Swiss francs Table 4

	2000	2001	2001		2002		
			Q3	Q4	Q1	Q2	Q3
Bonds and shares, total							
Price of issue [1]	79.5	73.4	18.7	21.6	24.0	20.5	13.6
Conversions/Redemptions	53.6	60.4	18.1	14.6	13.7	9.4	19.7
Net borrowing	25.8	13.0	0.6	7.0	10.3	11.1	−6.1
Swiss bonds							
Price of issue [1]	37.1	27.0	7.9	4.7	8.0	9.2	5.5
Conversions/Redemptions	23.0	21.1	4.8	4.5	6.9	4.0	5.5
Net borrowing	14.1	5.9	3.1	0.2	1.1	5.3	0.0
Swiss shares							
Price of issue [1]	8.9	12.3	0.6	9.4	1.5	0.2	0.7
Redemptions	5.7	7.3	5.4	0.4	0.8	0.9	6.6
Net borrowing	3.2	5.0	−4.8	8.9	0.7	−0.8	−5.9
Foreign bonds [2]							
Price of issue [1]	33.5	34.0	10.2	7.5	14.4	11.1	7.4
Redemptions	25.0	32.0	7.9	9.6	5.9	4.4	7.6
Net borrowing [3]	8.5	2.1	2.3	−2.1	8.5	6.7	−0.2

1 By date of payment
2 Without foreign-currency bonds
3 Without conversions

3 Aggregate demand and output

3.1 GDP and industrial output

Foreign trade supports economic activity

In Switzerland, the economic recovery continued at a restrained pace. The State Secretariat for Economic Affairs (seco) estimates that in the third quarter real GDP grew by 1.3% compared with the previous period (annualised figure), thus exceeding the corresponding previous year's level by 0.6%. The main pillars of growth were export demand and consumption. Private consumption expenditure rose somewhat more markedly than in the previous period, with the largest increases being recorded in the cyclically not very sensitive housing and health sectors.

Investment activity, by contrast, remained depressed. While the decline in equipment investment at least ceased to accelerate, construction investment shrank more substantially than in the previous period. Inventory investment again made a small positive growth contribution.

Weak industrial activity in the third quarter

The situation in Switzerland's industrial sector deteriorated in the third quarter. As a result of the disappointing development of demand, industrial output declined again compared with the previous period, after having advanced markedly in the second quarter.

GDP and its components Table 5

At prices of 1990; percentage-point contribution to year-on-year change in GDP

	2000	2001	2001 Q3	2001 Q4	2002 Q1	2002 Q2	2002 Q3
Private consumption	1.1	1.1	0.9	1.0	0.9	0.4	0.5
Govt. and social insurance consumption	0.2	0.4	0.3	0.4	0.1	0.7	0.7
Investment in fixed assets	1.5	−1.4	−2.0	−3.0	−1.8	−2.2	−2.2
Construction investment	0.3	−0.6	−0.8	−0.7	0.0	0.2	−0.4
Equipment investment	1.2	−0.8	−1.1	−2.3	−1.7	−2.4	−1.8
Domestic final demand	**2.9**	**0.1**	**−0.7**	**−1.6**	**−0.8**	**−1.1**	**−1.0**
Inventories	−0.3	0.7	2.3	0.0	0.9	0.6	0.1
Exports, total	4.3	0.0	−1.2	−1.6	−3.5	−0.4	0.8
Aggregate demand	**6.9**	**0.7**	**0.4**	**−3.3**	**−3.5**	**−0.9**	**−0.1**
Imports, total	−3.7	0.1	0.1	−3.3	−2.7	−0.5	−0.7
GDP	**3.2**	**0.9**	**0.3**	**0.0**	**−0.7**	**−0.4**	**0.6**

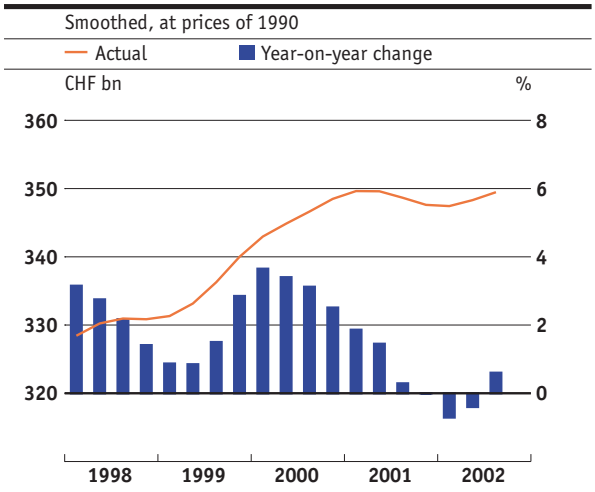
Sources: SFSO, seco

The weak state of industrial economic activity was also reflected in the results of the KOF/FIT industrial survey. Business remained at an unsatisfactory level. Both domestically and export-oriented enterprises reported a distinct decline in order backlogs compared with the previous period. In order to lower costs, enterprises reduced stocks of finished and semi-finished products. Further job cuts were made in almost all industrial segments.

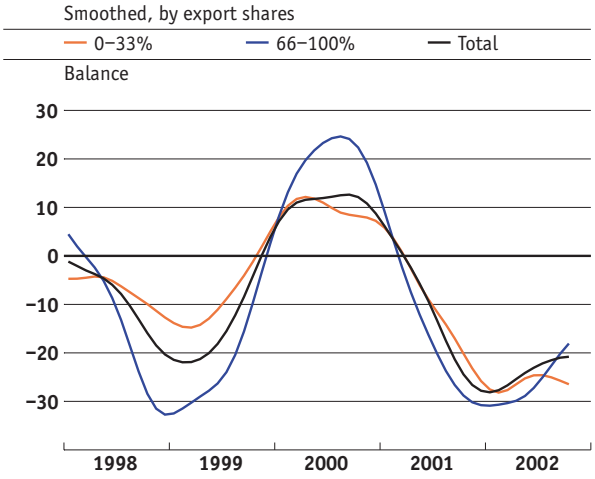
Cautious expectations

The available indicators for the fourth quarter give some slight cause for hope. According to the KOF/FIT survey, orders at domestically and export-oriented enterprises did not decline any further in October. The steep rise of the Purchasing Manager Index in November also points to a stabilisation of the situation in the industrial sector. The expectations of the enterprises for the next three to six months, however, remain restrained. They merely expect a slight uptrend in incoming orders and a slow expansion of output.

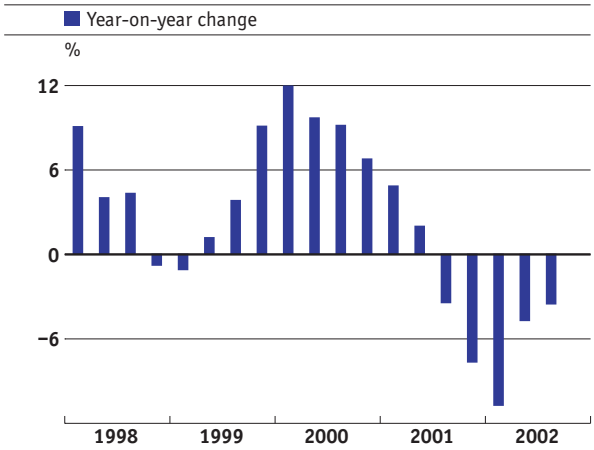
GDP — Graph 3.1



Industrial activity — Graph 3.2



Industrial output — Graph 3.3



Graph 3.1:
Annualised estimate for the quarter
Source: seco

Graph 3.3: Source: SFSO

Graph 3.2: The synthetic index of industrial activity consists of the results of the following four questions: orders received and output compared with the corresponding year-earlier month, as well as evaluation of the order backlog and of the finished goods inventories.
Source: Swiss Institute for Business Cycle Research at the Federal Institute of Technology (KOF/FIT)

3.2 Foreign trade and current account

In the third quarter, real exports of goods and services grew by 6.2% compared with the previous period. They exceeded the corresponding year-back level by 1.8% after having fallen short of it for four quarters. Exports of goods and services both contributed to this positive development. Real imports of goods and services, however, stagnated. They were 1.5% below the year-earlier level. Consequently, for the first time since the end of 2001, the foreign trade contribution was clearly positive again.

Higher goods exports

According to the data of the Swiss General Directorate of Customs, real exports of goods[1] topped the previous year's level by 3.4% in the third quarter. They exhibited a steep increase as against the previous period. However, in a breakdown of exports by use, the different categories showed varied development; it is thus too early to speak of broad-based growth. Exports of consumer goods (pharmaceuticals, vitamins, diagnostic products) expanded especially vigorously. Exports of capital goods also grew from the previous period but were still 2.8% lower than a year earlier. Within this category, sales of precision instruments accelerated in particular while exports of the machinery and electronics industry shrank again. Exports of raw materials and semi-manufactures increased at a decelerated pace.

Demand underpinned by US and China

Nominal exports to the US were 4.1% higher in the third quarter than a year earlier. Demand from China also developed positively, albeit at a slower rate than in the previous quarters. Third-quarter demand from the EU topped the corresponding year-earlier figure by 1.3%. In terms of value, particularly exports to France and Italy were on the rise whereas exports to Germany continued to fall year-on-year

Real exports by use[2] Table 6

Change from previous year in percent

	2000	2001	2001 Q3	2001 Q4	2002 Q1	2002 Q2	2002 Q3
Total	**7.1**	**2.1**	**−1.4**	**−1.6**	**−5.4**	**−0.4**	**3.4**
Raw materials and semi-manufactures	9.6	−1.5	−4.6	−7.3	−6.9	1.4	−0.1
Capital goods	9.9	0.2	−3.4	−7.8	−12.6	−5.2	−2.8
Consumer goods	2.4	6.7	3.2	8.8	2.1	2.2	11.2
Export prices	3.3	2.0	2.0	−0.8	−0.3	0.3	−2.2

Real imports by use[2] Table 7

Change from previous year in percent

	2000	2001	2001 Q3	2001 Q4	2002 Q1	2002 Q2	2002 Q3
Total	**7.0**	**−0.4**	**−0.4**	**−8.4**	**−5.8**	**0.1**	**−1.0**
Raw materials and semi-manufactures	8.1	−1.2	−4.0	−10.1	−8.8	−2.3	0.8
Energy sources	−0.8	9.3	1.4	10.4	12.6	−0.1	−0.3
Capital goods	8.5	−5.8	−5.3	−16.2	−13.9	−8.0	−2.7
Consumer goods	5.8	3.3	5.6	−3.1	0.5	7.8	−1.2
Import prices	6.0	1.6	−0.2	−1.2	−3.4	−3.7	−3.9

1 Real exports of goods according to the definition by the Swiss General Directorate of Customs (total 1) correspond to real exports of goods reported by the seco excluding exports of electrical energy and the subcategory "Other goods".

2 Without precious metals, precious stones and gems as well as objets d'art and antiques (total 1). Source: Swiss General Directorate of Customs

(−3.3%). Deliveries to Japan, the Asian emerging economies and the European transition countries remained below their year-back level.

Outlook

In October, exports of goods expanded further compared with the previous month. Incoming orders were also slightly higher. Assuming that the global economy will get off the ground in 2003, economic research institutions anticipate real exports of goods to increase by approximately 3% to 5% in 2003, following stagnation in 2002.

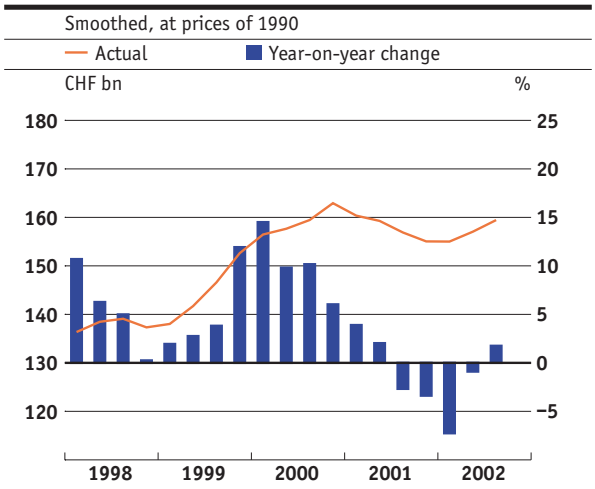
Goods imports on the decline

In the third quarter, real imports of goods[3] remained steady at the previous period's level, falling 1.0% short of the corresponding year-earlier figure. The three import categories, which are classed according to use, developed differently. Imports of semi-manufactures and finished goods as well as consumer goods grew at a slower pace than in the previous period. The slowdown in consumer goods imports was largely attributable to lower imports of pharmaceuticals, which account for approximately one-quarter of consumer goods imports. Imports of capital goods, by contrast, picked up from the previous period – a sign that domestic investment activity is recovering slowly but surely. Imports of energy sources plummeted once more.

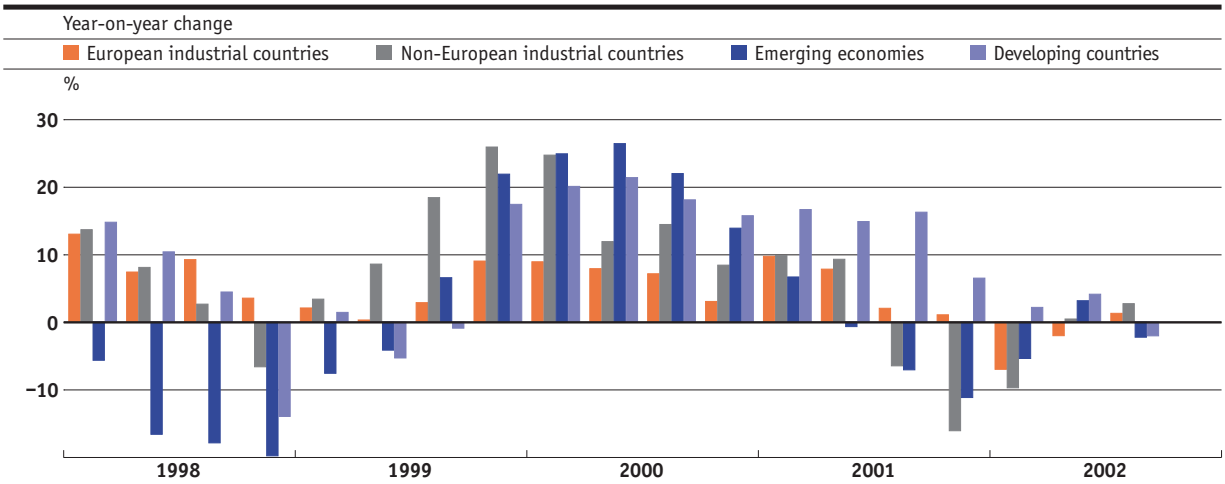
Lower average prices of export and import goods

In the third quarter, export prices, measured by average prices, fell by 2.2% year-on-year after still having increased moderately in the previous quarter. The producer price index for export-destined goods also dropped in the third quarter, which indicates that the increase in real exports was partly accompanied by a reduction in margins. Import prices, measured by average prices, exhibited an even steeper decrease (−3.9%). Overall, the terms of trade (ratio of average export prices to average import prices) improved from the previous year.

Exports — Graph 3.4



Exports by trading partners — Graph 3.5



3 Real imports of goods according to the definition by the Swiss General Directorate of Customs (total 1) correspond to real imports of goods reported by the seco excluding imports of electrical energy and the subcategory "Other goods".

Graph 3.4: Annualised estimate for the quarter, without precious metals, precious stones and gems as well as objets d'art and antiques (total 1).
Source: seco

Graph 3.5: Without precious metals, precious stones and gems as well as objets d'art and antiques (total 1).
Source: Swiss General Directorate of Customs

Higher current account surplus

Nominal imports slipped by 4.9% in the third quarter as against the previous year (special trade, not working-day adjusted) while exports staged a 1.1% increase. As a result, the trade balance closed with a surplus of Sfr 2 billion. A year earlier, the trade balance had been virtually even. Total goods trade, which also includes trade in electrical energy, and imports and exports of precious metals, precious stones, gems, etc., also recorded a surplus (Sfr 1.9 billion), following a Sfr 0.7 billion deficit in the third quarter 2001.

The surplus from services widened by Sfr 0.5 billion to Sfr 6.2 billion. Receipts from tourism as well as the banks' income from financial services declined; the insurance companies' revenue from services, by contrast, exhibited an increase. At Sfr 7.6 billion, the surplus from labour income and investment income exceeded the previous year's level by Sfr 3.5 billion. This increase was mainly due to higher net earnings from direct investment.

The current account surplus rose by Sfr 7.4 billion to Sfr 14.3 billion in the third quarter 2002. The share in nominal GDP amounted to 13.3%.

Current account Balances in billions of Swiss francs Table 8

	2000[1]	2001[2]	2001[2]		2002[3]		
			Q3	Q4	Q1	Q2	Q3
Goods	−4.2	−4.6	−0.7	0.9	0.0	0.6	1.9
Special trade	−2.1	1.7	0.1	1.6	0.9	1.4	2.0
Services	25.6	24.2	5.7	5.3	7.7	5.1	6.2
Tourism	2.4	2.0	0.4	0.0	1.3	−0.3	0.1
Labour income and investment income	37.0	25.2	4.1	7.9	5.8	6.6	7.6
Investment income	44.8	33.8	6.3	10.1	8.1	8.9	9.9
Current transfers	−4.9	−6.9	−2.2	−2.2	−2.2	−1.5	−1.5
Total current account	**53.5**	**37.9**	**6.9**	**11.9**	**11.4**	**10.8**	**14.3**

1 Revised
2 Provisional
3 Estimates

3.3 Investment

Investment activity, which had been weak since the beginning of 2001, remained subdued in the third quarter. Real investment in fixed assets dropped compared with the previous period and fell 8.4% short of the corresponding year-earlier level (2nd quarter: −8.7%).

