BANK OF FINLAND

BULLETIN

3 • 2005

Economic outlook

Contents

Bank of Finland Bulletin 3 • 2005
Vol. 79
The Bank of Finland Bulletin is a quarterly publication.

Editor-in-Chief
Erkki Liikanen

Editorial Board
Antti Juusela, Chairman
Heli-Kirsti Airisniemi
Heikki Koskenkylä
Pentti Pikkarainen
Antti Suvanto
Juha Tarkka
Jouko Vilmunen
Marja Hirvensalo-Niini, Secretary

Edited

Bank of Finland Publication and
Language Services

Authors
Bank of Finland Economics Department

Subscriptions
Phone: National 010 8311,
International +358 10 8311
Email: publications@bof.fi

Printed
by Edita Prima Oy, Helsinki 2005

ISSN 0784-6509 (print)
ISSN 1456-5870 (online)

Bank of Finland
PO Box 160
FI-00101 HELSINKI
Phone: National 010 8311,
International +358 10 8311
Fax: +358 9 174 872
www.bof.fi

Preface

Growth in the global economy has continued to be strong, albeit inconsistent. Globally, monetary conditions remain light despite a progressive tightening of monetary policy in the United States. Even after they raised interest rates, real short-term interest rates still linger close to zero. The ECB's key interest rate has remained low for an extended period. For the third year running, real short-term interest rates in the area have stayed close to zero and long-term rates are at historically low levels, both nominally and in real terms.

Since the spring of this year, the monetary environment has eased, not least due to a weakening of the euro. Admittedly, the change is not very large. In trade-weighted terms, the euro's real effective exchange rate is now close to its long-term average.

Ample liquidity has been invested in new investment objects, which has raised the cost of housing and other asset prices and reduced yield. The risk premia associated with corporate loans and the yields on emerging economies' loans are still low. The rise in housing prices has been rapid and households continue to be deeply indebted in a considerable number of countries.

The long-standing ease of the monetary economy only adds to the vulnerability of national economies. A rise in interest rates, a weakening of economic conditions or a fall in asset prices could easily cause powerful changes in investor behaviour. If savings rates escalate in many countries at the same time and risk premia begin to mount again, the world economy will be threatened with a recession.

The steep rise in oil prices is the most significant change to affect the world economy since March of this year, when the Bank of Finland last published its economic forecast. At that time, we made a judgement that, over a prolonged period, oil prices will remain above the levels we had become accustomed to in the preceding two decades. We have now revised our earlier evaluation as to the level at which the price of crude oil is like to settle over the longer run. At present we are talking about USD 50 per barrel, whereas in March of this year we were talking about a price USD 10 below that.

It is obvious that such sudden changes in price will weaken economic growth and, in the short run, will increase inflation risks, although the effects are expected to remain well below those experienced in the oil crises of the mid-1970s and early 1980s. Industrial countries' dependence on oil is considerably less today than it was 20–30 years ago. Markets today are more flexible and competitive than previously. These factors dampen the effect of rising oil prices on both other prices and wages. Confidence in monetary policy has remained firm resulting in inflation and inflation expectations staying at low levels. On top of which, the increase in income received by the oil producing nations has been shifted fairly rapidly towards imports of these countries.

In the 1970s, many policy mistakes were made, which only served to

exacerbate the negative effects of rising oil costs. Counted among these mistakes is, for example, the attempt to compensate various segments of the population for the effects of increasing oil prices. This only served to impair incentives to cut back oil consumption, increased the budget deficit and prevented real wages from adjusting downwards. Perhaps these mistakes can be avoided, this time around. Real wage flexibility softens the negative employment effects of weakening terms of trade. A reduction in fuel taxation would only mean the transfer of that income to the oil manufacturers and would slow down the adjustment to higher oil prices. Generally, those countries that suffer the least effects from rising oil prices are those whose product and labour markets are flexible and open to competition.

The rising price of oil has weakened Finland's terms of trade and curtailed growth of purchasing power. However, the most significant of the factor affecting the growth profile for GDP, both this year and into next year, is the industrial disbute in the Finnish paper and pulp sector. It is estimated to have cut GDP growth for the current year by as much as close on one percentage point. Nevertheless, next year's growth figures will increase for the same reason.

The approximately 3% annual growth that the Finnish economy has experienced over the last few years is a good achievement, when compared to the otherwise modest figures for the euro area as a whole. One positive feature is the improvement in employment over the past year or so. Employment in the service sector in particular has seen an improvement, with an increase in both part-time and fixed-term employment figures. Another positive feature is Finland's continuing price stability, which has lead to a sharper-than-forecast improvement in real income. The increases in oil prices have been compensated for by falling prices of industrial goods.

The third positive factor worthy of mention is the continuingly sound general government budgetary position. Finland is one of those rare countries, where – year after year – the general government sector has brought in a surplus. It is, however, expected that central government finances will move slightly into deficit during the forecast horizon. In general, this deficit results from reductions in taxation. Tight discipline on spending has been facilitated by the fiscal framework which defines spending ceilings covering the Government's entire term. It is essential that this framework continues to be followed faithfully until the end of the parliamentary term. It also improves confidence in the continuity into the future of a disciplined fiscal policy.

Already for a while, Finnish economic growth has been both robust and stable, due largely to private consumption levels. In turn, private consumption has been supported by steady income growth and low interest rates. At the same time, we have seen a reduction in the savings rate. The low level of equipment and machinery

investment has been a cause for concern as well as Finland's sluggish growth in exports in relation to the overall growth of Finland's export markets.

Most remarkably, recently, has been the explosive growth of export trade in both China and Russia. Russia is presently overtaking Germany as Finland's largest single export market. It is envisaged that, also in the coming years, Russia's economic growth will continue to be strong, providing Finland with plenty of export opportunities. However, recent growth in export to Russia has comprised products that are first processed as imports through Finnish customs and then re-exported to Russia. Also in other markets, the import-content of Finnish exports is fairly high. For this reason, even a rapidly growing export trade is not necessarily reflected directly in Finnish production and employment statistics.

Last year's exports to China grew even more rapidly than exports to Russia. However, due to the comparatively low starting point that the country had, China only accounts for 3% of Finland's total export trade, which is less than a third of the export trade with Russia. Imports from China have grown at much the same rate and volume as exports to the country.

Despite favourable employment growth, the mismatch problem in the labour market has not eased. The number of job vacancies has improved rapidly, but it has not been possible to fill them all by matching openings with unemployed job-seekers. Labour market bottle-necks are slowly starting to hinder economic growth.

Although, in the short term, the outlook for the Finnish economy is quite favourable, the future is not equally bright. Earlier we have drawn attention to the continuing weakening of Finland's terms of trade, the loss of export market shares and the dearth of investments. Unfortunately, we do not foresee any change in these troubling trends. Indeed it is possible that, due to low real interest rates, low inflation and the recent period of stable income development, income expectations of the Finnish population have settled at a level which will not be sustainable. The fact that the current account surplus is gradually eroding is another indication of deepening structural problems. The cause of this erosion is not high investment but rather low savings.

Similarly to other countries, Finland has already been in a position to enjoy its ample liquidity and low interest rates for a long time. This is just one reason why growth in domestic demand has been strong and relatively stable for an extended period. In this sense, it is possible to argue that Finland's membership of the Economic and Monetary Union and the ECB's monetary policy have brought stability to the country's economic development, in spite of the fact that the external environment has caused significant fluctuations in exports. But just as, at the global level, ample liquidity and low interest rates in Finland add to the vulnerability of the economy, even if inflation weren't to start rising in the near future. We do not believe that Finland is currently experiencing either a housing price bubble or excessive

lendig endangering banking sector stability. A growth in indebtedness however increases the risk that when interest rates rise, the economy weakens or asset prices fall, we would see a sharp upturn in savings rates and a decline in domestic demand.

Executive summary

The Bank of Finland forecast provides a picture of continuing robust growth. It is projected that the industrial dispute within the paper industry, and the resulting loss in production will however be reflected in lower growth this year and through to next year.[1] Growth in Finnish GDP is expected to slow down, temporarily, to 1.6% in 2005 and to pick up strongly to just below 4% in 2006. In 2007, GDP growth is forecast to slow to less than 3%. Growth prospects remain relatively unchanged in 2005. The expected increase is based on strong domestic demand, although the long-term increase in the share of imports in GDP does have a slowing effect on growth. Exports underpin the continuing favourable development of both the global economy and world trade. Global GDP is expected to show about a 4% rate of expansion over the coming years. Certainly the outlook is not without its risk: changes in oil prices and global imbalances still continue to shadow growth prospects. On top of which, the long-standing lightness of monetary policy, seen in shrinking risk premia, for example, could lead to the risk of correction, which would slow growth in the global economy further than forecast.

According to the Harmonised Index of Consumer Prices (HICP), inflation in 2006 is expected to reach 1.6% for the year. The reason behind this figure is the steeply rising prices of energy, which has a direct effect on the inflation rate. On top of which, removal of the effects of changes in taxation on alcohol from calculations of the average changes in the annual inflation rate next year will accelerate, to some extent, a rise in HICP. It is forecast that the inflation rate will pick up in 2007 to about 1.7%.

In the short term, the outlook for inflation risk lean toward a slower-than-expected inflation rate. The most significant of these uncertainties is related to fluctuations in the price of crude oil which, in turn, is rapidly reflected in changes in domestic energy costs. Changes in energy prices are connected to both the forecast downside and upside inflation risks. While in terms of services and processed foods, they are linked only to slower-than-forecast downside inflation risks.

In the longer term, uncertainties concerning the inflation outlook are more closely associated with faster-than-forecast upside inflation risks. Slower-than-forecast productivity growth and the more rapid increase in unit labour costs would be reflected in acceleration in inflation that exceeded expectations. In addition to which, a tightening of the labour market situation and rapid growth in wages would add to companies' cost pressures, and would have a knock-on effect on the forecast acceleration in inflation.

It is expected that private consumption will continue to grow at a moderate pace, in the near future. Household purchasing power has been bolstered by favourable income level growth and persistently low interest

[1] The forecast's key variables are presented in Table 5 page 76.

rates. Households' optimism is expected to remain buoyant in the coming years and can be seen, for instance, in the forecast reduction in household savings levels. Downside inflation risks are also associated with a growth in consumption levels. Due to a rapid increase in household indebtedness, an unforeseen hike in interest rates would easily be seen as a drop in consumption levels. A downturn in housing prices, which have been steadily on the rise for some time, would pose another risk as – if realised – it would slow consumption growth. Household purchasing power and, accordingly, the scope for consumer spending would undermine the downward trend and bring about a reversal in the price of consumer products. Similar downside purchasing power risks are associated with the changes experienced in oil prices.

Developments in fixed private investment, excluding residential buildings, have been weak in recent years which have lead to many sectors being left with a need to modernise obsolete capacity. As a consequence, it is forecast that there will be a 7% increase in planned investments in the years 2006–2007, despite expansion investment will remain particularly low. Due to the weak start to the year, fixed private investment is not expected to show any signs of growth in 2005, while public sector investment is forecast to increase slowly in the near future.

Growth in housing investment this year is expected to remain well below last year's levels. The Bank forecasts a 3–4 % increase in residential construction investment for the years 2006–2007. Residential construction as a share of overall investment has risen however to historically high levels at 28%, despite which supply still does not yet meet existing demand for residential buildings. The dearth of suitable building land and jacked up building plot prices have started to hamper the construction of private detached housing in urban growth centres in particular. On top of which, the problems of the housing construction industry has been exacerbated recently by a shortage of skilled labour, which is limiting the sector's activities.

The economy-wide investment rate is forecast as showing only slight upward movement in the years 2005–2007. The investment rate and, specifically a boost in investment in machinery and equipment in the near future, would consolidate the continuingly robust productivity growth and enhance the economy's growth potential in the longer term.

Nevertheless, the present low investment levels are already showing themselves in the structure of Finland's foreign trade. While Finland's import levels have become larger there is little sign of diversification in exports. Without a clear upward swing in the investment rate from present levels exports in relation to GDP will eventually begin to fall.

On top of this, weak developments in export prices have become a structural problem for Finland. The emphasis in exports is increasingly on product groups from particularly tough

competitive environments. Where exporters are not free from pricing pressures, export development is even more dependant on proportional costs. It is a particular risk that, a reduction in export prices will accelerate from the forecast level, but even growth in productivity will not be able to compensate for it as much as before, leading to a drop in exporters profitability

Even if export volume were to increase, weakening terms of trade will cause domestic income to grow considerably more sluggishly than the growth in GDP would lead us to conclude. The terms of trade have steadily weakened since 2002 and are expected to continue doing so for the forecast period. For the present, the reduction in the scope for household consumer spending, brought on by weakening terms of trade, has been compensated for by a reduction the price of consumer durables. Should the fall in prices halt, the result would have a dampening effect on the growth of domestic demand. In any case, the debt-bearing capacity of households and public sector finance tax base may develop in Finland more slowly than the overall outlook may lead us to conclude.

When the weakening terms of trade and the burgeoning contribution from imports are taken into account, the contribution made by exports to the value of GDP is still expected to remain at modest levels in 2005–2007. Imports are also adding to domestic production capacity and the constraints related to labour supplies. The trade balance surplus will also shrink considerably from customary levels during the forecast period.

Upside forecast risks associated with exports are related to trade with Russia. Geographically, Finland is in a prime position to take advantage of the scope of opportunities for exporting consumer goods to Russia.

The increasing supply constraints are also reflected in the growth of imports and in the shrinkage in the current account surplus. Labour availability difficulties are the result of an increase in mismatch problems in the labour markets and of an ageing of the population.

Beneath the surface of Finland's apparently favourable economic development lie significant risks to the country's economic structure. It is appropriate to question whether household income expectations are, in fact, too high in relation to the risks.

Financial markets

In the course of 2005, financial markets the world over have continued to reflect favourable economic growth prospects despite higher oil prices. Interest rates have remained very low and the easy stance of monetary policy has continued. The low level of interest rates has underpinned a rapid rise in housing prices in a considerable number of countries. At the same time, share prices have mainly gone up, mirroring investor confidence in continued strong economic growth.

The appreciation of the US dollar and the reform of the Chinese exchange rate regime have surfaced as the most important news in the foreign exchange markets in 2005. At the same time, the strengthening of the currencies of several emerging economies has come to a halt. Overall, movements in foreign exchange markets have not, however, been large.

Interest rates

Short-term interest rates in the euro area have continued to remain low (Chart 1), and the Governing Council of the European Central Bank has not changed the key ECB interest rate. The euro area policy rate has already remained unchanged at 2% for a period of two years. Money market rates have also stayed at around 2% for a long time.

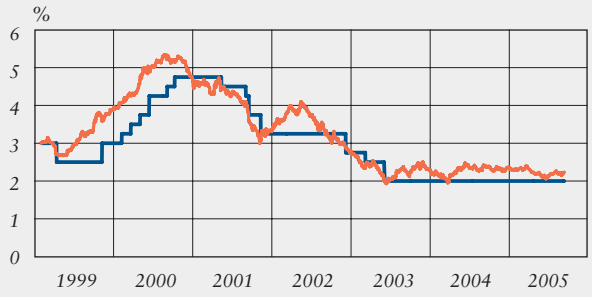
It has been possible to keep the policy rate at a low level, irrespective of the fact that the euro area inflation rate has mainly stood at over 2%. Nevertheless, inflationary pressures in the euro area appear to be contained. In addition, inflation expectations have remained moderate and upward pressures on wages subdued.

Financial markets still do not expect any essential tightening of euro area monetary policy for a long time. In summer 2005, there were market expectations of a fall in the policy rate, as the economic outlook turned bleak. Market expectations of a rate cut have subsequently faded, however. The market's confidence in only modest indirect inflation implications from higher oil prices has contributed to low expectations of an interest rate rise in the euro area.

During the course of 2005, the Federal Reserve has continued its practice of raising the federal funds target rate at a measured pace. In the aggregate, the Federal Reserve has raised the policy rate by just under 3 percentage points in the course of the last 12 months. Futures prices quoted in the market point to expectations of further gradual increases in the policy rate. Money market rates have edged up in response to monetary tightening. Acceleration in inflation has remained modest.

Chart 1.

Short-term interest rates in the euro area



1. *Interest on main refinancing operations / minimum bid rate*
2. *12-month Euribor*

Sources: European Central Bank and Reuters.

Box 1.

Forecast assumptions

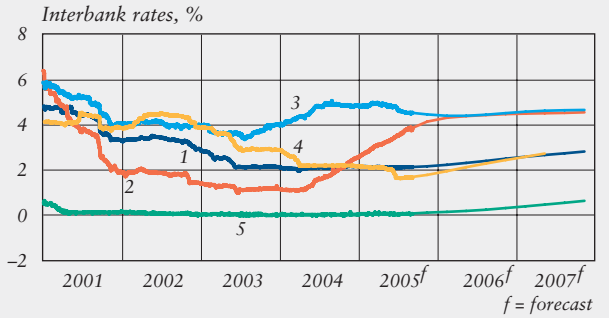
The short-term (3-month) interest rate assumptions in the forecast are derived from market expectations on 8 September 2005. Exchange rates are calculated on the basis of interest rate expectations, using the measure of uncovered interest rate parity. As the underlying assumption is purely technical, it does not anticipate the interest rate policy of the ECB Governing Council nor entail an estimate of equilibrium exchange rates. Short-term interest rates are widely assumed to rise during the forecast period (Chart A). However, the overall increase, consistent with market expectations, will remain rather small. The euro area 3-month interest rate is envisaged to be somewhat less than 3% at the end of 2007. The euro is expected to appreciate moderately vis-à-vis the US dollar in line with interest rate spreads (Chart B). Finland's nominal competitiveness indicator will also strengthen slightly.

World trade growth decelerated appreciably in the first part of 2005. Growth is estimated to regain momentum in the course of 2005, and trade is predicted to grow at a rate of a good 7% over the next few years. World import growth will focus on a number of countries with which Finland has traditionally conducted trade on a large scale. Accordingly, Finnish export markets will grow faster than world trade, primarily driven by Russian import demand. The rise in the price of oil is strongly increasing Russian imports, simultaneously making Russia the most important trading partner for Finland. In the forecast period, world trade growth will also be underpinned by buoyant economic growth in emerging Asian economies and the new EU member states.

Commodity prices have risen substantially in the last two years, but the upswing is now levelling off. Commodity output growth has quite recently increased the supply of several metals, while the pick-up in the

Chart A.

Short-term interest rates and interest rate expectations*

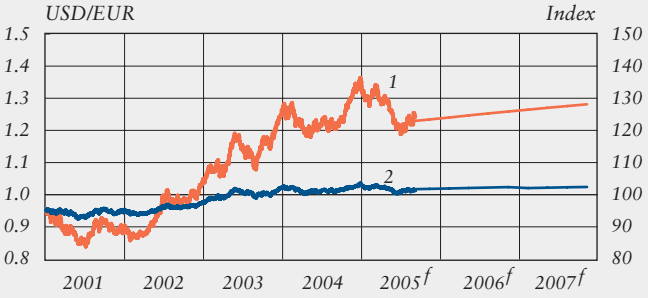


1. Euro area 2. United States 3. United Kingdom
4. Sweden 5. Japan

* 3-month market rates and interest rate expectations based on interest rate futures.
Sources: Bloomberg and Bank of Finland.

Chart B.

Exchange rate assumptions



1. Value of the euro in US dollars (left-hand scale)
2. Finland's nominal competitiveness indicator (right-hand scale)*

* Narrow indicator plus euro area, January – March 1999 = 100.
Sources: European Central Bank and Bank of Finland.

Table.
Forecast assumptions

	2003	2004	2005^f	2006^f	2007^f
Import volume in Finnish export markets, % change	*5.8*	*9.5*	*7.0*	*8.0*	*7.5*
Finnish import prices, % change	*0.4*	*3.6*	*3.1*	*1.6*	*0.8*
Oil price, USD per barrel	*28.9*	*38.3*	*57.0*	*63.5*	*53.8*
Export prices of Finland's trading partners, % change	*–5.6*	*–0.8*	*1.0*	*1.4*	*1.4*
3-month Euribor, %	*2.3*	*2.1*	*2.1*	*2.4*	*2.7*
Yield on Finnish 10-year government bonds, %	*4.1*	*4.1*	*3.3*	*3.3*	*3.5*
Finland's nominal competitiveness indicator[1]	*100.1*	*101.6*	*101.7*	*101.8*	*101.9*
US dollar value of one euro	*1.13*	*1.24*	*1.26*	*1.25*	*1.27*

[1] *Narrow plus euro area, January–March 1999 = 100.*
f = forecast
Sources: Statistics Finland, Bloomberg and Bank of Finland.

prices of these metals would appear to be flattening out. However, the ongoing, relatively rapid world economic growth will support demand for oil and other commodities, which will be reflected as continuing higher prices in the forecast period. Crude oil price already reached a level of over USD 60 per barrel (Brent crude oil) during the summer, and crude oil futures dollar prices have climbed even higher than spot prices in the last six months. The forecast is based on the assumption that the barrel price of oil will remain at around USD 50 until the end of 2007.

The strong upsurge in commodity prices has not yet been filtered through into the export prices of Finland's competitors to any significant extent. The decline in export prices, which lasted for a few years at the beginning of this decade, has however come to a halt. The export prices of industrial countries are anticipated to edge up relatively moderately towards the end of the forecast period. Increasing international competition in the face of globalisation will dampen the effects of rising commodity prices on the prices of final products. In euro terms, import prices in Finnish export markets will pick up at a rate of 1% and a good 1% respectively in 2005 and in 2006–2007.

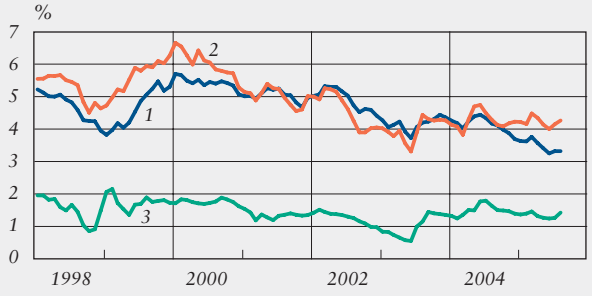
Finnish import prices for goods and services mirror developments in world market prices. Import prices will increase at a rate of 2–3% in 2005–2006, but the rise will slow down to about 1% in 2007 in response to falling oil prices.

In Japan, the central bank has continued to keep its policy rate at zero and short-term market rates have remained close to zero. The economic outlook has, however, brightened again in the first half of 2005. The Bank of Japan's policy has also changed towards a slightly less relaxed stance, as the central bank has moderately reduced the amount of liquidity made available to the banking sector. This measure is, however, of little importance from the monetary policy point of view, and there are no market expectations of a policy rate increase in the near future.

The Bank of England and Sweden's Riksbank lowered their respective policy rates in summer 2005. In both countries, the underlying reason for the rate cut was the improved inflation outlook in an environment of decelerating economic growth. Financial markets expect the Bank of England to still lower its policy rate to some degree. In contrast, a recovery in economic activity in Sweden in the second quarter of 2005 has dispelled expectations of further rate cuts.

Chart 2.

Long-term interest rate (10 year)



1. *Euro area*
2. *United States*
3. *Japan*

Sources: European Central Bank, Reuters and Bank of Finland.

Despite higher short-term interest rates and slightly accelerating inflation, the US short-term real interest rate continues to be very low. The real interest rate has remained close to zero in the euro area and Japan, too. Accordingly, all major economies continue to pursue monetary policies that are clearly supportive of economic growth. The level of long-term interest rates has remained low in all the main industrial economies (Chart 2). In real terms, US and euro area long-term interest rates are a couple of percentage points lower than the historical average.

There is no single explanation for the low level of long-term interest rates. One reason is the confidence shown in the central banks' ability to keep inflation contained in the future, too. Downward pressure on long-term interest rates also stems from the high savings rate of the emerging economies, particularly the Asian countries. Changes in accounting rules have affected the portfolio allocation behaviour of pension insurance companies so that demand for very long-term investment instruments has grown (Box 2).

Euro area long-term interest rates have continued their downward movement in 2005, and the ten-year German government bond yield, for example, has hit its all-time low. In the euro area – as in the United States – the low level of long-term interest rates has been supported by confidence in the maintenance of price stability. It also seems that market expectations of the euro area's long-term growth potential have become more pessimistic. This is suggested, for instance, by the declining

trend in the real interest rate calculated on the basis of bond market information.

In contrast to the euro area, the United States has witnessed a reversal of the decline in long-term interest rates in 2005. One likely reason for this is the continued, relatively strong growth outlook for the United States. These divergent developments have been driven by brighter growth prospects for the US economy. Nevertheless, the US real interest rate is also very low compared with the historical average.

In China, the central bank's policy rate has remained unchanged since autumn 2004. Both decelerating inflation and, according to some estimates, the change in the country's exchange rate policy have reduced pressures to raise the policy rate. There are only few signs of a market-based transmission of monetary policy. The Chinese authorities have announced further administrative measures aimed at curbing a pick-up in housing prices. In connection with the change of the country's exchange rate policy, the interest rate on foreign-currency-denominated deposits was also raised. This is intended to help reduce speculation against the country's own currency.

In the Asian economies outside China and Japan, monetary policies have mainly continued to follow a relaxed stance despite the fact that the central banks of a number of large countries in the region have steadily raised their respective policy rates. Economic growth in these countries has continued at a broadly robust pace, although the negative repercussions from the rise in the price of oil have been relatively larger in these countries than in industrialised nations. The Indonesian central bank saw it necessary to raise its policy rate discernibly at the end of August 2005 in an effort to prevent a weakening of the national currency.

The interest rate spreads between corporate and government bonds have remained narrow in the euro area and the United States. Interest rate spreads widened especially for corporate loans in spring 2005. The direct reason for this rebound in interest rate spreads was the release of profit warnings by US automobile companies. Their effects spilled over to corporate loans with lower credit ratings. While interest rate spreads have subsequently narrowed again, they are still higher than at the end of 2004. Interest rate spreads have continued to be low because of strong corporate earning capacity and ample liquidity in the financial markets. Propitious debt financing conditions for companies have also been aided by the continued easing of the terms of credit on bank loans in the first half of 2005, as indicated by survey data.[1]

Exchange rates

The external value of the euro has weakened in 2005, measured in terms of both real and nominal effective exchange rates. As a result of the depre-

[1] European Central Bank (July 2005), Euro Area Bank Lending Survey (ECB Monthly Bulletin, August 2005) and Federal Reserve Board, The July 2005 Senior Loan Officer Opinion Survey on Bank Lending Practices (www.federalreserve.gov/boardocs/snloansurvey/200508/default.htm).

ciation, the real exchange rate of the euro has returned to levels close to the average observed in the past few decades (Chart 3). During the course of 2005, the euro has weakened especially against the US dollar. Weak economic prospects for the euro area, in particular, have pulled down the euro. Concerns of a deepening of the area's structural problems may also have reduced the attractiveness of the euro for investment.

Euro depreciation in 2005 has improved the international price competitiveness of output, not only in the euro area but also in Finland. The price competitiveness of Finnish output is currently very good when comparing to the average level of the last few decades, and there has been only marginal volatility in the real exchange rate during this decade compared with the past.

The US dollar has strengthened in the course of 2005, although the trend reversed in August. Underlying the appreciation is mainly the monetary tightening and the resultant rise in short-term interest rates. At the same time, the markets appear to have interpreted the bright US economic outlook as constituting a positive phenomenon for the US dollar, too, and previous concerns about the financing of the country's vast current account deficit have remained in the background, at least for the time being. Despite its recent appreciation, the exchange rate of the dollar continues to be low compared with the level of the last few years.

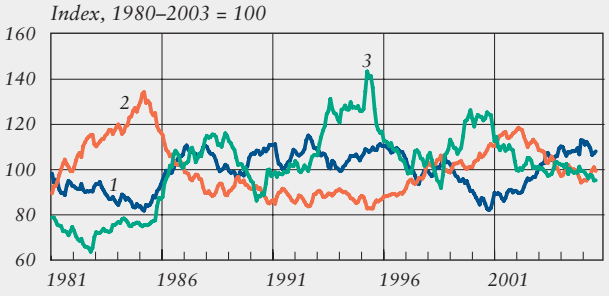
The US current account deficit has not yet started to contract, and presently accounts for about 6% of GDP. The financing of the current account deficit has not yet posed any problems. Portfolio investments by non-residents in US private sector securities played a key role in financing the deficit in 2004. This indicates that the strongest growth phase in the foreign exchange reserves of the Asian countries, notably Japan, appears to be over, as does the consequent, increased need of these countries to purchase US government debt instruments.

As far as other EU currencies are concerned, the Swedish krona has weakened especially after the country's central bank lowered its policy rate in summer 2005. The pound sterling, in turn, is at about the level observed at the end of 2004, despite a policy rate cut by the Bank of England.

Of the currencies in ERM II, the Estonian kroon and Lithuanian litas have remained precisely on their system-based central rates in 2005, while the Danish krone and Slovenian

Chart 3.

Real trade-weighted exchange rates*



1. Euro area
2. United States
3. Japan

* Based on consumer prices. The curve rises as a currency appreciates in real terms. The most recent figures are based on nominal exchange rates.
Source: IMF.

tolar are close to theirs. The appreciation of the currencies of the other new EU member states has come to a halt in the course of 2005. This relates at least in part to the favourable inflation outlook in these countries, which has enabled their central banks to cut policy rates. At the same time, investors' chances of finding higher yields through short-term money market investments in these countries have diminished.

In 2005, the Russian rouble has clearly strengthened in terms of real effective exchange rates. The country's authorities have thus had problems in keeping to the 8% target set for rouble appreciation throughout the year of 2005. The rouble has especially benefited from income generated by the rise in the price of oil. Meanwhile, the country's current account surplus rose to about 14% of GDP in the first half of the year.

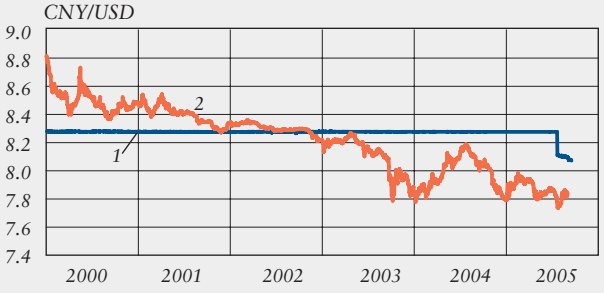
At the end of July 2005, the Chinese authorities made a decision, long awaited by the markets, on reforming the country's exchange rate regime. China abandoned the pegging of its currency to the US dollar and announced that it will manage the exchange rate with reference to a basket of currencies. The precise weights of the currencies in the basket were not disclosed, but the dollar is still assumed to have a considerable weight. In connection with the reform, China revalued its currency by slightly over 2% vis-à-vis the US dollar and decided that the exchange rate against the US dollar is allowed to change 0.3% in daily trading.

The practical implications of the Chinese exchange rate regime reform have so far remained slight. The Chinese authorities want to keep exchange rate movements small, at least initially. The Chinese yuan has appreciated moderately vis-à-vis the US dollar, but futures markets suggest that expectations of a further revaluation of the yuan have not strengthened (Chart 4). It is also likely that the change made to the Chinese exchange rate regime will hardly have any effect as far as the US current account is concerned. Even so, the reform of the regime can be interpreted as representing a first step towards a more flexible exchange rate policy.

Of the other Asian currencies, the Japanese yen has depreciated slightly during the course of 2005. Recent fluctuations of the yen have, however, been limited compared with the past. This is due, in part, to foreign exchange interventions made by the Bank of Japan until 2004. At the end of 2004, the other key Asian currencies appreciated

Chart 4.

External value of the Chinese yuan



1. CNY/USD
2. CNY/USD, 12-month forward

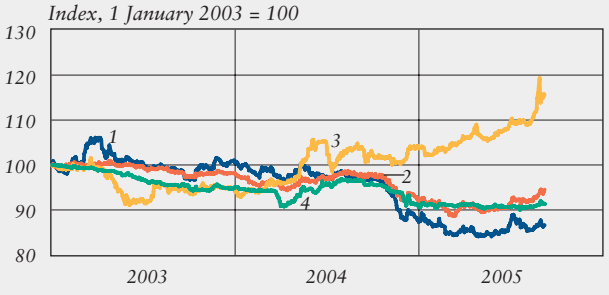
Forward quotation is based on non-deliverable forwards.
Source: Bloomberg.

vis-à-vis the US dollar, but this trend has also stagnated by now (Chart 5).

The reform of the Chinese exchange rate regime was also expected to lead to a strengthening of the other currencies in the region vis-à-vis the US dollar. This did not, however, take place for the most part. Rather, many of the currencies in the region have tended to depreciate following the Chinese measure. An example of this is the Indonesian rupiah, which weakened at the end of August 2005, as markets cast doubt on the sustainability of the country's fiscal policy.

Chart 5.

External value of selected Asian currencies against the US dollar

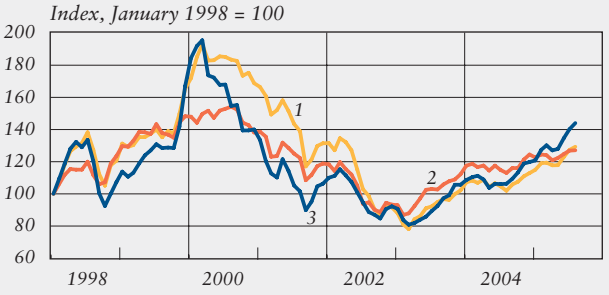


1. South Korean won
2. Taiwan dollar
3. Indonesian rupiah
4. Indian rupee

The curve falls as the UD dollar weakens.
Source: Bloomberg.

Chart 6.

Share prices



1. Euro area: DJ Euro Stoxx broad index
2. United States: S&P 500 index
3. Finland: HEX portfolio index

Source: Bloomberg.

Stock markets

Share prices in the euro area and Japan have registered rather rapid increases in 2005. Rises in share prices have been slower in the United States and, following the August downward adjustment, the prices have broadly regained their levels observed at the start of the year (Chart 6).

Share prices resumed a rising tendency in spring 2005, having remained roughly at previous year-end levels. The upward movement was triggered by signs of an improved outlook for the world economy, particularly for industry, while the rising oil price did not appear to dampen the pick-up in share prices.

The broadly favourable worldwide share price developments have been explained by expectations of the continuation of world economic growth at a relatively robust pace and good corporate profits. The low level of interest rates has also boosted share prices. The level of interest rates is of relevance to share prices because a fall in interest rates reduces the yield from alternative investments, thereby increasing the attractiveness of equity investments.

A sectoral analysis shows that energy companies have recorded the highest share price increases, buoyed by oil price developments, in both the euro area and the United States in 2005. In the euro area, financial-sector shares also have performed strongly. Instead, share prices in the ICT sector have

scarcely recorded any upward movements recently. This may have been affected by the fact that the signs of a cyclical upturn in the sector are only incipient and, on the other hand, that the levels of valuation for companies in this sector are already quite high.

Corporate earnings performance has continued to be mainly positive, but the pace of growth in profits is gradually slowing down from the peak levels observed in the previous year. According to US national accounts data, the growth rate of corporate profits decelerated at the end of 2004 and the beginning of 2005. On the basis of financial results published by large listed companies, decelerating profit growth has continued in the second quarter of 2005. Measured in terms of gross operating surplus according to national accounts, the pace of growth in euro area corporate profits also slowed down at the start of 2005. Even so, the recent depreciation of the euro may have improved the prospects of the area's export companies, which has again boosted share prices.

In Japan, signs of an economic recovery have also been mirrored in share prices, which have clearly gone up since spring 2005. Improved balance sheets of Japanese companies have been another significant factor behind these favourable developments. The upswing has been broad-based and shown up in the share prices of not only industrial but also of service-sector companies.

Outside the old industrial countries, notably the new EU member states and Latin America have witnessed strong increases in share prices in 2005, while upward movements in share prices have been more subdued in the Asian countries. More muted developments in Asia have mainly been influenced by China, where share prices have experienced a downturn in the course of 2005. Underlying the downward movement are investors' concerns about the profitability of investments in mostly state-owned companies.

In Finland, share price developments in 2005 have been very favourable, and the HEX index has risen more than the overall share price index for the euro area. The HEX portfolio index, in which Nokia's weight is restricted to 10%, has also risen strongly. Viewed sector by sector, shares in the energy sector and metal industries have made particularly favourable progress, whereas share prices in the forest industry and telecommunications have stagnated. Share price developments have been buoyed by good corporate profits, although the rate of growth in profits has decelerated in 2005, as measured in terms of gross operating surplus according to national accounts. The rise in share prices has also reflected investor confidence in continued robust earnings performance, notably in the energy sector.

Housing prices

Over the past 12 months, Finnish housing prices have risen more slowly than in the three previous years. By international standards, developments in the Finnish housing market have not

been exceptional either. At the end of June 2005, the housing price index compiled by Statistics Finland was 4.7% up on the previous year's level. At the same time, rent increased by 3.7% (Chart 7). In the first months of 2005, there were somewhat fewer house purchases than in the corresponding period of the previous year.

