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Economic outlook



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Editor-in-Chief
Erkki Liikanen

Editorial Board
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Edited
by the Bank of Finland's Communications
Department

Authors
Bank of Finland Economics Department

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

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

Preface

Most of the social security systems of the welfare state have been built on an assumption of continuous growth. This is particularly true of pension systems. Agreed benefits can only be guaranteed if growth continues at a sufficiently rapid pace in the coming decades. Economic growth, in turn, is based on growing input from both labour and capital. Also decisive is how efficient our economy is in utilising these factors of production. This source of growth is generally known as total factor productivity. In turn, total factor productivity growth is a consequence of technological progress and the continuous reorganisation of production.

Of the factors of production referred to above, the pace of growth in labour input is slowing. We will soon be in a position where the working-age population is beginning to contract, which means increasing labour input can no longer be relied upon as a source of future economic growth. Over the medium term it would be possible to considerably increase labour input. This is not going to happen, according to the present Bank of Finland forecast. Employment will improve and unemployment will decrease only slightly as total output growth this year and next accelerates to about 3%. This indicates that Finland has a very high rate of structural unemployment.

All steps that successfully raise the employment rate support growth. If structural unemployment can be reduced, this will in turn boost the employment rate. The same effect could also be achieved by providing incentives

for young people to join the labour market and for ageing workers to stay on longer in working life. A number of studies indicate that raising the employment rate is the most important single step that can be taken to prepare for the increased expenditure caused by an ageing population. This link is already widely understood. Fortunately, some moves have already been made to raise the employment rate, and new measures are currently being implemented. It is, however, important to remember in this context that the employment rate will need to be raised soon – we cannot afford to wait until the working-age population has begun to contract.

Although raising the employment rate is vital both to the continuation of growth and the sustainability of government finances, it will not be enough by itself. A higher rate of employment will not mean higher productivity, at least not in the short term. Higher productivity, in turn, is essential if both wage-earners and pensioners are to continue to enjoy rising levels of real income in the future.

In the short term, a higher employment rate could actually hamper the improvement of productivity across the economy as a whole, as productivity is measured according to GDP per person employed or per hour worked. As the employment rate rises, the productivity of those entering the labour force will probably be below average. A more positive picture emerges, however, if productivity is measured according to GDP per head of working age population.

Even if a clear rise in the employment rate is achieved by the end of the present decade, the contribution of labour input to growth would thereafter be negative in any case as a result of the age structure of the population. All the more reason, therefore, to focus attention today on growth in capital input and total factor productivity. Growth in capital input comes from investment. This means investment in machinery and equipment, buildings, basic infrastructure and intangible assets such as software. Expenditure on research and development is also in effect equivalent to this sort of investment.

The relative dearth of investment in Finland has only recently begun to attract attention. In previous decades Finland was renowned for having one of the highest investment ratios in Europe. However, for more than ten years now the Finnish investment ratio has been well below the average for the euro area. The net capital stock of machinery and equipment has been contracting for several years now. The calculation of net capital stock takes account of capital depreciation.

According to the Bank of Finland forecast, fixed investment in productive capacity is set to increase following a few years of contraction. The increase will, however, be sluggish in comparison with previous economic upswings. The situation would appear to be similar elsewhere in Europe and in the United States as well. Investment growth typical of periods of economic expansion has been seen mainly in China.

Including corporate expenditure on research and development under the broad heading of investment would mean that across industry as a whole there has been scarcely any drop in the investment ratio. After all, Finland has recently become one of the world leaders in terms of spending in research and development. This conclusion cannot, however, be generalised across the economy as a whole, as the only really significant increase in private sector R&D investment has been in the electronics sector. Even taking R&D into account, the investment ratio in traditional industry has undoubtedly come down.

Investment and productivity growth belong together. Undoubtedly, many companies could improve their total factor productivity by reorganising their operations and increasing training. This would not, however, take them very far. Without new investment, the limits of this approach would soon become apparent. Higher labour productivity and real incomes require growth in the capital stock. New investment that expands the capital stock also allows operational reorganisation. In fact, often it will actually require it. This is particularly true of investment that introduces new technology in traditional industrial sectors and services. Investment, innovation and the development of business expertise go hand in hand.

Finland has generally done well in international comparisons of labour productivity growth. The positive general picture is, however, largely due to the particularly rapid pace of

productivity growth in the electronics industry, telecommunications and the financial sector. The first of these is part of the broader sector that produces information and communications equipment, while the other two belong among those sectors that use this new equipment. In contrast, productivity growth in other industrial sectors since the mid-1990s has been mediocre at best. It is worth asking if there is perhaps a connection between low investment and weak productivity development.

Finland has a number of sectors – for example, the forest industries and the basic metal industry – in which the level of productivity is already world class. In contrast, in many other industrial sectors, to say nothing of services, there is a productivity gap even against comparable sectors elsewhere in the euro area.

This actually gives reason for optimism. It should be possible to raise productivity particularly in those sectors where such a productivity gap exists. However, Europe is insufficient as a point of comparison, as research indicates that European companies are lagging behind their American counterparts, particularly in those sectors that rely on the use of information and communications technology.

Closing the productivity gap and achieving continuous improvement in productivity will require new investment. From the perspective of the individual company, investment abroad is just as much an investment as investment in the home market.

Similarly, expansion via corporate acquisitions is just as much an investment as the construction of a new factory. Restructuring via corporate acquisitions and sales generally boosts productivity. There also appears to be a positive correlation between the level of competition in a market and productivity growth. Where there is little competition there is no real incentive to raise productivity.

The employment rate will have to rise if Finland is to be able to face the problems of an ageing population. Equally important is to create an environment that encourages continuous improvements in productivity. Without investment, it will be impossible to achieve sufficiently rapid productivity growth, and growth in real incomes will stagnate. This will further undermine the incentives for investment.

23 September 2004



Erkki Liikanen

Executive summary

The Bank of Finland forecast¹ provides a fairly favourable picture of the present situation and near-term outlook for the Finnish economy. GDP growth in 2004–2006 will be in the region of 3% and will be broadly based: domestic demand will start to draw on investment as well as consumption. Exports will also make a stronger contribution to growth. Despite the growth figures, there will be little improvement on the employment front. The outlook for inflation remains fairly stable. Despite some degree of acceleration, it will still be just under 2% in 2006.