Weaker construction activity

Third-quarter construction investment receded vis-à-vis the previous period, falling by 3.2% year-on-year. Residential construction activity, measured by the number of apartments under construction, shrank by 1.5%. The construction survey conducted by KOF/FIT in the third quarter also signals weaker construction activity in foundation engineering.

Investment in residential construction picking up?

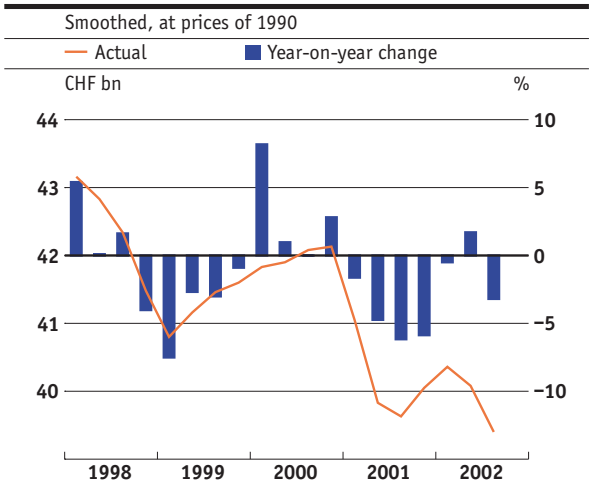
The number of building permits issued for new apartments was on a steady climb since the summer of 2001 and exceeded the previous year's figure by 7.6% in the third quarter 2002. This is an indicator that investment activity in housing is picking up steam again after a prolonged phase during which the supply of residential space had not kept pace with demand and prices in some demand segments had firmed significantly. Nevertheless, with economic uncertainty still prevailing, the period between the issuance of a building permit and the actual beginning of construction is likely to have become longer. Commercial construction, by contrast, is not expected to add any momentum just yet. The supply of commercial and office space has increased steeply since the beginning of 2002, and prices eased somewhat in the third quarter. Likewise, foundation construction should decline over the next few quarters.

Further dip in equipment investment

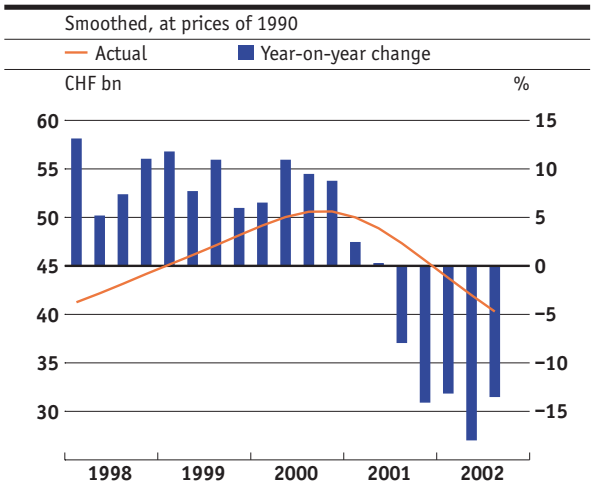
Equipment investment again dipped markedly in the third quarter, but the downtrend did not become more pronounced. According to the quarterly survey conducted in Switzerland's capital goods industry (Swissmem), the decline in demand for domestic capital goods is likely to have weakened further in the third quarter. At the same time, imports of capital goods were up compared with the previous period.

Real equipment investment diminished by approximately 20% since the beginning of 2001. As their third-quarter level roughly corresponded to replacement investment, the capital stock remained unchanged. The investment slump is expected to be overcome only once the earnings prospects of the large majority of companies brighten. According to the KOF/FIT survey in industry, earnings prospects remained gloomy in the third quarter.

Construction investment — Graph 3.6



Equipment investment — Graph 3.7



Graphs 3.6 and 3.7:
Annualised estimate for the quarter
Source: seco

3.4 Consumption

Robust private consumption

Private consumer spending grew by 1.1% in the third quarter as against the previous period, increasing at roughly the same rate as in the first six months of the year. In a year-on-year comparison, the rise was 0.9%. According to the seco, higher expenditure for housing and energy as well as for health care was the mainstay of private consumption.

The other areas of private consumption showed mixed development. Real turnover in retail trade, which had sunk in the second quarter compared with the previous period, picked up slightly, thus again reaching its year-earlier level. The number of hotel overnight stays by domestic guests was also higher than a year earlier (0.6%) after having declined in the first half of the year. By contrast, the number of newly registered motor cars was down by 6.4%, following a 7.6% drop in the second quarter.

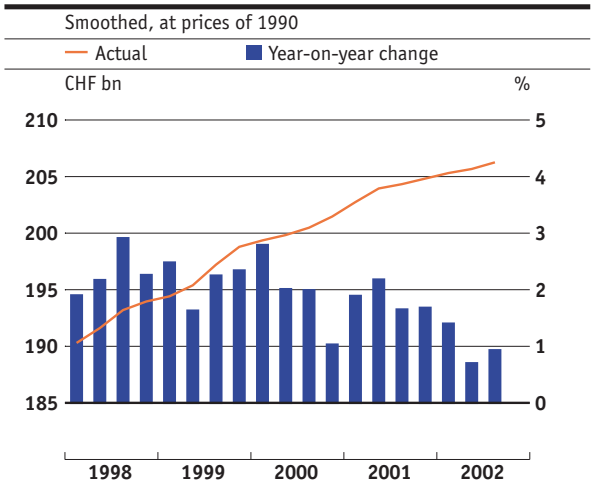
Consumer sentiment severely bruised

In October, the consumer confidence index compiled by the seco plunged from −18 points to −39 points, a level last recorded in 1996. Households were more pessimistic in assessing both the economic situation and their financial standing. Expectations for the coming twelve months were also revised downward; in particular, job security was considered to be worse.

Cautious optimism in retail trade

According to the economic surveys in retail trade conducted by KOF/FIT, the business situation again brightened somewhat after having deteriorated at around mid-year. Most companies questioned managed to keep their turnover in September and October at the previous year's level. However, more than half reported a marked deterioration in their earnings situation compared with the previous year. This suggests that real turnover was maintained at this level thanks to price cuts, among other factors. For the next few months, the majority of companies anticipate stable or increasing turnover. By contrast, the restaurant industry and, in particular, the hotel business expect flagging demand.

Private consumption — Graph 3.8



Annualised estimate for the quarter
Source: seco

3.5 Capacity utilisation

The utilisation rate of the macroeconomic output capacity provides some valuable information for assessing the future development of prices. As the utilisation rate of the output capacity cannot be monitored, the National Bank takes two indicators into consideration: the macroeconomic output gap and the utilisation rate of technical capacities in industry (graph 3.9).

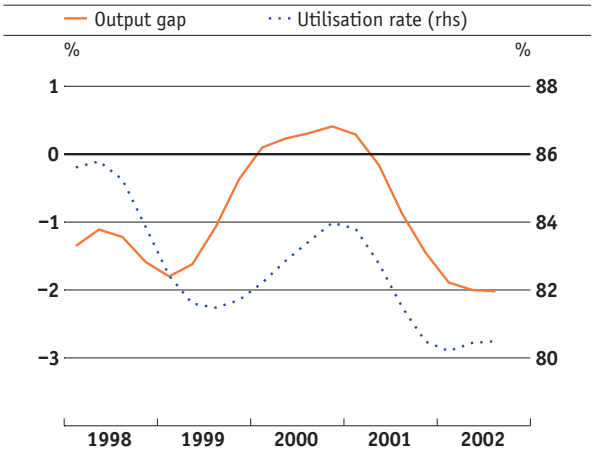
Wider output gap

The output gap is the difference in percent between actual real GDP and the estimated output potential. Since actual real GDP expanded to a lesser degree in the third quarter than the output potential, the output gap widened from −2.0% in the second to −2.1% in the third quarter.

Underutilised capacity in industry

A survey of some 1,600 companies gauges capacity utilisation in industry on a quarterly basis. In the third quarter, it persisted at 80.5%, roughly the level recorded in the previous quarter. It was thus still below the long-term average of 84%. More than half of the companies cited insufficient demand as the primary factor inhibiting production. As a result of the lack of demand, the below-average utilisation of existing capacities and the continuously cautious production plans, no investment for expansion was effected in the third quarter.

Capacity utilisation — Graph 3.9



Source: KOF

3.6 Economic outlook

GDP forecast for 2002 and 2003

The National Bank expects real GDP to stagnate on average in 2002. Since the beginning of October, a number of institutions and banks have downgraded their growth forecasts for 2002. According to the revised forecasts available at the end of November, real GDP is anticipated to contract slightly by 0.1%.

Many forecasting institutions also adjusted their growth predictions for 2003, revising them downward by 0.5 percentage points to 1.3% compared with September. The National Bank projects real economic growth of just over 1% for 2003. All forecasts for 2003 are based on the assumption that the world economy will gather significant momentum in the second half of the year, bringing the Swiss export industry and, with a delay, also the domestic economy back on track towards sustainable growth.

4 Labour market

4.1 Employment

Surprising increase in employment

Employment was up by 0.6% in the third quarter compared with the previous period (seasonally-adjusted), falling 0.2% short of the corresponding year-earlier level. The unexpected increase is due exclusively to the service sector; in manufacturing, by contrast, further job cuts were made. The number of full-time jobs was slightly down vis-à-vis the previous period (–0.1%) and exhibited a significant year-on-year drop (–1.3%) whereas the number of part-time jobs climbed.

In the processing industry, employment decreased by 0.9% vis-à-vis the previous period, falling 3% below the year-earlier level. Jobs were again cut in nearly all business segments. The chemical and the food industries were among the exceptions and increased their payroll. Employment in the construction industry stagnated after having fallen continuously since the beginning of 2001. In a year-on-year comparison, it sank by 1.9%. By contrast, the number of jobs in the service sector was 0.9% higher than in the previous period.

Labour demand weakened further

Various indicators suggest that demand for labour continued to ease in the past few months. This implies that employment will probably decline again in the fourth quarter. According to the KOF/FIT survey, companies in the manufacturing sector still considered their workforce to be excessive in the third quarter. The index of employment prospects also deteriorated further.

A similar picture emerges for other segments of the economy. Construction, the hotel and restaurant industry as well as retail trade reported staff overcapacities in the KOF surveys. In the financial industry, many banks reduced overcapacities in asset management. Generally, insurance companies increasingly refocussed their activities on the core business. Both of these developments went hand in hand with job cuts.

The persistently low demand for labour is also reflected in the development of job vacancies. The Manpower Index, which measures the space occupied by job advertisements in Swiss newspapers, declined markedly until October. Likewise, the vacancies index published by the SFSO dropped in the third quarter.

Labour market Figures not seasonally-adjusted Table 9

	2000	2001	2001		2002				
			Q3	Q4	Q1	Q2	Q3	Oct.	Nov.
Full- and part-time employed[1]	2.2	1.1	1.1	0.4	–0.3	–0.3	–0.2	–	–
Full-time employed[1]	1.0	0.7	0.5	0.0	–1.0	–1.3	–1.3	–	–
Unemployment rate[2]	2.0	1.9	1.7	2.1	2.6	2.5	2.7	3.0	3.3
Unemployed[3]	72.0	67.2	61.1	77.3	93.5	91.2	97.1	110.1	120.6
Jobseekers[3]	124.6	109.4	100.8	119.9	139.8	139.7	146.3	161.1	173.5
Persons on short working hours[3]	0.7	2.4	1.5	6.6	9.8	11.6	4.4	6.4	–
Registered vacancies[1]	41.7	–18.3	–23.7	–39.2	–38.0	–46.3	–39.5	–	–

1 Change from previous year in percent
2 Registered unemployed in percent of the economically active population according to the 1990 national census (working population: 3,621,716 persons)
3 In thousands; yearly and quarterly values are averages of monthly values
Sources: SFSO, seco

4.2 Unemployment

Significantly higher unemployment

Unemployment increased at an accelerated pace in September and October. At the end of October, 116,000 persons were registered as unemployed (seasonally-adjusted). The unemployment rate climbed to 3.2%, surpassing the 3% mark for the first time since February 1999. The total number of jobseekers went up to 167,400 persons. This corresponds to a jobseeker rate of 4.6%.

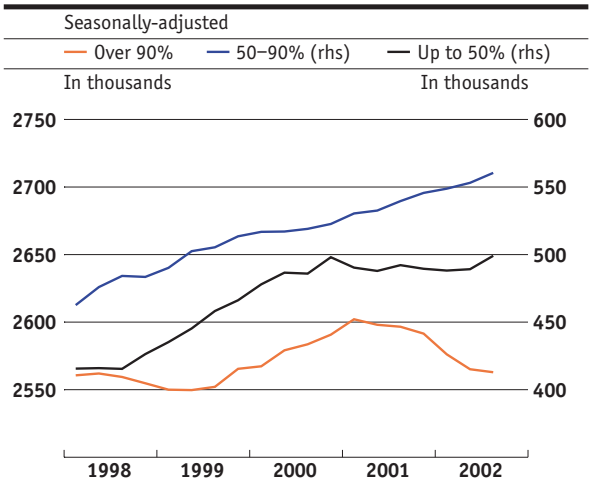
There was a rise in the number of persons who have been out of work for less than six months. The number of persons who have been unemployed for more than six months rose even faster, though; consequently, the average duration of unemployment increased.

Broken down by region, the unemployment rate in the Ticino moved up by 0.1 percentage points to 4.1% between August and October. French-speaking Switzerland saw a slightly more pronounced rise from 3.8% to 4.1%. In the German-speaking parts of Switzerland, the jobless rate was up by 0.2 percentage points to 2.8%.

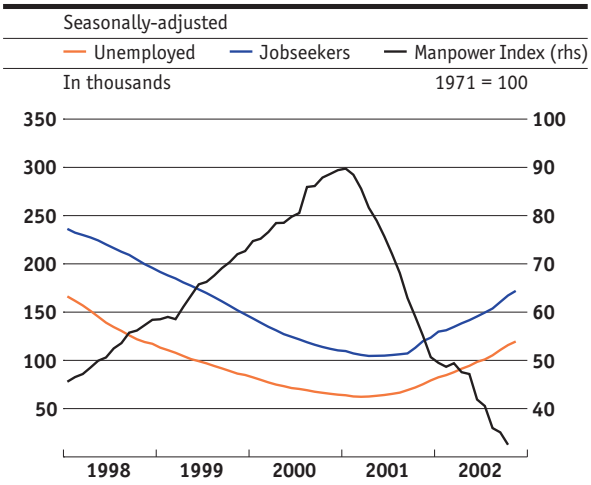
In the third quarter, short-time work remained virtually unchanged after having increased significantly for a year. Short working hours are usually introduced to cushion a temporary weakness in demand. The stabilisation of short-time work and the simultaneous rise in unemployment suggest that a number of companies – mainly in the manufacturing sector – do not anticipate a quick rebound of the economy.

Due to the unrelentingly gloomy employment prospects, unemployment is expected to rise further in the 2002/2003 winter half-year. The official, not seasonally-adjusted jobless rate published by the seco might approach 4% in the course of the first quarter 2003; at the end of October 2002, it stood at 3%. With the economy recovering, the situation on the labour market is also likely to improve slowly in 2003. However, unemployment is not expected to fall before the second half of the year.

Full- and part-time employment — Graph 4.1



Unemployment and vacancies — Graph 4.2

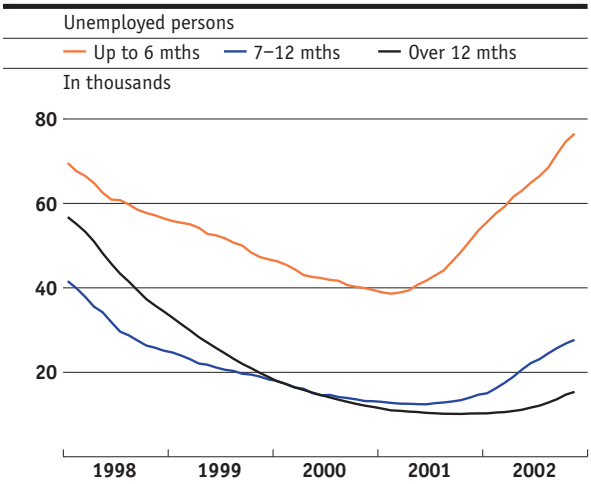


Graphs 4.1, 4.2:
Source: SFSO

4.3 Salaries 2003

According to the salary survey conducted by UBS in October, nominal salaries and wages are likely to grow by 1.3% in 2003, following a 2.1% rise in 2002. Compared with 2002, the proportion of individual salary increases will be higher. The moderate development of salaries and wages is attributable to the presently difficult labour market situation and the companies' still uncertain business prospects. Broken down by business segment, salary increases range from 0.3% in construction to 2.4% in the telecommunications and IT industries. KOF/FIT, whose analysis of salary changes takes into account shifts in the employment structure as well as bonuses, projects a 1.8% rise in nominal salaries and wages.

Duration of unemployment Graph 4.3



Source: SFSO

5 Prices

5.1 Consumer prices

Annual inflation measured by the national consumer price index moved up from 0.5% in September to 0.9% in November. The trend towards slightly higher price increases was mainly due to a further decline in the inflation-dampening influence of imported consumer goods. Inflationary pressure on domestic goods and services receded modestly. In October, inflation temporarily rose to 1.2%. This rise was, for the most part, the result of a change in data collection in the main category "clothing and footwear". From 2002 onward, summer clearance sales prices have been replaced by the more expensive regular prices in October already instead of in November.