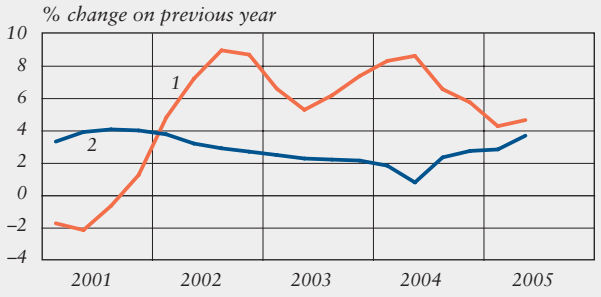
An analysis of annual developments, however, masks the fact that the rise in housing prices was at its slowest at the end of 2004, regaining momentum during the course of 2005. The rise in the housing price index accelerated in respect of both the Helsinki metropolitan area and other parts of the country. The prices of detached houses, which are excluded from the housing price index, went up on average more rapidly than those of other housing units (Chart 8).

Changes in the underlying factors of housing market developments have been rather small in the course of 2005. Household confidence weakened in the early part of the year. Particularly expectations regarding progress in the national economy and the risk of unemployment deteriorated, which may have contributed to a dampening of growth in housing demand. On the other hand, estimates of the affordability of borrowing improved at the same time as interest rates on housing loans continued to fall, in response to increasingly keener competition between banks. The low level of interest rates and the supply of long-term loans helped to maintain growth in lending for house purchase and thereby demand for housing.

In the early months of 2005, construction activity diminished, bringing the volume of residential housing units completed in June to the year-ago level. The deceleration in construction is, however, likely to remain temporary, as housing starts resumed a rising tendency in the second quarter of 2005, advancing at a rate of 13% compared with the previous year. According to survey data, the construction sector expects an improvement in the cyclical outlook.

Chart 7.

Housing and rental prices in Finland

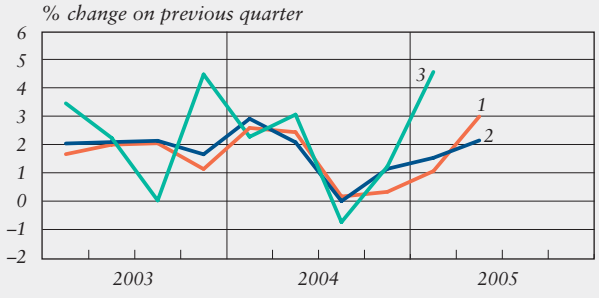


1. Housing price index
2. Rent per square metre

Source: Statistics Finland.

Chart 8.

Change in housing prices by type of housing



1. Flats
2. Terraced houses
3. Detached houses

Source: Statistics Finland.

The rate of increase in the costs for housing construction has accelerated over the last 12 months. The rise in building land prices decelerated at the end of 2004, but picked up again at the beginning of 2005 (Chart 9).

In the forecast, housing prices are expected to rise about 6% in 2005. The rather rapid increase in housing prices is underpinned by the low level of market interest rates and competition between banks for customers. The rate of increase in housing prices is expected to slow down to about 4% in 2006–2007, following a rise in interest rates.

The main sources of uncertainty in the housing market relate to changes in interest rates and the situation concerning the availability of building land for housing construction. Measures raised in the public debate for dismantling restrictions for the supply of building land could, if materialised, reduce upward pressure on housing prices. Conversely, a steeper-than-expected rise in market interest rates or an increased risk of unemployment, amid possibly weakening economic prospects, could lead to a faster-than-forecast fall in housing demand and a decline in housing prices.

MFI loans and deposits

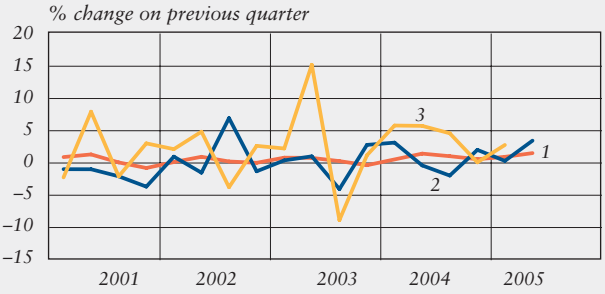
The operating environment of Finnish monetary financial institutions (MFIs) did not change significantly in the first half of 2005. Market interest rates remained stable. Alternative forms of saving that are substitutes for deposits, such as fund and insurance investment, continued to grow at a brisk pace. Demand for housing loans remained strong, and there was also a pick-up in the growth of consumer credits. Mergers and acquisitions, together with debt restructurings, helped to sustain demand for corporate loans. The strong demand for financial services is reflected in the 9% increase in the MFI balance sheet for the period from January to June 2005.

The amount of MFI net external liabilities increased, but the change is likely to remain short-term. This development mirrors the effect of the government's short-term financing operations. The government has recently used its deposit funds and debt taken out from domestic MFIs for repayment of short-term foreign debt. The corporate sector, too, appears to have offset its foreign funding by loans taken out from domestic MFIs.

Another change that has been typical of developments in MFI liabilities was the steep rise in other MFI assets and liabilities as a result of internal transfers within the banking

Chart 9.

Construction costs

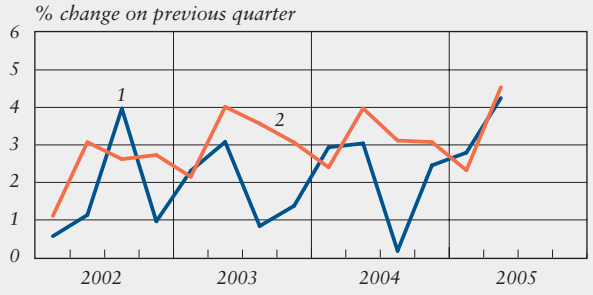


1. Construction cost index
2. Tender price index, housing construction
3. Building land prices

Sources: Statistics Finland and Rakennuttajapalaute Rapal Oy.

Chart 10.

MFI loans to companies and households



1. Loans to companies
2. Loans to households

Source: Bank of Finland.

sector. In percentage terms, the strongest growth in the early months of 2005 was recorded by money market fund shares, which, however, continue to constitute a fairly small proportion of MFI liabilities. Deposits from the public grew at an annual rate of about 6%.

MFI investments have been characterised by growth in portfolio investment and lending activity. The stock of corporate loans grew on average 9.2% in the period from May to July. Notably the stock of corporate loans with short maturities has experienced a steep rise. This development may be related to short-term liquidity needs caused by the labour market dispute in the paper industry. According to data from banks, investment requirements have not significantly pushed up demand for corporate loans.

Loans to households grew 13.2% in the first half of 2005 (Chart 10). Of loans granted to households, housing loans register the fastest growth rates. More than 95% of new housing loans continue to be fixed to floating rates.

Interest rates on new corporate loans granted in the early part of the year have declined by around 0.2 percentage point, ie by an amount equivalent to the change in short-term market rates. Interest rates on new household loans, in turn, have decreased by about one percentage point. The average interest rate on new housing loans reached a historic low level of slightly less than 2.9% at the end of June 2005, while the interest rate on consumer credits stood at 4%. Narrowing interest rate margins stem from competition between banks, which appears to have heightened in the market for not only housing loans but also consumer credits. It is indeed possible that the focus of competition between banks will shift from housing loans to consumer credits.

In the light of available survey data, the robust growth in the credit market can be expected to continue to the end of 2005. With moderately rising interest rates, growth in the lending stock will slightly decelerate in 2006–2007. Deposit growth will be constrained by continued preference for alternative forms of investment.

Box 2.

Long-term interest rates

The yields of euro area bonds have reached their lowest levels in decades. At the beginning of September 2005, in the aftermath of Hurricane Katrina, the yield on the German government bond was only 3%. At the same time, the yield on the 10-year US government bond was about 4%, which seems low in light of the Federal Reserve's policy rate of 3.50% and expectations on further monetary policy tightening. In the background of these record-low rates were concerns of a slowdown in economic growth due to a rise in oil prices.

The protracted low level of interest rates has already sparked activity in the market for very long bonds ie 30–50 years. At the beginning of August, the yield on the 50-year French government bond was 3.6%, so the spread over the 10-year bond is only about 0.5 percentage points. Governments offering very long bonds wish to lock in their financial costs for the long run. This probably reflects an assumption that interest rates would no longer decrease significantly from present levels. Demand in turn is fuelled by the higher yields on longer loans and expectations that the real level of interest rates will also in the longer term remain lower than its historical average.

Long-term interest rates can be used to assess market expectations of future growth and inflation. For example, the inflation expectation calculated on the basis of inflation-indexed French government bonds has remained at about 2% in 2005. On that basis, the expectation for real growth in 10 years could be roughly estimated to be 1.2%.

Demand factors behind low interest rates

Certain Asian economies and oil producer countries have grown at a solid rate in recent years. Their current account surpluses reflect growth in saving and are shown as increases in the foreign reserves of Asian central banks. The investment of growing foreign reserves within the scope of allowed risk limits poses a challenge, and long government bonds constitute the most important type of investment. Many Asian central banks have aimed at maintaining a stable exchange rate against the US dollar, which, even as such, has channelled their foreign reserves into the United States. The concentration of demand on government bonds has increased their prices and correspondingly pressed the level of interest rates downwards.

The low level of interest rates has also been supported by an increase in the credibility of monetary policy, which is reflected as dampening inflation expectations. Market participants are confident that central banks will uphold price stability in the future, too.

The level of real investments in Europe has been low in recent years. It has been difficult to find sufficiently profitable investment opportunities for long-term investment capital, which has directed part of the investments at least temporarily to lower-risk government bonds. Also higher-risk government bonds and corporate bonds have experienced strong demand due to their higher yield potential. On the other hand, the increase of risk in alternative investment types has traditionally boosted the so-called safe haven demand for government bonds.

Increasing wealth in the private sector shows as a continuous growth in mutual funds across Europe. Part of the growing savings of the private sector in other industrialised countries and Asian countries is invested in long-term euro area bonds. Due to the downward trend in long-term interest rates, this has been a profitable investment in recent years, so it can be considered to fuel itself. So far, growing pension funds and voluntary pension investments have been part of this development.

The capital adequacy regulations prepared in recent

years have increased the need of pension insurance companies, for example, to invest in long and very long term bonds.[1] New principles concerning fair value in accounting regulations result in fluctuations in pension companies' results, while the interest-rate risk calculations of the capital adequacy regulations increase the capital adequacy requirement. In order to manage these problems, pension companies must rearrange the traditionally liquid assets in their balance sheets to better match their long-term liabilities, ie pension liabilities. Also other market participants have the need to hedge against interest-rate risk by modifying the proportion of long-term bonds in their investment portfolios.

Demographics also influence interest rates

The demographic development in Europe is argued to be one of the reasons for the low level of long-term interest rates. Population ageing slows down economic growth as the large population age cohorts retire from the labour force to pension. This results in a gradual decrease in investments and the need for investments. On the other hand, private investment may even increase despite the shift to retire by large population age cohorts.[2] The continuous lengthening of the average life span results in a need for larger pension savings than previously. Thus the supply of savings funds remains high relative to their demand, in other words, investments, which exert downward pressure on the interest-rate level.

[1] In Finland, there is no certainty at this stage whether or not the new regulations will be applied to pension insurance companies.

[2] More specific discussion in the discussion paper Ageing, interest rates and financial flows by Tuomas Saarenheimo. Bank of Finland Discussion Papers 2/2005.

Box 3.

Monetary and loan growth

In 2005, the broad monetary aggregate (M3), consisting of bank deposits, money market fund shares/units and debt securities by the public, has grown at a notably faster pace in Finland than in the euro area on average. In June, however, growth slowed down to 6.8% (Chart A), whereas in the euro area M3 continued to grow at about the 8% level.

In the euro area, M3 growth is primarily supported by growth in overnight deposits (M1), which are mainly transaction accounts types of deposits. In Finland, rapid growth in the broad aggregate (Finland's contribution to euro area M3 growth) has been based on the increasing popularity of money market fund shares/units in particular (Chart B).

Transaction deposits (overnight deposits) have traditionally constituted a very volatile component, in Finland. In recent years, their annual growth has fluctuated monthly between just under 2% and 10%.

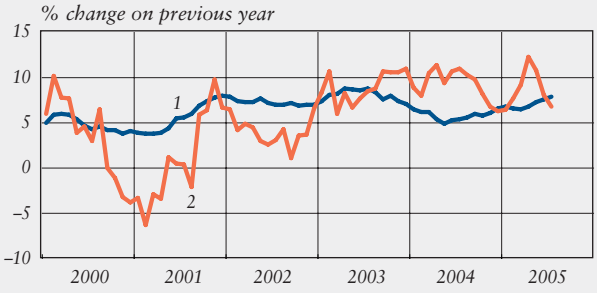
The value of money market fund shares/units has risen throughout the current decade in Finland. As their share of the total Finnish contribution to M3 was 2% at the end of 2000, in 2005 it has already risen to 13%. At the end of July, holdings by the public of money market fund shares/units amounted to EUR 11.8 billion. Their volume is growing at an annual rate of about 30%.

The growth rate of loans to the public by Finnish monetary financial institutions (MFIs) has accelerated to around 12% during 2005. In Finland, loans to financial institutions and insurance companies (excl. MFIs) only account for a small part of the total stock of loans, a mere 0.5 percentage points. In the euro area, loans to this sector represent in turn about 7% of the loan stock, and their share is increasing at an annual rate of over 10%. Loans to general government grow annually by about 20% in Finland, owing to growth in loans to both central and local government. In the euro area, the stock of loans to general government has remained very stable.

The annual growth rate of the stock of loans to non-

Chart A.

Growth of the money stock M3

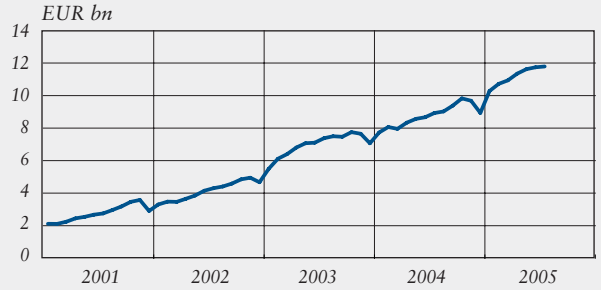


1. M3 for the euro area*
2. Liabilities of Finnish MFIs included in M3**

* Adjusted for seasonal and calendar effects.
** Excluding currency in public circulation.
Sources: European Central Bank and Bank of Finland.

Chart B.

Holdings by public of money market fund shares/units



Source: Bank of Finland.

financial corporations has averaged at around 9% in 2005 (Chart C). The stock of MFI loans to non-financial corporations is increasing by about 2 percentage points faster in Finland than in the euro area on average.

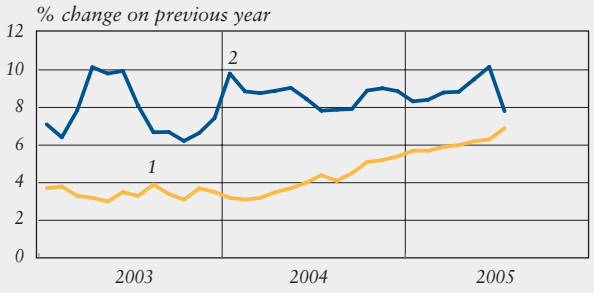
In Finland, growth in the stock of loans to the public is mainly fuelled by accelerated growth in loans to households. During 2005, this growth has picked up from about 13% to 14%. This is primarily attributable to housing loans, the growth rate of which already reached 16.2% in June (Chart D). Housing loans have experienced a faster growth only at the end of 1980s, when their annual growth peaked at around 25%, according to the Statistics Finland data on outstanding credit. Competition between MFIs is also reflected in consumer credit. It is currently increasing at an annual rate of over 11%. Other loans to households have grown more moderately, by about 7%. Other loans comprise all loans to entrepreneurs, student loans and holiday home loans, among others. However, drawing a distinction between consumer credit and other loans can be difficult.

Growth in loans to households has also picked up in 2005 in the euro area, and is now about 8%. The annual growth rate of housing loans is around 10%. Also in the euro area they are the fastest growing loan type. Consumer credit has increased by about 7% in the first half of 2005.

In the course of 2005, MFIs new business on loans has grown faster than on average in two previous years. Falling interest rates and competition between banks has boosted loan negotiations. In addition to new loan agreements, new business on loans also includes changes in existing loan agreements, such as agreements with renegotiated interest rate margins. In 2005, the monthly volume of new business on housing loans has averaged at EUR 2.4 billion (Chart E), and the interest rate on new business on housing loans fell below 3% in May.

Chart C.

Annual growth of loans to non-financial corporations

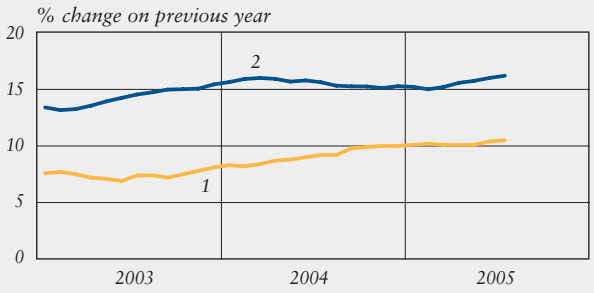


1. Euro area
2. Finland

Sources: European Central Bank and Bank of Finland.

Chart D.

Annual growth of housing loans

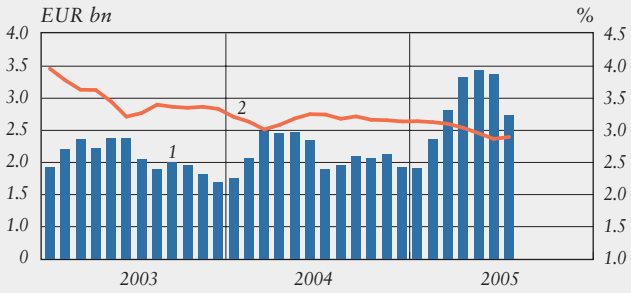


1. Euro area
2. Finland

Sources: European Central Bank and Bank of Finland.

Chart E.

New business on housing loans



1. *Housing loans: new business (left-hand scale)*
2. *Interest rate on housing loans: new business right-hand scale)*

Source: Bank of Finland.

However, housing loan stock has only grown by about EUR 600 million monthly in 2005. Hence it can be concluded that renegotiated existing loans account for a substantial proportion of new business on housing loans. To date in 2005, new drawdowns on housing loans have averaged at EUR 1.5 billion a month. This also includes all loans related to switching banks, which do not add to the housing loan stock.

Supply

Output

In 2004, total output grew 3.6% according to annual accounts data published by Statistics Finland in the summer. The level of the GDP for the first part of 2005 remained lower than the level recorded at the end of last year. This was significantly affected by the production standstill in the paper industry following the sector's labour market dispute.

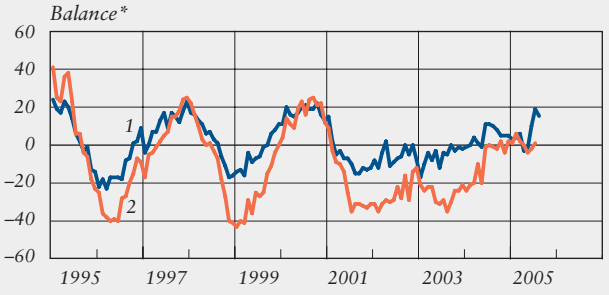
The labour market dispute in the forest industry is estimated to have reduced GDP growth for 2005 by around 0.8 percentage point. Energy and transport were the main outside sectors that suffered most from the contractual dispute in the forest industry (Box 7). Electronics and electrical engineering output has recovered in recent months from its drop earlier in the year. The recovery is likely to reflect output volatility in Finland rather than any actual, permanent increase in output. In the first quarter of the year, output in other metal industries also decreased slightly from the end of 2004.

Industrial confidence continued to improve in summer 2005 (Chart 11). Post-dispute output expectations for the near term are high in the forest industry. The low level of inventories also has an upward impact on the industrial confidence indicator. However, while there has been a substantial improvement in sales price expectations, order books have remained almost unchanged. Normalisation of forest industry output should help industrial production to record particularly brisk growth in the next few months. An increase in growth rates is constrained by capacity utilisation in the forest industry, for which the pre-dispute rate was already more than 90% (Chart 12).

The forecast for GDP growth in 2005 is about 1.6%. In 2006, economic growth will pick up to almost 4%, owing to the base effect from the low level in 2005, gathering strength towards the end of the year. Growth will level off to just under 3% in 2007, approaching the long-term trend. Capacity constraints in domestic output

Chart 11.

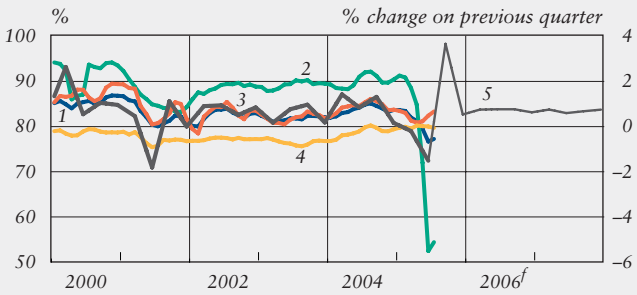
Industrial confidence and order books



1. Industrial confidence indicator
2. Order books compared with normal
* Seasonally adjusted.
Source: European Commission.

Chart 12.

GDP and capacity utilisation rate in industry



1. Manufacturing*
2. Forest industries*
3. Metal industry*
4. Other manufacturing*
5. GDP at market prices (right-hand scale)

* Moving average.
Sources: Statistics Finland and Bank of Finland.

will start to restrict the economic growth potential, as the last few years have witnessed slow investment growth, problems with matching up supply and demand in the labour market and population ageing.

The main source of growth in private sector output in recent years has been growth in total factor productivity. The contractual dispute in the forest industry will be reflected as a reduction in total factor productivity in 2005. The reason for this is that, because of the dispute, the number of employed used as labour input does not diminish in line with output decline. Although net capital stock in industry contracted in 2004, this contraction was offset by capital stock growth elsewhere in the private sector. With a recovery in investment, capital stock growth will accelerate in the forecast period, reaching a slightly faster pace than that recorded at the beginning of the decade. This will provide a moderate boost to private output growth. It is, however, the growth in labour supply that will provide the main source of growth in 2005. Growth in labour supply will slow down in 2006–2007, and private sector output growth will again hinge on growth in total factor productivity. This forecast scenario is, however, conditional on faster progress in the implementation of labour and capital-saving technologies in order for output to be capable of meeting domestic demand. During the forecast period, the strength of domestic demand will be reflected as an increase in imports and a decrease in the current account surplus.

Employment and labour supply

Employment has clearly improved in the course of 2005. This has primarily been driven by the fact that jobs in industry are no longer diminishing. Accordingly, the almost three-year-long weakening of employment related to globalisation in industrial output and productivity improvements appears to have come to at least a temporary halt. Employment in trade and transport, as also in construction, has continued to improve slightly. In the first half of 2005, the number of employed increased by about 40,000 from the year-ago level, but July figures already pointed to deceleration in employment growth.

Even so, the increased number of employed has not been reflected as a corresponding growth in labour input, as measured in terms of the number of hours worked. Besides the forest industry labour dispute, this stems from the shifting of the focus of job creation towards the service sector, which has led to an increase in the relative share of part-time employments. The share of part-time employees started to grow in line with improving employment in trade in the middle of 2004, and its ratio to total employed has already risen by one percentage point to 16% in summer 2005 (Chart 13).

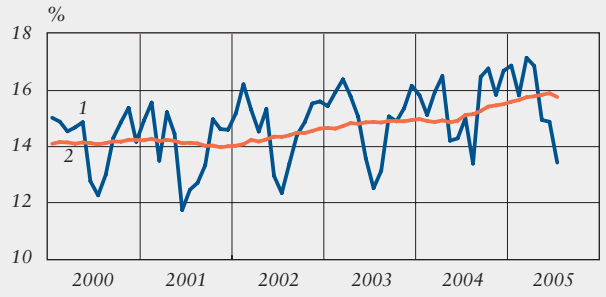
An increasingly large number of new employment contracts have also been made for a fixed term. This suggests either a change in the nature of the labour market or the fact that companies perceive their possibilities to provide jobs as being insecure in the longer term. The latter interpretation is

supported by the already weakened employment outlook for construction and services for the rest of the year. In contrast, on the basis of barometer surveys, employment in industry appears to ameliorate towards the end of 2005. All in all, the number of employed is estimated to increase by about 33,000 in 2005.

In 2006–2007, robust growth in private consumption will sustain employment in the service sector (Chart 14). Construction will also create new jobs, but employment growth will be hampered by problems in matching up labour supply and demand, which are typical of this sector. Increased provision of public services will underpin employment in local governments, but growth is expected to record a marked slowdown towards the end of the forecast period. Domestic jobs in the export industry will continue their declining trend in the forecast period. The number of employed is estimated to grow at an annual rate of 0.5% on average in 2006–2007. There will be only a slight improvement in the employment rate.

Chart 13.

Share of part-time employees of employed population

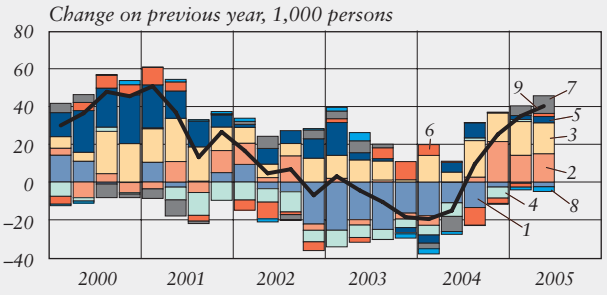


1. *Share of employed population*
2. *Share of employed population, 12-month moving average*

Source: Statistics Finland.

Chart 14.

Change in employment by sector



1. *Industry*
2. *Trade, hotels and restaurants*
3. *Public and other services*
4. *Agriculture and forestry*
5. *Finance, insurance and business*
6. *Transport*
7. *Construction*
8. *Unknown*
9. *Total employed*

Source: Statistics Finland.

Productivity and capital

Economic growth is composed of an increase in the amount of factors of production, ie labour and capital, and of their more effective utilisation. A key factor in enhancing efficiency is technological development. Qualitative factors, such as training, also have an impact on a more effective use of labour, in particular. Technological advances provide the main source of growth in the years to come, as growth in the amount of labour input is slow and forecast to assume a downward trend owing to labour force ageing.

Table 1 illustrates the ratio of output growth to population growth, broken down into growth in technological development (labour productivity) and growth in labour input. Growth in labour input, in turn, breaks down into the following components: hours worked, employment rate and labour force participation. Hours worked per employee reflect not only a shortening of average working hours but also a

change in the amount of part-time work in the economy. Shorter working hours, in the form of either shorter weekly working time or longer holidays, reduces this ratio. An increase in the share of part-time work also leads to a decrease in the average hours worked per employee. The employment rate[1] illustrates how large a proportion of the labour force is employed; the labour force participation rate in turn indicates how large a proportion of the population belongs to the labour force and is thereby available to the labour market.

Growth in average labour productivity (output per hours worked) provides the main source for output growth. However, productivity growth decelerated in the 1990s and is anticipated to slow down further still to some degree during the forecast period. The amount of labour input, in turn, has undergone strong variations over different periods. The number of hours worked per employee has contracted rather evenly throughout the period under review. The reduction in average working hours in the 1970s and 1980s was due to a shortening of weekly working time and an extension of holidays. In the current decade, average working hours have become shorter as a result of an increase in part-time work, which has also had a considerable effect on recent improvements in employment. These developments are expected to continue in the next few years.

The employment rate (ratio of employed to labour force) decreased in the 1970s and 1980s. This was due to a simultaneous, rather rapid growth in the labour force participation rate. An increasingly larger proportion of the population entered the labour force at a speed that outpaced employment growth. The employment rate plunged during the 1990s recession, but has subsequently recovered gradually. Due to fairly strong growth in labour demand, the employment rate will continue to rise moderately throughout the forecast period as a whole. There was also a substantial decline in the participation rate during the recession, as part of the labour force was crowded out of the labour market. The recovery of the participation rate has been clearly slower than that of the employment rate, which has been a reflection of the low average age of retirement. The participation rate will continue to rise at the beginning of the forecast period but, owing to frequent retirements, will resume a downward trend towards the end of the decade.[2]

[1] In this connection, the employment rate refers to the ratio of employed to the labour force rather than the normally defined share of 15–64 year-olds employed of the population of the same age group.

[2] The employment rate and the labour force participation rate are of considerable importance to the economy's ability to bear the growing burden of pension payments. This issue is discussed in more detail in Juha Kilponen and Helvi Kinnunen's article 'General equilibrium effects of population ageing' on page 90 below.

Table 1.

Labour productivity in the private sector

Average percentage change

	Ratio of output to population	*Productivity*	*Hours worked per employee*	*Employment rate*	*Labour force participation rate*
1975–1989	*3.4*	*3.9*	*–0.3*	*–1.1*	*0.9*
1990–1994	*–1.7*	*4.3*	*–0.4*	*–4.1*	*–1.4*
1995–1999	*5.2*	*3.1*	*–0.4*	*1.9*	*0.5*
2000–2004	*3.2*	*3.0*	*–0.6*	*0.6*	*0.2*
2005–2007f	*2.9*	*2.9*	*–0.6*	*0.5*	*0.1*

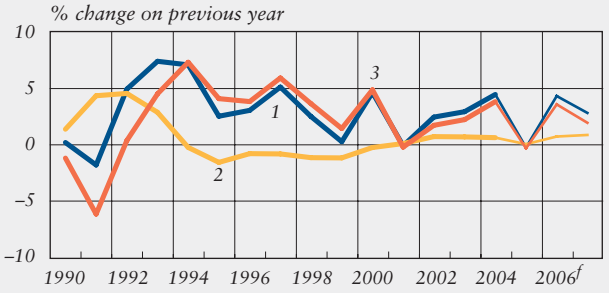
f = forecast

Sources: Statistics Finland and Bank of Finland.

Chart 15 provides a breakdown of growth in labour productivity (private output per employee) into two components: growth in total factor productivity and capital intensity. Variations in productivity have almost entirely stemmed from changes in total factor productivity. The productivity impact of capital intensity has even been negative at the end of the 1990s, reflecting, above all, the post-recession intensification in the use of the existing capital stock. According to Statistics Finland, the share of equipment and machinery of the capital stock has diminished during the last 10 years. The improved quality of the capital stock as a result of production structure changes is not measured in national accounts, but is reflected as total factor productivity growth. The contribution from capital input will increase slightly in the forecast period, in the context of an assumed pick-up in investment activity.

Chart 15.

Labour productivity in the private sector



1. *Labour productivity*
2. *Capital intensity*
3. *Total factor productivity*

Sources: Statistics Finland and Bank of Finland.

During the forecast period, growth in labour productivity is expected to be brisk. The reason for low labour productivity growth in 2005 is the impact on output from the forest industry labour dispute.[3] If labour productivity is measured in terms of hours worked, growth in labour productivity will easily reach 1.5% in 2005, depending on the estimate of hours worked.

During the forecast period, growth in private sector labour productivity will be on average 2.3%, which is somewhat slower than in the last few years. There will hardly be any change in public sector labour productivity, and labour productivity growth for the economy as a whole will be on average 1.9% during the forecast period.

A tight labour market

Population ageing will already start to have an impact on the structure of the potential labour force in the forecast period. While, as measured in terms of labour statistics, the amount of working-age population still grows at the same pace as in the last two to three years, ie 0.2–0.4% per annum, the actual potential labour force will already start to diminish. If the average age of retirement continues to be around 60, the potential labour force will decrease 0.4–0.6% annually in the forecast period. Conversely, a trend rise in the employment rate of age groups approaching the retirement age, together with an increase in these

[3] The labour market dispute does not show up in the number of employed so that output per employee – average productivity – declined for the duration of the dispute.

cohorts' proportion of the population as a whole, will contribute to the supply of labour. Overall, population ageing will reduce the potential labour force only little in the forecast period.

However, population ageing already has a sizeable impact on the labour market for other reasons. The potential labour force available to the private sector will in fact diminish, as the need for services provided by local governments will increase at the same time and local governments need to hire staff to replace the retired ones, from among smaller age groups entering the labour market. In the local government sector, the number of retirements, which was just under 9,000 persons annually as late as at the end of the 1990s, has already risen to almost 12,000 persons. Retirements are estimated to peak in about 10 years, with some 16,500 persons. The forecast, however, expects public sector employment to increase only slightly.

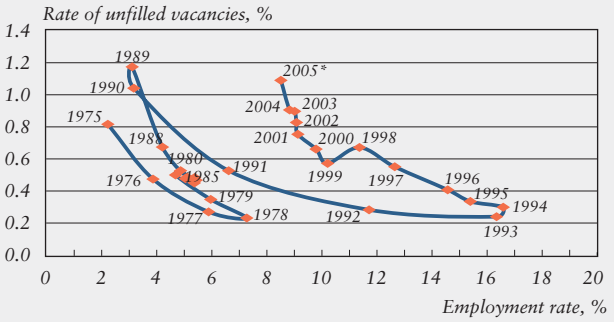
Unemployment will continue to be high. In the forecast, the number of unemployed will remain at about 200,000 and the unemployment rate will go down only slightly from the current levels, ie to 7.8% in 2007. When unemployment has continued to be high for a long time, it has become more persistent, as an increasingly larger share of the unemployed are long-term unemployed or frequently unemployed. According to the Ministry of Labour's estimate, this hard core of unemployment already accounts for more than half of unemployed job seekers. Therefore, only part of the visibly unemployed is available to the labour market. On the other hand, the labour market has eased somewhat, because the number of working-age people leaving the labour force has not been in 2005 as high as it was in 2004. The share of students and those engaged in household work of the working-age population has decreased at least for the time being.

Labour market mismatches appear to pose a chronic problem. In other words, job matching between unfilled vacancies and unemployed job seekers is very inefficient. This is indicated by an upward right-hand shift of the Beveridge curve (Chart 16). For each level of unfilled vacancies there are more unemployed than earlier.

Indicators of matching efficiency show that the job-matching process in the Finnish labour market followed its typical cyclical pattern as late as in 1988–2000: job matching was less efficient in a cyclical upturn, when it was more difficult to fill vacancies than in a downturn, when there were more

Chart 16.

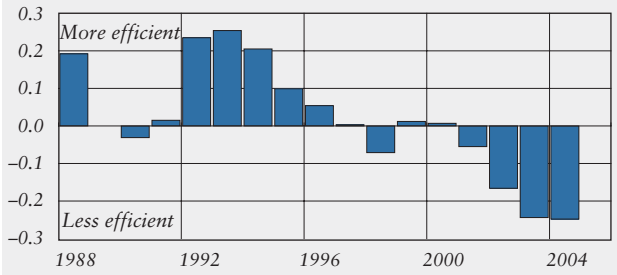
Beveridge curve 1975–2005



** First half of 2005.*
Sources: Ministry of Labour and Statistics of Finland.

Chart 17.

Efficiency of the matching process in the Finnish labour market



Source: Bunders (2003 and 2005).

unemployed for each unfilled vacancy than in an upturn (Chart 17). After 2000, however, matching efficiency continued to deteriorate discernibly, although the number of unemployed did not decrease essentially any longer and the number of unfilled vacancies increased.[4]

Another indication of a weakening job-matching process in the labour market is the simultaneous existence of recruitment difficulties at companies and unemployment. Recruitment difficulties occur especially in construction, research and services. These difficulties have increased in construction over the last few years.[5]

As a result of more frequent mismatch problems in the labour market, it has become increasingly difficult to reduce unemployment by boosting labour demand. There is a danger that the increased demand for labour in sectors suffering from mismatch problems will push up the price for labour instead of improving employment. To alleviate mismatch problems, the supply of labour should quickly adapt to changes in demand. In practice, this would mean an effective re-training of the unemployed, more incentives for acceptance of offered work and dismantling of systems constraining labour mobility. The impact of such measures on the labour market will depend on how successfully they can be implemented by joint efforts. Implemented in isolation, such measures will have little effect.

[4] The outcome is based on the estimation of the job-matching function and its recent update. The method was presented by Markus Bunders in the Bank of Finland Discussion Paper 32/2003.

[5] Rekrytointikanavat ja rekrytointivaikeudet EK:n jäsenyrityksissä, Elinkeinoelämän keskusliitto 2005. (Recruitment channels and recruitment difficulties in the member companies of the Confederation of Finnish Industries EK, Confederation of Finnish Industries EK, 2005).

Box 4.