Growth of around 3% in 2004 and 2005 will go down as an exceptionally favourable interlude. Slower growth is forecast for 2006, when the internal – primarily structural – problems of the Finnish economy will begin to influence economic performance. However, their impact will be felt more strongly after the end of the forecast period.

The world economy grew briskly during the first half of 2004, with growth also more widespread than before. However, the most rapid growth is already over. The Bank of Finland estimates that world growth will settle at a fairly healthy annual rate of around 4% in 2005–2006. This average will be exceeded in Asia outside Japan and in the transition economies. The forecast for the EU 15 is for growth of slightly over 2%.

Despite the favourable outlook, the clouds overshadowing the world economy have by no means dispersed. In the United States, the current

account and federal deficits have remained large during the present economic upswing. The forecast envisages a gradual correction of this situation. Actual developments could, however, be less stable than assumed. The Chinese economy, too, could be a source of surprises as the authorities there attempt to dampen the overheating of the economy. Moreover, there is a lot of liquidity in the world economy at present, which could cause sudden inflationary pressures and a larger-than-expected rise in interest rates.

The economic performance of the euro area has been distinctly lacklustre. This has been a problem for Finnish exports, which have grown only very slowly during the first half of 2004. In addition, the delayed impact of euro appreciation has begun to hamper exports. The situation has been balanced to some extent by continued strong demand from Russia on the back of higher oil revenues. Finland has also benefited from the rapid growth in imports by the new EU Member States.

The recent dramatic rise in the price of oil is expected to be temporary. Besides increased demand, for example from China, the price of oil has also been pushed up both by a dearth of available production capacity in oil-producing countries and by the tensions in the Middle East. It is assumed that supply and demand will gradually balance out as oil output is stepped up and the risk premia caused by the prevailing uncertainty is no longer factored into prices. As a consequence, the price of crude oil should return in

¹ The forecast is based on information available on 8 September 2004.

stages over the next couple of years to around 30 dollars a barrel. Other commodity prices have also risen sharply, but their price development is also expected to even out during the forecast period. Finland's import prices are estimated to rise this year by around 3%, with the pace of increase slowing gradually to ½% in 2006.

One problem Finland has had to grapple with has been a deterioration in the terms of trade, as export prices have long been on a downward trajectory. In the electronics sector, this has been due to the rapid pace of productivity growth and stiff international competition. In the forest industries, export prices have remained low despite the recent strong growth in the world economy and the rising prices of many raw materials.

The structure of demand in Finland is changing. Exports are expected to recover to such an extent that the contribution of net exports (the difference between exports and imports) to GDP growth will be positive this year. Private consumption will remain a key source of growth, albeit its growth trajectory is flattening out. Private investment will have little impact on growth, although what impact there is will at least be positive. Stronger exports allied to continued strong consumption and the beginnings of growth in investment this year explain the timing of the peak of the cycle during 2004. A slight acceleration in annual GDP growth in 2005 is explained by the carry-over effect from this year's growth.

Household incomes will continue to develop favourably throughout the

forecast period. Growth in aggregate wages will benefit from the onset of a slight upswing in employment, with nominal wages estimated to grow at a stable 3½% per annum. The forecast does not contain any assumptions on the outcome of the present round of negotiations on a general incomes policy settlement. In 2004, incomes will be boosted and the savings ratio raised by an exceptional growth in dividend income, as companies distribute large amounts of dividend before the coming into effect of the recent reform of corporate and capital taxation.

The recent strong growth in household purchasing power will level off to some degree during the forecast period as a consequence of more rapid inflation and a gradual rise in interest rates. It is estimated that this will result in the easing of growth in private consumption from a good 4% this year to around 2½% in 2006. This forecast is based partly on the assumption of a moderate increase in the value of households' housing assets.

The favourable development of the economy will improve the position of general government finances during the forecast period. The combined structural balance of central and local government finances and social security funds will improve to produce an average surplus of approximately 2.5% of GDP. There will be a contraction in both public expenditure and general government debt (both relative to GDP). The total tax ratio will continue to decline both this year and next, but will begin to rise again thereafter. The growth impact of government measures

is expected to be fairly marginal during 2004–2006.

Over the past ten years, the investment ratio of the Finnish economy has been below the euro area average. Although the reduction in the tax rate for corporate income would by itself tend to increase corporate willingness to invest, the reform of capital income tax could have the opposite effect. Fixed investment in the domestic manufacturing sector is likely to remain sluggish and will be mainly in order to maintain or replace existing capacity. There will be little investment in new capacity. The trend of companies investing abroad will continue. This is partly because large corporations with operations in several countries are not currently interested in expanding their production in Finland due to the size of the Finnish market and restricted access to raw materials.

The number of unemployed has remained stable now for several years. At the same time, increasing numbers of people of working age have been leaving the labour market. This is not due as yet to demographic ageing or retirement; there are other factors at play. Both the labour force and the number of employed will, according to the forecast, begin to rise slightly, but the changing age structure of the population will already begin to impact on the labour market as early as 2006. The employment rate is expected to rise during the forecast period only slightly from the present level of 67%.

The fairly favourable figures for GDP growth are not being reflected in employment, as output is up most in

those sectors that employ few people. Over the longer term, the employment rate is expected to rise, but more for demographic reasons – population ageing and a decline in the working-age population – than as a result of more jobs.

We are still far from the Government's declared objective of a 75% employment rate. Of decisive importance to the achievement of this objective is the extent to which older employees remain longer in working life. The employment rate among older people has risen steadily in recent years and is already clearly above the level prior to the recession of the 1990s. It will probably continue to rise. To some extent this is due to cuts in early retirement pension benefits and reform of the old-age pension system, but it is also partly a consequence of rising educational levels and improvements in the general health of the population.

The pace of consumer price inflation in Finland has been slow in recent years – even negative in some months during the first half of the present year. Besides the changes in car tax and excise duties on alcohol, another important cause of this has been increased competition in a number of sectors, including communications, air transport and the retail trade. Such competition is expected to moderate price rises in the near future as well. According to the forecast, a gradual drop in the world market price for oil will moderate energy price rises in 2005 and 2006.