Domestic inflation slightly lower

After annual inflation on domestic goods and services had persisted unchanged at 1.3% from June to October, it receded by 0.1 percentage points in November. Upward price pressure eased both for goods and for services. Price increases amounted to 0.7% only for goods and to 1.3% for services, which account for approximately three-quarters of the domestic commodities basket. Contrary to our expectations, the price level for residential rents remained steady in the quarterly survey in November. Accordingly, annual rent increases dropped from 0.8% to 0.5%, the lowest rate recorded since April 1999. Annual inflation in other private services edged up from 1.8% in September to 1.9% in October and November. Inflationary pressure on public services, by contrast, fell by 0.3 percentage points to 1.3%. This decline was largely due to lower price increases for hospital services.

Positive inflation rates for imported goods

The price-curbing effects of imported goods subsided from September until November. In November, prices of imported goods were 0.2% more expensive than a year earlier, following a 1.9% decrease in September. Prices for oil products still fell short of the previous year's level, but the price decline slowed in this category, too. After prices had become 10% cheaper on average in the second quarter 2002, they edged only 0.2% lower in November.

Breakdown of the national consumer price index Table 10

Change in percent

	2001	2002						
		Q1	Q2	Q3	August	September	October	November
National consumer price index total	**1.0**	**0.6**	**0.7**	**0.3**	**0.5**	**0.5**	**1.2**	**0.9**
Domestic goods and services	1.7	1.8	1.5	1.3	1.3	1.3	1.3	1.2
Goods	1.5	1.8	1.2	0.7	0.7	0.8	0.8	0.7
Services	1.8	1.7	1.6	1.4	1.4	1.4	1.4	1.3
Private services without rents	1.5	2.0	2.0	1.8	1.8	1.8	1.9	1.9
Rents	2.8	1.6	1.1	0.9	0.8	0.8	0.8	0.5
Public services	0.5	1.3	1.6	1.6	1.6	1.6	1.3	1.3
Imported goods and services	−1.2	−3.0	−1.8	−2.6	−2.0	−1.9	1.1	0.2
Without oil products	−0.4	−1.8	−0.1	−1.7	−0.9	−1.1	1.7	0.1
Oil products	−4.7	−9.7	−10.2	−7.6	−7.8	−6.3	−2.1	−0.2

Sources: SFSO, SNB

5.2 Core inflation

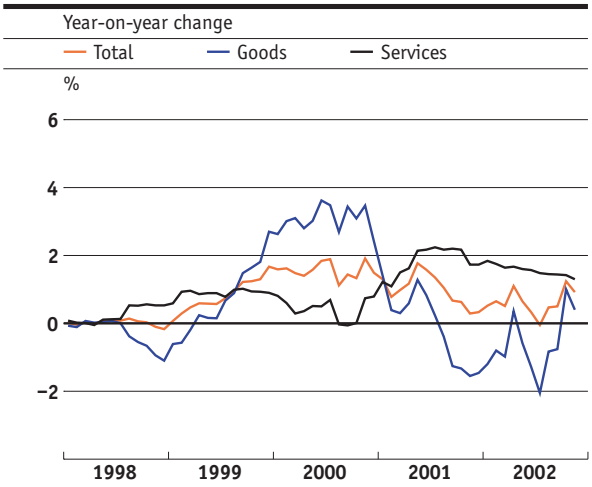
Stable core inflation of the SNB

Since inflation measured by the national consumer price index is subject to numerous short-term influences that tend to obscure the view on the general price trend, the National Bank computes a core inflation rate. This core inflation rate excludes, in any period, those 15% of goods with the highest annual inflation rate and the 15% of goods with the lowest annual inflation rate from the commodities basket of the consumer price index. In November, the core inflation rate stood at 0.9%, the same level as in September. It was thus equal to the inflation rate measured by the national consumer price index.

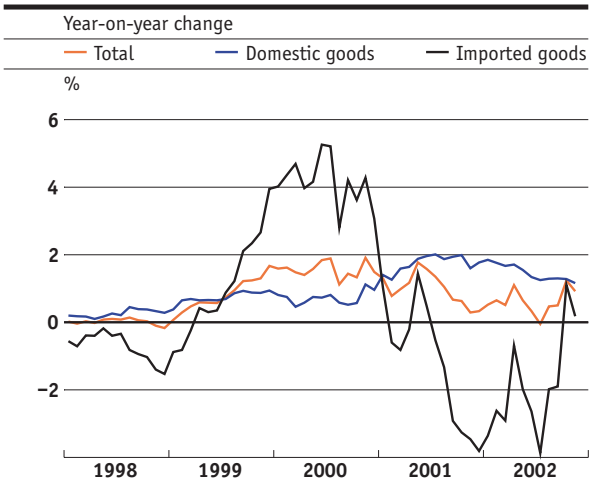
Slight rise in core inflation of the SFSO

Unlike the core inflation rate of the National Bank, the two core inflation rates calculated by the SFSO always exclude the same goods from the commodities basket. In the case of core inflation 1, these are foodstuffs, beverages, tobacco, seasonal products, energy and fuel. Core inflation 2 additionally excludes products with administered prices. Compared with September, the two core inflation rates nudged up and stood at 0.9% and 0.8% respectively in November.

Consumer prices — Graph 5.1



Consumer prices — Graph 5.2



Graphs 5.1, 5.2:
Sources: SFSO

5.3 Prices of total supply

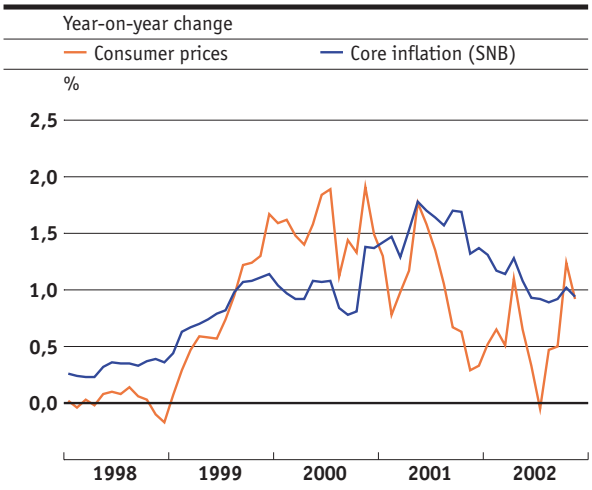
Stable prices of total supply

The price level of total supply (producer and import prices) has remained virtually stable since mid-2002. Whereas goods produced in Switzerland became slightly cheaper between September and November, prices for imported goods remained constant. Thus, no inflationary stimuli for the downstream consumer level emanated from producer and import prices.

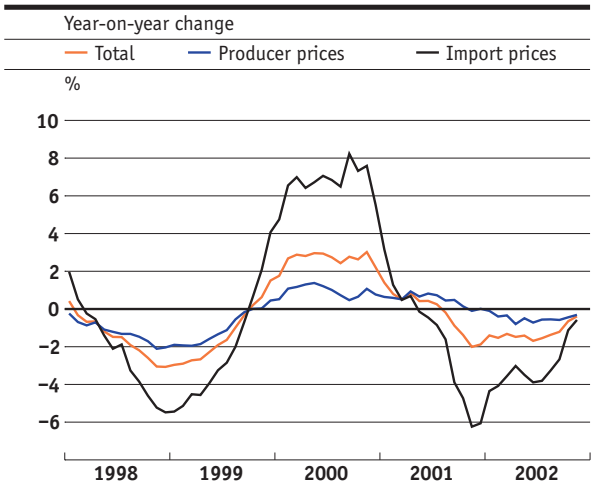
Producer prices declined further year-on-year, albeit at a somewhat slower pace than at mid-year. In November, they fell 0.3% below their year-earlier level as a result of price cuts for semi-manufactures. Prices for consumer and capital goods, by contrast, increased by 1.0% and 0.3% respectively compared with the previous year. For the first time in two years, prices for raw materials climbed back above the previous year's level; in November, annual inflation amounted to 1.7%.

In November, the index figure for imported goods was 0.6% lower than a year earlier. The downtrend in prices continued for semi-manufactures (−0.7%) and consumer and capital goods (−0.5% and −2.0% respectively). In October, however, prices for raw materials were higher year-on-year for the first time since January 2001 and have subsequently remained above the year-back level; in November, inflation amounted to 4.6%.

Core inflation — Graph 5.3



Prices of total supply — Graph 5.4



Sources: SFSO, SNB

6 Inflation prospects

6.1 International price development

Weak inflationary stimuli from abroad

In the second half of September, the price per barrel of Brent oil at times topped 29 dollars as a result of fears concerning US attacks on Iraq and a possible tightening of supplies. By the end of November, however, the oil price had again fallen to around 25 dollars. Expressed in Swiss francs, however, it has clearly exceeded the previous year's level since mid-September (November: +14%). Even after Iraq had accepted UN weapons inspections, political uncertainties in the Middle East remained, so that we will hardly see a sustained relaxation of the situation on the crude oil market in the months ahead. Given the sluggish growth of the global economy, inflationary pressure on other import goods is likely to remain weak. The slightly higher export-weighted external value of the Swiss franc has the same effect.

6.2 Price development in Switzerland

No inflation risks

As a result of the weak economic environment, inflation on domestic goods and services eased perceptibly in the first half of the year and has remained stable since June. We do not expect inflation risks to increase in the near term. Production capacities continue to exhibit below-average utilisation, and the situation on the labour market will not improve until the second half of 2003. Consequently, no cost pressure from the wage front is to be expected. According to the salary survey conducted by UBS at the beginning of November, nominal salaries and wages are likely to grow by 1.3% in 2003. With a projected inflation rate of 0.7% and an increase in labour productivity of around 1.5%–2%, real unit wage costs will probably show a slight decrease next year. Furthermore, the third revision of the unemployment insurance scheme will enter into force in 2003. Contributions of both employers and employees will be lowered from 3% to 2%, which will result in an additional easing of wage-induced cost pressure.

Rent increases remain modest

With rents for apartments accounting for approximately 20% of the basket of commodities that make up the consumer price index, the development of such rents holds special significance for the assessment of inflation prospects. Contrary to our expectations, rent increases in November revealed an 0.3% drop to 0.5% vis-à-vis the previous survey in August, thus reaching the lowest level since April 1999. The cuts in mortgage rates in August and in November are likely to be passed on to tenants next spring, thereby continuing to keep rent increases at a modest level. The shortage of apartments for rent became more acute in 2002, however, as evidenced by the vacancy index published by the SFSO at the end of September. The economic conurbations of Zurich and Geneva are most severely affected. This shortage allows landlords to raise the rent for a new tenant or when an apartment is rented for the first time.

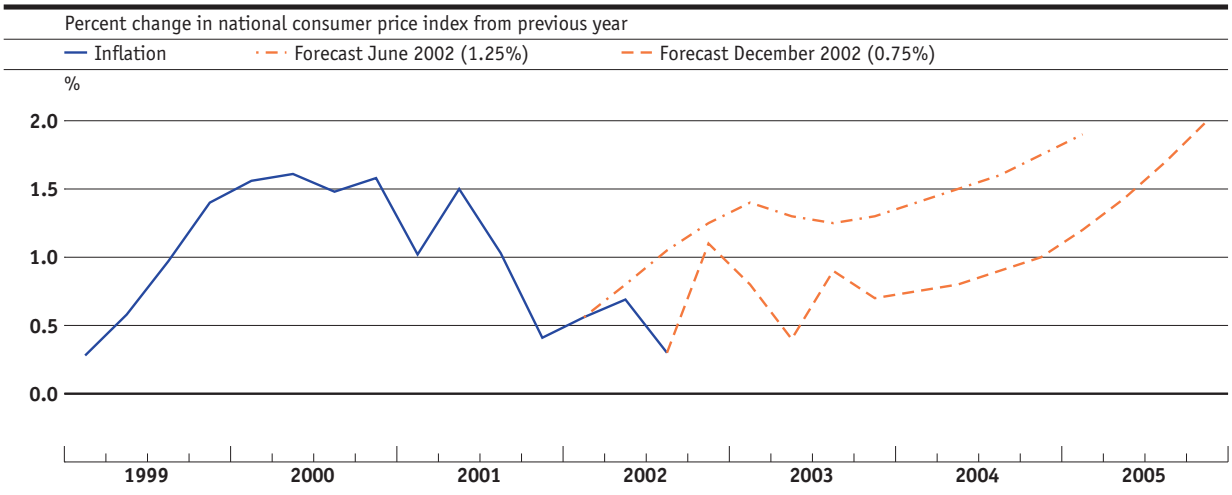
6.3 Inflation forecast for 2003–2005

At its year-end assessment of the situation, the National Bank considered the medium-term inflationary risks to be less significant than half a year ago. This reflects the delay in the economic upswing. As a result of the more expansionary monetary policy pursued since June 2002, inflation at the end of the forecasting period increases more markedly than on the occasion of the June forecast.

Graph 6.1 shows the National Bank's inflation forecast for 2003–2005. It is based on the assumption that the three-month Libor will remain unchanged at 0.75% until the end of the forecasting period. For 2003 the National Bank expects an average rate of inflation of 0.7%. After a modest increase in inflation to 0.9% in 2004, it is likely to rise noticeably during the course of 2005, reaching 2% in the fourth quarter.

The inflation forecast of the National Bank is based on the results from several macroeconomic models of the Swiss economy and the evaluation of the development of monetary aggregates, notably M_3. In its latest inflation forecast, the National Bank anticipates that the US economy will grow at a more rapid pace again from the second quarter of 2003 onwards, reaching its potential growth path by the beginning of 2004. With respect to the EU, it expects a delayed recovery. Economic growth is not likely to pick up considerable steam before the end of 2003. Furthermore, the National Bank assumes that the dollar/euro exchange rate will remain at approximately the level of early December 2002 and that the oil price will amount to around 25 dollars per barrel. Against the backdrop of this muted international economic scenario, the upturn in overall business activity in Switzerland is only gradual. The National Bank expects real GDP to grow by just over 1% on average in 2003.

Inflation forecast of June 2002 with Libor at 1.25% and of December 2002 with Libor at 0.75% Graph 6.1



7 Assessment of the economic situation from the vantage point of the SNB's bank offices

The bank offices of the National Bank are constantly in touch with a large number of enterprises from various sectors of the economy. Their reports, which contain the subjective evaluations of the enterprises, are an important additional source of information for assessing the economic situation. In the following, the results of the talks held from September to November on the current and future economic situation are summarised.

7.1 Production

The majority of the companies queried reported a slight deterioration of the business situation between September and November. It was generally characterised as difficult and unsatisfactory. The same applies for suppliers of niche products and consumer goods, who had been relatively little affected by the economic decline. Many industries experienced stiffer competition and saw their margins shrink. Entrepreneurs became more cautious in their expectations for the future. There are, however, signs that the economic trough has been reached in the meantime. Many exporters registered an increase in their orders from abroad. Moreover, inventories are now at a very low level. A pick-up in demand is thus likely to lead to a turnaround in the inventory cycle.

Manufacturing

Most industrial enterprises questioned still suffered from the flat global economic situation. This is particularly true for export companies oriented toward Germany. Near-consumer companies, such as the watchmaking, textile and foodstuffs industries, saw stagnating growth in turnover. Only the chemical/pharmaceutical industry was pleased with business activity and also had an optimistic assessment of sales trends.

In some areas of the capital goods sector, turnover stabilised on a low level. The need for replacement investment increased so that demand for capital goods is likely to pick up quickly once aggregate economic production has recovered. Companies manufacturing precision machines, notably machines for the automobile industry, have already shown satisfactory business activity for some months now. In the area of textile machine building, incoming orders even picked up. By contrast, manufacturers from other sectors as well as firms from the telecommunications industry complained about a severe decline in business development.

Services

Business deteriorated in nearly all areas of the service sector. This particularly applies to near-consumer companies, which reported a noticeably weaker sales trend. While the bigger retailers were partially able to support their sales volume by granting price reductions, many smaller companies had to contend with a considerable drop in sales. The hotel and restaurant industry also continued to be affected by consumer restraint. The financial sector suffered from the continuous bear market and the falling commission and trading income. As a result of the more favourable interest rate margin, interest-earning business exhibited a positive development, however. Flagging economic activity and the pressure to cut costs led to weaker demand for services from logistics and consulting firms.

Tourist industry

The hotel industry in almost all regions reported dwindling overnight stays. Luxury hotels were particularly affected. Fewer guests from the US, Japan and Germany booking hotels in Switzerland accounted for a large part of this development. Hoteliers took a cautious view of the approaching winter season. Turnover is likely to depend heavily on the snow situation.

Construction

Sentiment in the construction sector continued to be depressed overall. Many companies complained about decreasing work volumes and lower prices. Depending on the line of business and the region, business showed varying development, however. Some construction companies profited from large public projects in the area of traffic infrastructure. Capacity utilisation in residential construction, especially refurbishing and renovations, was satisfactory.

7.2 Components of demand

Private consumption

Between September and November, private consumption lost considerable momentum. The decline was most perceptible in the area of consumer household goods and luxury items. The demand for other products shifted from more expensive to cheaper goods.

Equipment investment

As a result of cost-cutting measures introduced in many companies, investment activity fell sharply in the last few quarters. Many companies limited their investments to replacements and rationalisation measures. Given the deterioration of the financial situation of many companies, banks became more selective in their lending practices. In particular, the range of the interest rate charged to borrowers seems to have widened. While banks are soliciting good risks by offering attractive conditions, required risk premiums for high-risk investment projects rose sharply.

Exports of goods

Exports business was disappointing for many companies until the end of October. In some industries, however, there were growing signs of a recovery in demand (pharmaceuticals, precision machines, textile machines). Demand for Swiss consumer and investment goods from Germany remained weak. However, an increase in orders was registered from the US, France, Britain, China, and in part also from Italy and Eastern Europe.

7.3 Labour market

The situation on the labour marked deteriorated significantly in the second part of the year. Starting in the machine and metal industries, the construction industry and the electronics industry, jobs were shed in nearly all business segments. Companies in the service sector (financial institutions, retail), too, began to trim their workforce. According to the companies surveyed, this development is likely to continue for several months to come and also have an effect on the current round of pay negotiations.