Employment developments in terms of hours worked

Employment has developed fairly favourably in Finland during 2005. However, part-time jobs account for an increasing part of new recruitments, which makes it more difficult to assess employment developments merely on the basis of changes in the number of employed. Currently, the share of part-time employment is about 16% on average. This figure is still fairly low by international standards. Sectoral differences are great; for instance, the share of part-time employment is over 25% in 'trade, hotels and restaurants' sector, but only about 6% in the industry.[1]

If the employment of part-time workers is considered only in terms of the number of hours worked, the employment rate is several percentage points lower than that measured in the Statistics Finland 'Labour Force Survey'. In the said survey, employed persons cover all those who have worked at least one hour per week. The official employment rate for 2004 stood at 67.2%. Converted into full-time employment, it falls to 64.6%.[2]

When assessing employment, it is also important to know what the main reasons behind part-time employment are. According to the Statistics Finland Labour Force Survey, close to one third of part-time workers in 2004 were students or school pupils. Pension and part-time pension were also important reasons for choosing a part-time job (Chart A). It would appear that voluntary part-time employment has increased at both ends of the career path. By contrast, part-time employment is becoming an increasingly undesirable employment form in the middle of the career path. Almost 30% of interviewed part time workers would have preferred a full-time job, but there was none available. It is obvious that, without the possibility of working part time, some of the employed would have remained outside labour markets. Hence, caution is warranted when interpreting part-time employment as under-employment.

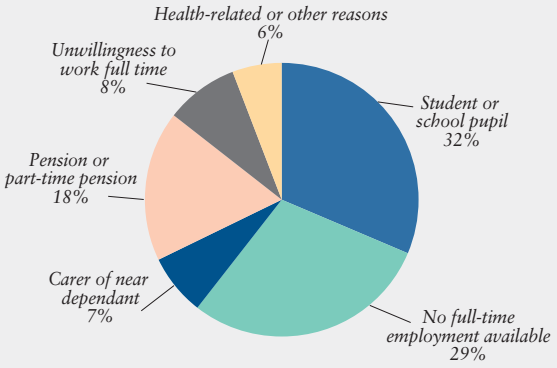
When employment weakened in 2003, the number of hours worked did not decrease accordingly. This points to an increasingly uneven

[1] However, productivity developments can complicate the use of hours worked as a measure of employment. A decrease in the number of hours worked can erroneously be interpreted as a sign of weak employment developments even when it is a consequence of an increase in free time enabled by growth in labour productivity.

[2] This has been calculated in the same way as in the Ministry of Education labour force report *Työvoima 2020*. In this report, full-time equivalent employment is calculated by multiplying full time employment by the relation between the number of hours worked and the number of hours worked by full-time workers.

Chart A.

Reasons for part-time employment



% of respondents to Labour Force Survey working part time.
Source: Statistics Finland.

division of work. The same number of working hours were worked by a smaller number of employees. The improvement in employment in spring 2005 is in turn reflected in a rise in both the number of employed and the number of hours worked, albeit growth in the latter was notably weaker (Chart B).

Sectoral differences in employment developments appear the same when measured on the basis of the number of hours worked or persons employed. During the past few years, employment has improved, also when measured on the basis of hours worked and, in the trade and hotel and restaurant sector in particular. The number of hours worked in industry has fallen since the end of 2001 (Chart C).

Establishing actual employment in the construction sector is problematic. For instance, in 2004, construction output increased, but statistics pointed to a fall in construction employment. The most probable explanations for this development are, in addition to improved productivity, the fact that foreign companies have hired labour force outside Finland who do not show up in the Finnish Labour Force Survey, and the possible use of the so-called grey labour force.

In terms of national economics, and the accrual of tax receipts in particular, it is not only developments in the number of employed that counts, but also whether employment is part time or full time. It is hardly insignificant – in terms of labour market functionality – whether an increase in the number of hours worked means a rise in the amount of overtime work, a change from part-time work to full-time work or creation of entirely new job vacancies. How employment grows in practice, reflects how work is divided between labour force participants.

Chart B.

Development of wage earners' employment and number of hours worked, trend

1. Hours worked
2. Employed

Source: Statistics Finland.

Chart C.

Number of hours worked by sector

1. Industry
2. Construction
3. Services*

* In National Accounts = 'Other services'.

Source: Statistics Finland.

Demand

Statistics Finland's summer 2005 update of national accounts included a slight revision of GDP growth for 2004, from 3.7% to 3.6%. The structure of last year's growth changed primarily because of data revisions in foreign trade and inventory investment. Because imports and especially exports grew in 2004 by more than estimated in the National Accounts of February 2004, the estimated growth contribution of net exports in 2004 was changed from slightly negative to a positive 0.4 percentage point. The growth contribution of inventory investment was reduced by about 0.5 percentage point, to 0.3 percentage point.

The estimate of average annual GDP growth for 2005–2007 is virtually unchanged, at 2.7%. The labour dispute in the paper and pulp sector will clearly reduce estimated GDP growth for 2005 and raise it for 2006. The average growth contribution of net exports over the forecast period is estimated at 0.4 percentage point per annum. The negative impact of inventories is expected to disappear after 2005 (Chart 18).

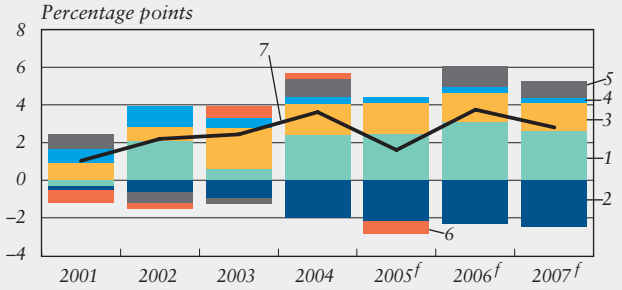
Consumption

In recent years private consumption has boosted the rate of economic growth. Consumption has been buoyed by some exceptional factors such as a reduction in car taxes, which has had a positive effect on the growth of durable goods consumption, especially in 2003. Other consumption boosters include elevated income expectations and a low level of interest rates. The consumer confidence indicator shows that consumers have remained fairly confident about their own finances and have again in recent months become increasingly confident in the overall economic situation.

Indicator data on developments in spring and early summer of 2005 point to continued robust consumption growth. Car sales in particular, but also retail sales, have clearly increased in the first half of this year (Chart 19). Car sales are expected to continue at a brisk pace during the latter part of the year.

Chart 18.

Growth impact of components of aggregate demand*

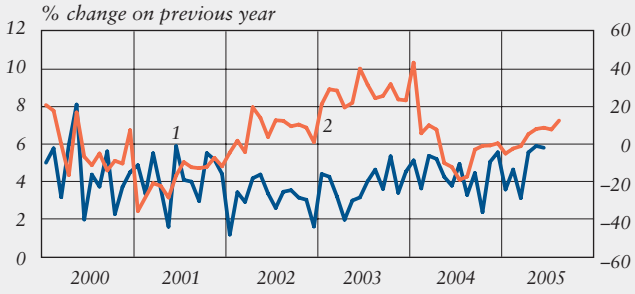


1. Exports
2. Imports
3. Private consumption
4. Public sector demand
5. Private investment
6. Inventory change and statistical discrepancies
7. Percentage change in GDP volume

* Impact on GDP growth, % of previous year's GDP.
Sources: Statistics Finland and Bank of Finland.

Chart 19.

Retail and car sales



1. Retail sales volume (left-hand-scale)
2. New car registrations (right-hand-scale)

Source: Statistiscs Finland.

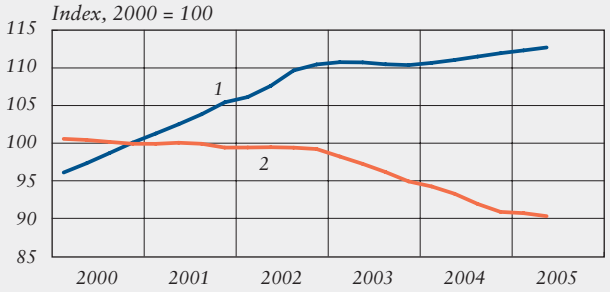
Private consumption has been buoyed by declining prices of durable goods (Chart 20). The reduction in car taxes is clearly one of the explanatory factors, but a tightening of sellers' competition and declining prices of electronics products have also played prominent roles. Compared to the price level of 2000, durable goods prices had declined by about 10% by mid-2005. There is, however, only a modest impact on consumers' purchasing power from the decline, since durable goods account for a mere 10%-plus of the aggregate consumption basket. A much bigger role is played by price developments in services, which account for about 50% of the basket. These prices have, in contrast, risen quite sharply, by about 12%, during the same period. Recently, heightened competition, especially in tele-services, has slowed the rise in service prices, and this has had a pronounced positive impact on households' purchasing power in 2004 and 2005.

Households' disposable income is expected to grow at an average annual rate of nearly 4% during the forecast period. Besides a rise in average earnings, wage and salary earnings have been boosted by a rapid increase in labour input in 2005, and further modest increases are projected for 2006 and 2007. An easing in taxation, especially in 2005 and 2006, is another booster of purchasing power. As regards income transfers, a growing segment is old-age pensions, which should increase towards the end of the forecast period. Real purchasing power should increase by about 2.5% in 2005 and by somewhat less in 2006 and 2007.

The growth of consumption is forecasted to decelerate slightly in 2006 and 2007 but to remain in step with GDP growth to the end of the forecast period. Households' real purchasing power will be reduced, especially this year, by a rise in oil prices, but consumers should continue to benefit from the decline in goods prices driven by the globalisation process. Competition is not expected to diminish in the domestic markets. Both a duller economic outlook and faster-than-expected rise in households' indebtedness, if realised, could prevent consumption growth from meeting the projection for the forecast period. Moreover, the possibility that oil prices will remain higher than assumed increases the risk that the consumption outcome will be weaker than forecasted.

Chart 20.

Price indices for durable consumer goods and services



Four-quarter moving average
1. Services
2. Durable consumer goods
Source: Statistics Finland.

General government

General government finances will weaken gradually in the course of the forecast period (Table 2). The combined fiscal surplus of central and local

governments and social security funds is projected to decline from about 2% to just over 1½% of GDP. Over the same period, the general government debt should fall relative to GDP. On the other hand, the ratios of general government revenue and expenditure to GDP and the tax ratio[1] will increase notably in 2005. These increases are due to the fact that nominal GDP will grow much more slowly than tax revenues and public expenditures. Nominal GDP growth is expected to pick up in 2006 and 2007 and the ratios of revenue and expenditure to GDP and the tax ratio should decline. Government measures will be moderately supportive of economic growth throughout the forecast period.

The forecast takes account of changes in taxation and social security contributions that are effective in 2005 and included in the Government's 2006 budget proposal as well as measures included in the general incomes policy settlement agreed in November 2004. All of these changes are expected to reduce the increase in general government revenue from taxes and social security contributions by some EUR 1.8 billion over the forecast period. Although the Government will channel more money into active labour market policy measures and infrastructure investments, the focus of fiscal policy will clearly remain on taxation during the forecast period.

Tax cuts will push central government finances slightly into deficit in 2005, and with further tax easing bigger deficits are projected for 2006–2007. The central government will compensate for the effects on local government finances of its tax measures and the reforms in funding of the sickness insurance scheme and the labour market and subsistence subsidies schemes via increased revenue transfers to local governments. Transfers to local governments will also be increased in the context of the review of the division

[1] The tax ratio is the ratio of general government revenues from direct and indirect taxes and social security contributions to GDP.

Table 2.

General government revenue, expenditure, financial balance and debt, % of GDP

	2002	2003	2004	2005f	2006f	2007f
General government revenue	*54.1*	*53.2*	*53.0*	*53.4*	*53.2*	*52.7*
General government expenditure	*49.8*	*50.9*	*51.1*	*51.5*	*51.3*	*51.2*
General government primary expenditure	*47.7*	*49.0*	*49.3*	*49.9*	*49.8*	*49.6*
General government interest expenditure	*2.1*	*1.9*	*1.8*	*1.7*	*1.5*	*1.5*
General government net lending	***4.2***	***2.3***	***1.9***	***1.9***	***1.8***	***1.6***
Central government	*1.4*	*0.4*	*0.2*	*–0.3*	*–0.4*	*–0.5*
Local government	*–0.2*	*–0.6*	*–0.7*	*–0.5*	*–0.4*	*–0.4*
Social security funds	*3.0*	*2.5*	*2.3*	*2.6*	*2.6*	*2.5*
General government primary balance	*6.4*	*4.2*	*3.7*	*3.5*	*3.4*	*3.1*
General government debt	***42.2***	***45.0***	***44.9***	***42.4***	***42.0***	***41.7***
Central government debt	*42.1*	*44.0*	*42.6*	*39.7*	*39.0*	*38.4*
Tax ratio	*45.5*	*44.5*	*44.2*	*44.7*	*44.5*	*44.1*

f = forecast
Sources: Statistics Finland and Bank of Finland.

of expenditure on local government functions covered by central government transfers. Despite these measures, the local government fiscal deficit will decline only marginally. The social security funds will continue to run a surplus of around 2½% of GDP.

The polarisation of public finances into surpluses for employment pension funds and deficits for central and local governments will continue throughout the forecast period. Without the surpluses of the employment pension funds, the general government would be running a deficit of just over 1% of GDP.

The central government gross debt will decline in 2005. The debt was reduced by EUR 2.2 billion in the spring by using revenue received earlier from asset sales and further selling has occurred since then. The forecast assumes that the revenue from the sales of assets is not used to cover the central government budget deficit will be used to pay down the debt. Because the central government will run deficits in 2006 and 2007, the gross debt will go on the rise again. As the forecast calls for only a modest decline in local government deficit and employment pension funds are assumed not to increase their investments in government debt securities during the forecast period, the general government gross debt could also diminish in 2005, after which it is likely start increasing again.

General government revenue is projected to increase on average by just over 3% per annum during the forecast period. Continuing tax reductions and a slowing of tax-base growth will constrain the growth of tax revenues during the forecast period while reduced property income slows the growth of other revenues, especially in 2005. Changes in taxation will reduce the total tax burden by almost 1% of GDP and appear to be modestly supportive of economic growth in the forecast period.

Nominal general government expenditure should grow on average by about 3½% per annum over the forecast period. Current primary expenditure[2] is projected to increase by nearly 4% a year on average and investment expenditure by a mere 2%-plus. The growth of investment expenditure will be constrained particularly by a reduction in investment by employment pension funds. Interest expenditure will shrink considerably during the forecast period, thanks to both a substantial decrease in central government gross debt in 2005 and a further decline in the effective rate of interest on the debt during the forecast period. Growth of current primary expenditure will be maintained by increases compensation of public sector employees' employment pension payments and sickness insurance benefit payments. While the number of employment pensioners and their average benefits will increase, the number of national pensioners and the sum paid out in national pensions will decline. A reduction in the number unemployed will reduce unemployment expenditure during the forecast period.

[2] Current primary expenditure includes expenditure other than interest and investment expenditure and capital transfers; it indicates the annual expenditure involved in carrying out the responsibilities of general government.

Budget appropriation increases will remain within prescribed limits

The Government's 2006 budget proposal has a deficit of EUR 617 million. Appropriations total EUR 39.5 billion, which is 4.2% more than in the 2005 budget. Appropriations for administrative expenses are 5.1% higher, and interest expenditure on central government debt is projected to be 8.5% less than originally budgeted for 2005. Of total appropriations, those related to spending limits procedure amount to EUR 29.6 billion and those not related to the procedure to EUR 9.9 billion. Of the total spending limit, EUR 232 million is set aside for possible future references, to be decided on in supplementary budgets.

The spending limits for 2006, which were confirmed in connection with the presentation of the budget proposal, total 3.4% more than those for the 2005. Taking into consideration changes in the structure and expenditure level of the budget, the real growth of the total spending limit is actually less than 1%. The financial reform of the Social Insurance Institute and its sickness insurance fund will clearly boost the amount of spending not related to the limits procedure. The reform is nonetheless neutral in terms of budget financing needs because VAT revenue will no longer be credited to the Social Insurance Institute.

The spending limits procedure was revised in spring 2003 with the aim of improving the transparency and persistence of the budgeting process. A further aim was to separate budgeting for discretionary expenditures from budgeting for expenditures closely linked to the business cycle and to certain revenue items, as well as interest expenditure and spending due to changes in the tax base. Most importantly, the aim was to set tight and unequivocal limits on the growth of discretionary spending.

The Government's budget proposal for 2006 is consistent with the tight control of spending espoused in its own programme. Structural and cost-level revisions in appropriations, which is required as part of the spending limits procedure complicate the assessment of future developments, and the budget proposal is not totally transparent. The obscurity of the procedure tends to reduce confidence in the sustainability of the spending policy, although for now there seems to be no compelling reason for such a weakening of confidence.

Investment

Private investment increased by nearly 6% in 2004 after decreasing in the two previous years. The investment ratio for the whole economy rose slightly, to 18.8% (Chart 21). Within the total of private investment, housing construction investment increased by more than 7% in 2004. Investment in productive capacity (private investment excl. housing construction) recorded robust growth of nearly 5%.

Growth of productive-capacity investment seems to have slowed considerably in the early part of 2005 compared to 2004. According to the initial estimate presented in Statistics Finland's quarterly national accounts, productive-capacity investment decreased during the first half

of 2005 compared to the year-earlier period. On the other hand, the Confederation of Finnish Industry and Employers' investment survey of June 2005 points to a substantial increase in industry's fixed investment in 2005. Moreover, imports of investment goods (in value terms) have continued to increase in the first half of this year.

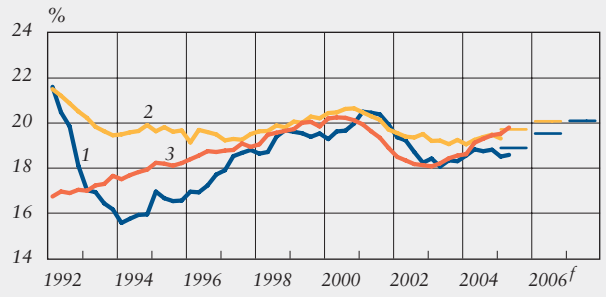
Although indicator data has signalled that investment is set to revive, the sluggish first half of 2005 suggests there will be no increase in productive-capacity investment (in real terms) for the year as a whole. Because productive-capacity investment has been lacklustre in recent years, there continues to be a need for replacement of out-dated capacity. For this reason, productive-capacity investment is projected to increase by some 6% in 2006–2007, even though new-capacity investment will be meagre. Investment typically fluctuates widely from year to year, as has been the case especially for investment in machinery and equipment (Chart 22).

Housing construction investment also faltered somewhat in the early part of 2005. Nonetheless, housing starts increased 8% compared to the first half of 2004. A construction sector working group on economic conditions expects continued fairly robust growth in housing construction investment during the second half of 2005. The group expects to see a shift of focus in housing construction from new construction to other building and renovation activities. Industrial construction should continue at a robust pace throughout the forecast period, largely in connection with construction of Olkiluoto's new nuclear power plant, which will probably take until the latter part of 2008.

The growth of housing investment in 2005 appears to be considerably more subdued than in 2004. It is estimated that housing construction investment will increase at an annual rate of about 3–4% in 2006–2007. Even though the share of housing construction investment in total investment has risen to a historically high level (28%), it remains too low relative to the demand. A shortage and high prices of building lots have begun

Chart 21.

Investment ratio*



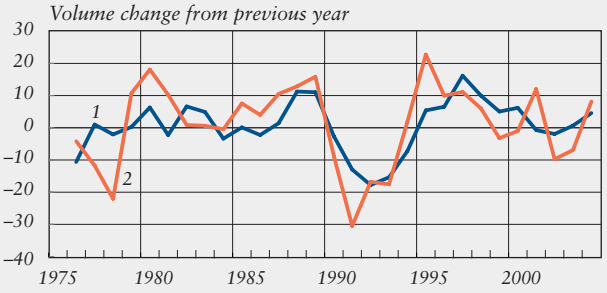
1. Finland
2. EU 15**
3. United States

* Ratios calculated from nominal figures.
** European Commission forecast.
Sources: Statistics Finland, Eurostat, Bank of Finland and European Commission.

Chart 22.

Fixed investment

Volume change from previous year



1. Construction
2. Machinery and equipment

Source: Statistics Finland.

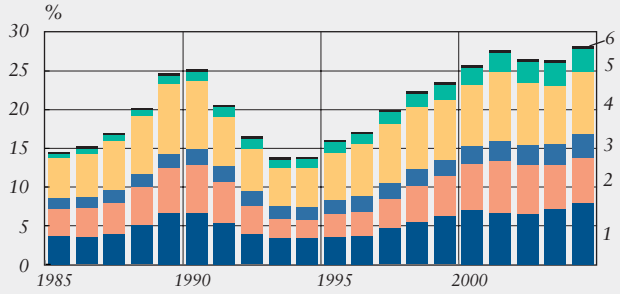
to dampen construction, especially of single family houses in the growing metropolitan areas. The situation has recently worsened because a lack of skilled construction workers is constraining housing construction. Partly due to the increase in the world price of steel, construction costs have risen, but the rise has been fairly modest compared to the increase in housing prices. Possible measures by central and local governments to alleviate the shortage of building lots could in future have an impact on housing construction investment.

Slow growth is projected for public sector investment over the coming years. These investments are connected primarily with state railway and waterway projects. The economy's investment ratio is expected to rise only slightly from its present level in 2005–2007, to about 20%.

In Finland investment activity is largely concentrated on construction (Chart 23). In 2004 some 60% of total investment was construction, with about half of the latter in housing construction. The share of construction investment in total investment has remained at about 60%, from as far back as the 1980s. The share of machinery and equipment, which fluctuated around 35% before 2000 and has since stayed below 30%, is small by international standards (Chart 24). For instance, the corresponding share has been 40–50% during the last ten years in the United States and Sweden. Also relative to GDP, Finland's investment in machinery and equipment has been lower than in several other countries during the last ten years (Chart 25).

Chart 23.

Fixed investment at current prices

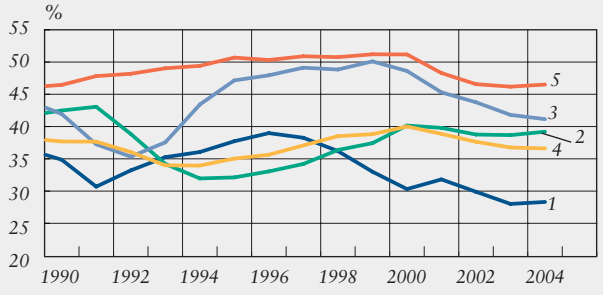


1. Housing construction
2. Other construction
3. Land and waterway structures
4. Machinery and equipment
5. Non-physical investment
6. Other

Source: Statistics Finland.

Chart 24.

Machinery and equipment, % of total investment*

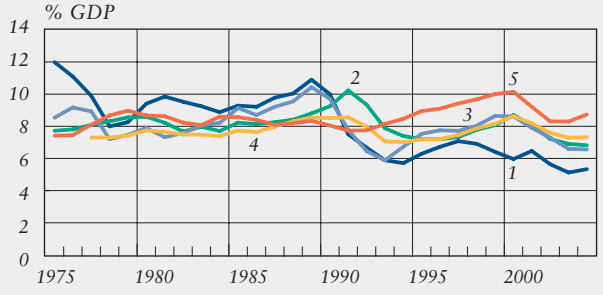


1. Finland
2. Germany**
3. Sweden
4. Euro area
5. United States

* In nominal terms.
** West Germany before 1991.
Sources: Statistics Finland and European Commission.

Chart 25.

Machinery and equipment investment, % of GDP*



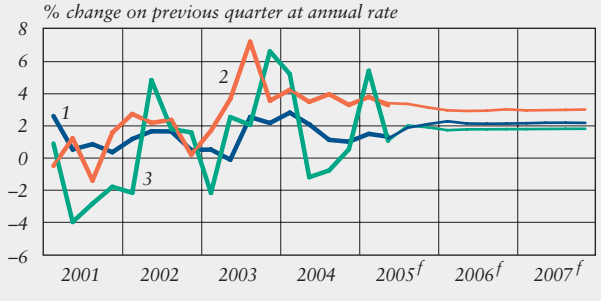
1. Finland
2. Germany**
3. Sweden
4. Euro area
5. United States

* In nominal terms.
** West Germany before 1991.
Sources: Statistics Finland and European Commission.

One reason for the decline in the share of machinery and equipment in total investment is that internationally oriented Finnish companies have expanded their production activity abroad faster than that in Finland. Moreover, investment in machinery and equipment has been partly replaced by R&D spending. Well over half of Finnish companies' R&D activity is located in Finland. According to an investment survey by the Confederation of Finnish Industries, Finland will in future maintain a firm position as a location for research activities. The same survey indicates that domestic companies will increase their research efforts by some 3% in 2005 compared to 2004. The investment ratio for industry as whole (incl. R&D along with fixed investment) has remained roughly unchanged for two years. In 2004, R&D spending amounted to just over 9% of value added for industry as a whole. However, R&D spending outside of the electronic equipment industry was fairly subdued, amounting to some 4% of value added.

Chart 26.

Gross domestic product



1. EU 15
2. United States
3. Japan

Sources: Eurostat, Bureau of Economic Analysis and Economic and Social Research Institute.

Nonetheless investment in machinery and equipment plays a central role in the renewal of the capital stock and in the adoption of increasingly productive technologies. For this reason, higher investment ratios in the coming years, particularly in machinery and equipment would promote both a continuation of productivity growth and an enhanced potential for long-run economic growth. The low level of investment is already reflected in the structure of Finland's foreign trade. Even as the import ratio is showing an upward trend, there is no sign that exports are becoming more diversified. Absent a substantial rise in the investment ratio, the share of exports in GDP will gradually begin to decline over the next few years.

World economy and foreign demand

Rapid growth of the world economy is expected to continue in the coming years. At the same time, differences in growth rates between industrial countries should narrow as US growth slows and EU 15 economies gradually recover. The fastest growing economies are many of the emerging economies of Asia, with China leading the pack.

World GDP is estimated to have grown by nearly 5% in 2004. The growth rate slowed – albeit unevenly – in the course of 2004. While the US and Chinese economies grew rapidly throughout 2004, the euro area, Japanese and many smaller Asian economies slowed considerably toward the end of the year (Chart 26). The rise in the price of oil and changes in exchange rates, as well as cyclical factors within the electronics sector had varying impacts on different

countries, reflected in the differences in development.

While the world economy, led by the United States and China, continued to post robust growth into the early months of 2005, the cross-country differentials remained wide. Growth in the euro area in particular continued at a sluggish pace. During the spring many economic indicators began to signal weakening conditions, also in other economic regions. Industrial production in many sectors decelerated, and the results of confidence surveys reflected increasingly pessimistic attitudes. Meanwhile the price of oil was climbing sharply to new heights. It appears that the slowing of growth have been largely due to inventory adjustments, whose effects began to fade in the early part of the summer. In June and July confidence began to strengthen again in all the major economic regions (Chart 27), and share prices generally rose.

Further GDP growth is projected for the forecast period, at an annual rate of about 4% in 2005–2007. The growth will be greatly strengthened by the process of globalisation, especially due to the closer linking of many of the developing countries to the world economy. Economic policies continue to be somewhat growth-supportive, despite the monetary tightening already effected in the United States and the assumed upward drift of interest rates in several economic regions during the forecast period. Overall, the world outlook is for continued easy monetary conditions in the next few years.

The growth of world trade slowed markedly in the early part of 2005, at around the same time that indicators were starting to signal growing pessimism about economic conditions. Growth rates for imports actually declined in the United States, euro area, Japan and China in the early months. This may be linked to inventory adjustments and a slowing of the growth of demand for final products in some countries. The growth of trade is expected to resume in the course of 2005. The growth of imports of oil producing countries is projected to remain robust while imports of industrial countries are recovering. The focus of trade growth remains on the Asian and other emerging economies. Rapid growth of Russian imports will improve Finland's export prospects.

World trade is expected to grow at just over 7% per annum in the coming years: Finnish export markets should expand even faster. During the forecast period, world trade growth will be bolstered by robust growth in the emerging Asian economies and new EU member states and by a continuation of

Chart 27.

Industrial confidence

1. *Euro area, Purchasing Managers' Index (left-hand scale)*
2. *United States, Purchasing Managers' Index (left-hand scale)*
3. *Japan, Tankan Index, large industrial enterprises* (right-hand scale)*

** The Tankan Index was restructured in December 2003.*
Sources: Reuters, Institute for Supply Management and Bloomberg.

large flows of capital from industrial to developing countries.

The outlook for world economic growth is quite similar to that presented in the previous forecast, despite the fact that the price of oil has risen to a substantially higher level than was expected. The real economic effects of the price rise appear to have been fairly modest. This could be a reflection eg of a speed-up in the use and circulation of oil earnings in world economy. This is suggested by the fact that imports of many oil producing countries have increased substantially in recent years.

The US economy continued to grow at a respectable rate in the early part of 2005 (about 3½% annualised; Table 3). The effects of imbalances in the economy – most importantly rapid growth of household indebtedness - have proved to be less troublesome than expected. Private consumption has continued to grow at a rapid pace, as households' savings ratio moved close to zero. Other domestic demand has also been strong. During the spring months, even net exports – helped by the earlier weakening of the dollar – have begun to add to economic growth.

Still a key issue as regards US economic performance is how the imbalances will play out in the near future and how they will affect economic activity. The forecast assumes that the imbalances will not continue to worsen and that the necessary adjustments will occur mainly via a deceleration of domestic demand, eg in private consumption. Economic growth is projected to reach almost 3½% this year and then to ease to about 3%.

The growth-impact of Hurricane Katrina is expected to be temporary. While there could be a growth slowing impact in the coming months compared to the early months of the year, the expanding reconstruction effort should have a compensating effect. The hurricane paralysed oil production in the Gulf of Mexico, which led to pronounced increases in the prices of crude oil and vehicle fuels in the early days of September 2005. However, these disturbances to oil production and prices are expected to be only temporary.

US exports are projected to continue to expand fairly rapidly during the forecast period. With domestic demand decelerating, imports are likely to expand at a slower pace than before, and this should turn the trend in the current account deficit downward. But the deficit shrinkage will be very gradual. As the economic growth rate eases, the accumulation of tax revenues will slow down, which will in turn slow the repair of the fiscal position in the public sector.

The upswing in the euro area economy was halted in 2004 by developments such as the rise in the price of oil and euro appreciation. Mediocre performance has continued into the early part of 2005. Economic

Table 3.

GDP and import growth rates

GDP	*2004*	*2005f*	*2006f*	*2007f*
United States	*4,2*	*3,4*	*3,1*	*3,0*
EU 15	*2,0*	*1,5*	*2,1*	*2,2*
Japan	*2,6*	*1,8*	*1,8*	*1,8*
World	***4,7***	***4,3***	***4,1***	***4,0***
World trade	*9,5*	*6,8*	*7,3*	*7,1*
Finland's export markets	*9,6*	*7,1*	*8,0*	*7,6*

f = forecast
Source: Bank of Finland

performance in EU 15 countries outside of the euro area was also moderate in the early part of 2005. The weak overall economic situation in the euro area is dominated by the economic difficulties of Italy and Germany. For Spain and some of the small countries, economic growth has remained healthy.

For EU 15 area, growth in the first half of 2005 was weaker than forecasted. The weak performance in the early part of the year, especially in the euro area, suggests that the growth-effects of structural problems have been even greater than previously estimated. Growth for the whole EU 15 area is expected to be only 1½% in 2005. A slight pick-up from that rate is projected for the latter part of the year. This is supported eg by an elevation of the public's expectations that has been detected this summer around the world, including the EU 15 area. There has been a fairly general rise in industrial confidence indicators and eg certain order book indicators point to increasing orders. Euro depreciation in the spring could bolster the situation, as euro area exports have begun to pick up in recent months. Toward the end of 2005 consumption and investment demand should also recover somewhat in the EU 15 area. It is projected that in the latter part of the forecast period growth will slightly exceed 2% per annum.

The outlook for the Asian economies remains generally good. Estimates of growth in 2005 for Japan and China have been revised upward because of recent better-than-forecasted performance. China's growth is estimated to continue for now at around 9% per annum. Economic growth in the mid-sized Asian countries has suffered somewhat from the rise in the price of oil. The slump in the electronics sector has also affected developments in some countries.

Japan's economic growth rate should be almost 2% in 2005%. No essential change in conditions there is expected for the near future. From a historical perspective, the economic situation is quite favourable, which indicates that the difficult structural problems are being gradually alleviated.

Developments in many Asian countries are still plagued by imbalances and risks concerning financial stability and balance in public sector finances. Private savings remain at a high level, and although several countries' current accounts are weakening they should generally remain in surplus.

Russia's economic growth has remained robust since 2000, averaging just over 6% per annum in 2000–2004. Robust growth has been due to a rapid increase in oil production, the high world price of oil, and an improvement in the competitiveness of domestic industry due to a devaluation of the rouble in 1998. In recent years growth has been further bolstered by growth in private consumption, which is apparent eg in an increase in imports.

Russian GDP increased by just over 7% in 2004. This year, the growth rate has clearly declined, which is a reflection eg of some levelling off in the growth of oil production. The annual real growth rate of crude oil production was about 9% in 2000–2004, but it has slowed in the first half of 2005 to about 3%.

Despite the slowing of growth in real exports, export earnings from crude oil exports have increased substantially along with the rise in the price of oil.

Russia's GDP growth is projected at some 6% for 2005 thanks to a modest pick-up following a period of more sluggish growth in the early part of the year. The robust growth should continue in 2006, after which an assumed decline in the price of oil would constrain GDP growth to some 4% in 2007, as the growth of private consumption levels off. The relatively fast economic growth and real appreciation of the rouble should promote rapid growth of imports during the forecast period.

Export markets and export prices

In 2004 the growth of demand for Finnish exports was at its best. A downward revision in companies' growth expectations resulted in a notable adjustment in inventories in the first half of 2005, which had huge repercussions for world trade. The adjustment was reflected in production figures in Finland and in Sweden, which has a similar output structure. Because of a weak performance in the first quarter, growth of demand for Finnish exports was slightly lower than in the March 2005 forecast, although no other notable changes have been made to the outlook for the world economy. But world trade has already begun to recover, and Finnish export markets are expected to grow by about 7% in 2005 and by 7.5–8% in 2006 and 2007. Mainly because of rapid growth of Russian imports, Finnish export markets are projected to grow considerably faster than world trade.

The focal point of world trade has been on product groups for which Finland has very little production capacity. Europe's persistently low investment ratio is particularly significant as regards the demand for Finnish exports. Russia's oil revenues are flowing largely into imports of consumption goods such as cars and lower-end cell phones, which are generally not produced in Finland. On the other hand, the concentration of Chinese demand on investment goods and the rise in prices of certain raw materials have been reflected in the markets served by Finnish companies. The substantial rise in the price of oil is also reflected in Finnish exports of oil products. Due to the notable share of imported inputs and only slightly widened margin, value added has been very modest. Conditions have long been unfavourable in the markets for forest products. Finnish forest products have not participated in the present Chinese-led boom in demand for raw materials. In the major European markets for the mechanical forest industry, particularly in Germany, construction activity has been subdued. Although growth in several EU 15 counties is expected to pick up during the forecast period, a construction boom is not yet in sight. Moreover, in the wood product markets, the supply flow from the area of the former Soviet Union has increased.

Unfavourable export price developments

Paper prices have ranged considerably below forecast for the last two years.

Previously, an acceleration in world trade such as that of 2004 led to price rises in paper and other raw materials. But paper prices actually declined throughout 2004, even as prices of other raw materials were on the rise. Moderate growth expectations for European advertising and other uses of paper afford only a partial explanation for the struggling prices.

It would appear that information technology has finally begun to impact the growth in demand for paper. In the United States, the demand for newsprint has been decreasing for some years already, and now the demand for 'office paper' has also begun to decline. It has been necessary to significantly downward revise export prices of paper compared to the March 2005 forecast, in spite of the labour dispute that occurred in the forestry industry. Plans call for notable increases in the production of both pulp and paper in several new regions in the coming years. Thus the export prices of both paper and mechanical forest industry products will entail substantial downside risks over the next few years.

Because productivity growth in the electronics industry continues at a rapid pace, export prices of mobile phones and other electronics products are continuing their steady descent. World demand for mobile phones has been very strong, and there are no signs of a slowdown. The rapid fall in prices has created its own market, as consumers are keen to exchange for newer models and more and more of them own several phones. However, in the forecast it is estimated that the increase in the value of Finnish exports of electronics products will be fairly modest. To be sure, resources spent on R&D in Finland are recouped in the form of service exports.

With only moderate price developments in the other export sectors, Finland's terms of trade are set to weaken further relative to its main competitors (Charts 28 and 29). Taking into consideration also the terms of trade weakening due to elevated oil prices, the growth of household purchasing power – a key determinant

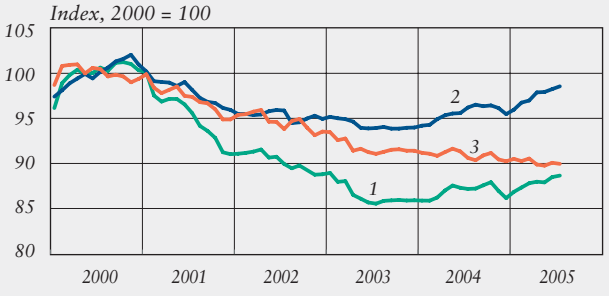
Chart 28.

Ratio of Finnish to German export prices

Sources: Statistics Finland and Eurostat.

Chart 29.

Export and import prices and terms of trade



1. *Export prices*
2. *Import prices*
3. *Terms of trade*

Source: Statistics Finland.

of private consumption – is likely to sputter toward the end of the forecast period.