A worrying feature from the angle of Finnish competitiveness is that in

recent years productivity development has been poor in many sectors. Productivity growth normally accelerates during an economic upswing when the capacity utilisation rate rises and employment growth has not yet taken off. Indeed, private sector labour productivity will rise by almost 4% in 2004, but will slow again to around 2% in subsequent years. During the forecast period, total factor productivity is estimated to grow at only half the pace it did during the second half of the 1990s.

Financial markets

Despite rapid world growth, interest rates in the main industrial economies have remained low. Short-term rates in the United States began to rise in spring 2004, as US employment picked up and inflation gathered pace. The downward trend in the US dollar of the past couple of years gave way at that time to a slight strengthening. The stock market also turned around in the spring, due in part to the rise in short-term dollar rates. The bull market that had lasted for around a year gave way to a slight dip in share prices on the world's most important exchanges. There has been no significant change in the external value of the euro since the end of last year, and euro area interest rates remain low.

House prices have risen fairly generally across all industrial countries in recent years, partly due to low interest rates. In Finland, the pace of increase has been more or less equal to the average for the 'old' EU Member States. As well as low interest rates, housing demand in Finland has also been boosted by growth in household incomes and longer repayment periods for housing loans. Accordingly, the housing loan stock has continued its rapid growth.

Interest rates

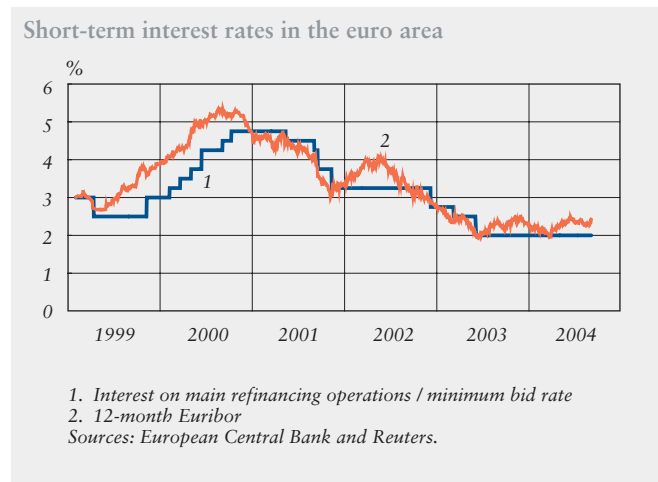
Interest rates in the euro area remain very low. The European Central Bank's minimum bid rate for main refinancing operations has stood at 2% since June 2003. At the same time, interbank market rates on maturities of under one year have remained below 2½% (chart 1).

Although short-term market rates in the euro area have risen from the low level of March this year, they still do

not reflect expectations of a significant tightening of monetary policy. Judging by the prices of interest rate futures, the market expects the Governing Council of the ECB to raise the policy rate some time around the turn of the year 2004–2005, and that the pace of interest rate rises in the immediate years ahead will be fairly slow (box 1). Despite the economic recovery, inflationary pressures in the euro area are still expected to be fairly weak.

The US Federal Reserve held its key rate at 1% for around a year before beginning to raise it during summer 2004. It now stands at 1½% and, judging by the prices of interest rate futures, the market expects it to rise further still before the end of the year. This is against a background of improved employment and concerns over strengthening inflationary pressures due to the length of the recent period of relaxed monetary policy. Japanese short-term rates have remained close to zero against a backdrop of continuing deflation

Chart 1.



Box 1.

Forecast assumptions

The world economy grew briskly during the first half of 2004, with growth also more widespread than before. However, the fastest phase of the cyclical upturn is now over. World growth will reach a good 4½% in 2004. Stronger-than-average growth will be registered in non-Japan Asia and the transition economies. EU 15 growth is forecast to remain at about 2–2.5%. The world economy will continue to grow at rates of close to 4% in 2005–2006.

World trade growth is predicted to reach almost 8% in 2004. The strength of trade notably in the Pacific region has come as a surprise. The rate of growth should stabilise at around 7% in the next few years. Finnish export markets (or import volume in Finnish export markets) will expand at almost the same pace as world trade (table). As a counterweight to sluggish demand in many of the EU 15 countries, Russian imports will continue to reflect rapid growth and will be boosted by the flow of income from higher oil prices. Strong import growth in the new EU member states will also improve Finnish export prospects.

¹ In this publication, the winter forecast refers to the Bank of Finland's forecast published in the 1/2004 issue of *Euro & talous* on 24 March 2004. The English translation of the forecast was published in the *Bank of Finland Bulletin* 1/2004 in April 2004.

The price of oil has risen much higher than foreseen in the winter forecast.¹ This reflects, above all, robust demand, ie strong growth in the world economy. There has been a substantial rise in demand for oil, partly due to China's emergence as an important oil importer. As a result, the markets respond vigorously to the risk of production failures. In

the forecast period, supply and demand are expected to become balanced, with the barrel price of crude oil gradually returning to around USD 30 towards the end of 2006. Other commodity prices have also risen substantially, but they, too, should level off in the forecast period.

The rate of increase in the export prices of Finland's

Chart A.

Short-term rates and interest rate expectations*

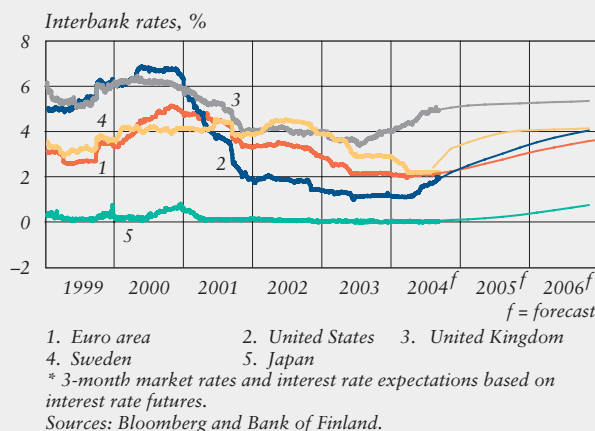


Chart B.