7.4 Prices and margins

Many industries voiced their discontent with stiffer competition and eroding prices. This applies not only to the construction and export industries. Retailers and the hotel and restaurant business felt considerable pressure on their margins. In order to bring costs down and to improve the earnings situation, many companies initiated restructuring processes.

Development of direct investment in 2001

Overview

This report sets out the results of the 2001 direct investment survey. The first part covers Swiss direct investment abroad, notably capital outflows (investment), capital stock (Swiss interests in companies abroad), investment income and the number of staff employed by subsidiaries abroad. The second part of the report takes a closer look at foreign direct investment in Switzerland. In particular, it focuses on capital inflows (investment in Switzerland), capital stock (foreign interests in companies in Switzerland) and investment income remitted abroad.

1 Swiss direct investment abroad

Capital outflows

Capital outflows for direct investment abroad were down from Sfr 75 billion in 2000 to Sfr 29 billion in 2001. This was the first decline since 1995, mainly brought about by fewer mergers and acquisitions. This development corresponds to the global trend and comes after a phase marked by an extraordinarily strong rise in cross-border mergers and acquisitions, which peaked in 1999 and 2000. Moreover, the losses incurred by banks, insurance companies and holding companies on their interests in the US and Britain led to a sharp decline in retained profits (reinvested earnings), which are also classed as direct investment flows, to Sfr 5 billion in 2001. In 2000, retained profits had still amounted to Sfr 17 billion. Capital outflows in the form of intra-group lending fell Sfr 1 billion short of the previous year's level.

The banks reduced their interests abroad by Sfr 1 billion in 2001; in the year before, they had still exported capital to the amount of Sfr 31 billion. In 2001, majority foreign-controlled finance and holding companies were the largest exporters of capital, exporting Sfr 10 billion, followed by the insurance industry with Sfr 7 billion. Direct investment by the manufacturing sector receded by two-thirds to Sfr 9 billion, with the machinery industry investing Sfr 3 billion and the chemicals and electronics industries Sfr 2 billion each.

The regional breakdown of direct investment shows that capital outflows to the EU declined from Sfr 29 billion in 2000 to Sfr 10 billion in 2001. From Ireland and Belgium, capital flowed back to Switzerland, and direct investment in Britain fell steeply. By contrast, considerably larger amounts were invested in Germany, Luxembourg and Italy in comparison with the previous year. The US attracted a mere Sfr 9 billion in investment, as against Sfr 34 billion a year earlier. A total of Sfr 5 billion was invested in the offshore financial centres of Central and South America, primarily by insurance and holding companies (previous year: Sfr 9 billion).

Capital stock

Switzerland's stock of direct investment abroad expanded by 9% to Sfr 416 billion in 2001. The increase was lower than in recent years, which mainly mirrors the weaker acquisition activity. The manufacturing industry's share of the capital stock shrank further from 33% to 30%. In the electronics industry, losses and accounting changes resulted in a Sfr 5 billion decline in the capital stock to Sfr 11 billion. The service sector companies increased their capital stock abroad by Sfr 35 billion to Sfr 292 billion. Insurance companies as well as finance and holding companies exhibited an especially high rise in capital stock. The transportation and communications industry doubled its capital stock to Sfr 7 billion as a result of acquisitions.

Swiss direct investment abroad in billions of Swiss francs

	2000[r]	2001[p]	Changes against previous year in percent
Capital outflows	75.4	29.2	−61.3
Capital stock	381.9	415.6	8.8
Investment income	44.1	31.7	−28.1

r = revised, p = provisional

Broken down by region, the US share of the capital stock declined by one percentage point to 23%, that of the EU by two percentage points to 47%. Within the EU, capital stock showed varied development. While the stock in Luxembourg and in the Scandinavian countries rose markedly, it receded in the Netherlands, Ireland and France. As in the previous year, Germany accounted for 6% of the capital stock. The offshore financial centres in Central and South America exhibited a remarkable expansion in their share of capital stock from 12% to 14%.

Investment income

Income from direct investment consists of dividends on equity capital, net interest on intra-group lending, and reinvested earnings. In 2001, income from direct investment abroad fell by nearly one-third to Sfr 32 billion. Of this amount, Sfr 27 billion were transferred to Switzerland, and Sfr 5 billion were reinvested abroad. Direct investment income of the chemicals and the insurance industries suffered a particularly steep fall. The banking industry even recorded a loss. Foreign-controlled finance and holding companies, by contrast, saw their income from direct investment go up from Sfr 7 billion to Sfr 11 billion.

Number of staff

The number of staff employed by direct investment enterprises abroad dropped by 3% to 1.72 million in 2001. The decline is due to significant payroll cuts abroad of the majority foreign-controlled finance and holding companies in 2001. Slightly lower staff numbers were reported by the textile and the chemicals industries. The other business segments increased their number of staff abroad.

2 Foreign direct investment in Switzerland

Capital inflows

Capital inflows for direct investment in Switzerland shrank by more than half to Sfr 15 billion in 2001. The main reason for this result was the drop in retained earnings from Sfr 11 billion to Sfr 1 billion. Acquisitions and capital increases, however, diminished only modestly; at Sfr 15 billion, they almost attained the previous year's record high of Sfr 19 billion.

Foreign investors withdrew Sfr 2 billion from the manufacturing sector. In the previous year, an amount of Sfr 16 billion had been channelled into manufacturing due to extraordinarily large acquisitions. At Sfr 17 billion, foreign investment in the service sector slightly topped the previous year's level (Sfr 16 billion). A total of Sfr 6 billion of this amount was invested in transportation and communications, Sfr 5 billion in finance and holding companies.

Broken down by country, the decline in total foreign direct investment can largely be attributed to lower capital inflows from North America, which plummeted by Sfr 16 billion to Sfr 2 billion. Direct investment from the EU remained virtually stable at Sfr 12 billion. Of this amount, Sfr 7 billion came from the Netherlands (previous year: Sfr 1 billion). German companies withdrew Sfr 1 billion. In the previous year, inflows of direct investment from Germany had amounted to Sfr 4 billion.

Foreign direct investment in Switzerland in billions of Swiss francs

	2000[r]	2001[p]	Changes against previous year in percent
Capital inflows	32.5	15.0	−54.0
Capital stock	142.1	149.7	5.4
Investment income	17.8	13.3	−25.3

r = revised, p = provisional

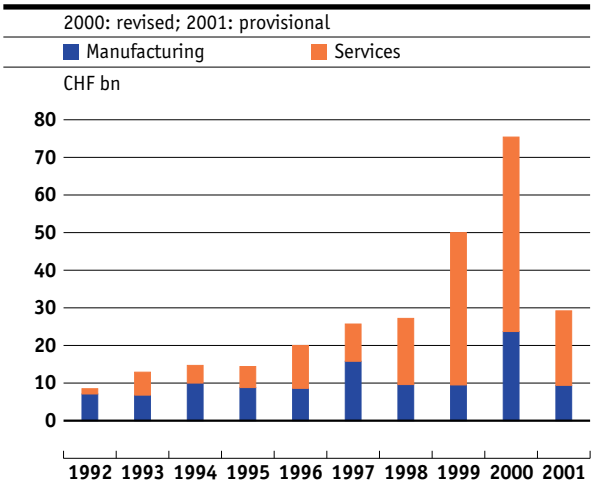
Capital stock

The stock of foreign direct investment in Switzerland grew by 5% to Sfr 150 billion in 2001. The chemicals and banking industries as well as transportation and communications exhibited an increase. The category "Other services" doubled its stock of foreign direct investment as the scope of data collection was expanded. Owing to losses, the capital stock in the electronics industry fell. Broken down by region, 62% of capital stock was accounted for by the EU in 2001 (previous year: 60%). In particular, companies from Denmark, Luxembourg and the Netherlands increased their capital stock in Switzerland. The US proportion of foreign direct investment stock in Switzerland was down by one percentage point to 34%.

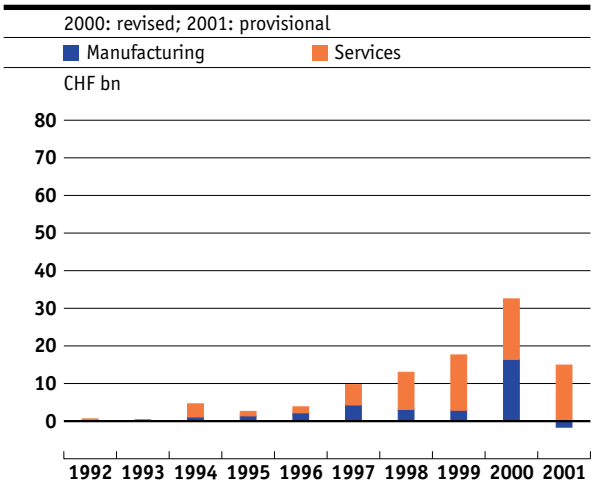
Investment income

Income from foreign direct investment in Switzerland declined by one-quarter to Sfr 13 billion in 2001. A total of Sfr 12 billion of this amount was transferred abroad and Sfr 1 billion was reinvested in Switzerland. In most business segments, investment income was significantly lower than a year earlier. The electronics industry as well as transportation and communications even posted losses. Finance and holding companies, by contrast, saw their investment income rise by Sfr 4 billion to Sfr 11 billion.

Capital outflows — Graph 1



Capital inflows — Graph 2



Notes

Definition

Direct investment serves to acquire a lasting interest in a company abroad, giving the investor an effective voice in the management of a company. As a rule, direct investment is deemed to exist if an investor owns at least 10% of the voting stock of a company abroad or sets up a subsidiary or branch abroad.

Data collection

The Swiss National Bank collects data on international investments, i.e. Swiss direct investment abroad and foreign direct investment in Switzerland, on an annual and quarterly basis. The data are collected at the end of each year or quarter.

Statutory basis

The statutory basis for collecting data on direct investment is provided in Article 2 of the Swiss Federal Statistics Act of 9 October 1992. The Ordinance on the conduct of federal statistical surveys of 30 June 1993 stipulates that the National Bank shall be responsible for data collection. Participation in the survey is mandatory for all companies with direct investment capital of at least Sfr 10 million.

Data coverage

The annual survey covers capital stock (equity capital and intra-group lending), financial movements on equity capital (establishment, acquisition, sale, capital increases, etc.) and on intra-group lending, and reinvested earnings. Reinvested earnings are deemed to be the part of a company's profit that is not distributed. Through reinvested earnings, the direct investment position can be increased without an actual outflow of capital taking place. Furthermore, the companies are queried as to the number of staff employed in Switzerland and in the subsidiaries or branches abroad.

The data on transferred earnings are drawn from the quarterly survey of direct investment and comprise transferred earnings on direct investment capital abroad (dividends) and net interest on intra-group lending. From this, reorganisation contributions paid by the direct investor and non-reclaimable withholding tax are deducted.

Valuation of stock

Book values rather than market values are indicated for stock. Book values are generally lower than market values.

Correlation between changes in capital stock and capital movements

Although capital movements influence the capital stock, a change in the capital stock does not give any direct indication of capital flows, and vice versa. Changes in the capital stock can be due to various factors that do not result in capital movements. For instance, changes in capital stock may also be triggered by exchange rate movements, new valuation principles (e.g. adjustment to international accounting standards), etc. In case of new investments, goodwill (the difference between the purchasing price and the book value of a company) almost always leads to capital movements that may be larger than the actual increase in stock. Conversely, acquisitions that are financed abroad are not accompanied by a corresponding outflow of capital from Switzerland.

Breakdown by country

As regards Swiss direct investment abroad, the country of the ultimate beneficial owner is indicated wherever possible. In practice, however, this principle cannot always be applied. With respect to foreign direct investment in Switzerland, it is always the country of the immediate investor that is stated.

Breakdown by economic activity

Classification by economic activity is determined by the main field of activity of the company in Switzerland.

List of tables

Swiss direct investment abroad

Foreign direct investment in Switzerland

Swiss direct investment abroad Table 1.1

Capital outflows[1] in millions of Swiss francs: **breakdown by country**

	1997	1998	1999	2000[r]	2001[p]
1. Europe and extra-European industrial countries	**21 765**	**16 090**	**38 128**	**63 689**	**22 510**
EU	**12 596**	**10 154**	**21 359**	**28 917**	**10 077**
Belgium	−655	349	1 179	4 429	−563
Denmark	30	−31	280	−167	−30
Germany	4 131	889	5 799	−1 113	5 334
Finland	152	224	126	263	151
France	213	333	827	−1 055	−1 706
Greece	116	205	179	355	164
Ireland	317	−54	5 446	1 303	−4 713
Italy	1 134	−197	192	−222	1 910
Luxembourg	−959	1 651	−47	3 440	7 824
Netherlands	2 752	1 003	1 716	3 227	−630
Austria	343	344	515	100	398
Portugal	311	−69	561	1 594	263
Sweden	632	844	−656	328	−169
Spain	35	377	−545	97	1 380
United Kingdom[2]	4 043	4 287	5 788	16 338	462
EFTA	**181**	**−93**	**362**	**−1 208**	**242**
Central and Eastern Europe, of which	**215**	**1 175**	**1 174**	**1 095**	**1 582**
Croatia	4	70	−44	16	21
Poland	173	208	473	586	201
Russian Federation	46	335	599	−7	696
Czech Republic	−19	356	−64	183	275
Slovakia	13	21	38	13	9
Hungary	−35	−76	100	77	170
Other European countries, of which	**314**	**−449**	**744**	**571**	**171**
Turkey	51	296	−95	−242	−153
North America	**8 058**	**4 458**	**13 640**	**34 232**	**9 963**
Canada	368	1 232	83	553	692
United States	7 690	3 226	13 557	33 678	9 271
Other extra-European industrial countries	**402**	**845**	**850**	**83**	**476**
Australia	153	572	322	−267	−67
Japan	−203	124	628	336	466
New Zealand	298	11	−215	−3	18
South Africa	154	138	116	18	59

	1997	1998	1999	2000[r]	2001[p]
2. Emerging economies	**2 176**	**6 932**	**6 244**	**2 014**	**842**
Asia	**2 383**	**5 689**	**4 949**	**838**	**393**
Hong Kong	236	447	665	−63	277
Korea (South)	−57	283	179	184	86
Malaysia	82	102	227	−25	72
Philippines	50	1 169	57	313	96
Singapore	1 879	3 173	3 811	222	−387
Taiwan	45	121	92	160	34
Thailand	148	395	−82	46	215
Central and South America	**−207**	**1 243**	**1 295**	**1 177**	**449**
Argentina	−10	321	−103	48	471
Brazil	−338	446	844	246	−800
Chile	29	−178	17	−27	−163
Mexico	111	654	537	910	941
3. Developing countries	**1 793**	**4 187**	**5 614**	**9 742**	**5 845**
Asia, of which	**629**	**441**	**−21**	**251**	**634**
China (People's Republic)	255	123	−143	212	207
India	160	29	−59	−43	139
Indonesia	134	90	10	−22	156
Lebanon	2	−2	−13	−143	−12
Pakistan	34	−17	7	59	38
Saudi Arabia	43	−2	60	−83	−1
United Arab Emirates	12	11	19	85	55
Vietnam	21	−2	−18	−33	−19
Central and South America, of which	**935**	**3 645**	**5 343**	**9 233**	**5 194**
Costa Rica	−1	−26	0	−17	13
Ecuador	27	10	20	23	55
Guatemala	60	−4	22	−97	−8
Colombia	34	387	115	−109	−70
Peru	158	−25	47	57	36
Uruguay	217	284	291	299	90
Venezuela	97	61	11	127	176
Offshore financial centres[3]	236	2 991	4 703	8 998	4 788
Africa, of which	**230**	**102**	**293**	**259**	**17**
Egypt	92	57	93	11	41
Ivory Coast	16	51	−26	−47	−20
Morocco	32	−12	2	−30	0
Nigeria	−9	5	−7	4	17
All countries	**25 734**	**27 209**	**49 986**	**75 446**	**29 197**

1 The minus sign (−) indicates a return flow of capital into Switzerland (disinvestment).

2 Incl. Guernsey, Jersey and the Isle of Man.

3 According to geonomenclature Eurostat: Bahamas, Barbados, Bermudas, British Virgin Islands, Jamaica, Cayman Islands, Montserrat, Netherlands Antilles, Panama, St. Kitts-Nevis.

r revised
p provisional

Swiss direct investment abroad Table 1.2

Capital stock in millions of Swiss francs: **breakdown by country**

	1997	1998	1999	2000[r]	2001[p]	Share in percent
1. Europe and extra-European industrial countries	**189 877**	**197 861**	**241 873**	**304 148**	**321 885**	**77.4**
EU	**113 781**	**119 025**	**149 983**	**186 345**	**196 041**	**47.2**
Belgium	3 136	3 396	4 924	11 364	10 630	2.6
Denmark	693	632	1 187	990	1 217	0.3
Germany	18 311	18 901	26 784	22 854	26 126	6.3
Finland	1 373	1 387	1 794	1 885	2 195	0.5
France	13 923	13 640	16 594	18 308	16 915	4.1
Greece	573	398	2 317	1 882	1 878	0.5
Ireland	6 494	5 478	10 282	12 329	10 255	2.5
Italy	7 754	7 607	9 766	7 911	8 387	2.0
Luxembourg	4 383	6 005	7 849	16 646	24 447	5.9
Netherlands	16 407	16 826	18 869	20 165	17 580	4.2
Austria	2 886	3 123	4 434	4 669	4 720	1.1
Portugal	961	995	1 747	1 930	1 818	0.4
Sweden	3 304	3 420	2 005	1 835	5 078	1.2
Spain	4 344	4 651	5 574	4 818	5 811	1.4
United Kingdom[1]	29 239	32 567	35 858	58 759	58 986	14.2
EFTA	**1 366**	**1 485**	**3 129**	**3 274**	**3 668**	**0.9**
Central and Eastern Europe, of which	**2 880**	**4 462**	**6 156**	**6 549**	**8 196**	**2.0**
Croatia	145	117	159	217	241	0.1
Poland	670	1 062	1 667	2 167	2 332	0.6
Russian Federation	410	748	1 197	733	1 597	0.4
Czech Republic	1 144	1 648	1 625	1 779	1 937	0.5
Slovakia	158	103	157	147	166	0.0
Hungary	285	328	868	999	1 216	0.3
Other European countries, of which	**962**	**1 082**	**2 727**	**2 737**	**3 309**	**0.8**
Turkey	392	725	1 019	1 050	1 069	0.3
North America	**62 761**	**63 934**	**68 986**	**95 975**	**101 467**	**24.4**
Canada	5 471	6 276	3 511	5 284	4 269	1.0
United States	57 290	57 658	65 475	90 691	97 197	23.4
Other extra-European industrial countries	**8 127**	**7 874**	**10 892**	**9 268**	**9 204**	**2.2**
Australia	2 619	3 147	3 923	3 154	3 465	0.8
Japan	3 975	3 730	5 187	4 702	4 598	1.1
New Zealand	452	125	451	93	134	0.0
South Africa	1 081	872	1 331	1 318	1 007	0.2