Foreign trade

Despite rapid growth of world trade, Finnish exports increased (in value terms) only modestly in the period following 2001 until summer 2004 (Chart 30). Exports however picked up extensively in many sectors in the latter part of 2004. But in the early part of 2005 the value of goods exports was no higher than in the second half of 2004, partly because of modest deliveries of paper.

The growth of exports has been partly due to deliveries to Russia, which were a full 30% higher in the early part of 2005 than in the year-earlier period. The growth of exports to Russia has been due largely to exports of cars, mobile phones, and other durable goods initially booked as Finnish imports. Finland provides Russian importers with efficient and secure logistics services, so that not only have deliveries to free ports increased substantially but it has also been profitable to import goods across customs borders to hold for later transport to Russia. For example, car exports to Russia amounted to EUR 155 million in the first half of 2005, which was 38% higher than in the year-earlier period. Mobile phone exports to Russia also increased a full 62%, to about EUR 619 million. Here again, it is a matter primarily of importing equipment for the purpose of re-exporting to Russia. This operation is of course reflected in the data on Finnish imports of mobile phones and is the reason for conflicting export and production figures. In the early part of 2005, exports of mobile phones increased sharply even as the output volume of electronics products remained flat.

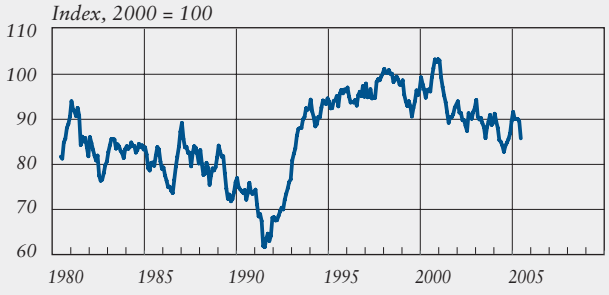
Exports to Russia are projected to increase rapidly during the forecast period, so that the volume of products that are imported into Finland, warehoused, and then exported to Russia could increase throughout the forecast period. This is however not a long-term phenomenon, as fully operative logistics centres will surely be built in Russia.

Ship deliveries will boost export growth substantially in 2006–2007. Export volumes of Finnish electronics producers should also increase during the forecast period. But, because of declining prices of mobile phones, the value of the sector's exports will increase only marginally.

After 2005 the growth of other-sector exports will clearly lag behind the growth of Finland's export markets. Capacity in the forest industry may

Chart 30.

Finland's export success



Ratio of Finnish to euro area exports (value terms).
Six-month moving average.
Sources: Eurostat and Finnish Customs.

have to be eliminated even to a greater extent than estimated in the forecast. Nor will capacity elsewhere in the export industries – except for some individual production facilities – be increased notably during the forecast period. Taking into consideration the weakening terms of trade and increasing share of imported inputs, the contribution of exports to the growth of nominal GDP will remain modest during the forecast period.

The growth of domestic demand and especially the demand for exports to Russia will bolster import growth during forecast period. Imports are also boosted because of the constraints related to domestic production capacity and labour supply. The trade surplus will in fact decrease substantially during the forecast period.

Current account

The current account surplus has decreased substantially (by about 50%) in recent years, from some EUR 10 billion in 2000–2002 to EUR 5–6 billion in 2003 and 2004. In the last two years, the value of goods and services imports has increased much faster than expected, and the deficits on income and current transfer accounts have been growing since the start of 2000.

The balance on the income account has been weakened by the fact that dividend payments by foreign-owned Finnish companies have not fallen in line with the returns on outward portfolio investment. This is partly because outward portfolio investments – largely employment pension funds' investments – have gone mainly into bonds, whose yields have fallen along with other long-term interest rates.

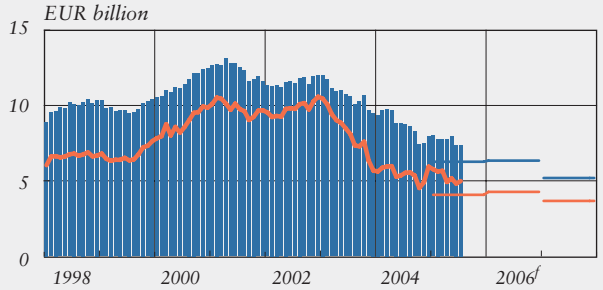
At the start of the decade the surplus on current account still amounted to just over 7% of GDP. By 2004 it had fallen to 4%. The surplus on goods and services declined from EUR 11 billion at the start of the last decade to just over EUR 8 billion in 2004, as strong domestic demand buoyed goods imports while sluggish growth in export markets and unfavourable developments in export prices restrained the growth of export value (Chart 31).

The surplus of goods and services is projected to decline further in 2005–2007, as robust domestic demand supports a high level of imports. The deficit on the income account is expected to decrease very slowly. Thus the current account surplus is receding. For 2007 it is projected at 2% of GDP. This will not materially increase Finland's net foreign asset holdings, if we exclude Nokia's retained earnings.[3]

[3] Box 9 explains the impact of retained earnings on the current account surplus.

Kuvio 31.

Goods and services balance and current account



1. Goods and services balance
2. Current account
Twelve-month moving total.
Source: Bank of Finland.

Box 5.

State of public finances in the United States

Government deficit in the United States has been growing fast in recent years. The expansion of the deficit has been mainly intentional. Tax cuts during President Bush's first term and increases in expenses related to national security have been material. The objective of the government is to cut the deficit in half before the retirement of the large population age cohort within the next five years.

US federal financial position has varied significantly

The financial position of the United States federal government has varied greatly in recent decades. In the 1980's, federal deficit bottomed out in 1983 when it amounted to 6% of the GDP, to a backdrop of significant tax cuts by the Reagan administration and increases in defence spending. The deficit coincided with a large deficit of the current account. However, the current account was rebalanced at the end of the decade due to, among other things, a depreciation of the dollar and strong growth in the export markets. In 1992, federal deficit grew again mainly for cyclical reasons to about 4½% of the GDP. In the second half of the 1990s, however, the deficit turned into a surplus as strong economic growth and equity price increases gave federal revenues a significant boost. The budget deficit was also restricted by means of the Budget Enforcement Act adopted in 1990, whose period of validity ended on 30 September 2002. The fiscal year ended October 2002, saw the federal financial position turn into deficit again, after four years of surplus. These developments occurred amid an economic recession and expenditure hikes that were due to the terrorist attacks. Despite the economic upswing in recent years, the federal deficit deepened further in budget years 2003 and 2004. In the previous budget year it stood at 3.6% of the GDP.[1]

[1] Figures on the US federal financial position presented in this article are based on calculations of the United States Congress Budget Office. In these calculations, the federal financial position includes, among other things, the surplus of social security funds, which stood at about one percent of the GDP in budget year 2004. Source: Congressional Budget Office "The Budget and Economic Outlook: An Update", August 2005.

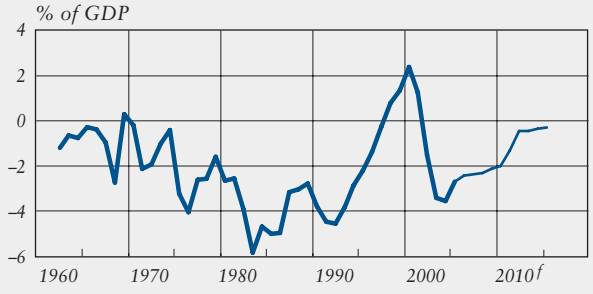
Deficit growth mainly discretionary

The financial condition of the federation has now deteriorated for four consecutive years. Even though the federal deficit in last budget year was smaller than in 1992, for instance, the current situation is in many respects completely different. First, most of the deficit is now structural, and no boom, such as that of the 1990's, is in sight. In addition, we are facing the exit of the large population age cohorts from working life.

The increase in deficit is mainly due to tax cuts in the President Bush's first term and expenditure hikes aimed at ensuring national security. Tax cuts included among other things decreases in marginal tax rates, and the abolishment of taxes on dividends and inheritance tax. Even though the contraction in revenue ended after three years

Chart A.

US federal government deficit (–) / surplus (+)



Forecast by the US Congress Budget Office (CBO).
Source: CBO.

during the last budget years, the proportion of revenues in the gross domestic product was about 16%, which is the lowest since 1959 (Chart B).

The retirement of the large age cohorts begins in less than five years. This will bring about new and significant expenditure pressures for public finances. These expenditure pressures are also strengthened by a lengthening of the average life expectancy. Against this background the large structural deficit of the federation is troubling.

Aim of cutting deficit in half

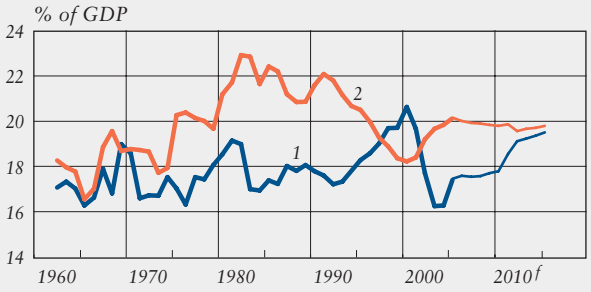
To alleviate the situation, the aim of the present government is to cut the deficit in half during the next five years. The Congress Budget Office (CBO) assesses the federal budget deficit as contracting slower than the government objective, to stand at 2.1% of the GDP in 2009 and at 0.4% in 2012.

However, if the assumptions behind this calculation are changed so that the span of the tax cuts made in Bush's first term is extended, the tax law restricting depreciation rights is indexed and other expenditures in the budget are allowed to grow in line with population growth, the US federal deficit would not be cut in half but would seem to remain at 2.3–2.9% of GDP every year for the next ten years.[2] In the near future, the deficit will be further expanded by the restoration of the damage caused by Hurricane Katrina. Congress has already granted about USD 62 billion (about ½% of GDP) for this purpose.

All in all, the halving of the federal deficit before the large population age cohorts retire seems uncertain.

Chart B.

US federal governmnet revenue and expenditure

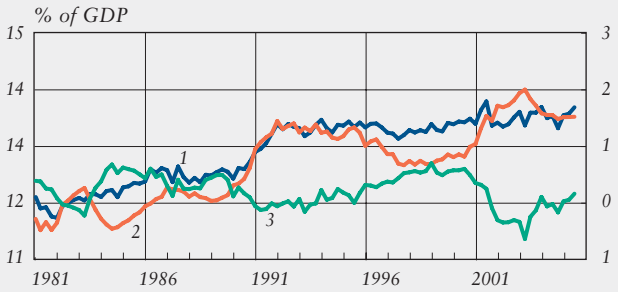


1. Revenue
2. Expenditure

Forecast by the US Congress Budget Office (CBO).
Source: CBO.

Chart C.

Revenue, expenditure and deficits of US states and local government



1. Revenue
2. Expenditure
3. Deficit (right-hand scale)

Forecast by the US Congress Budget Office (CBO).
Source: CBO.

States and local government tighten their finances

The financial deficits of the state and local governments were inflated to an exceptional degree at the beginning of the 21st century (Chart C). According to

[2] The estimates presented in this context are based on alternative calculations by the CBO. See Congressional Budget Office "The Budget and Economic Outlook: Fiscal Years 2005 to 2016", January 2005, and "The Budget and Economic Outlook: An Update", August 2005.

US state laws (with the exception of Vermont), budgets may not be in deficit. States may only use debt financing for investments such as building schools or roads. The states' need to tighten their finances partly offset the expansionary impact of the federal budget in 2003 and 2004. The situation has been brighter for local government, whose revenues depend on property taxes, since the tax values of real estate have largely risen due to an increase in housing prices. All in all, the surplus of the combined budgets of the states and local government (excl. public companies) amounted to 0.3% of GDP at the end of 2003.

Government deficit to remain large

The structural deficit of public finances and the retirement of the large population age cohorts pose new challenges to budget policies in the United States. It is possible that the deficit of public finances will remain large. It is problematic, for instance, that the proportion of federal revenues in the GDP has contracted to a very low level, and an increase of revenues may prove politically very challenging. In the longer term, the more problematic issues include the retirement of the large population age cohorts, the lengthening of the average life expectancy and the increase of health care expenses. These factors create permanent expenditure pressures for the public finances of the United States. Against this background it would be important to cut the deficits within the next ten years

Box 6.

Euro area households' savings patterns

Households save in order to balance out the amount of available funds at different stages of their lives. Their savings decisions have a major impact on private consumption. Households' funds are also used to finance investments and therefore affect government finances and the current account.

Households' savings ratio[1] has clearly diminished in the last few decades in all the main economic sectors. The shrinkage has occurred as a result of growth in households' assets and improvements in the social security and pension systems. These factors contribute to the contraction of the savings ratio mainly because they work as buffers against unexpected reductions in real income, thereby weakening households' need to save for precautionary reasons. In the last five years, the savings ratio has continued to diminish in the USA and Japan, while remaining stable in the euro area. In Finland and partly in other Nordic countries, comparably defined savings ratio is extremely low.[2]

Despite the developments of recent years, euro area households' average savings ratio has shrunk from the level seen in the 1980s. This contraction is due to different, country-specific developments. Significant changes can be detected in large countries' savings ratios in the 1980s and early 1990s (Chart 45). However, these differences have become less prominent from the mid-1990s.

In recent years, the savings rates experienced in large euro area countries have remained at the same, relatively low levels when viewed historically. Recent years' slow growth of private consumption cannot therefore be explained by an increase in savings. This notwithstanding, savings behaviour has not contributed to a growth in consumption, because the savings rate has no longer diminished. In previous recessions, households have typically compensated for the slow growth of disposable income by a shrinking of the savings rate. In other words, they have expected poor income developments to be temporary. In recent years, however, the situation has not been the same.

One factor which may have had an impact on the euro area savings rate development in the last few decades is the state of public finances. According to the so called Ricardian equivalence, households react to increased general government debt by increasing their savings, if the expected general government indebtedness will mean having to pay higher taxes. Correspondingly, reduced general government indebtedness would reduce household saving. However, there is not full consensus over the tenability of the Ricardian equivalence through empirical research.

Looking at large euro area countries, it seems evident that the strong shrinkage of Italian households' reduced savings ratio can be explained, at least partly, by the reduction of large general government deficits since the mid-1980s. It is, however, more difficult to make deductions on other large countries' developments. It appears, though, that recent years' renewed weakening of public finances may have restrained households' willingness to reduce their savings, although it has not resulted in an actual rise in the savings ratio. At the same time, the slow revival of employment and the uncertainty related to labour market and pension reforms may have stimulated households' saving for precautionary reasons in some euro area countries.

The convergence of large euro area countries' savings

---

[1] Households' savings ratio refers to households' savings in relation to their disposable income. The figures are in net terms ie capital depreciation has been taken into account. In this box, savings ratio refers specifically to households' savings ratio.

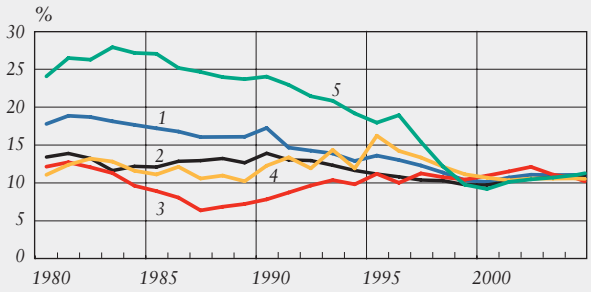
[2] There are also rapidly growing countries, whose growth depends on domestic growth and which therefore have a slow savings rate.

ratios on the threshold of the commencement of the Economic and Monetary Union (EMU) indicates that savings ratios had been affected by lower real interest rates and slower inflation rates, coupled with their convergence, and by the integration of the financial markets. The impact of these factors is difficult to verify, however, and empirical research shows no clear evidence of their impact on the savings ratio.

Developments of Germany's savings ratio have not differed to any great extent from average developments in the rest of the euro area. Germany's savings ratio is at a historically low level, despite some improvements in recent years. Weak private consumption in the country can hardly be explained by growth in the savings ratio. Yet it could be that the improvements seen in the labour markets in recent years, for example, have increased households' uncertainty over their future income developments. This may have reduced households' willingness to compensate for present poor income growth with a reduced savings ratio.

Chart.

Euro area countries' savings rate



1. *Euro area (12 countries)*
2. *Germany*
3. *France*
4. *Spain*
5. *Italy*

Source: OECD Economic Outlook, spring 2005.

In France, the savings ratio has long performed differently from the rest of the large euro area economies. Up until the mid-1990s, France's savings ratio was lower than in the other large euro area countries but had, by early 2000, exceeded their level. The last couple of years have seen France's savings ratio shrink in contrast to the rest of the large euro area economies. At the same time, France's private consumption has grown significantly faster than in the euro area on average. In the last couple of years, the contraction of the savings ratio in France may have been a reflection of households' considerably better employment prospects in comparison to the rest of the large euro area economies. This may have encouraged the French to increase their consumption.

Box 7.

Impact of paper industry contract dispute

The Finnish paper industry labour dispute involving strikes and lockouts in spring 2005 lasted exceptionally long from early May to early July, that is, for nearly two months. Given that the start-up of machines after a shutdown takes some time, in practice it was not until the middle of July that paper factories were operating at full speed. Production plants were shut throughout June, the result being that the entire manufacturing output fell as much as 12% short from the corresponding period last year and manufacturing output for May was 8% below last May's total (Chart). The strike was still reflected in output figures in July.

The paper industry contractual dispute had a major direct impact on the Finnish manufacturing output. The shutdown of paper, cardboard and pulp plants also brought some of Finland's sawmills to a halt due to sawmill waste filling up available storage space. The impact of forest industry production stoppages alone on total production was a couple of per cent relative to the previous quarter. Looking at other sectors, the output of transportation and forestry in particular declined, due to the stoppage of timber and paper supplies. Yet, production losses arising from felling are likely to be largely compensated for during the rest of the year. In contrast, the capacity utilisation rate of paper machines was already high; the result being that in August–December, production can be increased only slightly from normal.

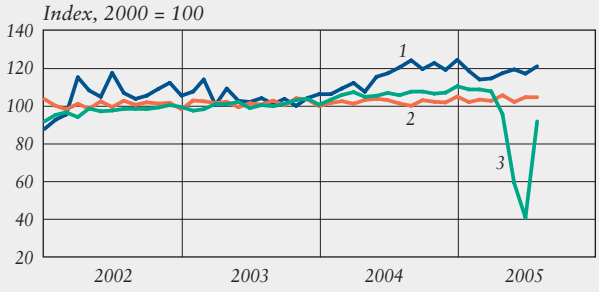
Due to the industrial action, many households suffered from loss of income. This notwithstanding, private consumption has not been affected by the indirect impact of the strike. It is also evident that for those involved in the industrial action, unpaid wages only had a minor impact on their long-term income expectations. Households' confidence in their own economy has remained good, although concerns over the performance of the Finnish economy increased as a result of the strike.

All in all, the paper industry labour dispute is estimated to slow down GDP growth for 2005 by approximately 0.8 percentage points. This estimate is based on the assumption that paper industry utilisation rate will increase slightly from normal during the latter half of the year, and that both exploitation felling and mechanical forest industry will be able to make up for the losses made in the summer. Correspondingly, production growth rate for 2006 is expected to be brisker.

Lack of paper supplies from Finland has also had an impact on paper prices. World market prices for paper products fell from the beginning of 2001 until early 2005, after which they have climbed slightly. Finnish companies have partly been able to use the output from foreign factories to compensate for the lack of exports to their customers. Taking into account the improved performance of operations abroad, Finnish forest companies' annual performance for 2005 was far clearly less affected than mere output data would suggest.

Chart.

Manufacturing output



1. Electronics industry
2. Other metal industry
3. Forest industry

Adjusted by the number of working days and seasonally adjusted.
Souce: Statistics Finland.

Costs and prices

Consumer prices

The rise in consumer prices has been steady in recent months, at an annual rate of around 1%. The CPI has nonetheless fluctuated notably in 2005. Energy prices momentarily declined around the end of 2004, which produced a slight dip in the 12-month change in the harmonised index of consumer prices[1] (HICP) in January 2005. However, already by March consumer prices were about 1% higher than a year earlier. The removal of the impact of a reduction in the tax on alcoholic beverages from the comparative period for annual inflation accelerated the HICP rise by about 0.8 percentage point. The rapid rise in prices of energy – especially vehicle fuel and heating oil – has also had an upward effect on the price level in 2005. The considerably elevated world price of crude oil was quickly reflected in Finnish consumer prices of energy. By contrast, HICP inflation has recently been constrained by price declines in many industrial products, especially consumer electronics products and used cars. The rise in service prices has also been slower than before, largely due to a continuing decline in telecommunications prices.

As measured by the Finnish CPI, the rise in prices has recently been slightly faster than that indicated by the HICP. The main reason has been the rise in capital costs of housing.[2] In August 2005 both the HICP and the Finnish CPI posted an inflation rate of 1% per annum.

Price level remains stable

The rate of increase in Finnish consumer prices was lowest in the euro area countries in 2004, but it has been gradually rising toward the euro area average. To be sure, Finland's HICP inflation in 2005 has stayed about a percentage point below the euro area average, which has hung around 2%.

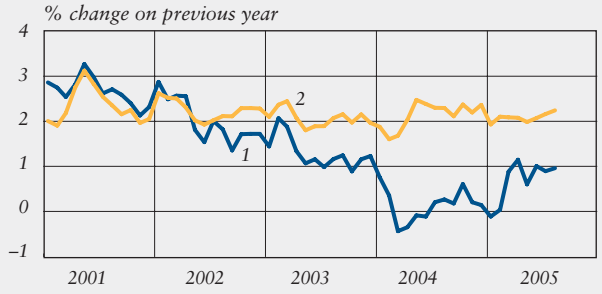
Consumers' inflation expectations have increased in Finland in the course of 2005 (Chart 33) – from 1.9% at the start of the year to 2.2% in August – according to Statistics Finland's consumer confidence indicator. This means that consumers expect inflation to increase to 2.2% per annum during the next twelve months. This is partly due to the increase in the price of crude oil and resultant rapid rises in prices of

[1] The HICP comprises five sub-items, each of which affects the overall index in its own way. The sub-items applied to the HICP (and their weighting, in parentheses) are as follows: services (41%), industrial output, excl. energy (30%), processed foodstuffs (16%), energy (7%) and unprocessed foodstuffs (6%).

[2] The harmonised consumer price index does not contain any capital costs for housing, which are accounted for in the national price indices.

Chart 32.

Harmonised index of consumer prices



1. Finland
2. Euro area

Sources: Statistics Finland and Eurostat.

vehicle fuels and heating oil. Results from a European Commission survey also suggest that consumers' inflation expectations have risen in the euro area and Finland and that these do not differ significantly.

Telecommunications have had a marked disinflationary impact

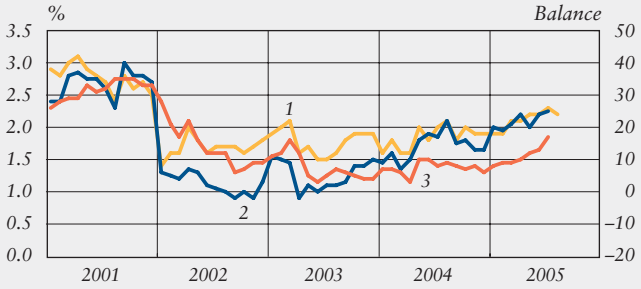
Inflation in services was still relatively strong at the start of 2000, at some 4% per annum. Since then, the rate has declined notably and now appears to have levelled off during the last year to about 1.3% on average (Chart 34). In August 2005 service prices rose 1.1% on the year-earlier period. The slowing of inflation in the services sector is largely due to heightened competition in telecommunications – telephones and phone bills – and the resultant significant decline in service prices that has occurred in recent years.

Services are heavily weighted (about 41%) in the HICP. Telecommunications account for a substantial share (just over 7%) of the total weight of services. Prices of telephones and phone calls declined 11% in August 2005 compared to a year earlier. The disinflationary impact of the decline in the average level of service prices is substantial – about 0.8 percentage point. It has also slowed HICP inflation by about 0.3 to 0.4 percentage point. Without the recent years' decline in telecommunications prices, service price inflation would have been close to its long-run average, which has been just over 2% per annum over the last decade.

Tight competition and possible further tightening among teleoperators, as well as a constant stream of new products in the market, suggest a continuance of sluggish prices in services. Prices of new products such as mobile phones have generally been high at first but have eventually declined in the presence of tight competition. A threat to subdued price rises in telecommunications is posed by the fact that heightened competition tends to thin out the players in the market, which in turn reduces competition and pushes up prices.

Chart 33.

Consumers' inflation expectations

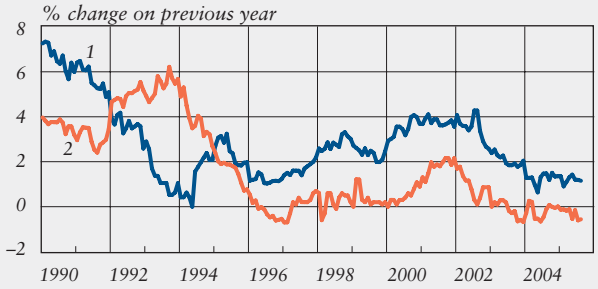


1. *Consumer barometer: estimated change in Finnish consumer prices over the next 12 months (left-hand scale)*
2. *Consumers' inflation expectations for next 12 months, Finland (right-hand scale)*
3. *Consumers' inflation expectations for next 12 months, euro area (right-hand scale)*

Sources: Statistics Finland and European Commission.

Chart 34.

Harmonised index of consumer prices



1. *Services*
2. *Industrial goods (excl. energy)*

Source: Statistics Finland.

The costs of housing have risen considerably since the start of 2000. Housing rents, which are included in services, increased substantially in the past year. The rise in rents is primarily a result of a strong rise in housing prices. According to the HICP, residential rents rose in August 2005 by 2.3% compared to a year earlier, so that their inflationary impact was nearly 0.2 percentage point.

Prices of non-energy industrial goods have fallen

Prices of non-energy industrial goods have risen moderately during the past year. In fact, the inflation rate has been below or near to zero since April 2004, and in August 2005 these prices fell by 0.6% compared to a year earlier. World prices of raw materials, which have risen significantly, are not yet reflected in prices of consumer goods (excl. energy). Because of globalisation and heightened international competition, the indirect effects of raw material prices on consumer prices have so far been modest. The recent appreciation of the euro vs. the dollar has also muted the rise in consumer goods prices. On the other hand, in recent years a decrease in raw material-intensity in industrial countries has also reduced the impact of raw material price movements on prices of final non-energy goods.

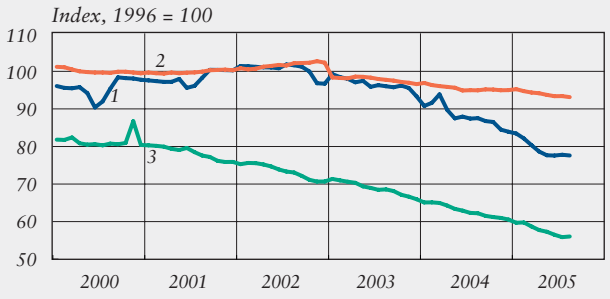
Besides the effects of certain services such as telecommunications, the rise in prices of non-energy industrial goods have been constrained by certain commodity groups (Chart 35). Used car prices have dropped by nearly 12% since the end of 2002 and by just over 3% in the last year. Thus the reduction in car tax at the start of 2004 is still indirectly impacting used car prices. The recent restraining impact of vehicles (incl. new cars) on the HICP has amounted to roughly 0.1 percentage point, while their impact on non-energy industrial goods prices has been greater – just over 0.3 percentage point.

Inflation of non-energy industrial goods has been constrained not only by vehicle prices but by a continuous decline in consumer electronics prices, whose disinflationary impact was about 0.4 percentage point in August 2005.

Clothing prices are marked by very wide monthly fluctuations, which have widened further in the last few years. This is a reflection of more extensive discount sales and hence lower clothing prices. In the last year, clothing price declines lowered non-energy industrial goods prices by just over 0.1 percentage point. The combined inflationary impact on non-energy industrial goods prices was about 0.8–0.9 percentage point.

Chart 35.

Harmonised index of consumer prices



1. Telecommunications
2. Cars
3. Consumer electronics

Source: Statistics Finland.

Energy prices have increased substantially

The most significant HICP inflationary factor in the last year has been the sharp rise in the level of energy prices (Chart 36). The reasons for the price increase are the strong rise in the world price of crude oil. Fuel prices have been notably boosted by transport and housing costs. The weight of fuel in the energy index is about 70% and for electricity 30%. Energy prices rose by just over 12% in August 2005 and by nearly 1% on the previous month. The sharp rise in energy prices has increased HICP inflation by about 0.6 percentage point.

The recent decline in the price of electricity has had a disinflationary effect on energy prices. The breaking effect of the behaviour of electricity prices could however change in the near future, as the prices of permits now required for carbon dioxide emissions have climbed manifold from the start of the year.

Food prices developments are subdued

Inflation in processed foods has slowed considerably. In 2000–2003 these prices rose on average by about 2% per annum, whereas for this year the rise has been only 0.8%. Heightened competition in daily food stores is having a notable disinflationary impact. Price rises in unprocessed (fresh) foods have also been moderate in recent times. In August 2005 prices of unprocessed foods actually fell by just over 1% compared to the year-earlier period. Fresh food prices were however greatly affected by seasonal and weather-related factors. Overall, unprocessed food prices are presently at the same level as in 2002.

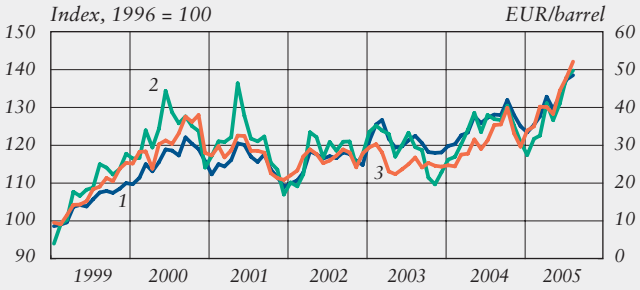
Labour costs

In the coming years, earnings will be controlled by an unusually long-term wage settlement concluded in December 2004, which will be in force until end-September 2007. It is estimated that negotiated wages will increase by 2.5% in 2005 and 2.1% in 2006. In 2007 the increases will amount to less than 2%.

Since the start of 2005, the level of earnings has risen at roughly the same rate as in the last two years (Chart 37). Wage drift has remained particularly

Chart 36.

Energy prices

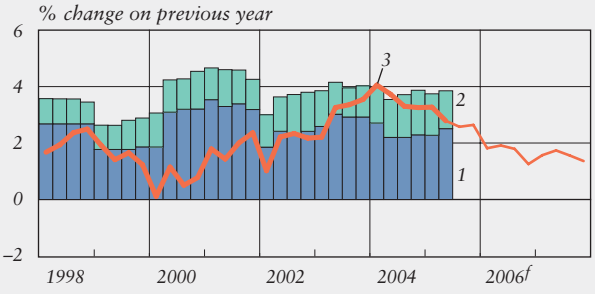


1. Consumer prices for energy in Finland (left-hand scale)
2. Price of petrol (95 octane) in Finland (left-hand scale)
3. World market price of crude oil (right-hand scale)

Sources: Statistics Finland, Bloomberg and Finnish Oil and Gas Federation.

Chart 37.

Total national earnings



1. Index of negotiated wages
2. Wage drift
3. Real earnings

Sources: Statistics Finland and Bank of Finland.

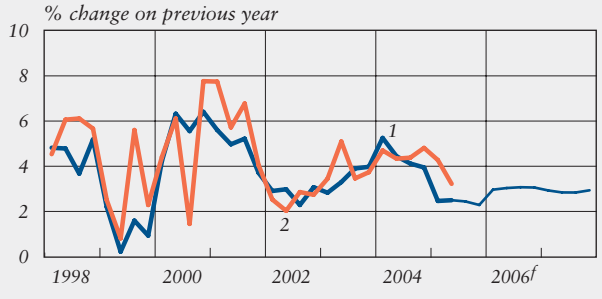
stable, at just over 1 percentage point. The increase in negotiated wages boosted the level of earnings by almost 4% in the first half of 2005.

Average wages per worker have risen at the low rate of only about 2.4% in the early part of 2005 (Chart 38). Labour costs per hour worked have increased at a considerably faster pace - just over 4%. Hours worked per employee have decreased notably in 2005, which also explains the modest rise in aggregate wages while employment improved, especially in the second quarter. Average earnings are projected to increase by just over 2.3% in 2005, and to accelerate to around 3% in 2006 and 2007.

Total earnings have generally increased slightly faster in the private sector than in the public sector. However, in recent years wages per worker have risen faster in the public sector. Because of increased phase-in of local arrangements, included in a reform of the local government wage system, labour costs will continue to increase faster in local government than in other sectors.

Chart 38.

Earnings per worker and per hour



1. *Average wage per worker*
2. *Hourly earnings*

Sources: Statistics Finland and Bank of Finland.

Prices of raw materials

The world price of crude oil has climbed well above USD 65 a barrel in recent weeks. But a slowing of demand growth and a pick-up in supply growth will begin to gradually depress the price of crude oil in 2006. The rise in prices of other raw materials appears to have levelled off already in the first part of 2005 (Table 4).

World prices of crude oil have risen faster in the last half year than was estimated in the Bank of Finland's previous forecast of March 2005. Higher demand for crude oil, a shortage of unused production capacity, and continued fears of supply disruptions have all pushed the price of crude oil to a considerably higher level than earlier. The prices of other raw materials, on the other hand, have moved fairly closely in line with the forecast. China's larger output and resultant cutback in imports of raw materials have raised world supplies of raw materials. The swift rise in raw material prices appears to have ended in the last half year.

Growth of demand for crude oil is slowing – price uncertainty continues

The International Energy Agency (IEA) estimated that the growth of crude oil consumption would accelerate to 3.6% in 2004 (Chart 39) and then slow to about 2% in 2005. This is mainly because of a slowing of the growth of China's oil consumption, which is partly due to the Chinese government's pricing policy regarding vehicle fuels and other final products derived from crude oil. The regulated domestic prices of vehicle fuels, being lower than world

prices, provide an incentive for Chinese oil companies to reduce their imports of oil into China.

Increases in the supply of crude oil in recent years have been linked to higher production levels in Russia and OPEC countries, but this has not boosted supply enough to prevent the climb in prices. In recent years prices have risen mainly because of geopolitical tensions and other fears of supply disruptions. When virtually all oil production capacity is being used, even small disruptions can easily lead to price increases. But apparently, in just the last few months, the price of oil has risen mainly because of increased demand for oil reserves. In addition to which, in recent weeks, world market prices for crude and petrol in particular, have risen notably following the disastrous consequences of Hurricane Katrina in the Gulf of Mexico. Damage to both production and refining capacity had a detrimental effect on oil product supplies. However, prices dropped back after a few days, from the peak that immediately followed the hurricane, particularly as a result of the IEA's decision to cushion pricing pressures by announcing that the IEA members should make their emergency petrol and oil stocks available to the market.

Another risk concerning future behaviour of crude oil prices is the slowing of the growth of Russian oil production. In the last five years Russia has accounted for about half of the growth of the world's output of crude oil. Moreover, the shortage of refining capacity in certain regions, such as in the United States, could put upward pressure on prices. Other risks, previously estimated to be receding, have increased as reserves have increased. If we begin to tap these reserves, the price of oil could drop precipitously. Moreover, investment in oil production seems to have increased recently in response to high oil prices.

Crude oil futures prices have in recent months actually risen above spot prices. Market information indicates that the marked rise in futures prices has, for example, induced airlines and shipping companies to try to protect themselves at an earlier stage from possible price rises. On the other hand, because there are no signs of a definite increase in speculation, the impact of

Table 4.

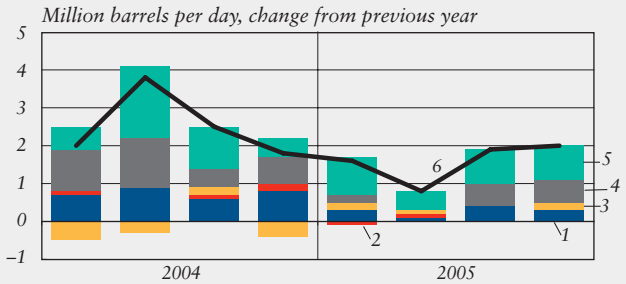
International prices

	2003	*2004*	*2005f*	*2006f*	*2007f*
Oil price					
dollars per barrel	*28.9*	*38.3*	*57.1*	*63.6*	*53.9*
euro per barrel	*25.6*	*30.8*	*45.6*	*50.8*	*42.3*
Other raw materials					
% change from previous year					
in dollars	*17.3*	*24.8*	*11.5*	*–0.4*	*0.2*
in euro	*–2.2*	*13.6*	*10.2*	*0.0*	*–1.7*

f = forecast
Sources: Bloomberg, HWWA and Bank of Finland.

Chart 39.