Exchange rate assumptions

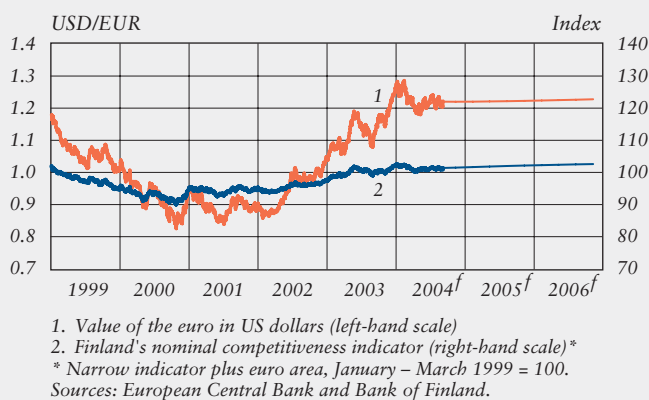


Table.

Forecast assumptions

	2002	2003	2004 ^f	2005 ^f	2006 ^f
Import volume in Finnish export markets, % change	2.8	5.4	7.6	7.6	7.2
Finnish import prices, % change	-3.0	0.8	3.4	1.0	0.6
Oil price, USD per barrel	25.0	28.9	37.0	36.8	30.9
Import prices in Finnish export markets, % change	-2.4	-5.7	0.3	2.1	1.6
3-month Euribor, %	3.3	2.3	2.1	2.7	3.4
Yield on Finnish 10-year government bonds, %	5.0	4.1	4.2	4.4	4.6
Finland's nominal competitiveness indicator ¹	95.5	100.1	101.4	101.9	102.4
US dollar value of one euro	0.94	1.13	1.22	1.22	1.23

¹ Narrow plus euro area, 1999 Q1 = 100.

f = forecast

Sources: Statistics Finland, Bloomberg and Bank of Finland.

competitors is expected to moderate in the near future, with signs of an end to the already realised steep price increases of commodities being passed on to final product prices. Import price increases in Finnish export markets will accelerate to some extent towards the end of the forecast period, supported by continued buoyant demand. Against these underlying assumptions, Finnish import prices are expected to rise in 2004 by just under 3%, with the

pace moderating gradually to ½% in 2006.

Interest rate and exchange rate expectations are derived from market expectations on 3 September 2004. 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. Expectations are calculated on the basis of publicly quoted interest rate

futures. Market participants expect a gradual rise in short-term interest rates, to reach 3.6% by the end of 2006 (chart A). The external value of the euro should remain around USD 1.22–1.23 throughout the forecast period. Finland's nominal competitiveness indicator is also expected to remain stable, albeit slightly stronger than last year, throughout the forecast period (chart B).

despite accelerating growth. The Bank of Japan has indicated it will not raise interest rates until the decline in consumer prices has clearly turned around.

The Bank of England has raised its key rate several times since the beginning of the year. It now stands at 4.75%. This has been in response to rapid economic growth and a tight labour market, which the central bank believes will increase inflationary pressures both this year and in 2005. Thereafter, however, the Bank of England estimates there will be an easing in inflationary pressures due to slower growth in domestic demand, due in part to the restriction of private consumption caused by a slowing in the pace of house price inflation. Judging by interest rate futures, the market does not expect the central bank rate to rise significantly above its present level.

In Sweden and Norway, the central banks cut their key rates in 2003 and early 2004. At the time, their economies were experiencing sluggish growth,

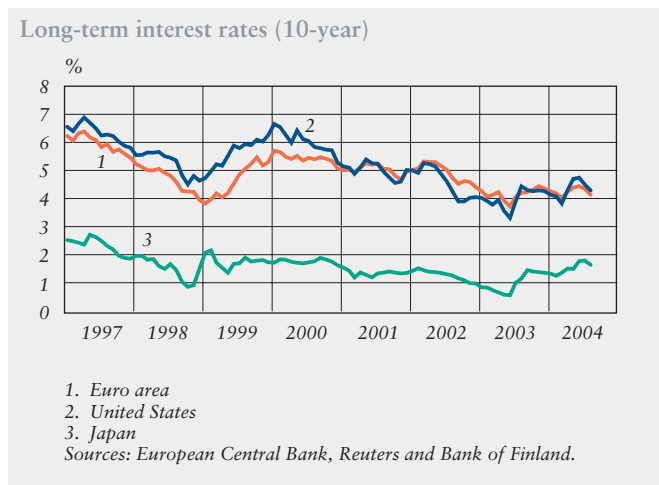
growing unemployment and falling inflation. During the course of this year, however, market expectations have pushed interest rates up as the outlook for growth has brightened, and the central banks forecast stronger inflationary pressures in the future.

Long-term interest rates in the main industrial economies have remained low (chart 2). In the early months of 2004 the interest on 10-year government bonds in the euro area and the United States was around 4%. The spring brought higher rates particularly in the United States, but to some extent also in the euro area, fuelled by an improved outlook for growth in the world economy and the prospect of strengthening inflationary pressures. Employment growth and a slight increase in the pace of inflation in the United States were particularly influential in the change of outlook. During the summer, however, long-term interest rates began to fall again due to a slight weakening in the prospects for world growth. The changes were once again more dramatic in the United States than in the euro area.

The changes in the outlook on growth and inflationary pressures were reflected in the market's long-term inflation expectations and long-term real interest rates, which can be estimated by comparing the yields of inflation-indexed and standard bonds.¹

¹ Here, 'long-term inflation expectations' refers to the break-even inflation rate. This is calculated by subtracting the real interest on government bonds linked to the consumer price index from the interest on standard government bonds. The difference provides a measure of inflation expectations provided the additional risk deriving from uncertainty over inflation and the liquidity premium derived from differences in market liquidities are both insignificant.

Chart 2.



According to these, the spring rise and summer fall in long-term interest rates in both the euro area and the United States were partly a consequence of similar changes in inflation expectations (chart 3). Long-term real interest rates also rose in the spring and dropped back again in the summer.

The economic outlook has fluctuated considerably during the course of 2004 not just in the United States, but also in Asia. As in the United States, Asian growth was very rapid during the second half of 2003 and early 2004. In Japan, too, GDP growth was very rapid. In summer 2004, the yields on long government bonds actually rose close to 2% as the markets brought forward the date they expect the Bank of Japan to abandon its zero interest rate policy. However, towards the end of the summer Japan's long-term rates began to fall as new data suggested a return to sluggish growth and continued deflation.