	1997	1998	1999	2000[r]	2001[p]	Share in percent
2. Emerging economies	**21 822**	**25 711**	**31 929**	**33 480**	**35 473**	**8.5**
Asia	**12 929**	**16 804**	**20 805**	**20 825**	**22 377**	**5.4**
Hong Kong	2 162	2 064	2 316	2 683	2 989	0.7
Korea (South)	342	692	997	1 050	831	0.2
Malaysia	1 192	901	937	1 432	1 402	0.3
Philippines	324	1 281	1 433	1 677	1 996	0.5
Singapore	8 044	10 755	13 779	12 298	12 941	3.1
Taiwan	355	480	631	852	901	0.2
Thailand	509	631	712	832	1 318	0.3
Central and South America	**8 894**	**8 908**	**11 124**	**12 655**	**13 096**	**3.2**
Argentina	722	1 085	1 317	1 782	1 670	0.4
Brazil	4 387	4 375	5 072	5 707	5 668	1.4
Chile	1 442	686	828	790	831	0.2
Mexico	2 343	2 762	3 907	4 377	4 928	1.2
3. Developing countries	**28 956**	**30 024**	**37 457**	**44 282**	**58 288**	**14.0**
Asia, of which	**3 684**	**3 441**	**4 116**	**4 808**	**5 653**	**1.4**
China (People's Republic)	1 322	1 362	1 403	1 583	2 084	0.5
India	746	448	529	408	560	0.1
Indonesia	302	297	391	511	627	0.2
Lebanon	130	120	120	104	105	0.0
Pakistan	134	118	192	211	231	0.1
Saudi Arabia	230	253	323	326	305	0.1
United Arab Emirates	92	114	143	213	327	0.1
Vietnam	154	128	128	112	159	0.0
Central and South America, of which	**23 665**	**24 964**	**30 721**	**36 222**	**49 507**	**11.9**
Costa Rica	188	138	180	130	158	0.0
Ecuador	327	299	376	441	443	0.1
Guatemala	133	118	145	88	80	0.0
Colombia	684	974	1 166	1 092	1 151	0.3
Peru	251	192	261	310	296	0.1
Uruguay	254	307	447	421	414	0.1
Venezuela	732	621	696	1 116	1 163	0.3
Offshore financial centres[2]	20 779	22 098	26 993	31 549	43 703	10.5
Africa, of which	**1 607**	**1 619**	**2 621**	**3 253**	**3 128**	**0.8**
Egypt	326	354	472	605	587	0.1
Ivory Coast	121	101	114	113	117	0.0
Morocco	321	330	318	294	256	0.1
Nigeria	44	26	35	15	31	0.0
All countries	**240 655**	**253 596**	**311 258**	**381 910**	**415 646**	**100.0**

1 Incl. Guernsey, Jersey and the Isle of Man.
2 According to geonomenclature Eurostat: Bahamas, Barbados, Bermudas, British Virgin Islands, Jamaica, Cayman Islands, Montserrat, Netherlands Antilles, Panama, St. Kitts-Nevis.

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Swiss direct investment abroad Table 1.3
Number of staff abroad (at year-end)**: breakdown by country**

	1997	1998	1999	2000[r]	2001[p]	Share in percent
1. Europe and extra-European industrial countries	**1 184 754**	**1 219 740**	**1 241 472**	**1 339 468**	**1 287 642**	**74.9**
EU	**748 247**	**778 499**	**780 845**	**811 030**	**761 913**	**44.3**
Belgium	25 248	25 125	25 899	30 431	22 798	1.3
Denmark	12 245	11 356	11 223	10 439	14 746	0.9
Germany	231 652	268 107	249 165	254 010	212 905	12.4
Finland	13 632	13 793	13 607	14 844	15 670	0.9
France	131 335	121 377	132 421	133 144	135 494	7.9
Greece	5 953	8 397	8 392	9 108	8 671	0.5
Ireland	4 024	4 347	5 332	4 807	6 075	0.4
Italy	63 372	56 795	58 581	62 650	63 707	3.7
Luxembourg	1 685	1 852	2 487	2 529	2 379	0.1
Netherlands	30 415	32 380	31 441	30 594	27 855	1.6
Austria	40 140	27 775	33 001	35 668	34 929	2.0
Portugal	10 435	9 291	10 172	9 959	10 235	0.6
Sweden	37 968	37 057	32 572	29 596	28 298	1.6
Spain	46 061	45 568	44 383	56 676	58 710	3.4
United Kingdom[1]	94 082	115 281	122 172	126 577	119 443	6.9
EFTA	**13 910**	**12 631**	**12 621**	**12 526**	**13 238**	**0.8**
Central and Eastern Europe, of which	**71 467**	**77 213**	**73 059**	**84 648**	**87 243**	**5.1**
Croatia	2 735	2 540	2 170	2 870	3 237	0.2
Poland	20 301	23 193	19 893	22 875	19 908	1.2
Russian Federation	6 409	8 836	9 692	10 889	12 062	0.7
Czech Republic	19 712	18 768	15 982	18 023	18 899	1.1
Slovakia	3 994	3 185	3 905	3 653	3 393	0.2
Hungary	10 764	9 692	9 581	11 483	11 737	0.7
Other European countries, of which	**8 926**	**9 750**	**10 858**	**11 501**	**10 837**	**0.6**
Turkey	8 451	9 129	10 228	9 824	9 658	0.6
North America	**256 366**	**268 176**	**291 243**	**341 894**	**334 808**	**19.5**
Canada	27 404	26 744	28 011	34 823	30 104	1.8
United States	228 962	241 432	263 232	307 071	304 704	17.7
Other extra-European industrial countries	**85 837**	**73 471**	**72 847**	**77 871**	**79 603**	**4.6**
Australia	22 846	27 338	24 651	26 709	24 986	1.5
Japan	23 444	21 749	24 060	28 112	29 314	1.7
New Zealand	8 340	4 006	3 223	3 355	4 285	0.2
South Africa	31 207	20 378	20 913	19 695	21 019	1.2

	1997	1998	1999	2000[r]	2001[p]	Share in percent
2. Emerging economies	**219 899**	**223 014**	**224 915**	**240 231**	**240 776**	**14.0**
Asia	**108 683**	**107 689**	**102 073**	**116 809**	**118 822**	**6.9**
Hong Kong	14 880	14 319	14 016	15 276	15 236	0.9
Korea (South)	4 058	4 007	4 716	5 394	5 327	0.3
Malaysia	18 320	15 982	13 035	18 974	18 648	1.1
Philippines	13 582	13 293	13 050	12 579	12 955	0.8
Singapore	19 749	18 945	19 137	20 348	19 263	1.1
Taiwan	7 239	10 424	9 887	9 968	10 520	0.6
Thailand	30 855	30 720	28 232	34 270	36 873	2.1
Central and South America	**111 217**	**115 325**	**122 842**	**123 422**	**121 954**	**7.1**
Argentina	10 853	11 961	12 995	13 358	12 372	0.7
Brazil	63 943	67 552	72 322	72 939	73 874	4.3
Chile	13 164	10 622	9 819	9 588	9 366	0.5
Mexico	23 257	25 190	27 706	27 538	26 342	1.5
3. Developing countries	**164 326**	**169 191**	**174 569**	**183 323**	**190 263**	**11.1**
Asia, of which	**93 327**	**89 994**	**94 790**	**100 797**	**103 769**	**6.0**
China (People's Republic)	29 282	32 795	37 457	40 291	40 424	2.4
India	24 531	21 604	19 443	20 146	20 164	1.2
Indonesia	13 146	10 031	10 021	11 375	10 834	0.6
Lebanon	1 368	872	909	716	649	0.0
Pakistan	4 122	3 521	4 298	4 853	5 222	0.3
Saudi Arabia	2 485	3 255	2 866	2 658	3 865	0.2
United Arab Emirates	1 213	1 427	1 190	1 123	1 301	0.1
Vietnam	4 511	4 567	5 086	5 189	5 678	0.3
Central and South America, of which	**38 867**	**36 376**	**41 346**	**38 781**	**43 544**	**2.5**
Costa Rica	3 292	3 032	2 856	2 313	2 361	0.1
Ecuador	4 521	2 911	3 418	3 316	3 842	0.2
Guatemala	1 456	1 481	1 539	1 627	1 438	0.1
Colombia	9 952	7 292	8 479	8 440	9 129	0.5
Peru	4 322	3 736	3 895	3 676	4 118	0.2
Uruguay	430	869	858	934	924	0.1
Venezuela	7 360	8 092	8 493	7 782	8 869	0.5
Offshore financial centres[2]	4 544	5 743	6 122	5 507	7 307	0.4
Africa, of which	**32 132**	**42 821**	**38 433**	**43 745**	**42 950**	**2.5**
Egypt	8 213	9 793	8 428	8 450	8 242	0.5
Ivory Coast	2 077	2 517	2 217	2 906	2 424	0.1
Morocco	4 148	3 652	3 489	3 467	3 636	0.2
Nigeria	7 767	6 047	5 505	6 763	4 135	0.2
All countries	**1 568 979**	**1 611 945**	**1 640 957**	**1 763 022**	**1 718 681**	**100.0**

1 Incl. Guernsey, Jersey and the Isle of Man.
2 According to geonomenclature Eurostat: Bahamas, Barbados, Bermudas, British Virgin Islands, Jamaica, Cayman Islands, Montserrat, Netherlands Antilles, Panama, St. Kitts-Nevis.

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Swiss direct investment abroad Table 1.4
Capital outflows[1] in millions of Swiss francs: **breakdown by economic activity**

	1997	1998	1999	2000[r]	2001[p]
Manufacturing	**15 804**	**9 640**	**9 477**	**23 726**	**9 373**
Textiles and clothing	118	623	395	–90	–279
Chemicals and plastics	8 373	5 156	6 430	17 695	2 283
Metals and machinery	2 593	1 421	659	173	3 107
Electronics, energy, optical and watchmaking industries	3 477	–890	1 007	2 395	2 319
Other manufacturing and construction	1 243	3 329	986	3 555	1 942
Services	**9 930**	**17 569**	**40 509**	**51 720**	**19 824**
Trade	517	2 376	2 805	–656	760
Finance and holding companies	5 195	6 559	14 067	4 813	9 637
of which foreign-controlled[2]	4 172	3 870	11 480	2 519	7 038
Banks	1 796	–321	6 082	31 059	–926
Insurance	1 334	8 034	9 910	14 042	7 493
Transportation and communications	214	859	3 524	196	1 521
Other services	874	62	4 121	2 266	1 339
Total	**25 734**	**27 209**	**49 986**	**75 446**	**29 197**

Swiss direct investment abroad Table 1.5
Capital stock[1] in millions of Swiss francs: **breakdown by economic activity**

	1997	1998	1999	2000[r]	2001[p]	Share in percent
Manufacturing	**99 617**	**106 858**	**106 978**	**125 393**	**123 314**	**29.7**
Textiles and clothing	724	1 771	2 164	2 093	1 451	0.3
Chemicals and plastics	34 551	44 712	42 358	56 178	56 057	13.5
Metals and machinery	14 779	17 071	17 423	17 894	18 625	4.5
Electronics, energy, optical and watchmaking industries	19 852	19 131	16 015	15 942	11 228	2.7
Other manufacturing and construction	29 711	24 174	29 019	33 286	35 953	8.6
Services	**141 038**	**146 738**	**204 280**	**256 518**	**292 333**	**70.3**
Trade	7 031	8 846	12 750	11 790	12 245	2.9
Finance and holding companies	46 908	55 426	80 924	90 432	100 465	24.2
of which foreign-controlled[2]	42 637	47 336	64 528	69 898	81 672	19.6
Banks	23 733	18 651	25 198	54 231	55 657	13.4
Insurance	54 200	55 667	67 252	85 914	104 463	25.1
Transportation and communications	3 000	3 253	7 009	3 571	7 192	1.7
Other services	6 167	4 895	11 148	10 580	12 310	3.0
Total	**240 655**	**253 596**	**311 258**	**381 910**	**415 646**	**100.0**

1 The minus sign (–) indicates a return flow of capital into Switzerland (disinvestment).

2 An enterprise is considered to be a foreign-controlled enterprise if a majority share of its capital is in foreign hands.

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Swiss direct investment abroad Table 1.6
Number of staff abroad (at year-end)**: breakdown by economic activity**

	1997	1998	1999	2000[r]	2001[p]	Share in percent
Manufacturing	**949 336**	**954 353**	**942 126**	**993 244**	**992 243**	**57.7**
Textiles and clothing	43 312	55 379	53 397	53 592	49 033	2.9
Chemicals and plastics	190 769	204 570	205 947	236 454	217 904	12.7
Metals and machinery	159 249	166 505	165 450	178 548	185 365	10.8
Electronics, energy, optical and watchmaking industries	259 547	241 700	230 439	238 455	239 943	14.0
Other manufacturing and construction	296 459	286 199	286 893	286 196	299 998	17.5
Services	**619 643**	**657 591**	**698 831**	**769 778**	**726 439**	**42.3**
Trade	65 373	64 534	70 238	66 415	81 151	4.7
Finance and holding companies	323 474	330 122	335 783	366 942	293 863	17.1
of which foreign-controlled[1]	308 889	308 104	297 765	314 159	252 605	14.7
Banks	33 482	33 784	35 127	75 583	77 227	4.5
Insurance	71 902	95 853	105 445	109 158	114 233	6.6
Transportation and communications	43 188	43 761	45 191	40 894	45 918	2.7
Other services	82 224	89 539	107 047	110 786	114 047	6.6
Total	**1 568 979**	**1 611 945**	**1 640 957**	**1 763 022**	**1 718 681**	**100.0**

1 An enterprise is considered to be a foreign-controlled enterprise if a majority share of its capital is in foreign hands.

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Swiss direct investment abroad – Capital outflows[1] in millions of Swiss francs: **breakdown by type of capital and geographical/economic zone** Table 1.7

	1997	1998	1999	2000[r]	2001[p]
Equity capital					
Europe and extra-European industrial countries	**10 633**	**6 988**	**20 118**	**48 834**	**16 247**
EU	7 635	4 454	13 657	23 440	4 559
EFTA	53	–123	104	–1 186	81
Central and Eastern Europe	226	766	570	547	593
Other European countries	193	385	298	120	25
North America	2 514	1 188	4 812	25 383	11 017
Other extra-European industrial countries[2]	13	317	676	530	–27
Emerging economies	**565**	**5 327**	**2 400**	**933**	**–605**
Asia[3]	796	3 861	1 619	458	–326
Central and South America[4]	–232	1 465	781	475	–279
Developing countries	**2 317**	**4 634**	**1 317**	**6 245**	**7 030**
Asia	634	465	288	377	410
Central and South America	1 606	4 146	999	5 851	6 564
Africa	78	24	30	17	57
All countries	**13 515**	**16 949**	**23 835**	**56 012**	**22 671**

	1997	1998	1999	2000[r]	2001[p]
Reinvested earnings					
Europe and extra-European industrial countries	**7 004**	**6 145**	**11 318**	**11 468**	**2 384**
EU	5 053	4 182	4 850	6 525	4 763
EFTA	124	19	250	–20	2
Central and Eastern Europe	–32	–244	361	348	860
Other European countries	108	–956	374	489	128
North America	1 518	2 833	5 380	4 448	–3 601
Other extra-European industrial countries[2]	233	311	101	–322	233
Emerging economies	**1 343**	**1 357**	**4 256**	**1 728**	**975**
Asia[3]	1 355	1 794	3 940	1 084	511
Central and South America[4]	–12	–437	316	643	463
Developing countries	**1 542**	**–300**	**2 706**	**3 642**	**1 219**
Asia	–93	–202	–350	–118	184
Central and South America	1 550	–146	2 760	3 515	1 065
Africa	84	49	296	245	–30
All countries	**9 889**	**7 203**	**18 280**	**16 837**	**4 578**

Other capital	1997	1998	1999	2000[r]	2001[p]
Europe and extra-European industrial countries	**4 127**	**2 957**	**6 693**	**3 387**	**3 879**
EU	−92	1 518	2 851	−1 049	755
EFTA	3	11	7	−2	160
Central and Eastern Europe	21	653	242	200	130
Other European countries	13	122	71	−37	18
North America	4 027	437	3 448	4 401	2 547
Other extra-European industrial countries[2]	156	217	73	−125	270
Emerging economies	**269**	**248**	**−412**	**−647**	**473**
Asia[3]	232	33	−610	−705	208
Central and South America[4]	37	215	198	59	265
Developing countries	**−2 066**	**−147**	**1 591**	**−145**	**−2 405**
Asia	88	178	41	−9	40
Central and South America	−2 222	−355	1 583	−133	−2 435
Africa	68	30	−33	−3	−10
All countries	**2 331**	**3 058**	**7 872**	**2 596**	**1 947**