Changes in oil consumption by region



1. North America
2. Europe
3. OECD, Pasific rim countries
4. China
5. Other
6. Total

Data for 2005 Q3 and Q4 based on IEA:n forecast.
Source: IEA.

speculation of the price rise has probably been quite limited in the last few months. The recent jump in futures prices could therefore be a reflection not only of a rise in the long-run equilibrium price but also of exceptionally large-scale hedging against the prospect of oil prices staying at a high level.

Estimate of long-run price of crude oil is raised

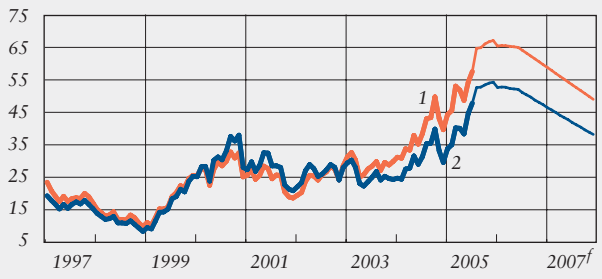
Because of the elevated demand for crude oil and the slowing of Russian output growth, the estimate of the long-run price was adjusted from the March estimate of USD 40 to almost USD 50 per barrel (Chart 40).[3] The projection takes account of short-run price developments in crude oil futures, ie up to mid-2006.

It is estimated that, as demand growth gradually eases and production capacity expands, the price of crude oil will decline smoothly to USD 49 per barrel by the end of 2007. Also as measured in euro, the price of crude oil should decline in the latter part of the forecast period. It is estimated that the growth of China's oil production will slow down as new types of oil-saving electricity output come on stream there. In the longer run, the new atomic and bio-energy programme in the United States could enable price declines by easing the demand for oil.

[3] The estimated long-run equilibrium price was raised to USD 40 per barrel in the overall forecast presented in the Bulletin of March 2005.

Chart 40.

Estimated oil prices



1. Dollars per barrel
2. Euro per barrel

Sources: Bloomberg and Bank of Finland.

The rise in prices of other raw materials seems to be levelling off

The most rapid rise in prices of raw materials other than energy occurred in 2003 and 2004. Recent production increases in raw materials have lowered some prices (eg metals) significantly. The decline is mainly due to China's step-up in production of raw materials, which has made China – a former importer – into a net exporter of certain raw materials, notably steel, which has boosted the world supply of raw materials.

According to the new forecast, the rise in dollar-denominated prices of raw materials will come to halt during the forecast period. The relatively robust and sustained growth of the world economy will however bolster the demand for raw materials (incl. oil) and hence continue to keep prices relatively high. Prices of raw materials are now projected to rise slightly slower than in the March 2005 forecast.

Euro prices of raw materials have not risen to historically high levels. These prices are actually projected to begin declining with the winding down of the forecast period and the appreciа-

tion of the euro against the dollar (Chart 41). Even euro-denominated real prices of raw materials are reasonable by historical standards (Chart 42). Productivity growth in raw materials and a decline in raw material-intensity in recent years have constrained the rise in real prices.

Import prices

According to the national accounts, the rise in import prices accelerated to 3.6% in 2004. Prices of imported goods and services began to surge after two years of moderate behaviour, led by world prices of crude oil and other raw materials.

The current forecast projects a notable slowing of the rise in raw material prices toward the end of the forecast period (Chart 42). Import prices will still increase fairly rapidly in 2005 – about 3.1% compared to 2004 – mainly because of a rapid rise in raw material prices in the early part of 2005. Euro depreciation against the dollar in spring 2005 also affected the rise in import prices. As the price rise in crude oil and other raw materials eases in 2006 and 2007, import prices will also decelerate markedly. Import prices of goods and services will continue to rise fairly rapidly in 2006 – by just over 1.6% – but should slow to around 1% in 2007.

Import prices of raw materials have risen rapidly

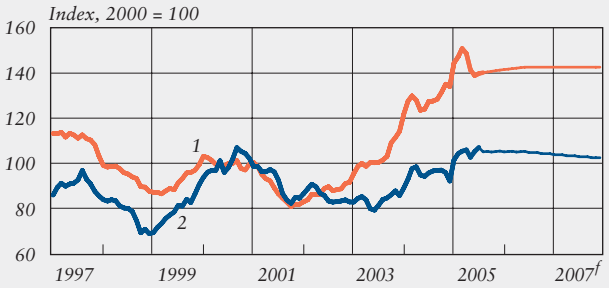
Import prices[4] have continued to climb in 2005, spurred by sharp rises in import prices of energy, other raw materials and intermediate products. In August 2005 import prices rose by nearly 7% compared to a year earlier.

The import price of energy (primarily crude oil) rose 38% in August 2005 compared to a year earlier. So far this year, the rise has been about 42%. Import prices of other raw materials and intermediate products have also continued to rise sharply in line with developments in prices in the

[4] As measured by Statistics Finland's import price index (2000 = 100).

Chart 41.

Industrial prices of raw materials (excl. energy) and forecast assumptions

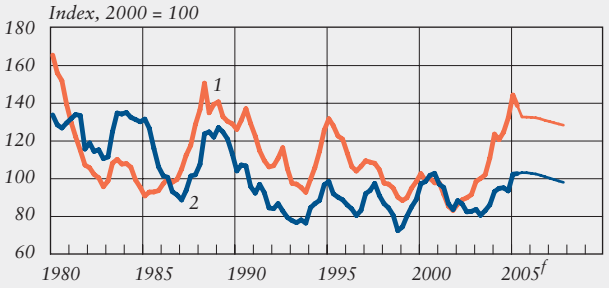


1. In dollars
2. In euro

Sources: HWWA and Bank of Finland.

Chart 42.

Real prices of raw materials*



1. US export price in dollars
2. German export price in euro

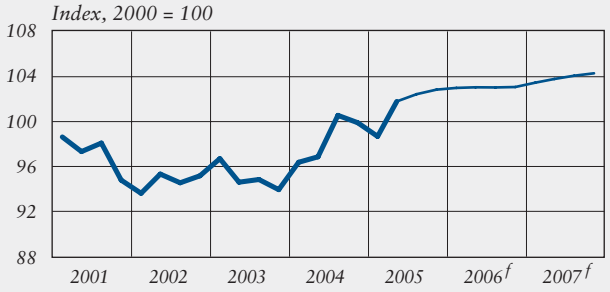
* Industrial raw materials (excl. energy).

Real price based on export index.

Sources: HWWA and Bank of Finland.

Chart 43.

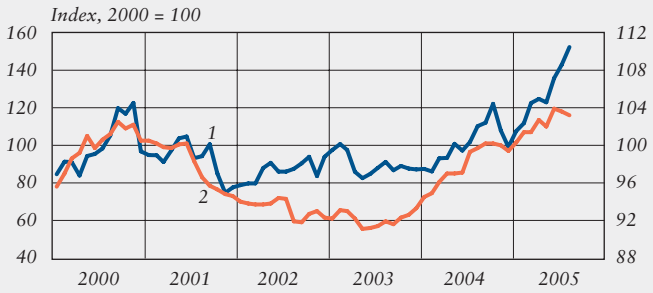
Import prices for goods and services



Sources: Statistics Finland and Bank of Finland.

Chart 44.

Commodity and import prices

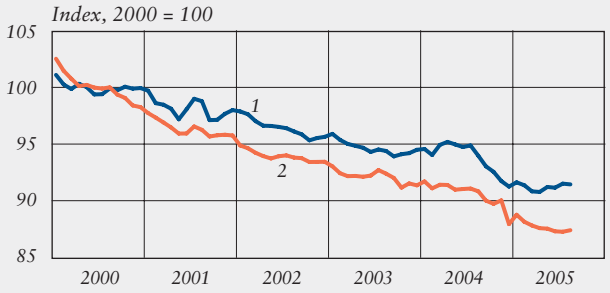


1. *Energy products (left-hand scale)*
2. *Raw materials and produced goods (right-hand scale)*

Source: Statistics Finland.

Chart 45.

Relative import prices of consumer goods



1. *Other consumer goods price**
2. *Consumer durables price**

* *Relative to CPI.*

Source: Statistics Finland.

world markets (Chart 43). These prices were about 3.5% higher in August 2005 than in a year earlier, partly due to an increase in world prices of various metals.

Import prices of capital goods developed moderately until the latter part of 2004. In January–August 2005, they rose by just over 2%. The sharp rise in raw material prices in world markets could have, via international import prices, impacted the prices of Finnish imports of capital goods.

Import prices of consumer goods have declined quite steadily since 2001 (Chart 44). This is largely a result of increasing globalisation and international competition, as well as euro appreciation against the dollar. In August 2005 import prices of consumer goods fell by just over 2% on the year-earlier period, primarily because of a decline in import prices of consumer electronics, textiles and foods. By contrast, the decline in import prices of non-durables appears to have ended, following a sharp drop around the end of 2004. International export prices are nonetheless projected to rise slowly over the coming years, which suggest that import prices of consumer goods will continue to develop moderately.

Relative prices of consumer goods imports have declined

In recent years the relative prices of consumer goods imports have increased considerably more slowly than domestic prices (Chart 45). Import prices of both durables and other consumer goods have risen much more slowly than domestic prices since the start of 2000

(Chart 46). Finland's overall price level has increased by just over 2 percentage points per annum faster than import prices of consumer goods. International prices of consumer goods (excl. energy) have moved much more moderately than the overall Finnish price level.

Domestic producer prices

Producer prices have continued to behave moderately. Although the rise in the producer price deflator for the private sector was close to zero in 2004, the rate of increase is expected to accelerate to more than 2% in 2005.[5] The primary reason is the rise in world prices of crude oil and other raw materials in 2005; another factor is an increase in aggregate wages. Producer prices have risen in several sectors.

In looking at developments in private sector producer prices one should also consider productivity and unit labour costs (Chart 47). The slowing of productivity growth and related increase in the unit cost of labour put upward pressure on private sector producer prices. Productivity growth is projected to slow down in the coming years. It is expected to be zero (output per worker basis) in 2005 due to the labour dispute in the paper industry. For this reason, the rise in unit labour cost will be unusually high in 2005.

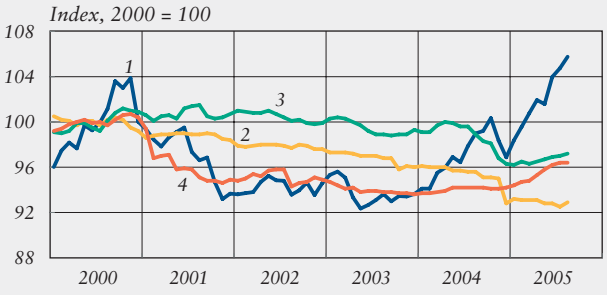
Tighter competition and related squeezing of price margins have in recent years constrained the rise in producer prices. Producer prices in the electronics industry have long been on the decline. Without electronics, producer prices in the private sector would have risen notably faster in 2004, by nearly 2% instead of zero.

It is projected that in 2006 and 2007 the increase in private sector producer prices will slow to around 1% per annum. As the rise in raw material prices levels off, the rise in producer prices will also ease. Unit labour costs will also increase more slowly in 2006 and 2007, but differences across sectors could be large.

[5] In the national accounts, value added is divided into volume and price components. The price component is the deflator. The price of private sector output includes services as well as goods.

Chart 46.

Import prices

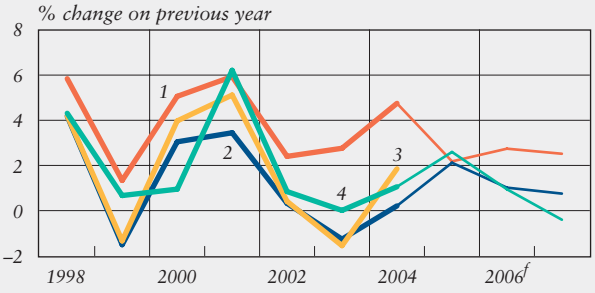


1. Total index
2. Consumer durables
3. Other consumer goods
4. Investment goods

Source: Statistics Finland.

Chart 47.

Private sector domestic producer prices



1. Aggregate wages per employed person
2. Output prices (value-added deflator)
3. Output prices (excl. electronics; value-added deflator)
4. Unit labour costs

Sources: Statistics Finland and Bank of Finland.

Box 8.

Labour costs and unit labour costs

Over the past ten years, there has been a fairly steady rise in labour costs in the Finnish private sector. Labour costs have risen by 3 to 3½% on average (Table A). This includes wages and salaries as well as employer's social security contributions.

The rate of increase in Finnish labour costs exceeded the euro area average by more than a percentage point. In Germany, the rate of increase in labour costs was much slower than in Finland, and in Italy labour costs grew at approximately the same pace as in Finland. According to the OECD Economic Outlook, this trend is expected to continue in 2005 and 2006. Of the non-euro area EU countries that are important in terms of Finnish exports, labour costs have risen considerably faster in the United Kingdom than in Finland and the same trend seems to continue. Also in Sweden, average wages have risen slightly faster than in Finland.

The picture changes when we look at unit labour costs. Finnish unit labour costs have risen at approximately the same pace as in the euro area on average (Table B). Unit labour costs are calculated by deducting productivity growth from wage and social security contribution growth. International competitiveness studies are often based on a comparison of unit labour costs. In terms of unit labour costs, Finland has suffered a rather considerable loss of competitiveness relative to Germany since the beginning of Economic and Monetary Union. The trend is expected to continue in 2005 and 2006. In contrast, Finland's competitiveness has improved relative to Italy. The development of Swedish and Finnish unit labour costs has correlated closely in recent years. In the United Kingdom, the rate of increase in unit labour costs has been relatively fast compared to other countries.

In Italy, the rise in unit labour costs accelerated after the introduction of the euro, whereas in Germany, it remained very subdued. In 2005 and 2006, the differential between the unit labour cost growth of Italy and Germany will grow. This means that German competitiveness will continue to improve relative to the other euro area countries, whereas Italy will continue to lose its competitiveness. This development is reflected in the

Table A.

Wages, salaries and employers' social security contributions per employee, private sector

Annual percentage change

	1995–1998	*1999–2004*	*2005–2006 f*
Finland	*3.4*	*3.2*	*3.2*
Italy	*3.0*	*2.8*	*2.8*
Germany	*1.5*	*1.3*	*0.3*
Euro area	*2.0*	*2.1*	*1.8*
United Kingdom	*4.0*	*4.7*	*5.0*
Sweden	*4.3*	*3.5*	*3.3*

Source: OECD.

Table B.

Unit labour costs, private sector

Annual percentage change

	1995–1998	*1999–2004*	*2005–2006 f*
Finland	*0.6*	*1.2*	*0.6*
Italy	*1.4*	*2.6*	*2.6*
Germany	*0.3*	*0.5*	*–0.5*
Euro area	*0.7*	*1.4*	*0.9*
United Kingdom	*2.5*	*2.8*	*2.5*
Sweden	*1.3*	*1.5*	*0.5*

Source: OECD.

robust growth of German exports and the weak performance of Italian exports.

The rapid growth in Finnish labour costs and slow growth in unit labour costs relative to the other euro area countries is explained by robust growth in productivity in the Finnish private sector. On the other hand, productivity growth has been rapid only in a few sectors, particularly in the telecommunications and communications sector and the financial services sector. In the other parts of the private sector, the rapid rise in wage costs compared to the other euro area countries has decreased companies' competitiveness and thus weakened employment growth in the private sector overall. Forecasts suggest that this trend will continue. In the traditional sectors, unit labour costs will develop in line with those in Italy if productivity growth remains weak in the years ahead and if the pace of labour costs growth remains unchanged.

Forecast summary and risk assessment

International economy

World economic growth is forecast to continue through 2005–2007 at an average rate of around 4% per annum. Although the pace of growth will be slower than in 2004, it will still be faster than longer-term trend growth. Differences in the pace of growth between industrial countries will, however, even out in response to a slowing down in the US economy and a gradual recovery in growth in the EU 15 countries. Growth will be strongest in a number of emerging Asian economies, above all in China.

Global economic expansion has continued broadly undisturbed in the last few years. Many of the previous threat scenarios, such as significant movements in exchange rates and the overheating of the Chinese economy, have not materialised. The implications for growth from the rise in oil prices have also remained more limited than was widely feared.

Nevertheless, the near-term outlook for the world economy is not void of risks. The situation in the oil market appears to remain vulnerable in the near term, as there is little spare capacity in both crude oil production and oil refinement. Serious shocks in oil output and refinement could lead to renewed, substantial rises in the prices of oil products. There is a danger that this would start to clearly retard growth in both emerging economies and industrial countries. Another risk arises from problems related to US indebtedness, which have continued to aggravate despite dollar depreciation. There is reason to assume that the savings rate of US households will rise to a clearly positive range sooner or later. Accordingly, growth in private consumption may decelerate in the United States more than estimated in the forecast. Such developments could be triggered, for instance, by a reversal of the rise in housing prices.

Should housing prices start to decline in the United States, it would probably dampen US households' appetite for consumption substantially. Lower domestic demand is likely to reduce US imports and pull down world growth in the short term. The situation could be most problematic in the EU 15 countries and in those other countries where growth still largely hinges on export demand. On the other hand, recent data for China and eg Japan suggest that the potential for self-driven growth has improved. In the long term, increasing household savings in the United States will reduce indebtedness and bring greater balance to the world economy.

Ample liquidity in the financial markets has been reflected not only in the United States but also in the housing markets of some European countries. It has also exerted downward pressure on risk premia for bonds with lower ratings, causing them to fall to very low levels, and in general contributed to the continuation of exceptionally low long-term interest rates, considering the economic cycle. From the viewpoint of the stability of the world economy, there is a risk that the effects of ample liquidity will unwind in an uncontrolled manner in the financial markets. Small risk premia

may experience a steep upturn in the event of a disruption in the market. This risk may be accompanied by higher long-term interest rates, lower share prices and increasing volatility in exchange rates, which could substantially disturb world trade and investment. However, continued observance of discipline by industrial countries in their monetary and fiscal policies would facilitate the adaptation of the deep global financial markets to the new situation. Hence, the risk of very negative developments is fairly small.

On the other hand, liquidity may also unwind in a controlled manner if companies start to invest and create new capacity. On the basis of improved corporate profits, there would be good opportunities for this in a number of industrial countries. A strong boost in investment activity would pose an upside risk to the growth forecast. But this can also entail the eventuality of faster price increases than anticipated if interest rates do not edge up in time from their current low levels.

Economic reforms in Germany and, for example, the correction of imbalances in the Japanese economy may also lead to better-than-forecast performance in the world economy over the next few years. German households' pessimism has already held back domestic demand for years. When unleashed, this pent-up demand would have favourable repercussions in the euro area as a whole. In Japan, too, growth in domestic demand may start off more quickly than forecast. Admittedly, its impact on demand outside Asia could remain limited.

Inflation

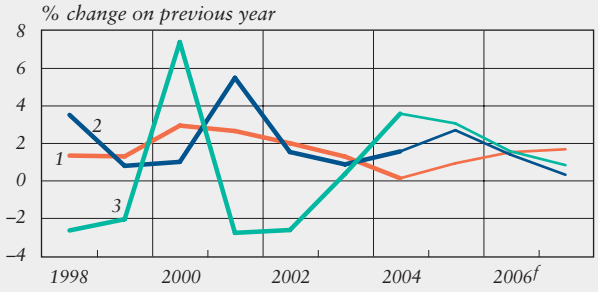
The rate of change in Finnish consumer prices (Chart 48) has recently been influenced by a number of exceptional factors. In the short term, one-off public sector measures and the external environment have been reflected in the changes of the price index.

Public sector one-off measures have included, besides changes in indirect taxes, various legal amendments in favour of more competition. Such amendments may also affect inflation in the longer term. According to a rough estimate, the downward impact on price increases from public sector one-off measures in 2004 was a good one percentage point. Cuts in indirect taxes, such as excise duties for alcoholic beverages, in 2004 continue to have a dampening effect on the average inflation rate in 2005. Looking ahead, the amendment to the Telecommunications Market Act[1] in the

[1] The amendment made to the Telecommunications Market Act in early March 2005 opened up competition in the prices of telephone calls from fixed lines to mobile phones.

Chart 48.

Finnish inflation trend



1. *Harmonised index of consumer prices*
2. *Unit labour costs**
3. *Import pirces*

** Labour input is measured in terms % number of employees.*
Sources: Statistics Finland and Bank of Finland.

early part of 2005 will also slightly curb service price increases, in particular.

Direct implications for inflation from the external environment have recently for the most part stemmed from strong volatility in the world market prices of crude oil and other oil products. The steeply elevated world market prices of oil products have been seen very rapidly in Finnish consumer prices for energy.

Indirect, longer-term implications for inflation from developments in crude oil and other commodity prices are more difficult to estimate. Higher commodity prices will filter through gradually into the prices of final products. In addition, higher transport costs, driven by price increases in vehicle fuels, will be reflected in consumer prices before long. On the other hand, globalisation and heightened competition in the world economy have so far effectively barred the pass-through of commodity costs in full into the prices of final products for goods and services (excl. energy). Industrial countries' reduced dependency on oil and other commodities will also diminish such indirect implications for consumer prices. Furthermore, a moderate rise in international export prices during the forecast period will not anticipate a strong upsurge in the prices of final products in 2006–2007.

One of the key domestic factors affecting inflation in the long term is productivity. The relatively rapid growth in private sector productivity in the last few years has helped to sustain slow growth in unit labour costs. Admittedly, productivity growth in Finland is rather unevenly distributed. The IT industry and telecommunications are examples of sectors in which productivity growth has traditionally been rapid. Higher competition in these sectors has forced companies to enhance productivity. Product prices in these sectors have declined strongly at the same time, exerting a downward impact on the overall price level. On the other hand, there have been only modest increases in competition and productivity in several service sectors. Productivity is anticipated to grow in the forecast period by an average rate of just over 3% per annum.[2] Growth in unit labour costs will therefore remain moderate, at clearly less than 1% in 2006–2007.

Domestic inflationary pressures will remain limited during the forecast period. The most important contributor to inflationary pressures in the short term would appear to be the rapid reflection of the sharp rise in crude oil world market prices in the prices of vehicle fuels and heating oil.

Short-term inflation forecast

The new Bank of Finland forecast is for a continued sluggish rise in prices in the coming years, with HICP inflation accelerating to an estimated 0.9% on average in 2005 (Chart 49). The main reason for this is the exclusion of excise duties for alcoholic beverages from the calculation of annual inflation in March 2005. Another key factor

[2] This does not take the productivity downturn in 2005 caused by the paper industry labour dispute into account.

substantially fuelling HICP inflation is the price of energy, which has risen very strongly in the last few months. In contrast, price developments in services and industrial goods (excluding energy) have depressed inflation significantly in the course of 2005.

Looking ahead, tighter competition in the telecommunications sector (including telephones[3] and call charges) will substantially curb inflation caused by developments in service prices. However, inflation in services is anticipated to gradually pick up from the current level of just over 1%. Higher labour costs will be gradually reflected as an acceleration of the rate of increase in service prices, as labour costs constitute the most important cost factor in service sectors. Conversely, the moderate pay settlement of 2004 will restrain the rise in labour costs, probably also keeping upward pressures on service prices rather muted in 2005–2006. In addition, the sharp rise in transport costs in response to higher vehicle fuel prices is likely to be mirrored in service prices to some extent.

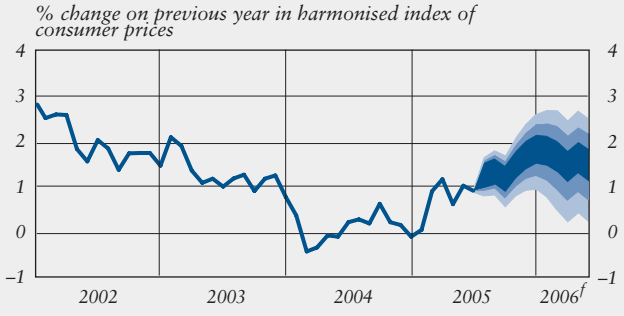
Inflation in industrial goods is significantly driven by external factors, primarily developments in import prices of consumer goods. The steep rise in commodity prices has not yet filtered through into the prices of industrial goods either. However, the indirect implications from higher commodity prices will gradually start to show up in the prices of industrial goods (excl. energy) in 2006. In contrast, tighter competition in retail trade should continue to hold back price increases in consumer goods, including daily consumer goods retailing and foodstuffs. An estimated slow increase in international export prices and continued stability in the exchange rate of the euro against the US dollar in the forecast period will also reduce inflationary pressures on prices of industrial goods in the coming years.

Price stability also maintained in 2006–2007

Annual inflation according to the Harmonised Index of Consumer Prices will accelerate on average to 1.5% in 2006. This is mainly due to the strong rise in energy prices. In addition, the exclusion of excise duties for alcoholic beverages from the calculation of the average annual change in inflation in 2006 will then speed up increases in consumer prices to some extent. In 2007, the rate of increase in prices should continue to remain clearly under 2%, accelerating slightly, to 1.7%.

Chart 49.

Short-term inflation forecast



Sources: Statistics Finland and Bank of Finland.

[3] According to the definition of the Harmonised Index of Consumer Prices (HICP), telephones are also considered to belong to services.

Inflation according to the national consumer price index, in turn, will gain momentum in the context of higher capital costs for housing, rising to 1.6% and 1.8% respectively in 2006 and 2007.

Inflation risks broadly balanced

Risks to the short-term inflation forecast are slightly tilted to the downside. One of the most important sources of uncertainty is related to volatile crude oil prices, which will be rapidly reflected as domestic energy price increases. Developments in energy prices pose both upside and downside risks to inflation. Services and processed foods, in turn, pose only downside risks.

Developments in crude oil prices are surrounded by considerable uncertainty, which makes it difficult to anticipate changes in crude oil prices. With output focused on certain areas in the world, geopolitical incidents may trigger a sizeable change in crude oil prices in the short term. If crude oil production and refineries for various oil products are operating at near full capacity, world market prices may experience substantial upswings in a short period of time in the event of supply shocks. The crude oil price may also drop faster than anticipated from its high level. More permanent changes in supply and demand, such as increased demand for oil from China, can in turn affect crude oil prices for a longer period of time.

The temporary output shock caused by Hurricane Katrina reduced the oil supply of the Gulf of Mexico at the end of August 2005. In particular, the partial damage suffered by some of the refineries in the southern parts of the United States and the resultant mismatch between petrol supply and demand provoked a steep surge of about 30% in the world market price of petrol. This was almost immediately reflected as an approximately 15 cent increase in consumer prices for petrol in Finland, too. Should the around 15 cent one-off increase in petrol prices remain permanent, it would lead to a rise of about 0.3 percentage point in annual HICP inflation. With supply shocks remaining temporary, crude oil and petrol prices may also fall rapidly. It is therefore fairly likely that the steep price increase will remain temporary, with subsequent minor implications for inflation. This is supported, for instance, by the release of industrial countries' stockpiles of fuel immediately following the incidents in the Gulf of Mexico, to meet the consumption of oil products.

Energy prices pose upside risks to inflation, also because of upward pressures on electricity prices. Higher costs in electricity output may pass through into energy prices even in the short term. In accordance with the Kyoto Climate Treaty, emissions trading in energy production was started at the beginning of 2005. The system enables energy producers to freely buy and sell carbon dioxide emissions allowances. The steep rise in the prices of these allowances in 2005 may lead to significant increases in electricity prices as early as in autumn.

With continued and possibly further increasing competition in the

telecommunications sector, call charges may continue to fall, which would also dampen increases in service prices in the future. Owing to the high weight of services, this would also be reflected as slower-than-forecast HICP inflation. Also in the foodstuffs sector, entry in the market of new chain stores and fiercer competition may attenuate price increases in processed foods more than anticipated.

In the longer term, the increased uncertainty surrounding the inflation forecast is mainly related to upside risks to inflation. Such upside risks would also arise from slower productivity growth and faster increases in unit labour costs than projected for 2006–2007, as well as faster-than-forecast wage increases in the face of tightening labour market conditions.

Finland's growth outlook

National accounts data released in July 2005 have provided greater precision to the structure of economic growth in 2004. Volume increases in both exports and imports in 2004 were larger than indicated by previous estimates. GDP grew 3.6% in 2004, roughly in accordance with preliminary data; hence economic growth in Finland in 2004 was clearly faster than in the euro area on average. Overall domestic demand was then very buoyant, and the employment rate continued to stay at almost the previous year's level, 67.2%. At the same time, the average unemployment rate remained persistently high, 8.8%.

GDP level in the first part of 2005 remained lower than at the end of 2004. Finnish industrial output contracted and export growth lost momentum in the period from May to July 2005, owing to the paper industry labour dispute. Economic growth was mainly underpinned by private consumption, which increased at a fairly brisk pace due to households' good income developments. In the next few months, economic activity will clearly strengthen along with the normalisation of forest industry output. Even so, weak developments in the early part of the year will discernibly pull down average growth for the year 2005 as a whole.

The Bank of Finland forecast is for economic growth of 2.7% on average for 2005–2007. GDP growth for this year will remain at 1.6%, as the paper industry labour dispute is estimated lowering economic growth by 0.8 percentage point. Due to the base effect from the low level in 2005, GDP growth will accelerate to 3.7% in 2006, levelling off to just under 3% in 2007. Growth in the forecast years will continue to rely on strong, albeit slackening upgrades in productivity. Productivity growth will enable steady domestic demand to unfold in the future, too, but capacity constraints and labour market mismatches will start to emerge as growth-restricting factors towards the end of the forecast period. This is counterbalanced by imports, which will increase their share of total supply to a historically high level.

While employment has grown at a brisk pace in the last 12 months, the amount of labour input, measured in terms of hours worked, has increased very slowly. Work is now distributed

between an increasingly higher number of employed. The number of employed will continue to grow during the forecast period, and the unemployment rate will decline below 8%. Continued, moderate wage increases will contribute to an improvement in employment, which, together with benign productivity development, will keep growth in unit labour costs in check. As the labour market will, however, tighten especially towards the end of the forecast period, labour market mismatch problems may lead to a higher-than-forecast pay level, which would jeopardise balanced economic growth in the medium term.

Consumption is estimated to continue its fairly good growth in the next few years. Both strong income developments and low interest rates continue to support households' purchasing power. Household optimism is expected to remain strong in the next few years, which will be apparent from a lower savings rate, for instance.

Risks to the consumption forecast are related to continued household optimism, interest rate developments, housing prices and the price of oil. Household consumption may be weaker than forecast if the economic outlook becomes clearly bleaker. Owing to the higher debt ratio, unexpected changes in interest rates, in particular, may also be easily reflected as lower demand.

A reversal of the already long-term rise in housing prices would also pose a risk to consumption. A steeper-than-expected rise in interest rates could lead to a faster-than-forecast weakening in housing demand and thereby to a fall in housing prices. At the same time, the debt service costs of borrowers would rise more than projected, which, together with a decline in the value of housing assets, would hamper private consumption.

Purchasing power and consumption potential would also be eroded by a higher-than-expected price of oil and a reversal of the downward price trend in consumer goods. Should the oil price remain higher than presumed for a long time, thereby weakening households' confidence in favourable economic developments, consumption growth will be lower than forecast. The additional cost from a higher-than-predicted oil price would undermine households' purchasing power and thereby reduce other consumption.

The growth of private fixed investment will accelerate, following zero performance in 2005, to just under 7% in 2006, and continue at a pace of 5.5% in 2007. Growth in public investment will be sluggish in the forecast years. Partial relocation of output abroad will reduce investment projects at home. Housing investment growth will level off to around 3% in 2007. Overall, the focus of investment will still be on construction at the expense of machinery and equipment.

Recent improvements in corporate financing conditions have provided a sound basis for raising the investment ratio, which would be essential for both technological advances and productivity growth. Renewal of the capital stock via investment creates scope for the introduction of new technology and

more effective production processes, as in the case of research and product development. Investments also enable diversification of production structures and creation of opportunities for enhancing productivity in an increasingly wider range of sectors, also in those with weaker productivity.

In the next few years, world trade growth will be strongest in sectors in which Finnish exports are very modest. Import volume in Finnish export markets is, however, estimated to grow faster than world trade in the forecast years, thanks to Russian trade. This will compensate for modest export demand in the euro area and for sluggish growth in the value of exports in a number of sectors, such as the forest and paper industry and the electronics industry.

When the deteriorating terms of trade and the increasing share of imported input are taken into account, the contribution of exports to the increase in the value of GDP will still remain very modest in 2005–2007. Constraints related to domestic production capacity and labour supply are also factors that increase imports. The trade surplus and, accordingly, the current account surplus will contract substantially in the forecast period from levels seen earlier.

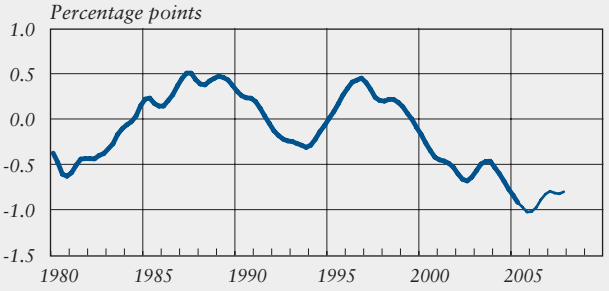
Risks to the export forecast lie both on the upside and on the downside. Upside risks are related to Finland's trade with Russia. If the large Russian middle class becomes wealthy faster than estimated and shortcomings in legislation do not constrain trade, Finland – on account of its geographical position – will have excellent potential for boosting exports of consumer and other goods to Russia.

The export forecast may also be too optimistic if the forest industry is under increased pressure to enhance productivity and cut costs in the next few years. Risks of even weaker-than-forecast export price developments are considerable. Against this background, it is apparent that there will be a need to reduce less efficient paper machine capacity, for instance. The forest industry as a whole is likely to experience a major downsizing in jobs towards the end of the decade.

Ongoing weak developments in export prices in the last few years are beginning to emerge as a structural problem for Finland. Exports appear to have focused increasingly on product categories for which competition is particularly tight. Hence, even if export volumes increased, GDP growth would overestimate domestic income formation because of deterioration in the terms of trade (Chart 50). The

Chart 50.

Terms-of-trade effect on real purchasing power of GDP*



3-year moving average.
**The difference between real purchasing power of GDP and real GDP growth.*
Sources: Statistics Finland and Bank of Finland.

Table 5.

Forecast summary

Supply and demand 2003–2007 (2000 prices)

	2003	2004	2005f	2006f	2007f
% change on previous year					
Gross domestic product	2.4	3.6	1.6	3.7	2.8
Imports	2.9	6.0	6.3	6.4	6.7
Exports	1.4	5.6	5.7	6.8	5.7
Private consumption	4.4	3.2	3.2	3.0	2.9
Public consumption	1.5	1.6	1.6	1.7	1.3
Private investment	–3.0	5.6	0.1	6.8	5.5
Public investment	6.7	2.1	–0.2	0.8	0.6
Inventory change + stat. discrepancy, % of previous year's total demand	0.4	0.2	–0.5	0.0	0.0
Total demand	2.6	4.2	2.8	4.4	3.9
Final domestic demand	3.1	3.5	1.4	3.3	2.9

Key economic indicators

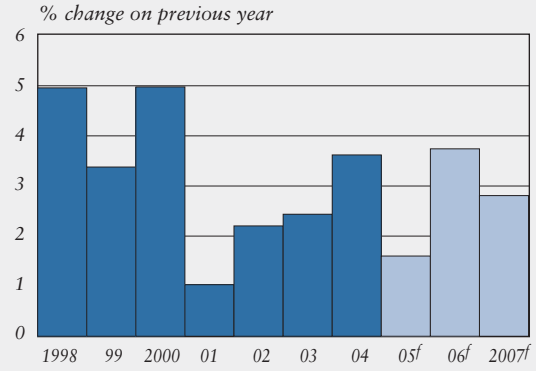
	2003	2004	2005f	2006f	2007f
% change on previous year					
Harmonised index of consumer prices	1.3	0.1	0.9	1.5	1.7
Consumer price index	0.9	0.2	0.9	1.6	1.8
Wage and salary earnings	4.0	3.8	3.8	3.3	3.4
Labour productivity[1]	2.3	3.6	–0.2	3.5	2.4
Unit labour costs[1]	0.7	0.9	2.9	0.3	0.3
Number of employed	–0.3	0.0	1.4	0.6	0.3
Employment rate, 15–64-year-olds, %	67.3	67.2	67.9	68.3	68.2
Unemployment rate, %	9.0	8.8	8.4	8.0	7.8
Export prices of goods and services	–3.0	1.0	–0.8	0.5	–0.6
Terms of trade (goods and services)	–3.4	–2.5	–3.8	–1.1	–1.4
% of GDP, national accounts					
Ratio of taxes to GDP	44.5	44.2	44.7	44.5	44.1
General government net lending	2.3	1.9	1.9	1.8	1.6
General government debt	45.0	44.9	42.4	42.0	41.7
Goods and services account	6.2	5.4	4.1	4.0	3.1
Current account	4.0	4.0	2.7	2.7	2.2

f = forecast
[1] Labour input is measured in terms of the number of employees.
Sources: Statistics Finland and Bank of Finland.