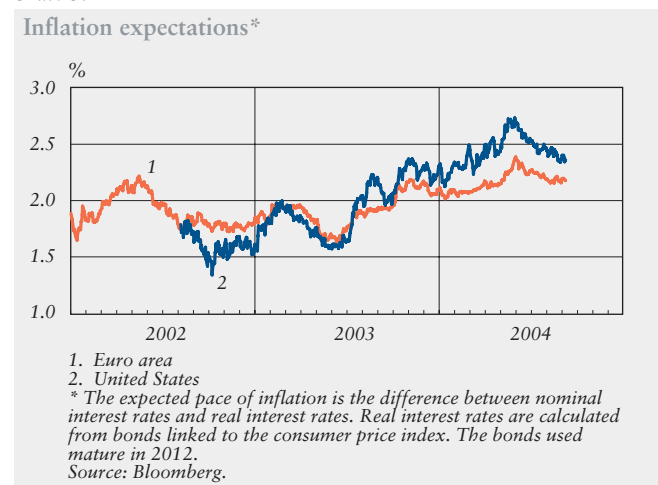
Elsewhere in Asia, too, there was a slight easing of growth expectations during the summer. In China, the threat of the economy overheating caused the Government to take steps last year to put a brake on investment growth, and the measures taken were further strengthened at the beginning of this year. As China is still to some degree a planned economy, these measures were largely administrative, and the key policy rate was not raised despite accelerating inflation in China during the spring and summer. However, the People's Bank of China has, among other measures, raised the minimum reserve requirements on banks. Data

from recent months suggest that China's rapid growth has slowed somewhat during the first half of 2004.

Most of the economically important countries of Asia outside Japan and China have continued their relaxed monetary policy and low interest rates. Despite rapid growth, these countries have kept their currencies relatively weak and continued their expansionary domestic economic policies.

In both the United States and Europe, the interest rate spreads (credit spreads) between corporate bonds and government bonds have for the most part remained fairly insignificant, and clearly smaller than the average for recent years. The relative insignificance of credit spreads reflects the easy stance of monetary policy, the favourable growth outlook for the world economy, growing corporate profits and a reduction in payment disturbances in respect of corporate bonds. In the United States there has also been a reduction in the level of corporate debt.

Chart 3.



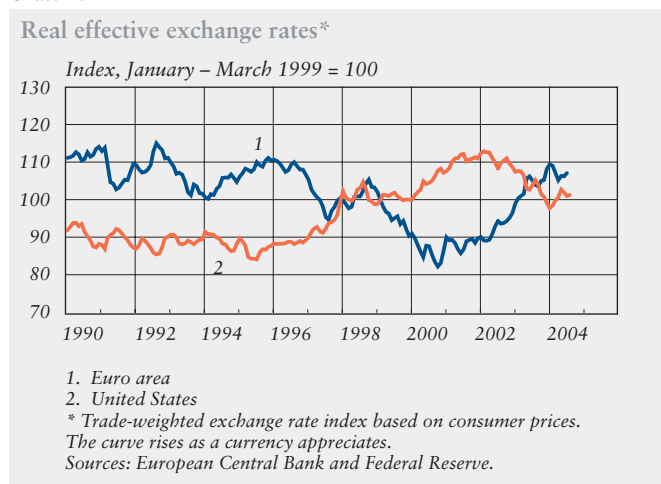
In the euro area, there was no further tightening in credit standards for loans to enterprises in 2004, and in the United States there was actually some relaxation. This is clear from questionnaires sent out to banks, according to which the terms of credit were still tightening last year in both the euro area and the United States.²

Exchange rates

There has been no significant movement in the external value of the euro this year. Measured by nominal effective exchange rate, the euro appreciated considerably in 2002 and through to the end of 2003, since when it has fallen back slightly. The euro's nominal effective exchange rate is now more or less as it was at the beginning of 1999, when the single currency was first introduced. The euro's real effective exchange rate is now slightly stronger than it was then (chart 4).

² 'The Results of the July 2004 Bank Lending Survey for the Euro Area', ECB Monthly Bulletin 8/2004, p. 15-19; Federal Reserve Board: 'Senior Loan Officer Opinion Survey on Bank Lending Practices', July 2004 (www.federalreserve.gov/boarddocs/SnLoanSurvey).

Chart 4.



When the international price competitiveness of euro area output is measured according to the euro's real effective exchange rate, the result is close to the 1990s average. Since the introduction of the euro, the international price competitiveness of Finnish output has not fluctuated as much as before. Measured against the real exchange rate index based on foreign trade weightings, it is now close to the average for the second half of the 1990s.

During 2002 and 2003 the euro appreciated, particularly against the US dollar. The dollar's fall was partly due to a decline in short-term dollar rates when the Federal Reserve responded to the poor economic outlook by easing monetary policy. The large US current account deficit has also maintained the pressure on the dollar. In turn, the slight rally by the dollar in spring 2004 was helped by a rise in short-term dollar rates on the back of a brighter economic outlook.

The US current account deficit is estimated to be around 5% of GDP this year. Taking on debt at this pace requires large inflows of foreign investment. In recent years the deficit has been financed largely by sales of bonds to non-residents and bank-mediated finance, as net flows of direct and portfolio investment have been outward. In late 2003 and early 2004, Asian central banks intervened in the exchange markets to purchase large amounts of US bonds. Since spring 2004, however, the US current account deficit has once again been financed primarily by private investors.

The pound sterling appreciated in late 2003 and early 2004, when the Bank of England began a series of interest rate rises in response to the strong performance of the UK economy. The pound has subsequently fallen back a little but, in terms of its real effective exchange rate, has remained considerably stronger than its average value in the 1990s.

Of the other European currencies, the Swedish krona has in recent years been relatively stable against the euro. Meanwhile, last year's decline in the Norwegian krona has been ended by the improved outlook for the Norwegian economy and the rise in oil prices. The high price of oil has also contributed to the relative stability of the Russian rouble against the major currencies. The real value of the rouble has appreciated in the past few years, with rapid inflation of 10–20% in Russian consumer prices.

The value of the Danish krone in euro has remained close to the central rate set for it in ERM II, in which Denmark is a participant. Of the new EU Member States, the Estonian kroon, Lithuanian litas and Slovenian tolar entered ERM II in June of this year. The kroon and the litas have since remained precisely on their central rates, while the tolar is close to it. Both the kroon and the litas were already fixed against the euro through currency board arrangements before these countries' participation in ERM II, and these arrangements still apply. For its part, Slovenia's participation in ERM II has meant the end of the tolar's gradual, controlled depreciation against the euro.