Total	1997	1998	1999	2000[r]	2001[p]
Europe and extra-European industrial countries	**21 765**	**16 090**	**38 128**	**63 689**	**22 510**
EU	12 596	10 154	21 359	28 917	10 077
EFTA	181	−93	362	−1 208	242
Central and Eastern Europe	215	1 175	1 174	1 095	1 582
Other European countries	314	−449	744	571	171
North America	8 058	4 458	13 640	34 232	9 963
Other extra-European industrial countries[2]	402	845	850	83	476
Emerging economies	**2 176**	**6 932**	**6 244**	**2 014**	**842**
Asia[3]	2 383	5 689	4 949	838	393
Central and South America[4]	−207	1 243	1 295	1 177	449
Developing countries	**1 793**	**4 187**	**5 614**	**9 742**	**5 845**
Asia	629	441	−21	251	634
Central and South America	935	3 645	5 343	9 233	5 194
Africa	230	102	293	259	17
All countries	**25 734**	**27 209**	**49 986**	**75 446**	**29 197**

1 The minus sign (−) indicates a return flow of capital into Switzerland (disinvestment).

2 Australia, Japan, New Zealand, South Africa.

3 Hong Kong, Korea (South), Malaysia, Philippines, Singapore, Taiwan, Thailand.

4 Argentina, Brazil, Chile, Mexico.

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Swiss direct investment abroad Table 1.8

Investment income[1, 2] in millions of Swiss francs: **breakdown by economic activity**

	1998	1999	2000[r]	2001[p]
Manufacturing	**13 006**	**14 926**	**21 511**	**16 750**
Textiles and clothing	88	4	−77	−15
Chemicals and plastics	6 462	7 308	12 298	5 423
Metals and machinery	1 758	877	1 305	1 426
Electronics, energy, optical and watchmaking industries	990	1 943	2 475	3 593
Other manufacturing and construction	3 708	4 795	5 510	6 324
Services	**13 128**	**20 005**	**22 592**	**14 976**
Trade	875	1 150	484	1 237
Finance and holding companies	11 056	11 043	7 022	10 717
of which foreign-controlled[3]	8 846	8 532	6 774	10 946
Banks	−2 325	−1 328	5 593	−379
Insurance	2 585	7 001	9 129	3 722
Transportation and communications	39	277	−711	153
Other services	400	256	1 076	−474
Total	**26 134**	**34 931**	**44 103**	**31 725**

1 The income on direct investment consists of dividends (less reorganisation contributions and non-reclaimable withholding tax), net interest income from intra-group lending, and reinvested earnings.

2 The minus sign (−) indicates a loss.

3 An enterprise is considered to be a foreign-controlled enterprise if a majority share of its capital is in foreign hands.

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Foreign direct investment in Switzerland Table 2.1

Capital inflows[1] in millions of Swiss francs: **breakdown by investing country**

	1997	1998	1999	2000[r]	2001[p]
1. Europe and extra-European industrial countries	**9 629**	**11 763**	**17 459**	**31 355**	**14 613**
EU, of which	**5 927**	**5 625**	**9 224**	**12 964**	**11 845**
Belgium	−4	−50	177	226	424
Denmark	21	27	−52	873	1 854
Germany	2 871	2 715	2 907	4 022	−1 242
France	517	−393	615	587	945
Italy	111	1 584	476	1 954	296
Luxembourg	1 682	505	431	2 852	913
Netherlands	498	1 612	−1 183	538	7 280
Austria	68	38	114	266	23
Sweden	165	75	−1	62	−17
Spain	18	−113	475	102	50
United Kingdom[2]	−161	−378	5 238	1 356	1 291
EFTA	**2**	**0**	**3**	**30**	**−26**
Other European countries, of which	**24**	**12**	**27**	**−2**	**8**
Turkey	2	22	23	26	1
North America	**3 778**	**6 509**	**9 669**	**18 443**	**2 475**
Canada	−46	−55	−189	7 832	−455
United States	3 824	6 564	9 858	10 611	2 929
Other extra-European industrial countries, of which	**−101**	**−383**	**−1 464**	**−80**	**312**
Japan	−326	−457	−1 509	−37	315
2. Emerging economies	**−65**	**−10**	**−11**	**814**	**181**
3. Developing countries	**67**	**1 211**	**155**	**351**	**165**
Asia, of which	**32**	**−47**	**44**	**20**	**22**
Israel	18	36	36	−8	14
Central and South America	**33**	**1 255**	**109**	**322**	**138**
Africa	**2**	**3**	**3**	**9**	**5**
All countries	**9 631**	**12 963**	**17 603**	**32 519**	**14 959**

1 The minus sign (−) indicates an outflow of capital from Switzerland (disinvestment).

2 Incl. Guernsey, Jersey and the Isle of Man.

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Foreign direct investment in Switzerland Table 2.2
Capital stock in millions of Swiss francs: **breakdown by investing country**

	1997	1998	1999	2000[r]	2001[p]	Share in percent
1. Europe and extra-European industrial countries	**85 229**	**97 028**	**119 674**	**139 338**	**146 590**	**97.9**
EU, of which	**60 706**	**65 650**	**75 294**	**84 517**	**92 121**	**61.5**
Belgium	604	569	778	1 469	1 405	0.9
Denmark	207	329	825	1 941	5 823	3.9
Germany	14 497	15 944	17 461	20 212	16 381	10.9
France	10 306	11 891	15 362	13 523	11 355	7.6
Italy	4 564	5 762	5 530	7 014	5 916	4.0
Luxembourg	3 514	4 906	4 857	4 914	7 068	4.7
Netherlands	19 852	19 696	21 061	28 445	35 896	24.0
Austria	370	345	550	682	720	0.5
Sweden	4 010	4 089	426	531	470	0.3
Spain	254	162	491	257	524	0.4
United Kingdom[1]	2 092	1 751	7 596	5 069	6 176	4.1
EFTA	**16**	**17**	**16**	**53**	**40**	**0.0**
Other European countries, of which	**266**	**333**	**298**	**139**	**158**	**0.1**
Turkey	112	128	155	19	22	0.0
North America	**20 477**	**28 031**	**41 213**	**52 171**	**52 602**	**35.1**
Canada	252	197	250	2 265	1 776	1.2
United States	20 225	27 834	40 963	49 906	50 826	33.9
Other extra-European industrial countries, of which	**3 763**	**2 997**	**2 853**	**2 457**	**1 670**	**1.1**
Japan	2 754	1 973	1 455	1 424	1 674	1.1
2. Emerging economies	**56**	**53**	**46**	**533**	**715**	**0.5**
3. Developing countries	**1 334**	**2 020**	**1 842**	**2 184**	**2 426**	**1.6**
Asia, of which	**630**	**574**	**996**	**984**	**1 058**	**0.7**
Israel	332	354	741	711	764	0.5
Central and South America	**637**	**1 376**	**776**	**1 126**	**1 287**	**0.9**
Africa	**67**	**70**	**70**	**75**	**82**	**0.1**
All countries	**86 618**	**99 101**	**121 561**	**142 055**	**149 731**	**100.0**

1 Incl. Guernsey, Jersey and the Isle of Man.

r revised
p provisional

Foreign direct investment in Switzerland Table 2.3
Capital inflows[1] in millions of Swiss francs: **breakdown by economic activity**

	1997	1998	1999	2000[r]	2001[p]
Manufacturing	**4 264**	**3 069**	**2 944**	**16 380**	**–1 581**
Chemicals and plastics	2 362	3 029	361	3 119	243
Metals and machinery	1 691	28	–710	7 992	–43
Electronics, energy, optical and watchmaking industries	204	–55	2 312	3 239	–2 261
Other manufacturing and construction	6	69	983	2 030	481
Services	**5 367**	**9 894**	**14 659**	**16 139**	**16 540**
Trade	362	971	1 750	2 231	175
Finance and holding companies	4 038	5 165	5 520	5 156	5 583
Banks	558	2 253	65	2 626	2 579
Insurance	[2]	1 220	4 707	1 917	1 794
Transportation and communications	[2]	66	1 853	3 552	6 420
Other services	409	218	764	656	–11
Total	**9 631**	**12 963**	**17 603**	**32 519**	**14 959**

Foreign direct investment in Switzerland Table 2.4
Capital stock in millions of Swiss francs: **breakdown by economic activity**

	1997	1998	1999	2000[r]	2001[p]	Share in percent
Manufacturing	**15 389**	**18 906**	**17 613**	**25 117**	**25 134**	**16.8**
Chemicals and plastics	5 108	7 816	7 389	7 447	9 920	6.6
Metals and machinery	2 173	2 524	851	3 446	3 400	2.3
Electronics, energy, optical and watchmaking industries	6 452	6 583	5 528	9 301	7 222	4.8
Other manufacturing and construction	1 656	1 982	3 845	4 923	4 590	3.1
Services	**71 229**	**80 196**	**103 948**	**116 938**	**124 598**	**83.2**
Trade	12 120	12 612	15 060	19 939	19 362	12.9
Finance and holding companies	39 675	43 674	56 153	63 536	63 228	42.2
Banks	15 276	16 922	17 798	21 337	23 069	15.4
Insurance	[2]	4 139	8 947	5 528	4 922	3.3
Transportation and communications	[2]	545	2 664	3 732	6 198	4.1
Other services	4 159	2 303	3 327	2 866	7 820	5.2
Total	**86 618**	**99 101**	**121 561**	**142 055**	**149 731**	**100.0**

1 The minus sign (–) indicates an outflow of capital from Switzerland (disinvestment).

2 Until 1997 included in "Other services".

r revised
p provisional

Foreign direct investment in Switzerland – Capital inflows[1] in millions of Swiss francs: breakdown by type of capital and geographical/economic zone

Table 2.5

	1997	1998	1999	2000[r]	2001[p]
Equity capital					
Europe and extra-European industrial countries	**6 017**	**4 026**	**7 529**	**18 834**	**15 082**
EU and EFTA	3 790	1 172	5 716	7 472	11 951
Other European countries	15	11	13	–30	2
North America	2 487	3 296	3 407	11 544	3 178
Other extra-European industrial countries[2]	–275	–454	–1 608	–152	–50
Emerging economies	**–61**	**–4**	**0**	**806**	**71**
Developing countries	**10**	**1 071**	**48**	**243**	**120**
All countries	**5 966**	**5 093**	**7 577**	**19 883**	**15 272**

	1997	1998	1999	2000[r]	2001[p]
Reinvested earnings					
Europe and extra-European industrial countries	**1 171**	**6 358**	**9 611**	**10 831**	**1 363**
EU and EFTA	2 178	2 997	3 324	4 999	–361
Other European countries	8	1	14	28	6
North America	–1 204	3 289	6 222	5 843	1 745
Other extra-European industrial countries[2]	189	71	51	–39	–27
Emerging economies	**3**	**2**	**0**	**8**	**–14**
Developing countries	**71**	**142**	**97**	**145**	**50**
All countries	**1 245**	**6 502**	**9 708**	**10 985**	**1 398**

Other capital	1997	1998	1999	2000[r]	2001[p]
Europe and extra-European industrial countries	**2 440**	**1 379**	**319**	**1 689**	**−1 831**
EU and EFTA	−40	1 456	186	523	228
Other European countries	0	0	1	0	0
North America	2 494	−76	40	1 056	−2 448
Other extra-European industrial countries[2]	−15	0	93	110	388
Emerging economies	**−7**	**−8**	**−11**	**0**	**125**
Developing countries	**−14**	**−3**	**11**	**−37**	**−4**
All countries	**2 420**	**1 368**	**319**	**1 651**	**−1 711**

Total	1997	1998	1999	2000[r]	2001[p]
Europe and extra-European industrial countries	**9 629**	**11 763**	**17 459**	**31 355**	**14 613**
EU and EFTA	5 927	5 625	9 224	12 964	11 845
Other European countries	23	−10	7	1	−19
North America	3 780	6 531	9 692	18 469	2 475
Other extra-European industrial countries[2]	−101	−383	−1 464	−80	312
Emerging economies	**−65**	**−10**	**−11**	**814**	**181**
Developing countries	**67**	**1 211**	**155**	**351**	**165**
All countries	**9 631**	**12 963**	**17 603**	**32 519**	**14 959**

1 The minus sign (−) indicates an outflow of capital from Switzerland (disinvestment).

2 Australia, Japan, New Zealand, South Africa.

r revised
p provisional

Foreign direct investment in Switzerland Table 2.6

Investment income[1, 2] in millions of Swiss francs: **breakdown by economic activity**

	1998	1999	2000[r]	2001[p]
Manufacturing	**1 618**	**2 037**	**4 821**	**–772**
Chemicals and plastics	583	980	1 103	765
Metals and machinery	81	–166	300	352
Electronics, energy, optical and watchmaking industries	740	537	2 784	–2 121
Other manufacturing and construction	215	687	633	233
Services	**10 056**	**13 636**	**12 940**	**14 036**
Trade	2 362	2 618	–1 423	993
Finance and holding companies	6 111	8 640	7 212	11 270
Banks	1 598	1 949	2 592	1 611
Insurance	128	247	181	233
Transportation and communications	–207	–79	–1 164	–263
Other services	27	260	1 026	32
Total	**11 674**	**15 674**	**17 761**	**13 264**

1 The income on direct investment consists of dividends (less reorganisation contributions and non-reclaimable withholding tax), net interest income from intra-group lending, and reinvested earnings.

2 The minus sign (–) indicates a loss.

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Switzerland's international investment position in 2001

Switzerland's international investment position at the end of 2001 amounted to Sfr 602 billion net, thus exceeding the previous year's level by Sfr 80 billion. In 2000, the net investment position had declined by approximately Sfr 50 billion. The rise in the net investment position in 2001 was due to a sharp drop in liabilities abroad. This marked decline was the result of the heavy price losses on Swiss stocks. In relation to gross domestic product, the net investment position in 2001 was 145% compared with 129% in the previous year.

Switzerland's international investment position Table 1

Positions at year-end	1985	1990	1995	1999[r]	2000[r]	2001[p]	Changes against previous year in percent
Assets in billions of Sfr	527.8	733.0	989.8	1982.6	2231.9	2220.0	−0.5
Liabilities in billions of Sfr	298.1	450.7	640.2	1412.5	1710.4	1618.3	−5.4
Net in billions of Sfr	229.7	282.3	349.5	570.1	521.5	601.7	15.5
Assets in % of GDP	222.5	231.0	272.4	510.3	550.4	535.1	−2.8
Liabilities in % of GDP	125.7	142.0	176.2	363.6	421.8	390.1	−7.5
Net in % of GDP	96.8	89.0	96.2	146.7	128.6	145.0	12.8

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p provisional

Composition and valuation of international investment position

The international investment position is the balance sheet of the stock of Switzerland's external financial assets and liabilities. The balance from assets and liabilities is the net international investment position. The international investment position is comprised of direct investment, portfolio investment, the Swiss National Bank's international reserves as well as other financial assets and liabilities. Direct investment includes equity capital and credits to subsidiaries. Portfolio investment includes shares, investment fund certificates, bonds and money market paper. Lending by banks makes up the bulk of the other financial assets and liabilities by residents abroad. The positions at the end of the year are generally valued at market prices. Direct investment positions are an exception. They are shown at book value. Since 2000, the National Bank's gold holdings have also been valued at market value. Prior to that, the official parity value of Sfr 4,596 per kilogram of gold was applied. Switzerland's international investment position is compiled in accordance with IMF guidelines.

International investment position and balance of payments

The international investment position is closely interrelated with the balance of payments. The international investment position reflects the level of cumulated investments at a given point in time. In the balance of payments, capital flows (investment) are shown during a specified period of time. Capital exports (Swiss investment abroad) lead to an increase in foreign assets and, conversely, capital imports (foreign investment in Switzerland) to an increase in foreign liabilities. If Switzerland makes more investments abroad than the other way around, i.e. if its transactions result in a net capital export, the net international investment position increases. In this case, the corresponding balance in the current account shows a surplus. However, the development of the international investment position is not only determined by investment but by other factors as well. In particular, the positions reflect fluctuations in exchange rates and precious metal prices, changes in the interest rate and in stock prices. Direct investment positions are valued at book value, while the corresponding capital flows are shown at market value. For this reason, changes in the international investment positions usually do not correspond to the capital flows recorded in the balance of payments.

1 The effects of the financial account and valuation changes on the net international investment position

Capital exports and capital imports as well as changes in the valuation of stocks determine the size of the international investment position (cf. definitions of international investment position and balance of payments.) In 2001, Swiss capital exports led to a rise in foreign assets of Sfr 64 billion. Valuation losses, however, resulted in a decline of Sfr 76 billion, so that foreign assets actually dropped by Sfr 12 billion. The losses were mostly attributable to price losses on foreign securities.

As a result of capital imports, the level of foreign liabilities increased by Sfr 2 billion in 2001. Lower valuation of liabilities led to a loss of Sfr 94 billion. Foreign liabilities, therefore, contracted by Sfr 92 billion. This was due to the sharp drop in stock prices.

The net investment position grew by Sfr 80 billion. Net capital exports accounted for Sfr 62 billion of this rise and Sfr 18 billion stemmed from net valuation changes.

Changes in the international investment position in 2001 in billions of Swiss francs Table 2

	Total in 2000[r]	Investment[1] in 2001[p] Increase: +	Valuation changes[2] 2001[p] Increase: +	Total in 2001[p]
Assets	2231.9	63.7	−75.6	2220.0
Liabilities	1710.4	1.6	−93.7	1618.3
Net investment position	521.5	62.1	18.1	601.7

1 Investment in accordance with the financial account in the balance of payments; outflows result in an increase in foreign assets and capital inflows in an increase in foreign liabilities. The above compilation does not comprise imports and exports of precious metals by banks included in the financial account. This is because the corresponding precious metals holdings do not appear in the international investment position.