Chart 51.

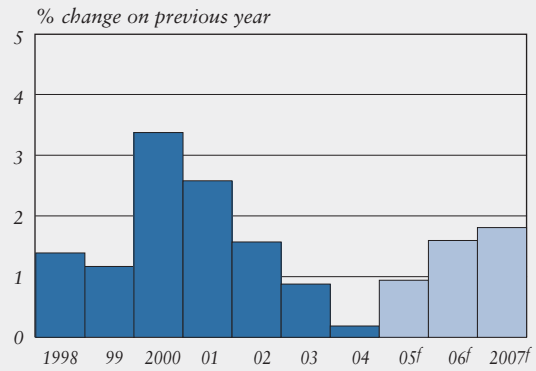
Key economic indicators

Gross domestic product

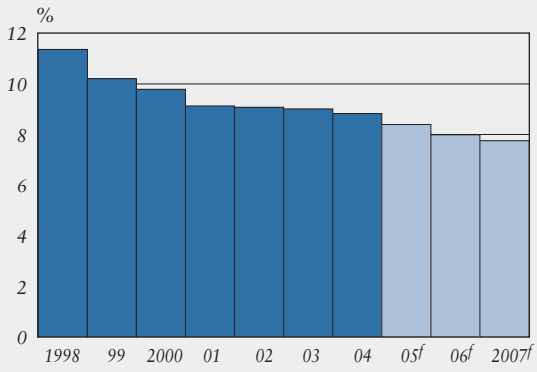


Inflation

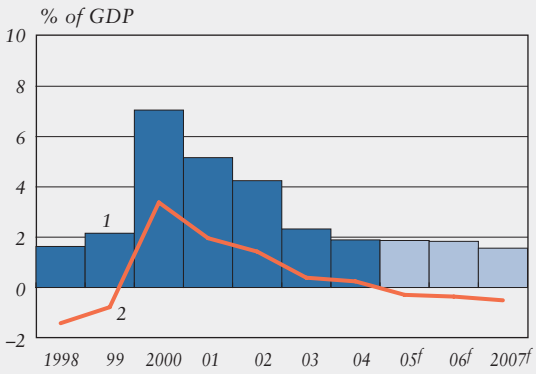
Consumer price index



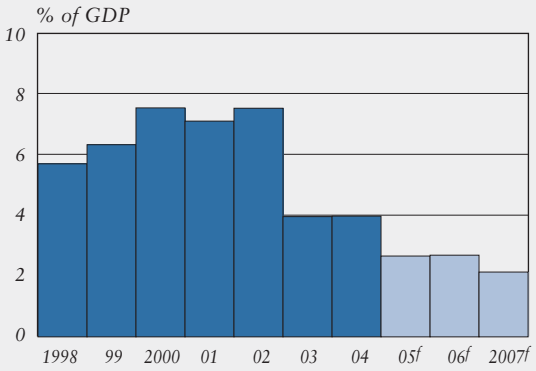
Unemployment rate



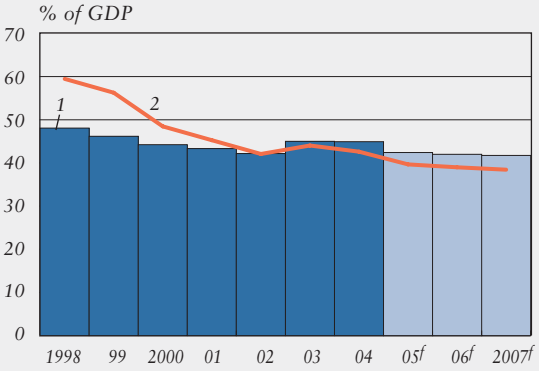
General government fiscal position



Current account



General government debt



1. *General government*
2. *Central government*

Sources: Statistics Finland, State Treasury and Bank of Finland.

terms of trade have deteriorated uninterruptedly since 2002 and will decrease further still in the forecast period.

From the point of view of households, deterioration in the terms of trade will pose a real problem when there is no compensation in the form of lower prices for consumer durables, as has been the case in the last few years. Households' debt-bearing capacity and the general government tax base may therefore grow clearly more slowly in Finland than the cyclical pattern would suggest.

In the next few years, there will be a gradual weakening in general government finances. The combined fiscal surplus of central government, local government and the social security funds will decline from about 2% to just over 1½% of GDP in the forecast period. Central government finances will be slightly in deficit in 2005, with the deficit expanding further in 2006–2007. At the same time, the local government fiscal deficit will contract only slightly. In contrast, the surplus in the social security funds will remain a good 2½% of GDP. Without surpluses in central government, local government and private-sector employment pension funds, general government finances would show a deficit of a good 1% of GDP.

General government expenditure for discharge of duties will grow almost 4% on average per annum. This growth stems from an increase in employee compensations, the sum paid out in employment pension and health insurance compensations, while lower unemployment expenditure acts as a constraint on growth. In contrast, investment expenditure will grow a good 2%, while interest expenditure will record a clear decline.

Changes to the bases of taxation will reduce the overall tax burden by just under 1% of GDP and would also appear to moderately support economic growth in the forecast period. While the government allocates more funds for active labour policy measures and infrastructure investment, the focus of fiscal policy will continue to rely strongly on taxation. Even though the government proposes a 5.1% increase in primary expenditure for the 2006 central government budget, the proposition appears to be consistent with strict spending limits agreed in the government programme. Required structural and cost-level adjustments to allowances included in and excluded from the agreed spending limits, however, hamper estimation of developments in allowances.

Risk assessment: deterioration in the terms of trade

This risk assessment focuses on analysing the implications of deterioration in the terms of trade, ie the decline in export prices, for the economy in a situation where the volume of exports remains unchanged (Table 6). Deterioration in the terms of trade illustrates the problems concerning export prices, as discussed in Box 9. Other factors, such as productivity growth, propensity to invest and consumer optimism, are however assumed to remain in line with the forecast. It is very difficult to describe the interdependency of these

factors owing to the multidimensional nature of the problem. Their combined effect masks the extent to which each of the factors affects economic development. Therefore, this assessment focuses exclusively on one factor – export prices. As there is only one effective negative factor, the scenario presented here as a risk is not as pessimistic as it could be if other factors were taken into account.

The risk assessment is based on the assumption that, at the end of 2005, export prices will have fallen to a level that is 2% lower than forecast. The prices will, however, return towards the projected level so that about half of the price differential will have been eliminated in a four years' time. This will be seen in export price inflation so that the rate of increase in export prices will immediately decelerate by 2 percentage points, starting to accelerate slightly from the following quarter onwards. The assessment starts from the assumption that this fall in export prices represents the response by export companies to tighter competition, because they want to keep the volume of exports unchanged. The assumption is not broadly consistent with strategic behaviour by monopolistic companies, but it can be considered to describe with sufficient precision the scenario under review.[4] It is further assumed that Finnish export companies are so small that their pricing behaviour does not affect average prices or growth in the world economy. For this same reason, euro area monetary policy does not react to this phenomenon.

Corporate profitability constitutes a channel for passing the fall in export prices through into the domestic economy. Contraction in export receipts will be reflected in corporate profits and thereby in share valuations. The impact on the stock market is typically an immediate one, as economic agents are capable of anticipating a fall in export prices. A decline in share valuations will also have an immediate, negative impact on consumption. Weakening domestic demand will also lead to a downward adjustment in domestic output prices. A key factor constraining consumption and investment is the rise in the domestic real interest rate. The rise in the real interest rate is due to the fact that, at the same time as the domestic price level declines and inflation consequently slows down, the monetary policy rate remains unchanged, because the fall in export prices under review only concerns Finnish export companies and has hardly any effect on euro area economic activity.

Table 6.

Deterioration in terms of trade: effect on forecast

Deviation from forecast

	2005	*2006*	*2007*
Private consumption, %	*–0.07*	*–0.17*	*–0.09*
growth rate, percentage points	*–0.07*	*–0.11*	*0.08*
Private investment, %	*–0.31*	*–0.96*	*–0.43*
growth rate, pecrentage points	*–0.31*	*–0.73*	*0.58*
Consumer price inflation, percentage points	*–0.06*	*–0.65*	*–0.44*
Number of employed	*–5,155*	*–15,086*	*–6,576*
Current account surplus / GDP, percentage points	*–0.12*	*–0.38*	*–0.29*

Source: Bank of Finland.

[4] Economics uses the model of monopolistic companies in analysing situations where a company has a certain amount of pricing power.

However, domestic output prices decrease by less than export prices. Domestic output prices therefore remain higher than export prices, which will curtail demand for domestic input used in export output. This constitutes another important channel through which the decline in export prices filters into domestic output, causing it to fall. Demand for imported input used in exports will also diminish.

As import prices do not change in this scenario and domestic output prices fall, the prices for both consumption and investment will rise relative to domestic output prices. This will again reduce consumption and investment and thereby imports.

The third pass-through channel is the labour market. As wages are more inflexible than prices, real labour costs will rise first, which will contract labour demand. On the other hand, efforts to smooth consumption over time will lead to an increasing supply of labour, which will cut down wage demands, curb real wage increases and alleviate deterioration in employment. The impact of weakening domestic demand will, however, remain dominant, and employment will settle at a lower-than-forecast level for a rather long time.

The surplus in goods and services and, consequently, the current account surplus will decline, as the value of exports falls more strongly than that of imports. The general government sector will gradually need to introduce a moderate increase in taxation in order to keep the ratio of general government debt to GDP at the original level.

Box 9.

Optimistic income expectations and the current account surplus

Finland's current account surplus has shrunk considerably faster than estimated in previous forecasts. Export prices have risen less than in competitor countries, which was due to the production structure. In addition, the volume of export has not grown as rapidly as export markets. The shrinking of the general government surplus is also reflected in the current account. In contrast, domestic demand, that is, private consumption and housing investment, have continued to grow. The shrinking of the current account surplus is thus not based on companies' investment in productive capacity, which boosts income growth, instead it is based on optimistic income expectations.

Development in the immediate years ahead involves considerable risks relative to the baseline forecast. It is possible that the corporate sector financial surplus will shrink more than expected, due to weak terms of trade. A rapid deterioration of companies' financial position would have a relatively rapid impact on employment and wages. This development would, in turn, be reflected in public sector income and result in deepening of central government deficit. This development could also be repeated in Finland in the latter part of the current decade.

Finland's current account surplus will continue to shrink over the forecast period, to 2% of GDP in 2007. When Nokia's retained earnings are deducted from the sum – they do not increase the assets of Finns that much – the current account will be almost in balance at the end of the forecast period. Due to demographic ageing, the Finnish current account should, however, post a surplus in the immediate years ahead, despite the fact that Finland's investment ratio is low relative to other countries.

It must also be taken into account that, given domestic demand, there are risks of a weaker-than-forecast development of the current account, due to the lack of positive prospects for the export industry. The forest industry faces several threats, the realisation of which would force companies to shut down unprofitable production plants and also result in a decrease in stumpage income that is important also for households. A growth in productivity that is based on weak import prices would thus be reflected in weaker employment and lower household income as compared to the baseline forecast.

Also in the other export industries negative risks are more significant than positive ones. Growth in export values has been modest as compared to Germany, for example. A good level of profitability has been achieved by cutting costs, rather than by investing in new products. As the product cycle lengthens, companies' pricing power weakens, which in turn is reflected in the weak development of export prices and the narrowing of companies' financial surplus. As companies' levels of investment in both new labour-saving technology and new products remain low in the forecast period, the financial surplus also of companies other than forestry companies may remain lower than expected. This, in turn, would notably decrease companies' capacity to pay competitive wages.

The moderate household net savings rates, experienced over the past few years, continue in the forecast period, which will decrease the current account surplus. It is possible, that households' optimism reflects wealth accumulated in previous years and the resulting debt-bearing capacity. In this scenario, low household saving ratio is a temporary phenomenon which will settle over the next few years. The more probable alternative is however, that households will overestimate their potential.

In Finland, growth in real earnings has been considerably faster than in the other euro area countries in recent years.

Household disposable income has grown more than expected, as a result of the exceptionally low level of interest rates. The rapid rise in real earnings and low interest rates on loans is however, only a temporary phenomenon which will come to an end, mainly after the end of the forecast period. With current level of investment activity, terms of trade will continue to deteriorate. Growth in nominal wages, which is more rapid than in other countries, will slow sooner or later – especially considering the high level of wages in Finland as compared with the other euro area countries. Weakening of the general government fiscal position in relatively good years may too be the result of backward-looking short-sightedness. Companies' cost-cutting measures have resulted in exceptionally high corporate tax revenues. Thanks to domestic demand, that is, consumption and housing construction and renovation, GDP growth continues to be rapid as compared with the other euro area countries. In the baseline forecast, household optimism starts to fade only after the forecast period as interest rates rise. General government finances will thus once again be faced with problems towards the end of the decade even if development continued to be as favourable as assumed in the baseline forecast. If the above-mentioned downside scenarios related to the problems of the export industries materialise in the next couple of years, general government finances will be faced with major problems. Costs would have to be cut in a situation in which there is a rapid deterioration of the employment situation.

All and all, it would appear that the Finnish economy's income creation capacity and the capacity to pay wages are not as strong as households would expect. Labour productivity growth and the rise in export prices, which support the capacity to pay wages in the long term, have remained more moderate than expected. Investments in productivity-boosting and labour-saving technology, as well as in new products have remained low. This is reflected in, for example, the slow growth in the capital stock – it is slow even in comparison with the other euro area countries.

Composition of Finland's foreign trade

Heli Pyykkö, Economist, Monetary Policy and Research
Markus Bunders, Economist, Monetary Policy and Research

Global economic developments

In recent years, the world economy has started to grow again fairly rapidly, following weaker development in the early 2000s. World GDP and trade usually develop homogenously, but world trade is exhibiting stronger volatility (Chart 1). World GDP grew by 50% in 1993–2003, whereas aggregated world exports almost doubled during the same period.

Output however, has not grown evenly. In China, GDP has about tripled in over ten years. China's share of total world output has increased from 2% to 5%. The euro area's world output share has remained unchanged at about 22% and that of the United States has risen from 27% to 30%. Asia's share of world output is returning to its historical level.

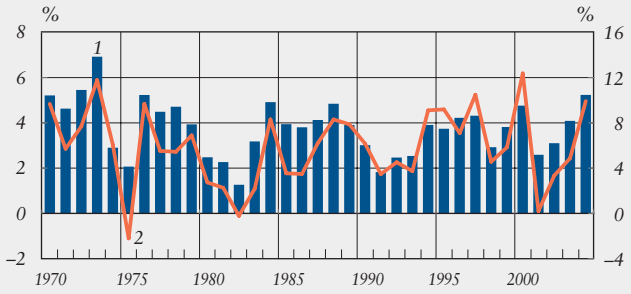
As regards world trade in goods, the shares of countries and regions have remained stable. The USA and Germany continue to be the most important exporters, but China's share of world exports has increased to about 6% in 1995–2004 (Chart 2). Other changes in the shares of world goods trade have only been minor.

The country composition of Finland's foreign trade

Finland benefited from the growth in world trade at the end of 1990s. Finland's foreign trade grew at a notably faster pace than world trade. After the turn of the millennium, world trade growth weakened and the value of Finnish exports started to decline (Chart 3). In 2004 and in the first half of 2005, the value of Finnish exports

Chart 1.

World GDP and trade growth

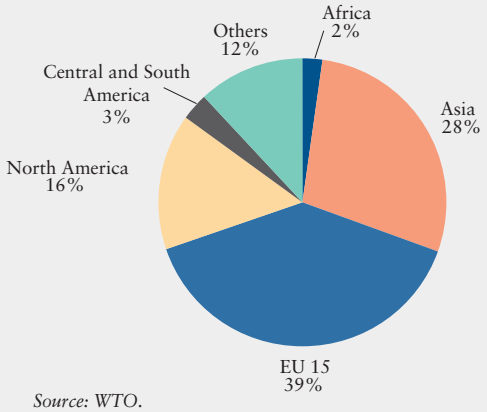


1. *GDP (left-hand scale)*
2. *Trade (right-hand scale)*

Source: IMF, World Economic Outlook 2005.

Chart 2.

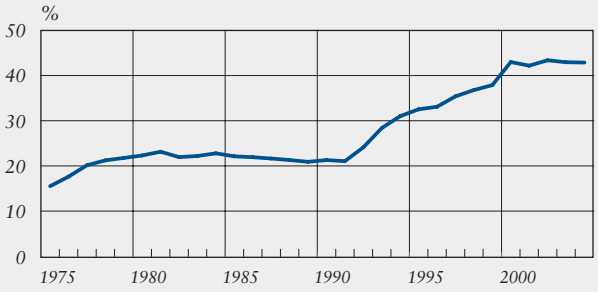
Shares of world trade in goods, 2003



Source: WTO.

Chart 3.

Export of goods and services in relation to Finland's GDP



Source: Statistics Finland.

has increased again at the moderate pace of 6%, while the value of imports has grown twice as fast. As the balance of trade weakens, the contribution of net exports to Finnish economic growth has declined.

Finland's foreign trade is concentrated on geographically close regions with whom trade causes relatively small transportation costs. Over 70% of Finland's foreign trade is with European countries (Chart 4). North America's share of Finland's foreign trade has declined to about 10%, while Asia accounts for about 15%.

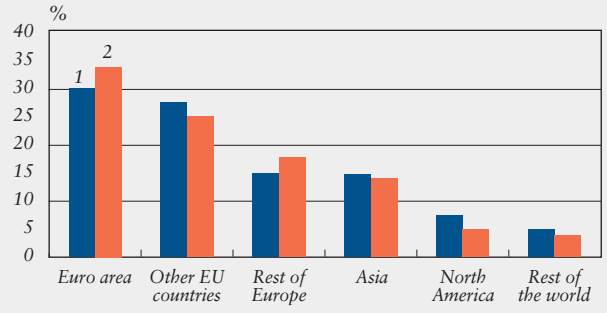
The euro area's share of Finnish exports increased from 30% to 35% in 1995–2000, but fell back to 30% in 2004, mainly due to a decline in France and Germany's export shares. The single currency has eliminated exchange rate-related uncertainties from intra-euro area trade, and it is assumed that this would have led to a rise in the share of Finland's trade with the euro area. The reason behind the contraction in exports could be explained by weak economic developments in the euro area compared with Finland's other export countries and a shift of production from Finland closer to euro area markets.

Over the last ten years, imports from Asia to Finland have doubled. China in particular has become increasingly important for Finland as a trading partner. Despite the rapid growth of Indian markets, India still accounts for a small share of Finland's foreign trade. Indeed, the most important change in Finnish foreign trade in the last ten years concerns the clear growth of China and Russia's shares at the expense of traditionally important Finnish export countries, namely Germany and the United Kingdom (Chart 5). Hence, Finnish exports have recently been directed towards the strongest growing markets.

The expansion of Finnish companies outside Finland has also influenced Finland's foreign trade developments. The effects of the internationalisation of companies on trade are not unequivocal. Foreign production is able

Chart 4.

Finnish exports and imports by regions, 2004

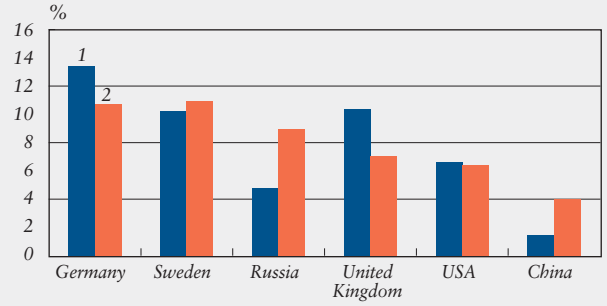


1. Exports
2. Imports

Source: Finnish Customs.

Chart 5.

Shares of main export countries of Finland's export, 1995 and 2004



1. 1995
2. 2004

Source: Finnish Customs.

to replace exports of a certain product, but at the same time it can lead to a rise in exports of another product. For instance, Finnish paper exports have declined after Finnish companies established paper mills in China, but exports of paper machines have increased. The interconnected effects of foreign production and exports are usually complex and cannot be directly derived from trade statistics.

Finnish companies have clearly internationalised their activities in recent years. About three quarters of the staff of the 13 most internationalised Finnish industrial companies[1] were located abroad in 2002, and over 90% of turnover was generated outside Finland. So far, Finnish companies have mainly expanded in the western countries, as the staff and turnover of foreign subsidiaries have concentrated in the EU countries and North America, leading to a partial replacement of exports by local or foreign production in these areas in particular.

When companies expand abroad, their services exports can also be expected to grow, since companies export administrative, product development and other services to their foreign subsidiaries. Statistics show that services exports have not been as important for Finland as for Sweden and the United Kingdom, among others, and have, in fact, become less important (Chart 6). However, statistics do not usually illustrate the internal exchange of services between multinational companies, which makes it more difficult to assess the actual development of services exports.

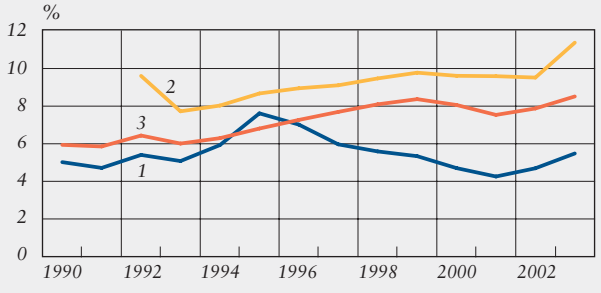
The goods composition of Finland's foreign trade

Economic theory states that countries specialise in exporting goods that they can produce comparatively more efficiently than other countries. Naturally, external factors such as natural resources and weather conditions partly determine this specialisation, but the goods composition of exports can also be partly affected by policies. Supporting industrial sectors in which global demand is increasing has a positive impact on export development. If the export composition cannot be adjusted according to changes in global market demand, it will become more difficult to keep up with international competition.

In world trade, exports of high-tech products such as ICT, and of chemical products, have grown at an above-average rate over the past

Chart 6.

Value of services exports in relation to GDP



1. Finland
2. Sweden
3. United Kingdom

Source: OECD.

[1] Stora Enso, Nokia, Huhtamaki, Kone, Amer, UPM, Metso, Wärtsilä, Ahlstrom, KCI, Outokumpu, Fiskars, Uponor. Source: Lovio (2005).

decade. In contrast, the demand for products using conventional technologies, such as paper, wood and metal products, has in turn mainly experienced a below-average growth. Finnish exports concentrated on the latter-mentioned products until the early 1990s. The specialisation in these diminishing sectors in Finnish exports has impeded export performance from becoming positive. Over the past decade, however, there has been a cautious shift from conventional technology-products to high-tech products in Finnish exports (Chart 7).

The share of paper in Finnish exports has declined in the 2000s, in particular as a result of dampened export demand and lower export prices. Finland's weak export performance at the beginning of the 2000s is partly attributable to the specialisation of exports in the negatively developed paper industry. The expansion of Finnish companies' foreign production has probably also affected export performance.

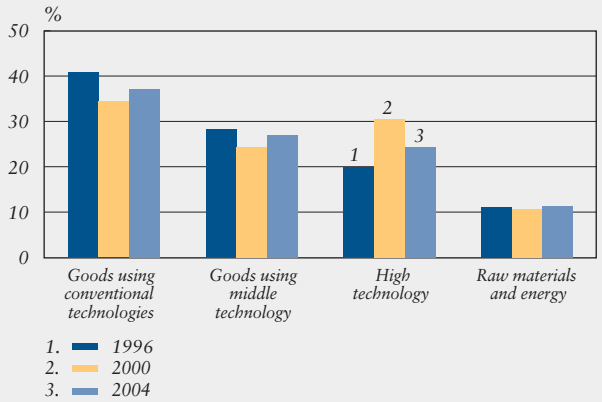
This notwithstanding, Finnish exports have partly managed to adjust to changes in global market demand. In recent years, Finnish exports of basic metals have increased strongly owing to higher demand in China in particular. At the same time, export prices of metals have also started to rise. As a result, the share of products using conventional technology in Finnish exports has increased again by 2004.

The share of high-tech products in Finnish exports has mainly followed developments in the exports of telephone products. The value of telephone products exports increased strongly at the end of 1990s and more than tripled in 1996–2000. However, the value has started to decrease in the 2000s, mainly owing to the weakening price development of telephones, since export volumes have continued to increase, even in recent years. However, Finland's share of telephone imports of several major trading partners has also decreased in recent years. This is partly attributable to a shift in production to local markets.

Finland's exports grew rapidly at the end of 1990s particularly because the composition of exports could be adjusted flexibly to increased demand in telephone products. In recent years, falling mobile phone prices have led to a decline in the value of exports. This has strengthened the weak export performance caused by slow world economic growth.

Chart 7.

Composition of Finnish exports in 1996, 2000 and 2004*



** The classification is partly misleading for Finland, as certain product categories important to Finland, such as paper machines, are currently classified somewhat questionably as goods using middle technology.*
Sources: Finnish Customs and Anderton (1999).

The demand for chemical products has also increased rapidly in global markets, and Finland has been able to respond to the situation. Finnish exports of chemical products have grown slightly faster, on average, than those of other countries. At the same time, the share of chemical products in Finnish exports has increased slightly, but from the viewpoint of general export development, there has not been a fundamental shift in exports to this growing area of industry.

Finnish imports have largely focused on same products as Finnish exports. Imported goods are partly used in export production, or are reexported through Finland to other markets as intermediate trade. The international division of work is reflected in Finnish imports as the fairly large share of raw materials. Finland reprocesses imported raw materials in order to export them to western markets. In recent years, these imports to Finland from close regions, mainly Russia, have increased. At the same time, Finnish exports of goods produced from these raw materials have increased as well.

Summary

Foreign trade became increasingly important for Finland in the 1990s. This was underpinned by the integration of Finland to European markets and the robust growth of the mobile phone sector. In the 2000s, exports to the main markets for Finland – the EU – have slowed but, at the same time, import demand from China and Russia has increased. Finland has partly been able to allocate exports to these expanding markets, which supports positive export development.

Finnish export development also reflects the goods composition of Finnish exports. Until the 2000s, Finnish exports adapted flexibly to market changes. Exports grew strongly among increased world demand for electronics. As world economic growth slowed down, Finnish exports recovered in turn at a slower rate than world trade on average. Sluggish economic growth in Finland's main export countries fuelled weak export performance in Finland. Price development of main Finnish export products have also been unfavourable.

Box 1.

Russia

Russia is the fastest growing large market area among Finland's neighbouring regions. After the economic crisis of 1998, the Russian economy has grown at an annual average rate of 6%. At the same time, Russia's foreign trade has increased by one fifth a year, on average. However, this growth has accelerated in recent years. Finland has been able to respond to Russia's increased import demand, since Finland's share of Russia's imports has remained fairly stable. Russia has already become Finland's third largest trading partner, and Finland's trade with Russia is growing clearly faster than its trade with the western countries.[1]

The goods composition of Finland's exports to Russia has changed fairly extensively over the last decade. Currently, it more clearly reflects Finland's specialisation in electronics, machine and paper industries. Finland's imports to Russia also include many goods that are not actually produced in Finland, such as mobile phones and private cars. Trade is based on competitiveness which means that food and textile industry, which took an excessive share in Finnish exports during the Soviet era, have become considerably less important after widening of import possibilities in Russia.

The composition of Finland's imports from Russia has remained relatively unchanged. Imports from Russia mainly consist of energy products such as oil and natural gas, and raw materials, for example wood products. Materials imported from Russia are processed in Finland and these processed products are re-exported to the west. Finnish exports of oil products to western countries have increased considerably over the last decade.

In addition to foreign trade, transit haulage to Russia and from Russia to the west are also important for the Finnish economy. In 2004, alone the value of road haulage to the east was three times bigger than the value of Finland's exports to Russia. Companies specialised in transit haulage-related services, for example the storage and packaging of goods, have been established in the south-eastern ports of Finland and near the eastern border.

According to the estimation of the Research Institute of the Finnish Economy (ETLA),[2] the aggregated employment effects of Finland's exports and transit traffic to Russia were almost 50,000 persons, ie about 2% of total employment, in the Finnish economy in 2003. Employment effects are particularly visible in business services, manufacture of machinery and agriculture. The employment effects of transit haulage are naturally concentrated in the South-East Finland.

Finnish companies have mainly reacted to the increased demand from Russia through exports. Finnish direct investment to Russia has so far been fairly cautious, wherefore Russia continues to account for only around 1% of the stock of Finnish investment abroad. However, statistics are likely to underestimate the amount of investment, since companies are not obligated to report their investments and there are statistical problems related to multinational companies' investments. This notwithstanding, Finnish companies already have production in Russia in almost all sectors. At least so far, local production does not seem to have had a clear impact on the development of Finnish exports to Russia.

[1] See also Ollus, S and Pyykkö, H, Suomen ja Venäjän taloussuhteiden viimeaikainen kehitys ('Recent developments in economic relations between Finland and Russia'). BOFIT Online 2005 No 10.

[2] Hernesniemi, H, Auvinen, S and Dudarev, G (2005).

Box 2.

China

China's GDP has grown by an annual rate of 9% for almost three decades. In 2003, China was the world's fourth largest trading country with a world trade share of 5.9%. In the same year, exports represented 31% of China's GDP.

China's imports to the EU area have about doubled from 1995, to about EUR 50 billion in 2002. Exports have also increased from just over EUR 20 billion in 1995 to EUR 37 billion in 2002. The EU's trade account with China posted a deficit of over EUR 10 billion in 2002.

In addition to trade, direct investment in China has also increased rapidly. In the early 1990s, direct investment in China totalled about USD 5 billion, whereas in 2004, their yearly amount was already over USD 60 billion. China attracts considerable investments from Hong Kong and Taiwan, probably from overseas Chinese. Investment from the EU and the United States are smaller in proportion. It is suspected that part of the investment flow originates from China which makes it difficult to assess the amount of investment.

In ten years, China has become an influential market area and exporter to world markets. As for Finland, China's importance is reflected in the fact that Finland's exports to China have over doubled and imports from China have over quintupled during the last ten years (Chart). In 2005, export and import growth will probably remain sluggish compared with individual large deliveries in the previous year.

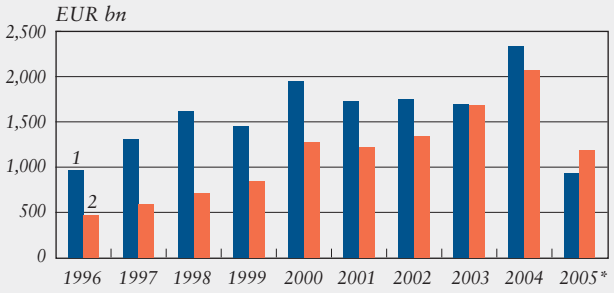
Almost 100 Finnish companies are estimated to have production in China. The stock of Finnish companies' investment in China is estimated at about EUR 5 billion. Finnish export industry is an important actor in Chinese import markets only with regard to machine exports.

It is not profitable to export low-processed products from Finland to China because of the large geographical distance between the two countries. Consequently, China's growing markets mainly constitute a possibility for processed Finnish export products, such as paper machines.

The fact that imports from China to Finland have increased indicates that the benefits of globalisation go in both directions. China not only buys Finnish products, but it also produces a growing amount of products for which there is demand in Finland. Therefore, international trade promotes welfare among all trading partners.

Chart.

Finland's trade with China and Hong Kong



1. Imports
2. Exports

* January–June 2005.

Source: Finnish Customs.

General equilibrium effects of population ageing

Juha Kilponen, Research Supervisor, Monetary Policy and Research Department
Helvi Kinnunen, Economist, Monetary Policy and Research Department

In Finland, there is broad general consensus that the immediate burden imposed on general government finances by an ageing population will be immense. If the expenditure base remains unchanged, the sustainability of general government finances will require a substantial increase in taxation to finance growing expenditure on pensions and care services. Several calculations of this need for higher taxation have been provided. There has been much less debate on the additional cost to the economy resulting from distortions due to the higher tax rate itself. The important long-term issue to address therefore is what will the overall demographic implications be when the labour supply effects associated with higher taxation are systematically taken into account. Such an analysis requires a general equilibrium macroeconomic model, with the variables of consumption, labour supply and investment decisions defining the dynamics of the economy and its long-term equilibrium.[1]

This contribution is based on the dynamic general equilibrium model developed at the Bank of Finland and applied to the analysis of demographic ageing. The costs of an ageing population addressed in the model analysis represent pension expenditure and the resulting tax burden. The ageing of the population is immediately reflected in the balance sheets of employee pension funds, which the model treats as a separate sector. The equilibrium analysis, however, covers general government finances as a whole and hence consistently addresses the dynamics of taxation at large.

As an introduction to the model calculations, we will first discuss some of the key parameters of demographic ageing and provide long-term projections of the changes in the level of pensions. This is followed by an exploration of the changes in the long-term equilibrium of the economy when the pace of population growth gradually slows, consistent with the demographic forecast, and departing from the stable growth rate foreseen in the initial assumptions. This is linked with the trend in pension expenditure that is starting to respond to the changes in pension indexation rules, producing a slower growth rate for average pensions relative to wage developments.

Retired population growing but slower growth rate for retirement income than for wages

The ageing of the population will increase the financial burden on the working-age population considerably in the 2010s and 2020s when the post-war 'baby-boom' generation reaches retirement age. After this, the increase in the old-age dependency ratio will slow down. The overall population dependency ratio will not decline as much, however, as the increase in the elderly population associated with higher life expectancy will be slightly offset by a reduction in the child population, due to a low fertility rate

[1] In Finland, comprehensive analyses of the demographic implications have been performed using generational models. For instance, an assessment was recently undertaken on the effects of the pension reform. See Lassila and Valkonen (2005).

(Chart 1). The overall dependency ratio will start to stabilise in the 2020s–2030s.

An ageing population will put the pension scheme under a strain, with pension expenditure growing and the employee contribution base shrinking in step with the decline in the working-age population. Evaluation of these variables is crucial to preparing for the burden on the economy, in particular on fiscal policy.

Projections of pension expenditure are generally based on micro data covering individual members of the insured population (Biström et al, 2005). This provides a very reliable picture of the changes in pensions against certain background assumptions, but projections based on micro data are not applicable to analyses using macro models. Modelling based on aggregate data must allow for separate analysis of the number of pensioners and changes in average pension. In this way, timing of labour force exit and the general macroeconomic development can be consistently reproduced in the trends in pension expenditure.

In principle, the Finnish defined-benefit pension scheme, where benefits are less closely dependent on contributions and pension fund returns, also allows for approximation of the long-term trend in pension expenditure based on the aggregate variables of average pension and number of pensioners.[2] The changes in the population who are of retirement age, together with the effective retirement age are, of course, key factors in terms of pension expenditure. They are the two determinants of the number of pensioners. Calculating the average pension is not as straightforward, however. The actual average old-age pension is, in the long term, dependent on the level of pre-retirement earnings, accrued pension rights and pension indexation rules. In addition, the average pension is also influenced by the life expectancy coefficient, ie changes in life expectancy.[3]

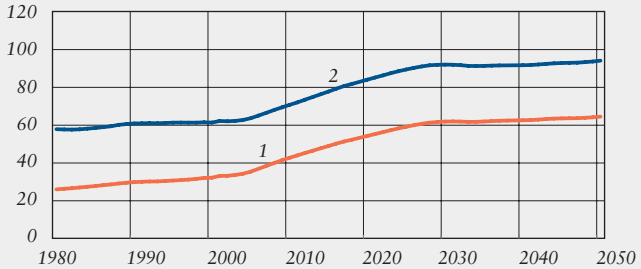
There is a twofold dependence between the level of pensions and wage developments. Wages have a relatively direct effect on the level of pension of those who retire in each respective observation period. In contrast, because of the current regime of pension indexation, wage developments are reflected in the pensions of those already retired only to a 20% weighting, while costs of living exercise a weight of

[2] The 2005 pension reform gave the pension scheme a slightly more actuarial structure, with the introduction of the flexible retirement age of 63–68 and closer correspondence between benefits and retirement age and contributions.

[3] The life expectancy coefficient will apply to newly awarded pensions starting 2009 and later.

Chart 1.

Old-age dependency ratio and overall population dependecy ratio



1. *Old-age dependency ratio, by age (over 59/15–59)*
2. *Population dependency ratio, by age (under 15 and over 59/15–59)*

The old-age limit is consistent with the age grouping of the model analyses. In general, the age limit is 64.

Source: Bank of Finland's calculations.

80%. In an economy of rising real wages, those already retired fall further behind general earnings growth the longer they are retired.

This study provides long-term projections of the changes in average pension from 2004 onwards, with the average pension being calculated separately for those retiring in each year. Over the next few years, the level of pension of these pensioners will increase in line with the pension index. Under the initial assumptions, the increase in pension of those already retired will only reflect the rise in the pension index. Estimated aggregate average pensions were obtained by weighting the calculated values of average pension by the relative shares of the age cohorts.