The major currencies of Eastern and Southeast Asia have this year remained fairly stable against both the euro and the dollar. In the early months of the year they came under pressure to appreciate against the dollar, and some countries sought to prevent appreciation by intervening in the exchange markets. The largest interventions were by the Bank of Japan. When, in April, expectations over US monetary policy began to change, the pressure on these currencies to appreciate began to ease and the interventions were scaled down. The pressure has also been reduced in recent months by slightly moderating expectations over Asian growth, which were still riding very high before the summer. Some countries in the region have experienced a similar effect from increasing inflationary pressures, to which the central banks have not as yet responded by raising interest rates.

The Japanese yen is now slightly lower against the dollar than it was at the turn of the year. Meanwhile, the Chinese authorities have held the yuan steady against the dollar. Expectations of an appreciation in the yuan have receded since the early months of the year, a development reflected in price quotes for yuan futures. These derivative instruments are only traded outside China.

Stock markets

So far this year there have been no major movements in stock prices in the main economic regions. In March 2003 stock prices began a rise that lasted about a year. This was against a

background of improving prospects for world growth, the dispersal of uncertainties surrounding the war in Iraq and renewed growth in corporate profits.

The rise in stock prices continued into the early months of 2004, but since March and April most prices have fallen slightly (chart 5). This is despite an exceptionally bright outlook for the world economy in the spring, continuing growth in corporate profits and encouraging forecasts by professional analysts.

The halt to the rise in stock prices is partly explained by changed expectations over US monetary policy and the consequent increase in market interest rates. Rate rises normally cause a fall in stock prices, as the value of a company is not dependent solely on expectations over its future profits, but also on the interest rate used in calculating the discounted value of these profits.

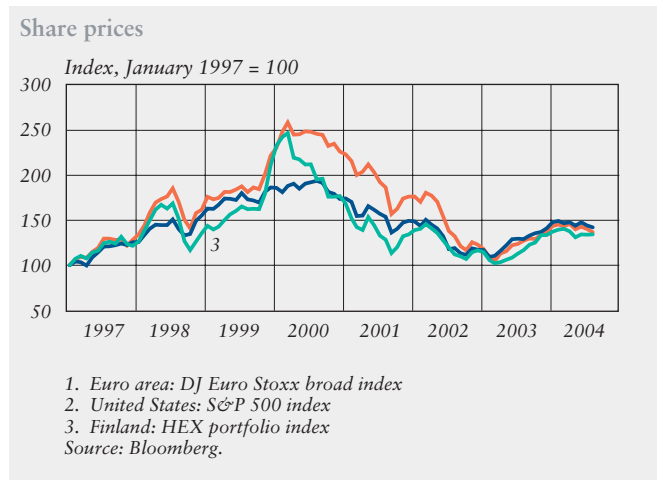
The expected timing of interest rate rises in the United States was brought forward by employment growth and a slight acceleration in inflation in the spring. These data apparently altered

market perceptions so as to reduce the probability of continued growth based on the rapid improvements in productivity that would take place in an environment of sluggish inflation. Thus, this also undermined expectations over long-term growth in corporate profits. As well higher interest rates, the fall in stock prices in the summer was also influenced by the rising price of oil and somewhat weaker-than-expected figures on the economy, particularly in the United States.

At least for the time being, corporate profits have continued to grow fairly briskly in the major economic regions. In the United States, major listed companies have already been recording growing profits for the past 2½ years, and in the euro area for around a year and a half. National income statistics also indicate an increase in corporate profits – particularly in the United States, but also in the euro area. In the United States, total pre-tax corporate profits during the second quarter of 2004 were up almost 20% on the same period a year earlier. However, seasonally adjusted profits showed no rise from the first quarter of the year.

As in the United States and the euro area, Japanese stock prices were also rising until spring 2004, whereafter they began to move back slightly. In Japan, too, corporate profits have been growing in the last two years. At the same time, there has been a considerable reduction in corporate indebtedness. Japanese stock prices were also boosted by better-than-expected growth figures in the second half of 2003 and early 2004. Since the late spring,

Chart 5.



however, Japanese stock prices have been subdued by slightly weaker data on the overall performance of the Japanese economy and weakening expectations on Chinese growth.

In line with the trend internationally, the stock prices of most major Finnish corporations rose in the early months of this year, only to lose ground again in the spring. The HEX portfolio index, in which Nokia's weight is restricted to 10%, has followed fairly closely the main stock price indices in the United States and the euro area. The combined earnings of Finnish listed companies have risen during the past year. The gross operational surplus used to indicate the value of corporate profits in national income statistics was up in the first quarter of 2004 by around 1½% from the previous year. This is in contrast to 2003, when it was down slightly on the previous year.

Housing prices

Statistics Finland's housing price index indicates that housing prices in Finland have risen since the beginning of 2000 at approximately the same pace as disposable household income, on average 5% per annum. During the past year, the pace of housing price rises has accelerated to around 8%. After a fairly sluggish interlude in the early years of the decade, housing construction has begun to pick up again to such an extent that the volume of new construction in 2004 is expected to equal the level of 2000.

The rising housing prices of recent years have been due primarily to the rising cost of building land. Relative to

this, the trend in construction costs and contract tender prices has been moderate (chart 6). The price trends of recent years differs clearly from the experience at the end of the 1980s. At that time, in addition to a steep rise in the cost of building land, there was also a dramatic increase in contract tender prices and inflationary pressures that were passed on to construction costs.

Housing prices in Finland have in recent years risen more or less in line with the EU average (chart 7).

Chart 6.