2 Price-induced changes, including statistical changes, are the result of changes in the scope of data collection.

r revised
p provisional

2 Development and structure of foreign assets

The share of debt instruments in securities holdings increased in 2001 to the detriment of equity securities. In the wake of falling stock market prices, the latter retreated below the previous year's level. Overall, securities holdings remained unchanged year-on-year. Investors bought foreign securities on a larger scale in 2001 compared with the previous year. However, the increase brought on by capital exports was compensated by losses on shares.

The stock of direct investment climbed from Sfr 34 billion to Sfr 416 billion. In the previous year, the increase had been twice as high. Of all the components of the international investment position, direct investment still experienced the most significant rise in 2001. It also exhibits above-average long-term growth. Its share of total foreign assets has increased from 10% to 19% since 1985, when international investment statistics started to be compiled. The fact that direct investment positions are shown at book value, which is considerably below the market value, must be taken into account.

The National Bank's international reserves declined by one billion Swiss francs to Sfr 87 billion. Their share of foreign assets remained unchanged year-on-year, at 4%. In 2001, the National Bank sold gold no longer required for monetary purposes for Sfr 3 billion. Since gold holdings were valued slightly higher at the end of 2001 compared with the previous year, they decreased by only Sfr 2 billion. Foreign exchange holdings and other international reserve components together mounted by one billion Swiss francs.

The other foreign assets – mainly interbank claims – diminished by Sfr 44 billion to Sfr 897 billion. Their share of foreign assets, therefore, receded from 42% to 40%. Banks reduced their claims by Sfr 47 billion to Sfr 629 billion. Nonbanks, however, reported higher lending than in the previous year.

Composition of foreign assets in billions of Swiss francs [1] Table 3

Total at year-end	1985	1990	1995	1999[r]	2000[r]	2001[p]	Changes against previous year in percent	Shares in percent
Direct investment[2]	52.1	85.6	163.9	311.3	381.9	415.6	8.8	18.7
Equity capital	*42.7*	*73.0*	*141.5*	*266.9*	*339.5*	*371.0*	*9.3*	*16.7*
Credits	*9.4*	*12.6*	*22.4*	*44.3*	*42.4*	*44.6*	*5.2*	*2.0*
Portfolio investment	200.5	248.1	399.3	807.6	820.8	820.3	0.0	37.0
Debt securities	*152.2*	*194.2*	*260.6*	*392.2*	*385.7*	*405.3*	*5.0*	*18.3*
Bond	*150.2*	*191.7*	*257.6*	*380.9*	*376.7*	*381.8*	*1.4*	*17.2*
Money market paper[3]	*2.0*	*2.6*	*2.9*	*11.3*	*9.0*	*23.6*	*162.2*	*1.1*
Equity securities	*48.3*	*53.9*	*138.7*	*415.4*	*435.1*	*415.0*	*–4.6*	*18.7*
Shares	*na*	*na*	*na*	*302.0*	*306.7*	*279.8*	*–8.8*	*12.6*
Investment funds	*na*	*na*	*na*	*113.4*	*128.4*	*135.2*	*5.3*	*6.1*
Other foreign assets (without international reserves)	225.2	350.0	370.6	793.5	941.3	896.9	–4.7	40.4
of which commercial bank lending[4]	*155.4*	*172.3*	*210.6*	*547.2*	*676.4*	*629.4*	*–6.9*	*28.4*
Corporate lending[5]	*24.6*	*40.3*	*64.3*	*101.8*	*109.7*	*117.0*	*6.7*	*5.3*
Government lending	*1.4*	*1.5*	*1.1*	*0.8*	*0.8*	*0.5*	*–37.5*	*0.0*
International reserves	50.1	49.2	56.0	70.3	87.9	87.1	–0.8	3.9
Gold[6]	*11.9*	*11.9*	*11.9*	*11.9*	*34.7*	*33.0*	*–4.9*	*1.5*
Foreign exchange	*36.8*	*37.2*	*41.8*	*54.6*	*50.4*	*50.6*	*0.4*	*2.3*
Other currency reserves	*1.4*	*0.1*	*2.3*	*3.8*	*2.7*	*3.5*	*29.6*	*0.2*
Total	527.9	733.0	989.8	1928.6	2 231.9	2 220.0	–0.5	100.0

1 Differences in the totals due to rounding off
2 Swiss equity holdings in companies abroad of 10% or more as well as claims and liabilities (net) vis-à-vis subsidiaries abroad
3 Until 1997, only money market paper held by banks
4 Domestic bank offices
5 Without loans to subsidiaries, which are included in direct investment
6 Since 2000, gold holdings have been valued at market value
r revised
p provisional
na not available

3 Development and structure of liabilities abroad

Swiss securities held by nonresidents shrank by Sfr 87 billion to Sfr 587 billion in 2001. The decline was mostly attributable to price losses on shares. At the end of 2001, 79% of securities held by nonresidents were accounted for by shares. As a consequence, foreign holdings of securities were particularly hard hit by the stock market slump. The share of portfolio investments of foreign liabilities therefore diminished from 39% in the previous year to 36% in 2001.

The stock of foreign direct investment in Switzerland rose by Sfr 8 billion to Sfr 150 billion compared with the year-earlier increase of Sfr 20 billion. The weaker growth is due to fewer capital imports in 2001 as well as to the lower valuation of stocks.

Other foreign liabilities fell by Sfr 13 billion to Sfr 882 billion. The bulk of other liabilities were accounted for by banks. In 2001, banks reduced the level of their liabilities abroad by Sfr 24 billion to Sfr 667 billion. By contrast, nonbanks saw the level of foreign borrowing go up by Sfr 10 billion to Sfr 101 billion.

4 Composition by currency

The proportion of Swiss assets abroad denominated in Swiss francs grew from 13% in the previous year to 14% in 2001. All components of assets abroad, except international reserves, which are only held in foreign currencies and in gold, recorded a rise in their Swiss franc share. The increase is attributable to higher Swiss franc investment. During the first half of the 1990s, the Swiss franc share in assets had still been twice as high. Since then it had continuously fallen until reaching a low point in 2000. The share of the euro continued to expand in 2001, i. e. from 27% to 28%. The relative significance of foreign assets denominated in US dollars and other currencies decreased, however.

The Swiss franc's share of foreign liabilities declined from 53% to 52% in 2001. The lower valuation of Swiss franc-denominated securities investments was the culprit for the decline. By contrast, the US dollar and the euro gained in importance to the detriment of the Swiss franc and the other currencies.

Composition of foreign liabilities in billions of Swiss francs[1] Table 4

Total at year-end	1985	1990	1995	1999[r]	2000[r]	2001[p]	Changes against previous year in percent	Shares in percent
Direct investment[2]	21.0	44.4	65.6	121.6	142.1	149.8	5.4	9.3
Equity capital	*20.6*	*44.9*	*64.9*	*119.8*	*139.6*	*149.1*	*6.8*	*9.2*
Credits	*0.4*	*–0.5*	*0.7*	*1.8*	*2.5*	*0.7*	*–72.0*	*0.0*
Portfolio investment	99.5	121.5	240.0	545.5	673.3	586.6	–12.9	36.2
Debt securities	*11.4*	*19.2*	*33.7*	*50.3*	*48.1*	*47.1*	*–2.1*	*2.9*
Bonds	*11.4*	*19.2*	*33.7*	*49.7*	*47.2*	*46.5*	*–1.5*	*2.9*
Money market paper	*na*	*na*	*na*	*0.6*	*0.9*	*0.6*	*–33.3*	*0.0*
Equity securities	*88.1*	*102.3*	*206.3*	*495.2*	*625.2*	*539.5*	*–13.7*	*33.3*
Shares	*72.4*	*80.2*	*171.2*	*423.2*	*547.5*	*463.4*	*–15.4*	*28.6*
Investment fund certificates	*15.7*	*22.1*	*35.1*	*72.0*	*77.7*	*76.1*	*–2.1*	*4.7*
Other foreign liabilities	177.7	284.8	334.6	745.4	895.0	881.9	–1.5	54.5
of which commercial bank lending[3]	*123.5*	*172.2*	*207.5*	*548.2*	*690.9*	*667.0*	*–3.5*	*41.2*
Corporate lending[4]	*18.5*	*27.9*	*52.5*	*80.3*	*89.8*	*100.6*	*12.0*	*6.2*
Government lending	*na*	*0.1*	*0.7*	*0.8*	*0.7*	*0.6*	*–14.3*	*0.0*
Total	298.2	450.7	640.2	1 412.5	1 710.4	1 618.3	–5.4	100.0

1 Differences in the totals due to rounding off
2 Foreign equity holdings in companies in Switzerland of 10% or more as well as claims und liabilities (net) vis-à-vis subsidiaries in Switzerland
3 Domestic bank offices
4 Without loans to subsidiaries, which are included in direct investment
r revised
p provisional
na not available

Composition of foreign assets by currency in billions of Swiss francs[1] Table 5

	2000[r] stock	Shares in percent	2001[p] stock	Shares in percent	Changes against previous year in percent
Direct investment					
CHF	4,7	1.2	9.9	2.4	111.7
USD	94.3	24.7	98.8	23.8	4.8
EUR	117.6	30.8	120.6	29.0	2.5
Other currencies	165.3	43.3	186.4	44.8	12.8
Total	381.9	100.0	415.6	100.0	8.8
Portfolio investment					
CHF	178.8	21.8	188.0	22.9	5.1
USD	244.6	29.8	249.4	30.4	1.9
EUR	269.2	32.8	283.4	34.5	5.3
Other currencies	128.2	15.6	99.6	12.1	−22.3
Total	820.8	100.0	820.3	100.0	−0.1
Other foreign assets					
CHF	114.0	12.1	122.3	13.6	7.2
USD	386.3	41.0	360.8	40.2	−6.6
EUR	187.9	20.0	188.5	21.0	0.3
Other currencies	249.2	26.5	220.3	24.6	−11.6
Precious metals	3.7	0.4	5.1	0.6	36.2
Total	941.3	100.0	896.9	100.0	−4.7
International reserves					
USD	20.5	23.4	20.8	23.8	1.1
EUR	22.3	25.3	23.2	26.7	4.2
Other currencies	10.4	11.8	10.1	11.6	−2.4
Precious metals	34.7	39.5	33.0	37.9	−5.0
Total	87.9	100.0	87.1	100.0	−0.9
Total foreign assets					
CHF	297.5	13.3	320.1	14.4	7.6
USD	745.7	33.4	729.7	32.9	−2.2
EUR	597.0	26.7	615.7	27.7	3.1
Other currencies	553.2	24.8	516.4	23.3	−6.6
Precious metals	38.5	1.7	38.1	1.7	−1.0
Total	2 231.9	100.0	2 220.0	100.0	−0.5

1 Differences in the totals due to rounding off

r revised
p provisional

Composition of foreign liabilities by currency in billions of Swiss francs[1] Table 6

	2000[r]	Shares in percent	2001[p]	Shares in percent	Changes against previous year in percent
Direct investment					
CHF	143.8	101.2	149.7	99.9	4.1
USD	−0.2	−0.2	0.1	0.1	−141.7
EUR	−1.2	−0.9	−1.3	−0.9	9.2
Other currencies	−0.3	−0.2	1.3	0.9	−573.1
Total	142.1	100.0	149.8	100.0	5.5
Portfolio investment					
CHF	592.8	88.0	508.2	86.6	−14.3
USD	27.2	4.0	30.9	5.3	13.5
EUR	37.1	5.5	35.7	6.1	−3.9
Other currencies	16.3	2.4	11.9	2.0	−27.0
Total	673.3	100.0	586.6	100.0	−12.9
Other foreign liabilities					
CHF	174.6	19.5	185.6	21.0	6.3
USD	351.0	39.2	373.1	42.3	6.3
EUR	136.6	15.3	163.5	18.5	19.7
Other currencies	223.4	25.0	148.9	16.9	−33.4
Precious metals	9.5	1.1	10.7	1.2	12.6
Total	895.0	100.0	881.9	100.0	−1.5
Total foreign liabilities					
CHF	911.2	53.3	843.5	52.1%	−7.4
USD	377.9	22.1	404.0	25.0%	6.9
EUR	172.5	10.1	197.9	12.2%	14.7
Other currencies	239.3	14.0	162.1	10.0%	−32.3
Precious metals	9.5	0.6	10.7	0.7%	12.6
Total	1 710.4	100.0	1 618.3	100.0%	−5.4

1 Differences in the totals due to rounding off

r revised
p provisional

Search theory and applied economic research

by Marlene Amstad, Research Section, Swiss National Bank, Zurich,
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Introduction

In the summer of 2002, the Swiss National Bank (SNB) hosted the "SNB-Fed Cleveland Workshop on Monetary Economics". Recent years have seen the development of the search-theoretic approach to monetary theory. It has established itself as an important strand of monetary theory in a very short space of time, although it has yet to exert a significant influence on the empirical models that are typically used for monetary policy analysis. This is why the conference organisers, David Altig (Federal Reserve Bank of Cleveland), Aleksander Berentsen (University of Basel) and Thomas Jordan (SNB) decided that the event should focus on linking search theory with applied economic research.

This summary article first briefly examines the objectives and challenges of search theory before discussing briefly the conference papers.

1 Search theory

Search theory attempts to explain the use of money as a response to information frictions that make trade difficult. Neil Wallace, one of the pioneers of search theory, linked the approach to a laboratory. Search economists can be compared with biologists who control all of the conditions in their laboratory. They are interested in the "atoms" – the individual economic subjects – and how they handle money. They are concerned with when money is used to exchange goods, and which frictions can make barter exchange difficult or even impossible. Their aim is to develop a understanding of the exchange process and the role of money. By contrast, traditional macroeconomists – and central bankers – have more in common with doctors in an accident and emergency unit. They take the existence of money as given and are mainly concerned how monetary policy affects the economy. The activities of the laboratory researchers tend to be seldom discussed outside the laboratory. A brief discussion of the nature of search theory therefore follows.

1.1 The nature of search theory

Search theory[1] is a comparatively young branch of economic research that looks into the conditions for the creation or failure of money. Money has three functions: It is a means of exchange, a unit of account and a store of value. The second and third of these are relatively easy to incorporate into a model. Modelling the transaction function, however, is much more complicated as Karl Brunner and Alan Meltzer once observed: "One of the oldest unresolved problems of monetary theory is to explain the use and holding of money."[2] The difficulty in modelling the use of money lies in the fact that money is not a consumption good. The benefit gained from holding money is derived only indirectly, through the purchase of goods. A model in which money is appropriately represented must thus contain a microeconomic theory of exchange. Most macro models neglect the details of the exchange process, however. Instead, they impose some shortcuts to get a demand for money by assuming that real money balances are productive: money throws off utility directly, or, as in

1 Labour market theory includes a theory of the same name which is not linked to the one used here.

2 Quoted from Nagatani (1978, p. 1).

transaction cost models, frees resources that can be used productively or, as in cash-in-advance models, is an input into the activity of consuming or investing (Wallace 2001). Theses shortcuts do not permit to investigate why a loss of confidence in a currency can occur, the consequences of such a currency crises for trade, the emergence or disappearance of parallel currencies, or the preconditions for the successful launch of a new currency (e. g. the Euro).

Search economists endeavour to close these gaps in traditional theory. One of the central aim of the search approach is to find out which frictions are responsible for money being essential. Money is essential if its use allows the economy to achieve certain allocations that would be impossible to achieve without it. In a frictionless Walrasian economy, there are no information problems. Any agent can enter into a contract with any other agent and can also enforce this contract at no cost. In such an economy, money is not essential.

Another important aim of search theory is to investigate the extent to which the shortcuts of traditional macroeconomics described above do not contain hidden inconsistencies. There is also the question of the validity of empirical studies that are based on these shortcuts. An important hypothesis of search theory is that the microeconomic structure of the economy, and the financial sector in particular, affect the transmission mechanism and thus the effectiveness of monetary policy. It emerges from the search papers discussed at the conference, for example, that the effects of monetary policy depends on whether or not bonds are accepted as a means of payment (see Shi), and that the loss of welfare associated with inflation is much greater if the details of the exchange process are also taken into account (see Lagos and Wright).

In a series of pioneering articles, Kyotaki and Wright (1989, 1991, 1993) outlined the search-theoretic approach. In a typical search-theoretic model, heterogeneous agents are matched pairwise at random. The typical exchange problem arises – the absence of a double coincidence of wants. The search approach demonstrates how a generally accepted medium of exchange mitigates this problem and thereby increases welfare. Elements of the environments in search models are the properties of the goods produced and consumed, the number of agents, the matching function, and the type of information frictions. Endogenous variables are, for example, the agents' search intensities and their level of specialisation. The most important decision, however, is the decision to accept or reject the medium of exchange in each particular trade.

1.2 Monetary research gains from a micro foundation

If we understand the conditions under which monetary exchange takes place, we gain a more consistent and in-depth understanding of the functioning of a monetary system. The primary benefits of a micro foundation stem from the following two factors:

(a) In a frictionless economy, money plays no role. Models that assume frictionless (Walrasian) markets while assuming the use of money contain hidden inconsistencies. Such inconsistencies can be avoided if the model is based on explicit micro foundation (Wallace, 2001).

(b) Micro foundation allows us also to gain a deeper insight into core questions of monetary economics. These include: What effects do monetary shocks have on the different sectors of the economy? Which economic subjects (e.g. companies/households or rich/poor subjects) bear the costs of inflation? How do the microeconomic structures of the financial sector affect the impact of monetary policy (the role of inside money and outside money is also significant here)? Why is the acceptance of new digital means of payment (e-cash, etc.) so limited? How can a new currency be launched successfully? What are the economic ramifications of a common currency or dollarisation, as is currently taking place in some Latin American countries.