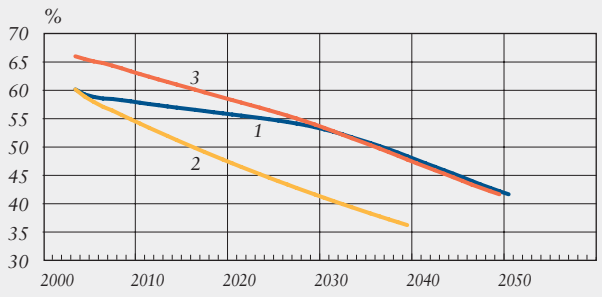
Under the assumptions that retirement is taken at the age of 59, that the ratio of average pension to average wage of those retiring remains in line with the initial assumptions (at 66% of average earnings), that productivity, ie real earnings, will increase by 1.75% and that the rate of inflation is 2%, the calculation returns a clearly declining ratio of average pension to average wage. This also takes the falling life expectancy coefficient into account.

With the expected economic development, the old-age pension of someone retiring, for example, in 2004 at the age of around 60 would fall relative to average wages from 60% to 45% in 20 years' time (Chart 2). For those retiring after 2004, the average pension will remain slightly higher, mirroring the proportionately higher level of newly awarded pensions. Their average pension is, however, considerably reduced by the life expectancy coefficient, which is projected to fall by 15% over the next 40 years or so in the population forecast. The life expectancy coefficient will affect the size of newly awarded pensions.

The calculation of the average pension is highly simplistic. On the one hand, it overestimates pension expenditure in assuming that national pensions are, in practice, also adjusted in line with the pension index applied to employee pensions. On the other hand, in ignoring the effect of accelerated accrual introduced with the recent pension reform, it underestimates average pensions. If retirement is deferred, the replacement rate correspondingly rises. Total pension expenditure relative to the wage bill obtained in the calculation is, however, of the same magnitude as, for example, that reported by the Finnish Centre for Pensions in their pension expenditure calculations based on broadly the same background assumptions. (Biström et al, 2005). The Finnish Centre for Pensions projects pension expenditure as

Chart 2.

Ratio of average pension to average wage



1. *All pensioners*
2. *Pensioners retiring before 2004.*
3. *Pensioners retiring after 2004.*

Sources: Statistics Finland and Bank of Finland.

increasing by roughly 10 percentage points relative to the wage bill, while our calculations foresee an increase of 9 percentage points by the end of the 2050s.

Demographics and the dynamics of the economy

In the following, the Bank of Finland's dynamic general equilibrium model is employed to measure the effects of pension scheme features and a decline in the old-age dependency ratio on the medium and long-term equilibrium of the economy.[4] The consumers in the model are thought to be forward-looking and households' decisions on consumption and labour supply are thus influenced by expected changes in net lifespan assets in the same way as corporate investment decisions are affected by expected changes in the economic environment. In this sense, the economic agents in the model also take account of the long-term equilibrium of public finances, including the financial position of the employee pension scheme.

Population ageing is transmitted to the economy via the old-age dependency ratio, which influences the development of the number of pensioners and, consequently, pension expenditure, tax rates and the size of the labour force. In the model, the pension scheme is portrayed by the variables of average wage and average pension, with the ratio of average pension to average wage being exogenous to the model.

The pension funds are treated as a separate sector, with changes in the rate of employee contribution maintaining the long-term balance of the funds. Similarly, the model portrays the public sector (excluding pension funds) as a separate sector the fiscal balance of which is achieved through changes in the wage income tax rate. This means that lower revenue from indirect taxes, for example, in response to shrinking private consumption will create pressure to raise wage income taxes, with general government spending share fixed. Given that labour supply and hence wages are endogenous to the model, the higher tax burden will also create pressure for higher wages. This is, ultimately, reflected in falling employment rates in response to higher real wages and a decline in labour demand.

Demographic ageing also has some direct behavioural implications in the model as the consumers in the model

Table 1.

Initial assumptions and demographic shocks

Initial assumptions	
Debt, % of GDP	*42.1*
Income tax rate, employees	*32.2*
Income tax rate, pensioners	*29.0*
Corporate tax rate	*19.2*
Indirect tax rate	*22.0*
Employers' social security contribution	*6.0*
Public consumption, % of GDP	*22.0*
Income transfers to households, % of GDP	*6.1*
Expected period of retirement	*16.0*
Expected period of employment	*43.2*
Population growth rate, % annually	*0.18*
Old-age dependency ratio	*0.36*
Employee contribution rate, %	*4.3*
Employer contribution rate, %	*15.9*
Pension expenditure, % of GDP	*12.7*
Replacement rate (average pension/average wage)	*0.60*
Real interest rate	*2.21*
GDP growth, % annually	*1.93*

Demographic shocks relative to initial assumptions					
Change	*I*	*II*	*III*	*IV*	*V*
Expected period of retirement, years	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*
Population growth rate, % annually	*0.0*	*–0.5*	*–0.5*	*–0.5*	*–0.5*
Expected period of employment, years	*0.0*	*0.0*	*2.5*	*2.5*	*2.5*
Replacement rate, percentage points	*0.0*	*0.0*	*0.0*	*–10.0*	*–15.0*

Source: Bank of Finland's calculations.

[4] The basic model features are discussed in the paper by Kilponen, Ripatti and Vilmunen (2004).

take changes in the length of working life and period of retirement into account when making decisions on consumption and labour supply. In the face of an expected extension of the period of retirement, consumers of working age will make appropriate provision by increasing their savings. Conversely, expectations of a longer working life will boost the consumption of the working-age population in step with higher expected permanent income.

In the analysis based on the dynamic general equilibrium model, the financial implications of an ageing population are treated as shocks to the initial state of unchanged demographic age structure and steady pace of population growth. Further assumptions are that the replacement rate for all pensions remains constant at 60% of average earnings and that the economy is on a balanced growth path with a constant growth rate and real interest rate.[5]

[5] Model calibration and simulation results are discussed in greater detail in the forthcoming Discussion Paper by the authors, to be published at the beginning of 2006.

Table 2.

Long-term implications

	I	*II*	*III*	*IV*	*V*
*Old-age dependency ratio***	*11.0*	*16.0*	*13.0*	*13.0*	*13.0*
*Employee contribution rate***	*5.6*	*8.6*	*6.8*	*2.2*	*0.0*
*Income tax rate***	*4.5*	*7.1*	*5.4*	*4.2*	*3.6*
*Pension expenditure, % of GDP***	*3.8*	*6.2*	*5.1*	*1.8*	*0.3*
*Average real wage**	*1.1*	*3.7*	*3.4*	*3.3*	*3.3*
*After-tax real wage**	*–15.0*	*–21.8*	*–16.5*	*–7.0*	*–2.5*
*Private consumption**	*–7.1*	*–6.8*	*–4.2*	*–1.1*	*0.3*
*Pensioners' share of wealth***	*23.0*	*1.2*	*1.3*	*–16.0*	*–22.0*
*Employment rate***	*–3.0*	*–5.4*	*–4.4*	*–3.7*	*–3.4*
Employees	*–3.8*	*–7.4*	*–5.9*	*–6.2*	*–6.4*
Pensioners	*0.8*	*2.0*	*1.5*	*2.5*	*3.0*
*Capital stock**	*–6.3*	*–9.2*	*–7.1*	*–5.2*	*–4.3*

** Percentage change relative to initial state.*
*** Change, percentage points relative to initial state.*
Source: Bank of Finland's calculations.

We performed five different simulations altogether. See Table 1 for closer details on initial assumptions and shocks. The implications of an ageing population were measured by three supplementary shocks. The shock simulating population ageing incorporated both the higher life expectancy projected in the population forecast and the slowdown in the growth of the working-age population. Features inherent in the pension scheme, ie deferred retirement in response to accelerated accrual and a lower replacement rate, were built into the demographic effects. The analysis was completed by an equilibrium calculation where the replacement rate was endogenously defined and the rate of employee contribution kept unchanged.

Higher tax burden and lower labour supply in response to population ageing

The increase in life expectancy projected in the demographic forecast for Finland would alone have a pronounced effect on the long-term equilibrium of the economy. Extension of the period of retirement by five years,[6] as assumed in the calculation, would imply an increase in the old-age dependency ratio by 11 percentage points. Increasing expenditure on pensions would raise the tax rate and be reflected in falling employment rates and hence loss of consumption (Table 2, column I). Given age cohorts of the same size and a stable fertility rate,

[6] In the most recent demographic forecast of Statistics Finland, male life expectancy is projected to rise from 75 to 82 years, and female life expectancy from 83 to 87 years, by 2040.

higher life expectancy alone would impose a considerable burden on the economy. The falling employment rates are attributable to a decline in the working-age population associated with population ageing, together with a higher tax burden. Both of these factors are reflected in rising real wages in the long term.

When considering that the age cohorts entering the labour market are smaller than those withdrawing from it, as well as the increase in life expectancy, the old-age dependency ratio would increase by 16 percentage points (Table 2, column II). Tax rate and employment responses would also be pronounced, in that the pension contribution rate would increase by more than 8 percentage points and the income tax rate by 7 percentage points. The employment rate would be down 5 percentage points and private consumption levels around 7 percentage points weaker relative to the initial state of constant population growth. The major increase in tax rates is related to the strong responses of both consumption and employment, which reduce tax bases considerably.

Pension reform and lower replacement rate alleviate burden of an ageing population in the long term

It has been estimated that the pension reform will extend labour force participation by an average of 2–3 years. This alone would clearly ease the burden of an ageing population (Table 2, column III). The need to increase the rate of employee contribution would be reduced by 3 percentage points, while the need to raise the income tax rate would decrease by nearly 2 percentage points. This would, in turn, be reflected in smaller employment and consumption losses in the long term.

The decline in the average replacement rate induced by the rules of pension indexation also has a considerable effect on the sustainability of the pension scheme. This effect was measured by the conservative assumption that the ratio of average pension to average wage would decline by 10 percentage points, ie clearly less than suggested by the calculation discussed above. This would practically reverse the need for raising the

Table 3.

Dynamic effects: extension of working life and drop in replacement rate

Periods, quarter	*Old-age dependency ratio***	*Replacement rate***	*GDP per capita**	*Consumption per capita**	*Employee contribution rate***	*Income tax rate***	*Real wage**	*Employment rate***	*Capital stock**
10	*–0.3*	*–1.0*	*–1.2*	*–1.8*	*–0.5*	*0.7*	*–0.1*	*–0.4*	*–0.2*
50	*–1.2*	*–4.0*	*1.4*	*–0.7*	*–2.0*	*0.0*	*–0.9*	*0.7*	*0.6*
80	*–1.7*	*–5.5*	*2.4*	*0.0*	*–3.3*	*–0.7*	*–1.1*	*1.1*	*1.4*
100	*–1.9*	*–6.3*	*3.0*	*0.5*	*–4.0*	*–1.1*	*–1.1*	*1.3*	*1.9*
150	*–2.3*	*–7.8*	*4.0*	*1.5*	*–5.2*	*–1.8*	*–1.1*	*1.6*	*3.1*
Equilibrium at end situation	*–2.9*	*–10.0*	*4.7*	*4.3*	*–6.4*	*–2.9*	*–0.4*	*1.7*	*4.4*

** Percentage change relative to the baseline scenario.*
*** Change, percentage points relative to the baseline scenario.*
Source: Bank of Finland's calculations.

employee contribution rate in response to population ageing in the long term. The income tax rate would, nevertheless, still have to be raised (Table 2, column IV), although the GDP ratio of pension expenditure would be more than 3 percentage points lower than the figure returned by the previous simulation (III), and consumption losses would be negligible.

The proportion of economy-wide financial assets held by pensioners would, nevertheless, decline markedly in response to the falling replacement rate.

According to the results of the equilibrium calculation based on a rate of contribution in line with initial assumptions and an elastic replacement rate, pensions would, in the long term, have to decline from their current levels by 15% in relation to average wages (Table 2, column V) to ensure that the ratio of pension expenditure to GDP would hardly fall at all in response to the ageing of the population. In this scenario, after-tax wages would be only marginally reduced, while the response of private consumption would also here be nonexistent.

Policy options have a slow effect on the economic equilibrium

The effects of demographic change and various policy options on the economic equilibrium are typically very slow to materialise. The long-term implications reported above conceal some complicated adjustment dynamics of the economy, which warrant separate examination.

The model simulation measured the dynamic effects of a longer working life and a lower replacement rate relative to the baseline scenario (Table 3). The baseline scenario was represented by a situation where the economy is subjected to a pure demographic shock (Table 1, column II).

The dynamic analysis reveals that extension of working life and a decline in the replacement rate are very slow to influence the equilibrium of the economy. When the results are compared to a situation in which the economy is subjected to a pure demographic shock, the observation is that consumption and employment levels may even fall in the short term. This is due to the forward-looking nature of the model. A drop in the replacement rate reduces pensioners' permanent income, with a subsequent temporary fall in consumption levels. Consumption and employment responses are also influenced by a temporary increase in the income tax rate, mirroring the public sector response to changes in tax bases. When approaching a new long-term equilibrium, the performance of the economy, nevertheless, starts to improve in the context of more moderate increases in tax rates and real wages compared to the baseline scenario. Medium-term employment and GDP rates will already be higher than in the baseline, whereas consumption responds more slowly.

Higher taxation and adequacy of pensions are foremost challenges of population ageing

There are, of course, a number of uncertainties surrounding the results reported. The uncertainty inherent in

demographic forecasts themselves becomes significant when the time horizon of the analysis extends far into the future. The parameter values of the model also involve a lot of uncertainty. Sensitivity analyses show that tax effects may easily be over or underestimated.[7] This would seem to be related especially to the sensitivity of consumption to the assumptions of the rate of substitution between consumption and leisure, or consumers' willingness to adjust consumption behaviour over time. By contrast, the response of employment and wages involves clearly less uncertainty in these analyses.

These uncertainties notwithstanding, the analysis highlights the key role played by taxation in the assessment of the costs of an ageing population. When the responses of labour supply, wages and hence private consumption to higher taxation are consistently accounted for, the economy will, in the long term, settle at a level of taxation clearly above that generally estimated in mechanical sustainability calculations. It should be noted that even if the effective retirement age were to increase as expected, the burden from pension payments alone would cause the tax rate to rise to a level above that witnessed in the worst years of recession in the mid-1990s. In the light of the model calculations, the efficiency losses induced by demographic change thus appear considerable.

[7] For instance, in the analyses performed using generational models the tax effects of an ageing population remain smaller than reported here. See Lassila and Valkonen (2005).

Taxation will increase especially under the assumption that the real value of pensions remains unchanged relative to wage developments. If the replacement rate falls, as seems likely under the current pension regime, there would be a much smaller increase in taxation in response to growing expenditure on pensions. The average decline in the level of pensions relative to wage developments, in turn, raises several concerns.

In Finland where supplementary pension funds are of minor importance by international comparison there is a risk that the falling purchasing power of pensions relative to wage developments will exert pressure on other social security schemes. The employee pension scheme, which appears to be financially sustainable, may thus, in practice, generate costs to local and central government in the form of higher expenditure on income support and other benefits. Voluntary provision for retirement is also likely to step up.

Another concern is related to the measures necessary for preparing for a slower growth rate for pensions relative to general earnings growth. The pension reform debate has focused strongly on the accelerated rate of accrual applied to newly awarded pensions, which encourages workers to remain longer in the labour force. One would think, however, that indexation of pensions alone would provide an incentive to longer working life, considering that it will reduce pensioners' relative standard of living, especially in later life.

One problem may very well be that households do not necessarily have a sufficiently realistic view of the future development of pensions relative to other income formation in their years of retirement. The significance of the life expectancy coefficient introduced with the pension reform is probably not clear in this respect. Considering that securing an income in retirement either through additional funding or extension of working life calls for very far-reaching decisions, the pension debate should be broadened to address the social sustainability of the pension scheme, as well as its financial sustainability.

References

Biström, P – Klaavo, T – Risku, I – Sihvonen, H Eläkemenot, -maksut ja -rahastot vuoteen 2075. Eläketurvakeskuksen raportteja 36. (Pension expenditure, contributions and reserve funds projected until 2075. Reports of the Finnish Centre for Pensions, No. 36).

Kilponen, J – Ripatti, A – Vilmunen, J (2004) Aino: the Bank of Finland's new dynamic general equilibrium model of the Finnish economy. Bank of Finland Bulletin 3/2004.

Kilponen, J – Kinnunen, H (2006) Demographic Ageing and Pensions in Finland – Simulation Results Using the Dynamic General Equilibrium Model Aino. Bank of Finland Discussion Papers (to be published early in 2006).

Lassila, J – Valkonen, T (2005) Yksityisalojen eläkeuudistuksen taloudelliset vaikutukset. Elinkeinoelämän tutkimuslaitos, ETLA, Sarja B 211. (Financial implications of the reform of the private-sector pension scheme. The Research Institute of the Finnish Economy, Series B 211).

Consumer price changes

Samu Kurri, Economist, Monetary Policy and Research

Objective and background of study

The price of goods and services are not constantly changing. Instead, they are always somewhat sticky in the short term. Modelling of this price stickiness is usually either state or time dependent. A time-dependent pricing model allows companies to change prices at certain intervals, whereas in a state-dependent pricing model, companies are allowed to make price changes based on a certain factor, eg as a result of a cost shock.

The objective of this article is to examine product group-specific differences in pricing, based on Statistic Finland's data on the consumer price index (CPI). The aim is to assess whether the data on Finnish prices supports a state- or time-dependent pricing theory. The raw data consists of micro data, ie shop-specific prices of individual products instead of the usual product- or product group-specific average prices.

This article is part of a study branch based on the micro data on consumer prices, which has become popular in recent years. It was initiated by a study by Bills and Klenow (2002) in which micro data on U.S. consumer prices was employed. In Europe, the ECB and the national central banks of the euro area established a study network in 2003, the objective of which is to form a deeper understanding of consumer price mechanisms in the euro area with the help of, for example, micro data on consumer prices. Data on Finnish consumer prices has already been applied by Vilmunen (2005). The focus of his study was on average price duration (the period of time an individual price remains unchanged), whereas this study focuses on time series analysis, ie on monthly price changes in various product groups, and on possible differences in the pricing process of the 1990s and of today.

Applied data

Due to changes in the coverage and calculation of the consumer price index, the data under review is divided into two parts. The data on some products is not micro data. Micro data accounts for approximately 80% of the data, calculated on the basis of consumer price index weighting. For 1997–1999, monthly price data covers almost 500 products, based on the CPI structure of the base year 1995 (CPI 1995 = 100), and for 2000–2003, the monthly price data covers approximately 1,000[1] products, based on the CPI structure of the base year 2000 (CPI 2000 = 100). Due to possible problems related to the so-called quality change, price changes are calculated only on products that have remained unchanged.

In the study, the following is examined: the overall rate of inflation, as measured by the harmonised index of consumer prices (HICP),[2] as well as the HICP components energy, non-

[1] A consumer price index based on the base year 2000 (CPI 2000 = 100) was only applied to data from January 2002 onwards. Therefore in this article, the index basket for 1997–2001 corresponds to the product structure of the base year 1995 (CPI 1995 = 100), and the index basket for 2002–2003 corresponds to the product structure of the base year 2000 (CPI 2000 = 100).

[2] The harmonised index of consumer prices (HICP) is calculated from the same basic data as the national index. It has been chosen for the object of examination because eg it does not include the components related to owner-occupied housing. Micro data on these components were not available from this data. Moreover, the application of the HICP enables the comparison of results on the EU level.

energy industrial goods, unprocessed food, processed food, and services.

In the period under review, the average monthly change of harmonised consumer prices totalled 0.15%, with the largest movement totalling 1% and the smallest –0.8% (see Table 1). The largest price changes were registered in the energy and unprocessed food components, with far more moderate price changes in the other components.

Assessing the pricing process by decomposition

To enable the examination of possible changes in the pricing process, monthly price changes are decomposed into two components (see Klenow and Kryvtsov, 2005):[3] the fraction of products with price changes in the weighted index and the weighted average of those price changes:

$$(1)\ \pi_t = fr_t \bullet dp_t^{4}.$$

Inflation thus equals the product of the fraction of items with price changes (fr_t) and the weighted average of price changes (dp_t). The first term can also be referred to as the extent of price changes (extensive margin) and the latter as the size of price changes (intensive margin).

For variance analysis, the following variance decomposition can be derived from formula (1), using the Taylor approximation.

$$(2)\ var(\pi_t) = var(fr_t)\overline{dp}^2 + var(dp_t)\overline{fr}^{2\,5}$$

If total variance is derived mainly from the first term, ie from the variance of the extent of price changes, the data can be interpreted as supporting the state-dependent pricing (SDP) theory. If, on the other hand, inflation variance is derived from the variance of price changes, the product would support the time-dependent pricing (TDP) theory.

$$dp_t = \frac{\sum_i \omega_{it}(p_{it} - p_{it-1})}{\sum_i \omega_{it} I_{it}}.$$

In the formula, the prices are logarithmic in format.

[3] The same approach has been applied to German data by Hoffmann and Kurz-Kim (2005).

[4] Specifically, in formula (1) $fr_t = \sum_i \omega_{it} I_{it}$, where ω_{it} represents the weight of each product i in the index at a moment t and I_{it} denotes the indicator of price change. I_{it} is 1, if $p_{it} \neq p_{it-1}$ ie the price, changes in consecutive months and 0, if the price remains unchanged.

[5] In formula (2), it is assumed that the covariance term between the terms is zero. With this data it is so small that its inclusion in either of the terms does not significantly change the results presented below.

Table 1.

Harmonised consumer price inflation and its components, monthly percentage change

	Weight	*Average*	*Median*	*Largest*	*Smallest*	*Standard Deviation*
Overall index	*100*	*0.15 (0.08)*	*0.18 (0.11)*	*1.02 (0.78)*	*–0.82 (–0.66)*	*0.35 (0.27)*
Energy	*6.9*	*0.18 (0.10)*	*–0.14 (–0.08)*	*5.43 (5.27)*	*–4.03 (–4.23)*	*1.80 (1.91)*
Non-energy industrial goods	*30.8*	*0.06 (–0.02)*	*0.20 (0.11)*	*1.40 (0.95)*	*–2.50 (–2.66)*	*0.79 (0.68)*
Processed food	*15.7*	*0.13 (0.10)*	*0.09 (0.04)*	*1.31 (1.27)*	*–0.48 (–1.05)*	*0.29 (0.28)*
Unprocessed food	*6.5*	*0.17 (0.25)*	*0.10 (0.41)*	*6.88 (6.96)*	*–4.53 (–7.23)*	*1.66 (2.36)*
Services	*40.2*	*0.23 (0.14)*	*0.20 (0.13)*	*1.21 (0.94)*	*–0.52 (–0.42)*	*0.35 (0.23)*

Main figures were calculated from time series provided by Statistics Finland. The figures in brackets are approximations by the author. HICP weights are for 2003.
Sources: Statistics Finland and Bank of Finland calculations.

Chart 1.

Component decomposition of the harmonised index of consumer prices and its components, %

In Chart 1, prices changes (dp) and the fraction of price changes (fr) have for clarity's sake been scaled so that dp has been divided by ten and fr by one hundred, respectively.

Sources: Statistics Finland and Bank of Finland calculations.

The visual examination of the harmonised consumer price inflation and the inflation decomposition of its components (Chart 1) shows clearly that price changes correlate closely with inflation changes, whereas the fraction of products with monthly price changes remains fairly stable, except during sales periods. The correlation between price changes and inflation is very clear particularly in the non-energy industrial products, processed food, and services components.

In the review period, an average of 16% of prices weighted with the harmonised index of consumer price weighting change monthly (Table 2). In other words, an average of 84%, ie four-fifths of prices remain unchanged in two consecutive months. The fraction of products with price changes differs considerably across the inflation components. The price of energy changes from the previous month in 59% of the observations, the price of processed food in only 10%. In the energy and unprocessed food components, monthly price changes are clearly more common than in the other three components.

In the data under review, the average weighted price change is only approximately 0.1%. However, the average disguises the fact that in price changes, both upward and downward changes are common. Of the prices in the harmonised index of consumer prices, each month an average of little less than 10% increase and over 6% decrease. The average weighted price increase totals approximately 6%, with the magnitude of average price decreases also totalling approximately 6%. Hence positive inflation is the result of a higher number of price increases compared to decreases.

Correlation analysis and the variance decomposition shown in formula (2) support the view that inflation's variance is mainly due to the variance of price changes (Table 2). The correlation between price changes and changes in inflation is 0.96 on the level of overall HICP, and the correlation of price change frequency and inflation is very small and negative (–0.14).[6] In the entire data, approximately 98% of

[6] Negative correlation is due to the fact that the proportion of price changes is highest during sales periods when price changes are negative.

Table 2.

Inflation components: averages, correlation and portion of variance

	dp %	*fr* %	*Correlation (dp,π)*	*Correlation (fr, π)*	*TDP* %	*SDP* %
Overall	*0.1*	*16*	*0.96*	*–0.14*	*98*	*2*
Energy	*0.0*	*59*	*0.94*	*–0.02*	*100*	*0*
Non-energy industrial products	*0.1*	*13*	*0.90*	*–0.52*	*99*	*1*
Processd food	*0.1*	*10*	*0.87*	*0.43*	*95*	*5*
Unprocessed food	*0.1*	*46*	*0.97*	*–0.13*	*100*	*0*
Services	*0.1*	*12*	*0.76*	*0.46*	*89*	*11*

Here dp refers to the average size of price changes, fr to the average fraction of price changes, TDP is the proportion of the variance of price changes of the total variance of inflation, and SDP is the proportion of the variance in the fraction of items with price changes of the total variance of inflation.
Sources: Statistics Finland and Bank of Finland calculations.

inflation's variance is due to the variance of price changes. In the HICP components, the correlation between price changes and inflation is weakest in services (0.76), and approximately 0.9 or higher in the other components. In the components non-energy industrial products, processed food, and services, also changes in the frequency of price changes correlated relatively strongly with changes in inflation. In the variance decomposition, the TDP term accounts for at least 89% (services) and in the other components for at least 95% of the variance of inflation.

Finnish inflation process

The examination of time series presented in this article produces three key observations that describe the Finnish inflation process. Firstly, only a fraction of prices change monthly. In the period under review, an average of four-fifth of prices remained unchanged in consecutive months. Secondly, the observations support Vilmunen's (2005) interpretation that positive inflation is due to the higher number of price increases compared to decreases, and the magnitude of price changes is more or less in balance. Moreover, according to the visual assessments presented above and based on correlation analysis and variance proportions, changes in monthly inflation seem to be due rather to the variance in the size of price changes than to the variance of the fraction of products with price changes. On the level of the overall harmonised consumer price inflation, as much as 98% of inflation's variance is due to variance in the size of price changes. In the examined HICP components, variance in the size of price changes explains almost 90% of the total variance even in the weakest cases. The results support the use of a time-dependent pricing model in the modelling of the price development in a macroeconomic model of the Finnish economy. The results are also relatively close to those of Klenow and Kryvstov (2005) on the data on U.S. price changes.

References

Bills, M. and Klenow, P.J. (2002), 'Some Evidence on the Importance of Sticky Prices', NBER Working Paper 9069.

Klenow, P.J. and Kryvtsov, O. (2005), 'State-Dependent or Time-Dependent Pricing: Does it Matter for the Recent U.S. Inflation?', Working Paper 2005/4, Bank of Canada.

Hoffmann, J. and Kurz-Kim, J.R. (2005), 'Consumer Price Adjustment under the Microscope: Germany in a Period of Low Inflation', Mimeo, Deutsche Bundesbank.

Vilmunen, J. (2005), 'Microanalysis of price-change frequencies', Bank of Finland Bulletin 1/2005, pages 91–95.

Recent Bank of Finland research publications

A complete list of publications is available on the Bank of Finland's website (http://www.bof.fi/). Printed versions of publications can be ordered from the Bank at the following address: Bank of Finland, Address Register, PO Box 160, 00101 Helsinki, Finland. Telephone +358 10 8311.

Series E

ISSN 1238-1691, print
ISSN 1456-5951, online

Liquidity, risks and speed in payment and settlement systems – a simulation approach
Harry Leinonen (ed.)
E:31
ISBN 952-462-194-0, print
ISBN 952-462-195-9, online

Key words: simulation, payment and settlement system, liquidity, gridlock, systemic risk, counterparty risk

This publication consists of eleven separate studies on payment and settlement systems conducted using simulation techniques. Most have been carried out using the payment and settlement system simulators BoF-PSS1 or BoF-PSS2 provided by the Bank of Finland and presented at the simulator seminars arranged by the Bank.
The main focus in the analyses is on liquidity requirements, settlement speed, gridlock situations, gridlock resolving methods, liquidity economising, systemic risk, and the impact of shocks on system performance. The studies look at systems in several countries and cover both RTGS and netting systems as well as securities settlement systems.

The role of expectations in euro area inflation dynamics
Maritta Paloviita
E:32
ISBN 952-462-208-4, print
ISBN 952-462-209-2, online

Key words: Phillips curve, expectations, euro area

This paper examines empirical performance of three different Phillips curve specifications in the euro area. Instead of imposing rational expectations, direct measures, ie OECD forecasts, are used to proxy economic agents' inflation expectations. Real marginal costs are measured in three different ways. The results suggest that with directly measured expectations the estimated New Classical Phillips curve has satisfactory statistical properties. Moreover, the driving variable enters the estimated, purely forward-looking, New Keynesian Phillips curve with the correct sign, but it is clearly outperformed by the New Classical and Hybrid Phillips curves. We interpret our results as indicating that the European inflation process is not purely forward-looking, so that inflation cannot instantaneously adjust to new information. Consequently, even allowing for possible non-rationality in expectations, a lagged inflation term enters the New Keynesian Phillips curve for European inflation dynamics.
The inflation process seems to have become more forward-looking in the recent years of low and stable inflation. Furthermore, in the New Keynesian Phillips curve relationship, the output gap turns out to be at least as good a proxy for real marginal cost as is the labour income share.

Discussion Papers

ISSN 0785-3572 (print)
ISSN 1456-6184 (online)

Labour productivity growth and industry structure. The impact of industry structure on productivity growth export prices and labour compensation
Johanna Sinkkonen
4/2005
ISBN 952-462-196-7, print
ISBN 952-462-197-5, online

Key words: industry structure, labour productivity, export prices, labour compensation

In this paper labour productivity growth and its impacts are studied at industry level. The development of productivity is analysed in 54 industries in 14 EU countries and in the US between 1979 and 2001. The conclusion of the study is that an industry structure that leads to fast productivity growth is connected to falling export prices. The relationship between labour productivity growth and labour compensation growth is relative weak and therefore the majority of the utility resulting from the productivity growth does not benefit the labour force.

Why do capital intensive companies pay higher wages?
Matti Virén
5/2005
ISBN 952-462-198-3, print
ISBN 952-462-199-1, online

Key words: wages, bargaining, wage distribution, panel data

An obvious answer to this question is the capital-skill complementarity hypothesis originally proposed by Zwi Griliches (1969). But the relatively poor performance of this hypothesis suggests that other explanations are needed. Here we consider labour union behaviour in the wage bargaining process as such an alternative. The explanation is based on the observation that capital intensive companies are more vulnerable to strike threats and may thus more easily give in to union wage demand. Thus, the bargaining power of unions is related to the capital-labour ratio. This paper provides some tests for these hypotheses with panel data from Finnish companies. The results lend support to the wage-bargaining hypothesis.

The role of expectations in the inflation process in the euro area
Maritta Paloviita – Matti Virén
6/2005
ISBN 952-462-200-9, print
ISBN 952-462-201-7, online

Key words: inflation, expectations, monetary policy, Phillips curve

This paper analyses the role of inflation expectations in the euro area. On one hand, the question is how inflation expectations affect both inflation and output, and, on the other hand, how inflation expectations reflect developments in these variables. The analyses make use of a simple VAR model of inflation, inflation expectations and the output gap that allows for an analysis of the dynamic interrelationship between these variables. This model is estimated on aggregate euro area data, pooled euro area country data and individual country data for the period 1979–2003. The empirical results lend strong support to the idea that inflation expectations are the key ingredient of the inflationary process for the whole euro area and as well as for most individual countries. Inflation expectations also have a significant negative impact on output. As for the determination of inflation expectations, it turns out that they are relatively persistent, almost as persistent as output. Even so, and especially in the

medium term, inflation expectations adapt to developments in both output and (actual) inflation.

Productivity differentials and external balance in ERMII
Marketta Henriksson
7/2005
ISBN 952-462-202-5, print
ISBN 952-462-203-3, online

Key words: small open economy, Balassa-Samuelson effect, ERM II, external balance

Differences in growth, productivity and inflation levels are going to be a prominent feature of the future of EMU, as the convergence process is still on-going in the new Member States. This convergence process can be described by the Balassa-Samuelson proposition, which states that faster growth in the traded goods sector than in the non-traded goods sector results in a rise in the price of non-traded goods and an appreciation of the trend real exchange rate. In this study, the aim is to construct a small open economy model that enables examination of the effects of Balassa-Samuelson-type growth in an intertemporal fixed exchange rate framework with a focus on the external balance. To address the well-known problems with small open economy models, an endogenous discount rate is used. The results imply that faster productivity growth in the traded than in the non-traded goods sector may induce external imbalances, leading to increased vulnerability of the economy. However, trade account deficits would appear to be a temporary phenomenon, as this line of development can be reversed by the natural shift in the composition of consumption towards non-traded goods that is characteristic of catch-up economies. In the meantime, fiscal policy plays a key role.

Government size and output volatility: is there a relationship?
Matti Virén
8/2005
ISBN 952-462-204-1, print
ISBN 952-462-205-X, online

Key words: government, fiscal policy, automatic stabilisers

This paper provides some further tests for the proposition that a larger public sector leads to smaller output volatility. Both Gali as well as Fatas & Mihov have provided some evidence which appears to support this proposition. Their evidence is, however, based on a relatively small sample of countries. In this study, we go beyond the OECD sample and focus on a much larger World Bank data set covering up to 208 countries for the period 1960–2002. We also seek to utilise some time series aspects of the material by using pooled cross-section time series data. Tests with different models and measures clearly indicate that the original results are not very robust and the relationship between government size and output volatility is either nonexistent or very weak at best.

Bank interest rates in a small European economy: Some exploratory macro level analyses using Finnish data
Karlo Kauko
9/2005
ISBN 952-462-206-8, print
ISBN 952-462-207-6, online

Key words: banking, interest rates

This paper presents econometric analyses on the determination of bank deposit and lending rates using longitudinal Finnish data. Interest rate pass-through is very strong, possibly complete, in the case of lending rates; in the case of deposit rates

the pass-through is far from complete, even in the long term. The monetary union has benefited customers by decreasing the average rate on new loans. Credit and interest rate risk premiums are clearly observable in banks' lending rates. The impact of money market rates on loan stock rates seems to have been non-linear; no obvious explanation for this phenomenon has been found.

The optimal tax treatment of housing capital in the neoclassical growth model

Essi Eerola – Niku Määttänen

10/2005

ISBN 952-462-210-6, print
ISBN 952-462-211-4, online

Key words: housing, capital taxation, optimal taxation

In a dynamic setting, housing is both an asset and a consumption good. But should it be taxed like other forms of consumption or like other forms of saving? We consider the optimal taxation of the imputed rent from owner housing within a version of the neoclassical growth model. We find that the optimal tax rate on the imputed rent is quite sensitive to the constraints imposed on the other available tax rates. In general, it is not optimal to tax imputed rent at the same rate as business capital income.

BOFIT Discussion Papers

ISSN 1456-4564 (print)
ISSN 1456-5889 (online)

A note on exchange rate pass-through in CIS countries

Iikka Korhonen – Paul Wachtel

2/2005

ISBN 951-686-990-4, print
ISBN 951-686-991-2, online

Key words: exchange rate pass-through, inflation, exchange rate regime, transition countries

We assess the extent and speed of exchange rate pass-through in the countries of the Commonwealth of Independent States (CIS). We do this in the framework of vector autoregressive regressions, utilising impulse functions and variance decompositions with monthly data that starts in 1999 in order to avoid periods of very high inflation and the Russian crisis. We find that exchange rate movements have a clear impact on price developments in the CIS countries. The speed of the pass-through is also fairly high: in most cases the full effect is transmitted into domestic prices in less than 12 months. Unlike in many other emerging market economies, the additional effect from US prices on domestic prices is not significant. The extent of the exchange rate pass-through is usually much higher than in our benchmark group of emerging market countries. Variance decomposition shows that the relative share of exchange rates in explaining changes in domestic prices is higher in the CIS countries than in the benchmark group. Our results indicate that policy-makers in the CIS countries need to pay more attention to exchange rate movements than in many other emerging market countries.

Equilibrium exchange rates in Southeastern Europe, Russia, Ukraine and Turkey: Healthy or (Dutch) diseased?
Balázs Égert
3/2005
ISBN 951-686-992-0, print
ISBN 951-686-993-9, online

Key words: Balassa-Samuelson, Dutch Disease, Bulgaria, Croatia, Romania, Russia, Ukraine, Turkey

This paper investigates the equilibrium exchange rates of three Southeastern European countries (Bulgaria, Croatia and Romania), of two CIS economies (Russia and Ukraine) and of Turkey. A systematic approach in terms of different time horizons at which the equilibrium exchange rate is assessed is conducted, combined with a careful analysis of country-specific factors. For Russia, a first look is taken at the Dutch Disease phenomenon as a possible driving force behind equilibrium exchange rates. A unified framework including productivity and net foreign assets completed with a set control variables such as openness, public debt and public expenditures is used to compute total real misalignment bands.