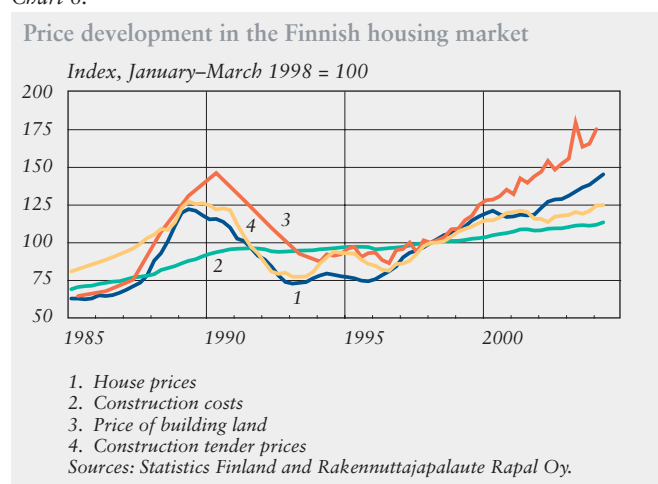
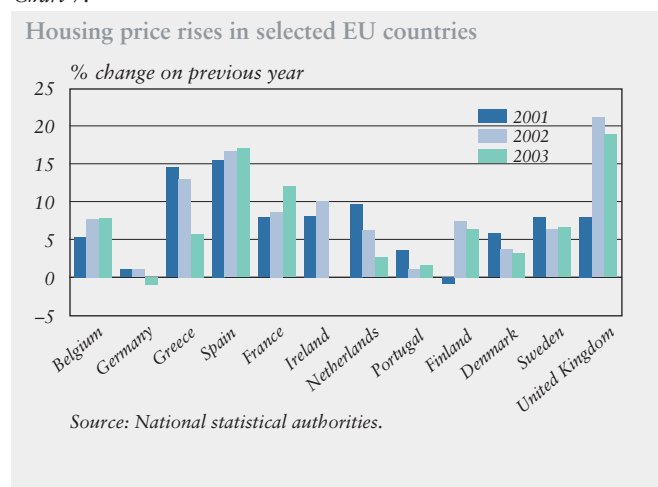


Chart 7.



Moreover, statistics indicate that the Finnish housing construction sector as a proportion of the total economy is also close to the EU average.

There has been a rapid increase in the housing debt of Finnish households (10–15% per annum). Falling interest rates have contributed to households' willingness to take on extra debt and hence also contributed to increased demand for housing. Growth in the stock of housing loans in Finland has also been facilitated by an increase in repayment periods (chart 8).

Chart 8.

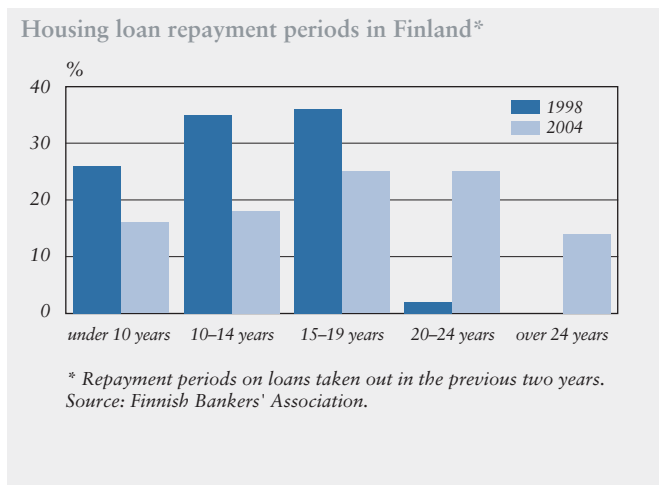
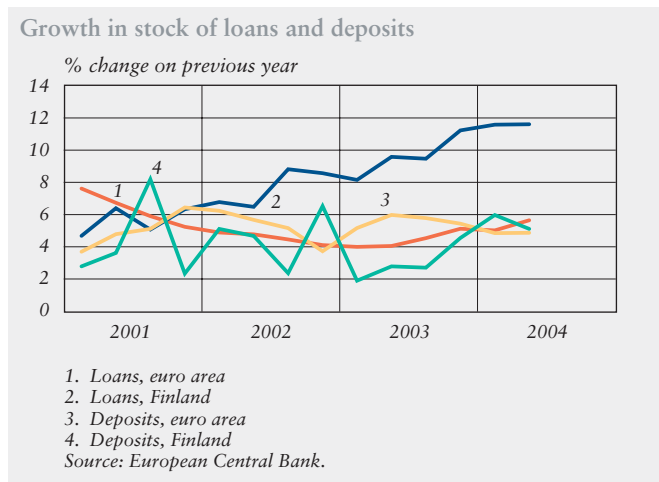


Chart 9.



According to comparative international data, the housing component of total household expenditure in Finland in 2002 was slightly above the EU average.³ There is no really reliable data available on the period since 2002. Estimates suggest the housing component may even have contracted as a result of lower interest rates and longer repayment periods, despite the strong growth in the housing loan stock.

Future developments in the housing market can be anticipated on the basis of projected housing supply and demand. There is no reason to expect any developments in planning and construction in the immediate years ahead that would increase supply to such an extent as to significantly alter the outlook for housing prices. In contrast, changes in the financial climate will tend to subdue growth in demand. Housing loan interest rates are expected to rise gradually over the next few years in line with rising market rates, and there is unlikely to be any further significant lengthening of repayment periods. Housing price rises over the next few years are therefore expected to be moderate.

The available data on household indebtedness suggests it is unlikely that an increase in interest rates of the assumed amount would cause any significant increase in payment defaults or danger of a collapse in housing prices.

Bank loans and deposits

Over the past couple of years, the stock of loans to the public by banks and

³ See eg 'Housing Statistics in the European Union 2003'. National Agency for Enterprise and Housing, Denmark, 2003.

other financial institutions has grown faster in Finland than in the euro area on average (chart 9). The continued fairly bright outlook for the Finnish economy has sustained interest in taking on loans and the capacity to service them. The lengthening of repayment periods has also given households the scope to take on larger loans.

Bank deposits in Finland have increased in line with the average for the euro area. Deposits have grown much more slowly than lending. The share of other liabilities in banks' balance sheets has grown as banks have used market funding to cover the difference between lending and deposits. At the same time fund and insurance investment have displaced deposit savings as the primary form of household savings.

With growth in bank loans outstripping deposits, the stock of bank lending to the public is at present approximately one third larger than the stock of deposits from the public. In this respect the position of Finnish banks does not differ significantly from the euro area average.

Deposit market growth is forecast to remain moderate in the immediate years ahead. The rapid growth in the stock of loans to households will, in turn, be subdued by the rise in interest rates assumed in the forecast and the fact that repayment periods will not grow any further. Meanwhile, faster growth in the stock of loans to corporations will be stimulated by the forecast recovery in investment, the accelerated pace of generation transfers and an increase in the attractiveness of debt

financing as a result of the scrapping of corporate tax credits.