1.3 The relationship between search theory and classical macro monetary theory

Search theory and classical macro monetary theory are largely complementary, but how this relationship will develop in the future remains to be seen. Search theory applies the bottom-up principle by specifying the details of the environment and in particular the exchange process. It deals explicitly with the various information frictions that characterise economic life. Individual behaviour is central to this. By contrast, macroeconomics is based on the top-down principle. It concentrates (given the inherent utility of money) on simulating and forecasting aggregate data.

While the "why" question (reasons for the existence of monetary systems) preoccupies search economists, traditional macro economists are asking "what can be done" (economic policy). The answers are not independent of each other.

2 Conference papers

This section looks more closely at the conference papers[3]. They can be downloaded at the *www.moneyworkshop.ch* webpage for further reading.

The papers on search theory will be discussed first. These can be interpreted as justification for the micro approach to monetary theory, and an explicit treatment of a range of information frictions[4]. This type of micro-level analysis

- allows inconsistencies to be avoided and permits a more in-depth insight into monetary theory (Wallace);
- explains why good money drives out bad, and vice versa (Camera, Craig, Waller);
- enables to investigate the impact of monetary policy, dependent on whether fiat money[5] is the only accepted means of exchange, or whether bonds are also used (Shi);
- permits the development of a tractable search-model of fully divisible money that also allows policy analyses (Lagos and Wright).

The conference papers that can be classified under traditional macro monetary economics looked at the following issues:

- the influence on monetary policy of an inaccurate estimate of potential output (Jordan, Kugler, Lenz, Savioz);
- inflation and inequality (Albanesi);
- interpreting different types of shock in a general equilibrium model (Altig, Christiano, Eichenbaum, Linde);
- share prices and monetary policy (Carlstrom, Fuerst);
- why are some monetary unions successful and others not? (Chari, Kehoe).

2.1 Papers on search theory

The number and heterogeneity of micro-based monetary models is increasing fast. In ***"General Features of Monetary Models and their Significance"***, Neil Wallace proposes a way for classifying models with "nice micro foundations". He starts by defining two conditions for "nice models". Firstly, the way in which agents (the buyers and sellers of goods) use money must be modelled explicitly. Secondly, money must be essential, i.e. there are certain allocations that can only be achieved when agents use fiat money. "Cash-in-advance" models and those which incorporate real balances as arguments of production or utility functions fail this first necessary condition. Models which describe one of the many other feasible ways of goods exchange without money fail the second necessary condition. The reason that only models which fulfil these two conditions can be described as "nice" is that they help to avoid implicit inconsistencies. They also provide new insights. In a monetary model in which money is essential, we cannot simultaneously make the assumption of perfect credit markets, because these require perfect and complete information. This forces us to include imperfections of the credit markets in any model of money. If a lack of transparency (monitoring) is assumed, implementation of fiscal policies are affected because collecting taxes is made much more difficult. In other words, the characteristics that make money essential also determine the way in which the credit markets work and the feasibility of economic policy measures.

Models with "nice micro foundations" can be distinguished by three general features:

(a) the *extent and kind of idiosyncratic uncertainty*. Search models often look at situations in which the agents have differing holdings of money or goods. The inequality between economic subjects in terms of the money and goods they hold is attributable to their different opportunities to trade. These, in turn are founded on different forms of uncertainty, which are modelled as random meetings between agents or preference-related shocks.

(b) the *degree of monitoring (degree of transparency)*, which depends on whether or not past actions are observable and can therefore be regarded as common knowledge. The degree of monitoring determines the degree of friction on the credit market. Without monitoring, nobody would want to grant credit – although where monitoring is perfect, money cannot be essential. Since credit and

3 All of the papers referred to here are drafts.

4 For a general overview of the arguments in favour of the micro foundation, see Wallace (2001).

5 "Fiat money" is a medium of exchange that is intrinsically worthless.

money are both tangible realities, a consistent "middle way" approach to monitoring must be found for a "nice" model.

(c) the *size of the trading group*, e.g. trading in pairs or centralised trade. This feature determines the range of potential trading outcomes.

To understand the creation of money, we must spell out what happens when two goods compete against each other for the status of money. The costs of holding money determine which money will be regarded as bad, and which as good. Good money entails a smaller risk of devaluation than bad money. Gresham's law states that bad money drives out good. This runs counter to the observation that, in many developing countries, there are more dollars than the countries' own, weak currencies in circulation. This resulted in Hayek's hypothesis (1976) that good money drives out bad.

In ***"Gresham's Law versus Currency Competition"*** Gabriele Camera, Ben Craig and Chris J. Waller attempt to explain the dichotomy. They propose a search-theoretical model for a country with two currencies with different levels of risk. The authors examine the conditions under which either Gresham's law or Hayek's currency competition would prevail as the model equilibrium. It becomes clear that it is more difficult to establish Gresham's spending behaviour as the equilibrium. Indeed, Gresham prevails only if it is assumed that the relative cost disadvantage of bad money is comparatively small. The relative cost disadvantage of bad money lies in the strategy pursued by the buyers of goods, who spend the risky money first in order to transfer the risk to the seller. The latter demands a higher price for assuming this risk, which results in a loss of consumption for the buyer. Depending on the extent of this loss, the buyer has an incentive to use the less risky (good) money. Although this model is relatively abstract, it still gives a practical insight into the scope and timescale of dollarisation in developing countries. It shows in numerical terms how the home currency's velocity of circulation begins to decline only when the risk associated with it increases, or the markets suffer from growing frictions.

Sometimes, government bonds compete with domestic and foreign currencies as a means of exchange. In ***"Nominal Bonds and Interest Rates in Search Economy"*** Shouyong Shi looks into the role of interest-bearing, risk-free government bonds. In traditional monetary theory, it is assumed that only fiat money will be accepted as a means of payment in the goods market. This assumption is viable only if the effectiveness of monetary policy measures does not depend upon it. To investigate this, Shi presents two models in which fiat money exists in equilibrium with interest-bearing, default-free government bonds. In the first model, matured bonds are used as a perfect substitute for money. Such models are characterised by a continuum of equilibria. In the second model, there are no matured bonds in circulation in the market for goods, so there is only one stationary equilibrium. This model does not have any constraints that would prevent matured bonds circulating as a means of payment in the market for goods in the same way as money. Furthermore, in both models, in equilibrium newly issued interest-bearing bonds are traded at a discount equivalent to the rate of interest.

Shi looks into the effect of a range of monetary policy actions, whereby open market operations result in particularly large differences. In the first model, a steady increase in bond sales on the open market raises inflation while real output and consumption remain unchanged. By contrast, in the second model a sale of bonds has an impact in real terms. As money is withdrawn from the economy, inflation falls and real output rises. Shi uses this to demonstrate that monetary policy has different effects depending on whether money alone is used as a means of payment or bonds are also accepted on the market for goods. Consequently, the role of bonds as a means of payment cannot be fixed exogenously but must be determined endogenously within the model.

Analysing the impact of monetary policy in a search-theoretical model is a major challenge. ***"A Unified Framework for Monetary Theory and Policy Analysis"*** by Ricardo Lagos and Randall Wright aims to develop a framework in which money is essential but which also allows monetary policy issues to be studied, as is the case with standard macro models. This requires a search model with perfectly divisible money.[6] In previous search models with perfectly divisible money the distribution of money holdings and the pattern of exchange have turned out to be analytically intractable and the research therefore has focused on numerical simulations. One exception is Shi (1997), who reduced the complexity considerably by introducing the concept of large households. Lagos and Wright employ another trick for the sake of simplification. Unlike conventional search-theoretical models, they assume that agents after trading in the search market have access to a centralized market for money, where they can adjust their money holdings. This centralised trading ensures that all agents in each

6 The following analytical difficulties emerge in a search-theoretical model with perfectly divisible money. Firstly, there is a non-degenerate distribution of money holdings, which makes it very difficult to investigate the model analytically. Secondly, the law of one price no longer applies, because the outcome of negotiations depends on the money holdings of the randomly matched agents. To avoid this problem, earlier search-theoretical models assumed that money is indivisible and imposed certain restrictions on how much money an agent can hold. As a result, these models were of limited use to analyse monetary policy issues. Lagos and Wright (2002) attempt to avoid these difficulties while retaining the essence of the search models.

period hold the same amount of fully divisible money in the search market. Their trick therefore generates a degenerated distribution of money holdings allowing them to focus on a representative agent. This representative agent structure offers the great benefit that the model is tractable, while retaining the essence of the search models, and so analysing monetary policy becomes much simpler.

To demonstrate that their model is also suitable for empirical studies of monetary policy issues, the two authors calibrate their model in order to estimate the (negative) welfare effects of inflation[7]. To their surprise, they find that these are much greater than forecast by Walrasian macro models. The authors show that, at the exchange level, inflation causes much larger distortions than had previously been thought. Consequently, a monetary theory that has a micro foundation and is based on explicit information frictions may make quantitative statements that are very different to those of traditional macroeconomics.

2.2 Papers not classified under the search approach

In the new SNB strategy, inflation forecasts serve as the main indicator for guiding monetary policy. Every forecast suffers from the same dilemma, however – the results can only be as reliable as the data used to produce them. A major test of the suitability of models and the behavioural rules derived from them is to investigate how the results they produce react to a change in input data. In ***"Measurement Errors in GDP and Forward-Looking Monetary Policy: The Swiss Case"*** Thomas J. Jordan, Peter Kugler, Carlos Lenz and Marcel Savioz examine how aggregate output should be weighted in forward-looking monetary policy rules given the assumption that the output figures are subject to measurement errors. In practice, these measurement errors are due primarily to data revisions and inaccurate estimates for the most recent data. Measurement errors in the consumer price index are thus less significant, because inflation data is collected more frequently and is subject to less revisions. To shed light on this area, the authors use a small structural VAR model. In the absence of measurement errors, there is a trade-off between the volatilities of inflation and output. If monetary policy attaches great importance to stabilising output, the volatility of inflation will rise. Conversely, if inflationary targets are regarded as more important, considerable output volatility will be the result. However, any error in the output figure means that this trade-off will cease to apply to every output weighting. Indeed, if output is weighted heavily, then the volatility of inflation will not actually fall, but rise instead. Furthermore, it is shown that an incorrect assessment of potential output has the same effect as an incorrect estimate of actual output. Monetary policy decision-makers respond to a signal that is incorrect, producing an increase in the volatility of both output and inflation.

In ***"Inflation and Inequality"*** Stefania Albanesi traces different levels of inflation back to the income-related use of payment technologies. A range of studies has found that holding money is less costly for higher-income groups than for lower-income groups. The main reasons include marginal returns from cash management, which rise as the amount of money increases, and easier access to innovations in financial technology. These enable people to hedge against the risk of inflation. Lower-income groups generally hold a higher proportion of their assets in cash, which means that they are directly exposed

7 This is a core issue in empirical monetary theory. An overview of current research can be found in Lucas (2000).

to inflation. High inflation further adds to this inequality in income.

Cross-sectional international comparisons have clearly shown the positive correlation between inflation and inequality of income. This applies to different measures of income inequality. According to Albanesi, the correlation is rooted in the distributional conflict of fiscal policy. The government has two financing options: tax or inflation. The fiscal policy that is applied and, indirectly, the level of inflation that is ultimately accepted is decided in a political framework. This is modelled as a sequential negotiating game in which political influence is presented as a function of economic power. Lower-income groups have a greater incentive to vote against inflation, but are in a weaker negotiating position. The fact that high inflation often prevails in countries with significant income disparities is therefore attributed to differences in the volume of cash that is held, as well as the influence that the different groups wield over the political decision-making framework.

In ***"An Estimated Dynamic, General Equilibrium Model for Monetary Policy Analysis"*** David Altig, Larry J. Christiano, Martin Eichenbaum and Jesper Linde develop a dynamic general equilibrium model which incorporates a large number of frictions such as price and wage rigidities[8]. The model facilitates the study of financial market shocks (primarily monetary policy shocks) and other types of shock, such as transitory and persistent technology shocks as well as shocks related to the market power of companies or employees. Reactions to the different types of shock are modelled by VAR. The parameters of a dynamic equilibrium model are then set so that the reactions generated by the VAR model are reproduced as accurately as possible.

The results of the model show that monetary policy shocks can only explain a small part of the output variance in the data. By contrast, around half of the output variance is accounted for by technology shocks, although the latter are often long-term in nature and thus cannot be held responsible for shorter-term movements, which are ascribed to the economic cycle.

The authors also find that, in contrast to the picture painted by the classic real business cycle, a positive technology shock will lead to a rise in output, capital utilisation, investment and employment. This is due primarily to the model's assumption that the central bank will increase the money supply in the wake of a positive technology shock. Such an expansive, policy-induced money supply shock leads to a temporary rise in consumption, investment, employment and capacity utilisation. Interest rates fall. After a short-term decline, the rate of inflation gradually begins to advance, peaking around two years after the shock. In the case of a positive technology shock, the positive employment effect triggered by monetary policy offsets the negative effect of rising labour productivity.

The issue of whether or not a central bank should react to equity prices has recently gained currency. Bernanke and Gertler (2001) looked into the way in which a variety of monetary policy rules actually work, both including and excluding asset valuations. They concluded that a central bank should not react directly to asset prices, as higher equity prices raise demand and are ultimately inflationary. With the traditional Taylor rule, equity prices are therefore already considered to the extent that they impact on inflation. The authors believe that they do not need to be taken into account further. In ***"Imperfect Capital Markets and Nominal Wage Rigidities"*** Charles T. Carlstrom and Timothey S. Fuerst examine the same issue using a general equilibrium model. This assumes the capital market to be imperfect (not every credit-seeking party receives sufficient financing). Furthermore, wages are nominally rigid, Calvo-style. On the basis of these assumptions, the authors find that it is beneficial to welfare if the central bank takes equity prices into consideration, the reason being that, in imperfect markets, equity prices affect a company's ability to secure financing and may therefore have an effect on the real economy – which may in turn prompt a central bank to intervene.

Why are some monetary unions successful and others not? In ***"Time Inconsistency and the Incentives for Free-Riding in a Monetary Union"*** V. V. Chari and Patrick J. Kehoe argue that a key factor in answering this question is the time consistency of monetary policy. Time inconsistency will lead to a freerider problem. Specifically, if each state in a monetary union were to take autonomous decisions on fiscal policy, unionwide bank regulations or on labour market policy, there would be an incentive to select these non-monetary policy areas such as to generate higher inflation than if the states were to cooperate.

While the individual states enjoy the benefits of a more loose economic policy, the costs that are incurred later must be borne by the union in the form of higher inflation. This time inconsistency can be avoided if non-monetary policy is subjected to cer-

8 Wage rigidity was modelled like in Calvo (1983), meaning that, at any given time, only a certain proportion of employees are in a position to change their wages. Other wages develop in parallel with inflation.

tain constraints, such as a borrowing limit. However, if a monetary union succeeds in operating a time consistent monetary policy (either through an independent central bank or by coordinating fiscal policy, etc.), borrowing limits are unnecessary and possibly harmful. Consequently, the right strategy for safeguarding a monetary union becomes directly dependent on the scope and strength of the cooperation between members states on non-monetary policy issues. The highest-profile example of this model in practice is the European economic and monetary union (EMU). Other applications were also discussed. For example, the model could be used to analyse the moral hazard problem of the International Monetary Fund (IMF).

3 Concluding remarks

The conference covered a broad spectrum of current research papers. In the future, it would be worth trying to bring the "laboratory" and the "A&E department" closer together. Some acute "emergencies" would seem to beg closer study. For example, the tools offered by search theory would be a suitable means of rethinking the monetary policy transmission mechanism and paying greater attention to the analysis of information frictions which have an asymmetric effect on monetary policy. Current euro-related issues would be another topic for investigation. How, for instance, will eastward expansion of the EU affect confidence in the euro, and its stability? What will competition between the euro and the dollar for the status of the global currency bring? Finally, work could be done to identify reasons for the success or failure of new means of payment, such as e-cash. It would be desirable if the theoretical concepts of the search approach could in future be applied increasingly to practical issues, thus bringing us closer to the goal of a better understanding of a monetary system.

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Chronicle of monetary events

Federal decree on the renewal of the IMF's General Arrangements to Borrow

With its message of 20 November 2002, the Federal Council submitted the federal decree on the renewal of Switzerland's participation in the IMF's General Arrangements to Borrow (GAB) to the federal parliament. Switzerland has been associated with the GAB since 1964 and has been a participant since 1984. The Swiss National Bank is the participating institution. In the event that the IMF finds itself short of funds, the GAB enable it to borrow supplementary resources in the amount of SDR 17 billion to forestall or resolve an exceptional crisis threatening the international monetary system. The loan commitment of the National Bank amounts to SDR 1,020 million. The GAB are valid for five-year periods. Accordingly, any renewal of Switzerland's participation has so far been decided by the federal parliament every five years. In future, this will be the responsibility of the Federal Council, with the prior agreement of the National Bank. The GAB currently in force are due to expire at the end of 2003.

Renewal of the IMF's New Arrangements to Borrow

On 20 November, the Federal Council approved a renewal of Switzerland's participation in the IMF's New Arrangements to Borrow (NAB) for another five-year term. The current NAB, which became effective in 1998, are due to expire at the end of 2003. The NAB double the amount available to the IMF under the GAB to respond to financial emergencies from SDR 17 billion to SDR 34 billion. In addition to the participants in the GAB, 14 other countries (industrial countries and emerging economies) have so far participated in the NAB. The credit arrangement of the National Bank, which is also the participating institution in the NAB, has until now amounted to SDR 1,557 million. With a new participant (Chile) having been accepted, the National Bank's loan commitment is reduced to SDR 1,540 million. This is the upper limit of commitments under the GAB and the NAB since the two facilities cannot be drawn on with cumulative effect.

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