Equilibrium exchange rates in Central and Eastern Europe: A meta-regression analysis
Balázs Égert – László Halpern
4/2005
ISBN 951-686-994-7, print
ISBN 951-686-995-5, online

Key words: equilibrium exchange rate, Balassa-Samuelson effect, meta-analysis

This paper analyses the ever-growing literature on equilibrium exchange rates in the new EU member states of Central and Eastern Europe in a quantitative manner using meta-regression analysis. The results indicate that the real misalignments reported in the literature are systematically influenced by the underlying theoretical concepts including the Balassa-Samuelson effect, Behavioural Equilibrium Exchange Rate, Fundamental Equilibrium Exchange Rate and by the econometric estimation methods. The important implication of these findings is that a systematic analysis is needed in terms of both alternative economic and econometric specifications to assess equilibrium exchange rates.

S&T activities and firm performance – microeconomic evidence from manufacturing in Shanghai
Pingfang Zhu – Lei Li – Nannan Lundin
5/2005
ISBN 951-686-996-3, print
ISBN 951-686-997-1, online

Key words: Science and Technology policy, Science and Technology investment, R&D

This paper examines the impact of R&D expenditure and technology import on the level and the growth of productivity, as well as on the general economic performance in manufacturing firms with various ownership structures in Shanghai, China. The empirical analyses are based on the firm-level information of a sample of manufacturing firms for the period 1998–2003.

We find clear-cut evidence indicating that firms with foreign participation have a productivity advantage over their domestic counterparts. The expenditures on technology import not only have a direct and positive effect on productivity, but also indirectly enhance the absorptive capacity of firms to facilitate in-house R&D activities. This is particularly true for firms with foreign participation, or for firms in sectors with relatively high technical standards. Furthermore, R&D expenditure and technology import may also have positive effects on

profitability and export performance, depending on the ownership structure of the firm and the technical standard in the sector.

Inflation in mainland China – modelling a roller coaster ride
Michael Funke
6/2005
ISBN 951-686-997-1, print
ISBN 951-686-998-X, online

Key words: China, inflation, New Keynesian Phillips curve

The New Keynesian Phillips curve (NKPC) posits the dynamics of inflation as forward looking and related to marginal costs. In this paper we examine the empirical relevance of the NKPC for mainland China. The empirical results indicate that an augmented (hybrid) NKPC gives results that are consistent with the data generating process. It is in this respect that the NKPC provides useful insights into the nature of inflation dynamics in mainland China as well as useful insights for the conduct of monetary policy.

Optimal regulatory design for the Central Bank of Russia
Sophie Claeys
7/2005
ISBN 952-462-780-9, print
ISBN 952-462-781-7, online

Key words: Central Bank, Prudential Regulation and Supervision, Monetary Policy Rules, Russia

The Central Bank of Russia (CBR) assumes a wide range of functions not traditional to a central bank. In addition to the daily conduct of monetary policy, it acts as a regulator and supervisor of the banking sector, is responsible for the implementation of a deposit insurance scheme and is the main owner of Russia's largest commercial bank, Sberbank. I review how the current design of the CBR deviates from the optimal allocation of regulatory powers prescribed in the literature and generates scope for conflicts within the CBR policy objective function. I then empirically investigate the need for a supervisory body within the CBR. Using a simple Taylor rule framework I find that the CBR does not use its "hands-on" supervisory information to maintain financial stability, but rather to accommodate state-owned banks' balances.

Exchange rate regimes, foreign exchange volatility and export performance in Central and Eastern Europe: Just another blur project?
Balázs Égert – Amalia Morales-Zumaquero
8/2005
ISBN 952-462-782-5, print
ISBN 952-462-783, online

Key words: exchange rate volatility, export, trade, transition, structural breaks

This paper attempts to analyse the direct impact of exchange rate volatility on the export performance of ten Central and Eastern European transition economies as well as its indirect impact via changes in exchange rate regimes. Not only aggregate but also bilateral and sectoral export flows are studied. To this end, we first analyse shifts in exchange rate volatility linked to changes in the exchange rate regimes and second, use these changes to construct dummy variables we include in our export function. The results suggest that the size and the direction of the impact of forex volatility and of regime changes on exports vary considerably across sectors and countries and that they may be related to specific periods.

A ten-year retrospection of the behaviour of Russian stock returns

Stanislav Anatolyev

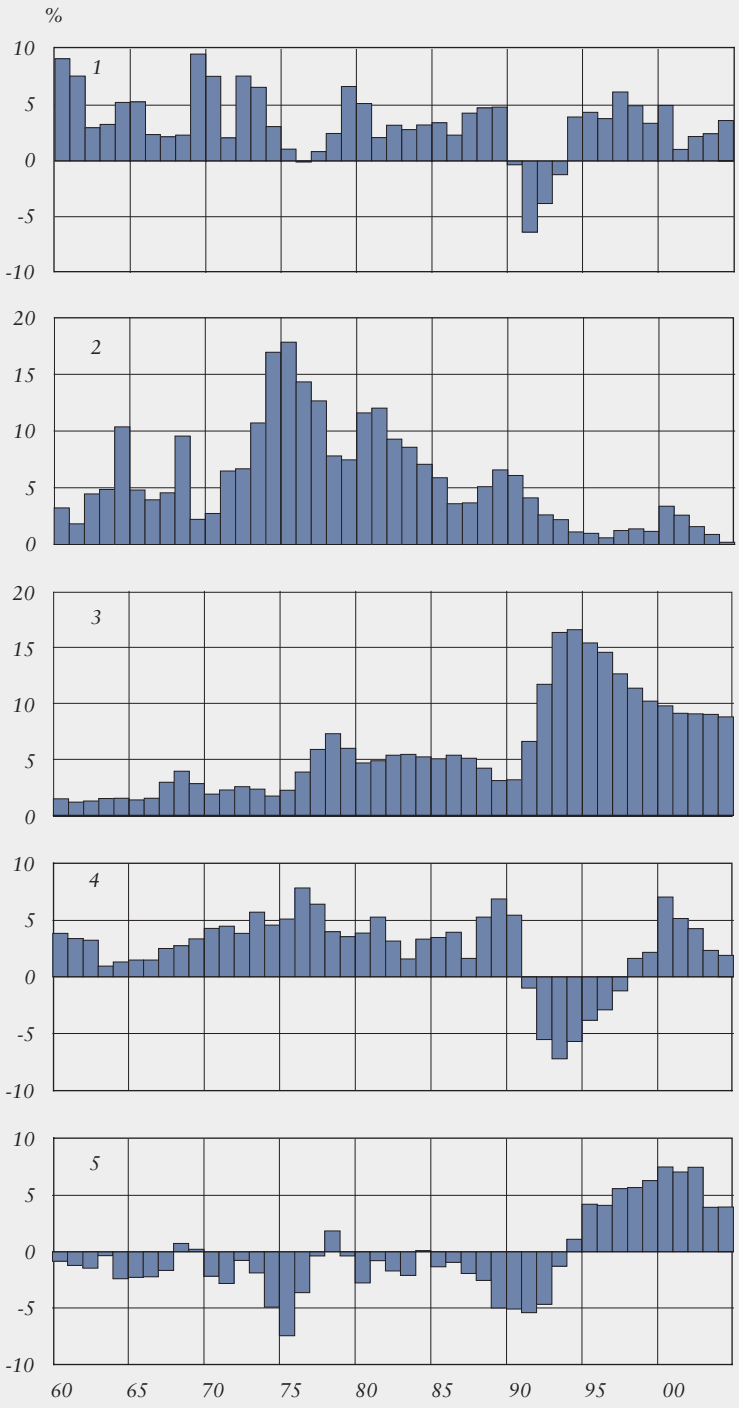
9/2005
ISBN 952-462-784-1, print
ISBN 952-462-785-X, online

Key words: Russia, transition, stock returns, integration, efficiency

We study three aspects of the Russian stock market – factors influencing stock returns, integration of the stock market with world financial markets, and market efficiency from 1995 to the present, putting emphasis on how these evolved over time. We find many highly unstable relationships, and indeed, greater instability than that generated by financial crises alone. While most computed statistics exhibit constant ups and downs, there are clear tendencies recently in the development of the Russian stock market: a sharp rise in explicability of returns, an increased role of international financial markets, and a decrease in the profitability of trading.

Charts

1. Finland: key economic indicators



GDP, volume change from previous year

Consumer prices, change from previous year

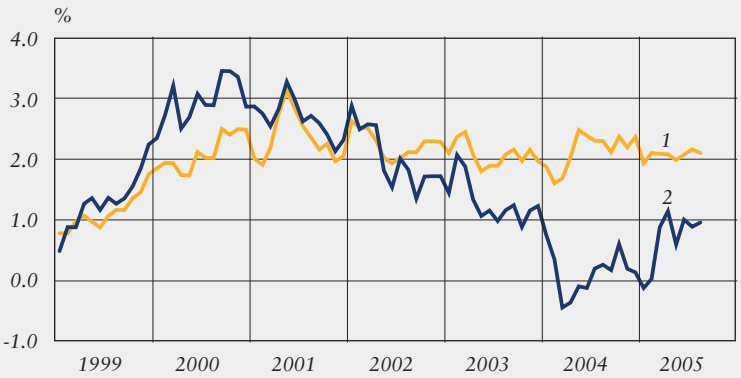
Unemployment rate

General government fiscal position, % of GDP

Current account, % of GDP

Sources: Statistics Finland and Bank of Finland.

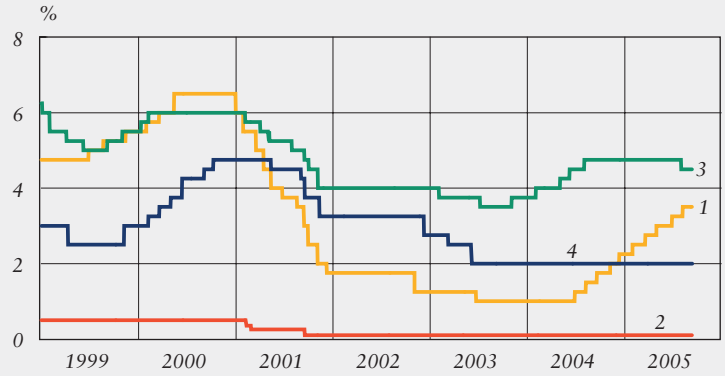
2. Price stability in the euro area and Finland



Harmonised index of consumer prices, 12-month change, %
1. *Euro area*
2. *Finland*

Sources: Eurostat and Statistics Finland.

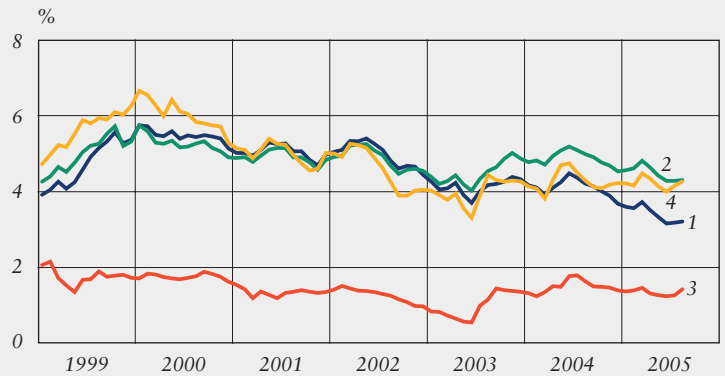
3. Official interest rates



1. *USA: fed funds target rate*
2. *Japan: discount rate*
3. *United Kingdom: repo rate*
4. *Eurosystem: main refinancing rate/minimum bid rate*

Source: Bloomberg.

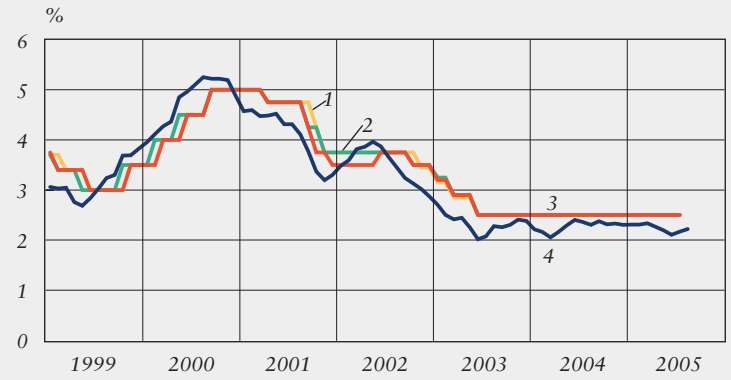
4. International long-term interest rates



Yields on ten-year government bonds
1. *Finland*
2. *United Kingdom*
3. *Japan*
4. *United States*

Source: Reuters.

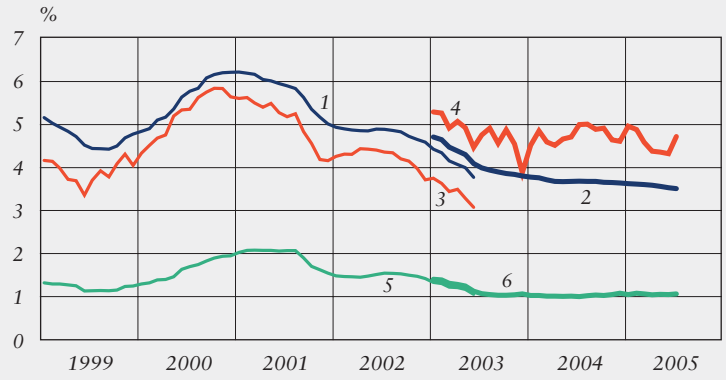
5. Bank reference rates in Finland and 12-month Euribor



1. *Nordea prime at the end of the month*
2. *Sampo prime at the end of the month*
3. *OKOBANK group prime at the end of the month*
4. *12-month Euribor*

Sources: Banks and ECB.

6. Average lending and deposit rates

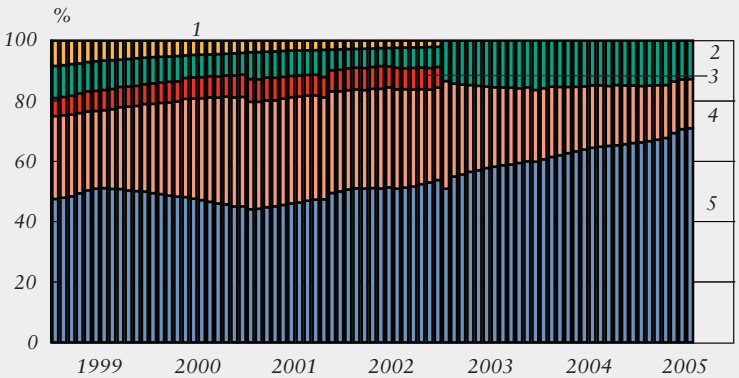


1. *Banks' stock of loans*
2. *MFIs' stock of loans*
3. *Banks' new loans*
4. *MFIs' new loans*
5. *Banks' stock of deposits*
6. *MFIs' stock of deposits*

Source: Bank of Finland.

Data collection changed as of 1 January 2003. Under the new system MFIs include both deposit banks and other credit institutions.

7. Stock of bank lending by interest rate linkage

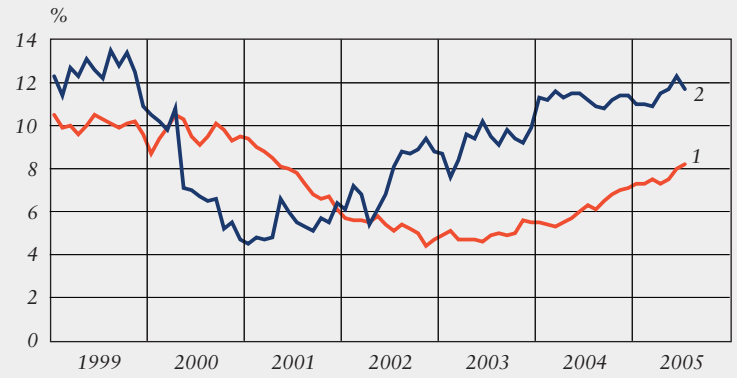


1. *Linked to base rate*
2. *Linked to other rates (as of 2003 includes loans linked to base rate and fixed-rate loans)*
3. *Fixed-rate*
4. *Linked to reference rates of individual banks (prime rates, etc)*
5. *Linked to Euribor*

Source: Bank of Finland.

Data collection changed as of 1 January 2003.

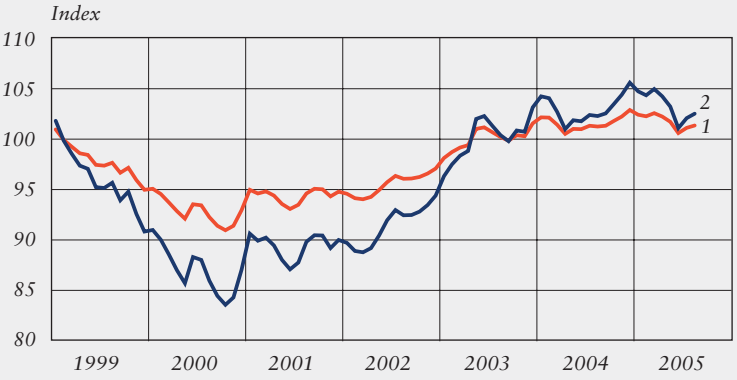
8. MFI loans to private sector



12-month change, %
1. *Loans by euro area MFIs to euro area residents*
2. *Loans by Finnish MFIs to euro area residents*

Sources: European Central Bank and Bank of Finland.

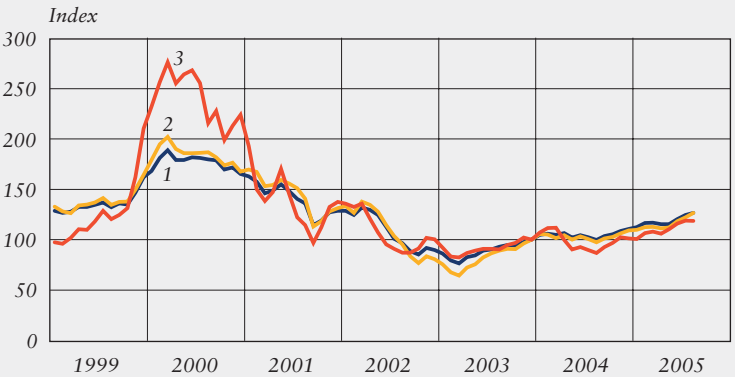
9. Competitiveness indicators for Finland



1999 Q1 = 100
Based on trade-weighted exchange rates.
An upward movement of the index represents a weakening in Finnish competitiveness.
1. *Narrow competitiveness indicator including euro area countries*
2. *Narrow competitiveness indicator*

Source: Bank of Finland.

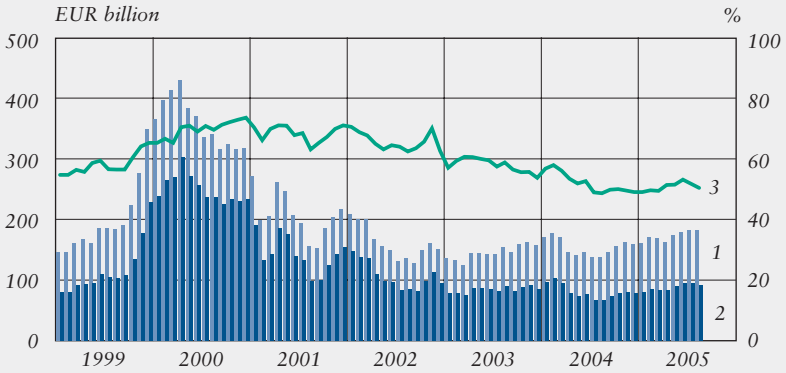
10. Selected stock price indices in the euro area



31 December 2003 = 100
1. *Total euro area: Dow Jones Euro Stoxx index*
2. *Germany: DAX index*
3. *Finland: HEX all-share index*

Sources: Bloomberg and HEX Helsinki Exchanges.

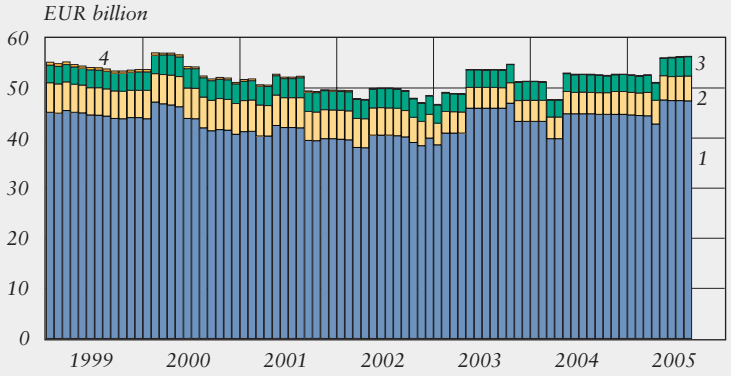
11. Listed shares in Finland: total market capitalisation and non-residents' holdings



1. *Market capitalisation of all listed shares (left-hand scale)*
2. *Market capitalisation of non-residents' holdings (left-hand scale)*
3. *Market capitalisation of non-residents' holdings as a percentage of total market capitalisation (right-hand scale)*

Sources: HEX Helsinki Exchanges and Finnish Central Securities Depository (APK).

12. Bonds issued in Finland

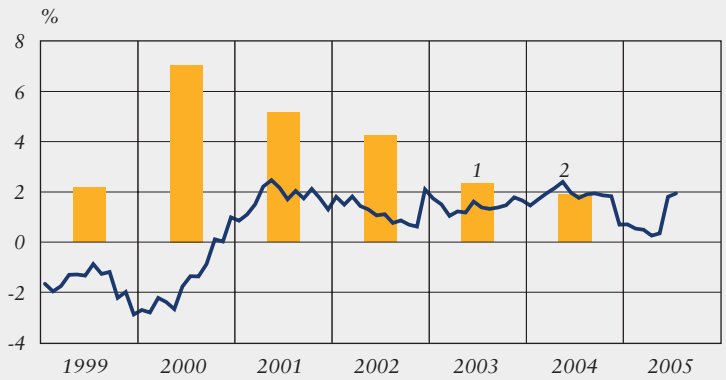


End-month stock

1. *Central government*
2. *Financial institutions*
3. *Companies*
4. *Other*

Source: Statistics Finland.

13. Public sector balances in Finland

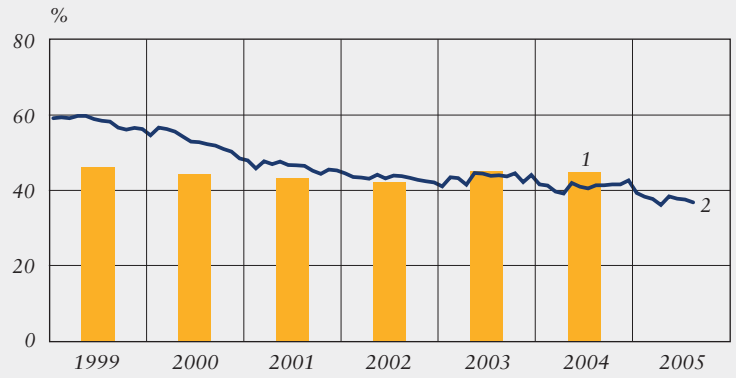


% of GDP

1. *General government fiscal position*
2. *Central government revenue surplus, 12-month moving total*

Sources: State Treasury, Statistics Finland and Bank of Finland.

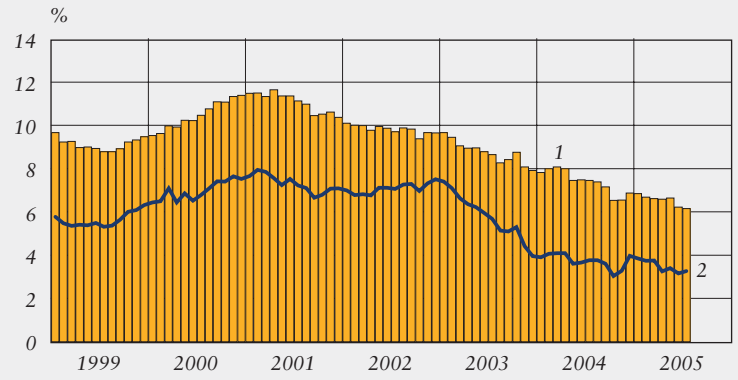
14. Public debt in Finland



% of GDP
1. *General government debt*
2. *Central government debt, 12-month moving total*

Sources: State Treasury, Statistics Finland and Bank of Finland.

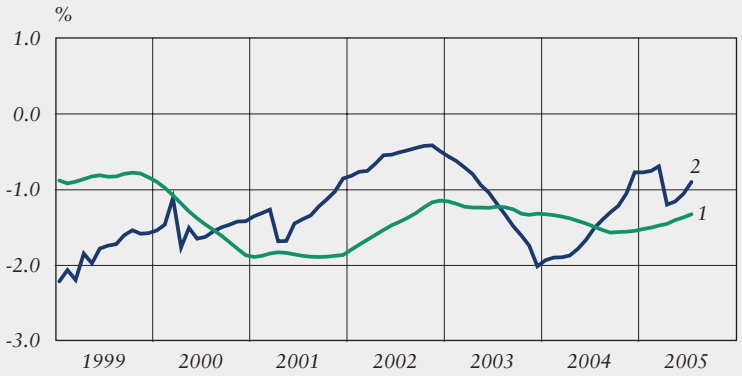
15. Finland: goods account and current account



12-month moving totals, % of GDP
1. *Goods account, fob*
2. *Current account*

Source: Bank of Finland.

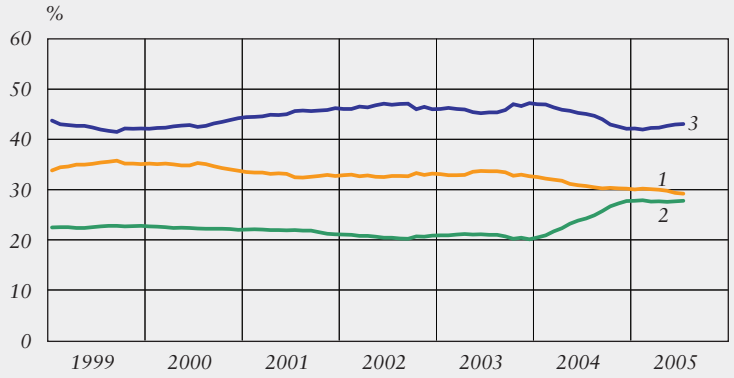
16. Finland: services account and income account



12-month moving totals, % of GDP
1. *Services account (trade in goods, fob)*
2. *Income account*

Source: Bank of Finland.

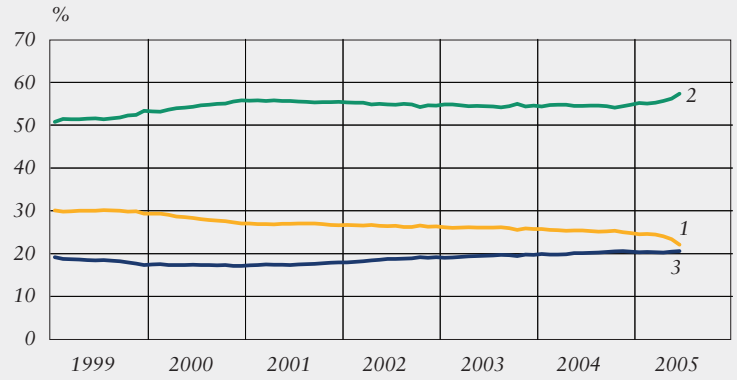
17. Regional distribution of Finnish exports



12-month moving totals, percentage of total exports
1. *Euro area*
2. *Other EU member states*
3. *Rest of world*

Sources: National Board of Customs and Statistics Finland.

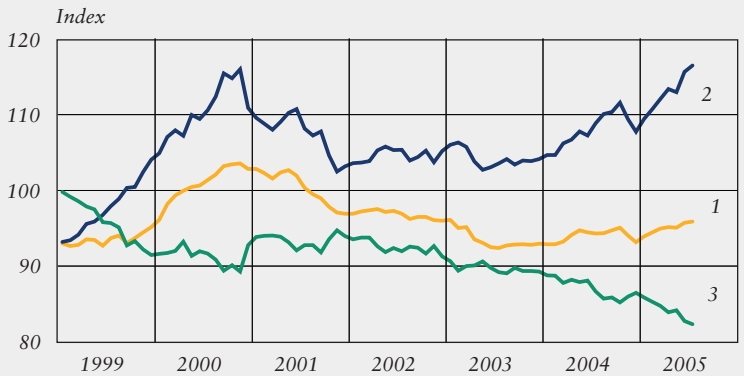
18. Finnish exports by industry



12-month moving totals, percentage of total exports
1. *Forest industries*
2. *Metal and engineering industries (incl. electronics)*
3. *Other industry*

Source: National Board of Customs.

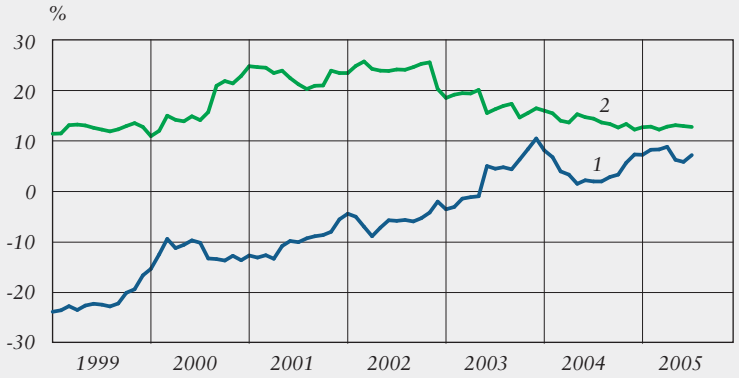
19. Finland's foreign trade: export prices, import prices and terms of trade



1995 = 100
1. *Export prices*
2. *Import prices*
3. *Terms of trade*

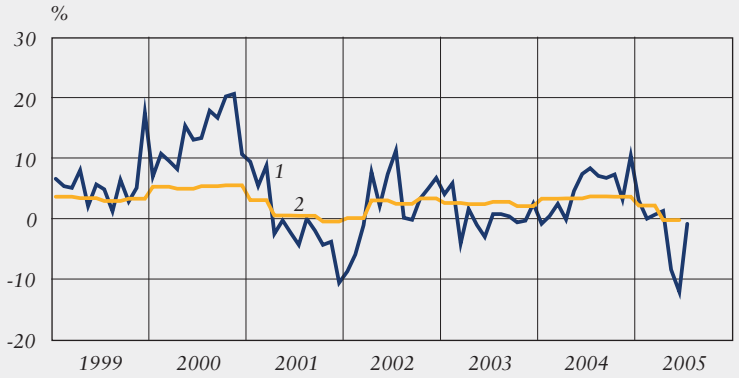
Source: Statistics Finland.

20. Finland's net international investment position



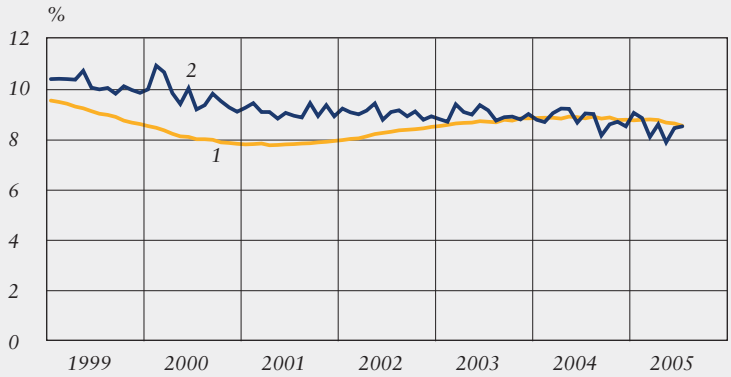
% of GDP
1. Net international investment position excluding equity items
2. Net outward direct investment
Sources: Bank of Finland and Statistics Finland.

21. Finland: GDP and industrial production



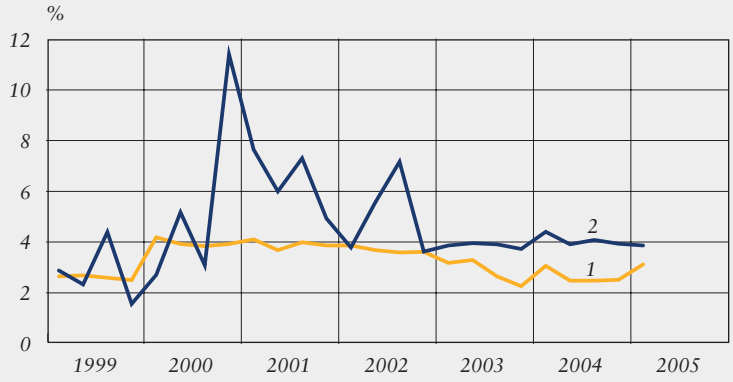
Percentage change from previous year
1. Industrial production
2. Gross domestic product
Source: Statistics Finland.

22. Unemployment rate in the euro area and Finland



1. Euro area
2. Finland
Sources: Eurostat, Statistics Finland and Bank of Finland.
Data seasonally adjusted.

23. Hourly labour costs in the euro area and Finland

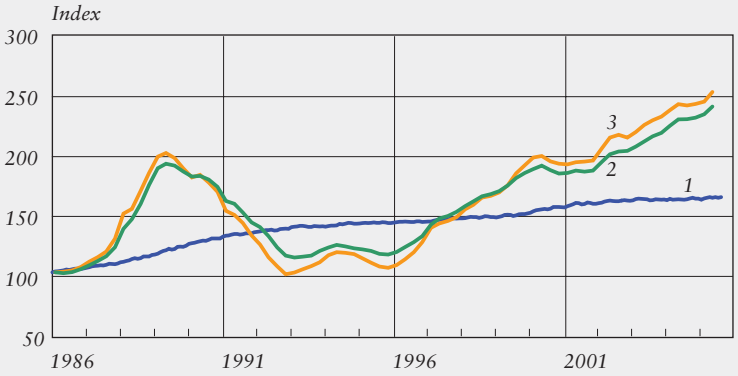


Whole economy excl. agriculture, public administration, education, health and unclassified services.

Percentage change from previous year
1. *Euro area*
2. *Finland*

Source: Eurostat.

24. Selected asset prices in Finland



January 1985 = 100
1. *Consumer prices*
2. *Housing prices*
3. *Two-room apartments (secondary market; debt-free price per m²)*

Source: Statistics Finland.

Organisation of the Bank of Finland

28 September 2005

PARLIAMENTARY SUPERVISORY COUNCIL

Olavi Ala-Nissilä, Chairman, **Jouni Backman,** Vice Chairman, **Ilkka Kanerva, Arja Alho, Janina Andersson, Sirkka-Liisa Anttila, Timo Kalli, Jyrki Katainen and Martti Korhonen**

Anton Mäkelä, Secretary to the Parliamentary Supervisory Council

Erkki Liikanen Governor	**Matti Louekoski** Deputy Governor	**Sinikka Salo** Member of the Board	**Pentti Hakkarainen** Member of the Board

Heikki T. Hämäläinen, Secretary to the Board

Overall responsibility for ESCB affairs

General Secretariat
Kjell Peter Söderlund

Communications
European and International Affairs
Legal Affairs
Senior Secretarial Staff

Strategy and Organisation

Internal Audit
Erkki Kurikka

Financial Markets and Statistics
Heikki Koskenkylä

- Financial Stability
- Oversight of Market Infrastructure

Statistics

- Balance of Payments
- Financial Statistics
- Information Management

Payment Instruments
Urpo Levo

- Regional Offices Kuopio, Oulu, Tampere, Turku, Vantaa

Monetary Policy and Research
Antti Suvanto

- Forecasting
- Library and Information Services
- Monitoring

Institute for Economies in Transition (BOFIT)

Research

Banking Operations
Pentti Pikkarainen

- Investments
- Market Operations
- Risk Management

Payments and Settlement

- Back Office
- TARGET Division

Administration
Esa Ojanen

- Accounting
- Administrative Services
- Language Services
- Real Estate Management

Information Technology
Personnel
Security

The Financial Supervision Authority, headed by Kaarlo Jännäri, operates in association with the Bank of Finland.

Suomen Pankki
Bank of Finland
PO Box 160, FI – 00101 HELSINKI, FINLAND
Tel +358 10 8311, fax +358 9 174 872, email publications@bof.fi

Subscriptions to the Bank of Finland Bulletin and changes in address details

Old address details
Company
Name
Address
New address details/subscriptions
Company
Name
Address
New subscription ◯ Cancellation ◯ Number of copies

Suomen Pankki
Bank of Finland

PO Box 160
FI – 00101 HELSINKI
FINLAND

Cut along dotted line.