Interest rates on loans and deposits have declined both in Finland and elsewhere in the euro area as a consequence of declining market rates. Bank rates have continued to decline gradually during the course of this year (table 1).⁴ The low level of average rates on deposits in Finland compared with the rest of the euro area is a consequence of the structure of the

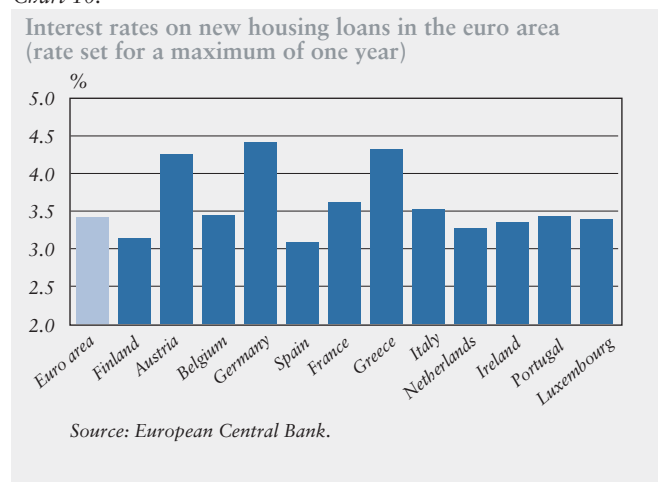
⁴ The compilation of statistics on interest rates on loans and deposits in euro area countries was harmonised in 2003. Statistical series from previous years are not comparable.

Table 1.

Average interest rates on loans and deposits in Finland and the euro area				
Average interest, %				
	Stock of loans		Stock of deposits	
	Finland	Euro area	Finland	Euro area
I/2003	4.57	6.01	1.63	3.94
I/2004	3.81	5.47	1.28	3.44
III/2004	3.74	5.37	1.26	3.34
Change	-0.83	-0.64	-0.37	-0.60

Source: European Central Bank.

Chart 10.



Box 2.

Household indebtedness

Household indebtedness is often measured by the relation of all Finnish households' aggregated indebtedness to their nominal disposable income. As there is long-term data available, it can be used as a basis for assessing how average household indebtedness has developed over time.

According to the loan stock statistics of Statistics Finland, total household indebtedness (housing loans, consumer credit, student loans and others) in relation to disposable income has increased markedly since 1997, by about 15 percentage points (chart). The level of indebtedness is still lower than on the eve of recession in 1989–1990. However, if it continues to rise at recent rates, the old records will be broken in a few years.

Whether we consider housing loans only, or housing loans, consumer credit and

student loans together, household indebtedness has already reached or surpassed the level preceding the recession. This is largely the result of a dramatic growth in housing loans. In contrast, credit in other than the above-mentioned categories – mainly debt related to business activities of households – decreased markedly after the recession years of the 1990s, and has only increased moderately in recent years.

The information given above describes the situation at the aggregate level. It does not reveal how many households have debt or how the aggregate debt is distributed between households. For this reason it gives an inadequate picture of indebtedness and the possible related risks. The need for more disaggregated data on indebtedness across individual households has become more acute in

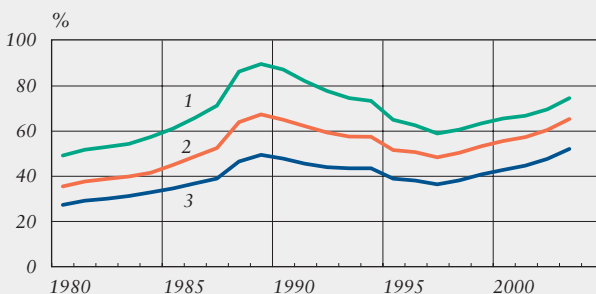
recent years as a result of the rapid growth in the stock of housing loans.

The distribution of debt across households can be evaluated on the basis of micro data available from the Income Distribution Survey of Statistics Finland.¹ The most recent data, from 2002, indicates that every second household, ie 1.2 million households, had debt from housing loans, consumer credit, student loans or other loans. The average level of debt was over EUR 35,000. The average disposable cash income² of indebted households totalled around EUR 32,000, which means that the ratio of debt to income was almost 110%.

The data revealed that every fourth household (650,000 households) had an outstanding housing loan. The average level was almost EUR 44,000, and the annual debt-servicing expenses averaged EUR 5,600. These households' average disposable cash income amounted to approximately EUR 37,000. The debt thus represented almost 120% of income.

The above-mentioned rates of indebtedness are much higher than those presented in the chart below. This is mainly because the data presented in the chart includes all households and their income, whereas the figures

Chart.
Household debt relative to disposable income



1. Housing loans, consumer credit, student loans and other debt
 2. Housing loans, consumer credit and student loans
 3. Housing loans
- Sources: Loan stock statistics and national accounts.

¹ The calculations have been performed in the Ministry of Finance with the TUJA microsimulation model.

² Cash income excludes imputed items such as imputed rent.

based on micro data only include those households that have incurred debt.

According to the micro data, the majority of indebted households had less than EUR 60,000 of debt in 2002. Only one fifth of households had larger debts, and of these, over half owed less than EUR 100,000. Moreover, for the majority (ie over 80%), the level of debt was less than 2 years' disposable cash income, which can be considered reasonable. Only for just over 6% of households was the level of debt at least three times their annual income.

Less than 1% of indebted households, ie less than 10,000 households, had very large debt burdens of over EUR 200,000. Despite their small number, this group of households may still give cause for concern. The majority had a large level of debt relative to income: usually at least three times their annual disposable income.³ In addition, the aggregated amount of these households' debt was almost 9% of the total household loan stock. Therefore, if these households were to have problems servicing their debt, the impact on lenders would be considerable. It is, however,

³ A level of debt three times the amount of income means a 2 percentage point increase in interest rates will increase the proportion of disposable income devoted to covering interest expenses by 6 percentage points. However, part of this increase will usually be compensated by the tax deduction for interest expenses.

difficult to assess how serious the situation is, since many of these households are entrepreneur households, and at least part of their debt is related to business activity and hence to household income procurement. In order to assess the debt servicing ability of these households, more detailed information would be needed on eg the nature of their businesses.

Those households whose overall debt burden was between EUR 60,000 and EUR 200,000 also give some cause for concern. Many of these households had an outstanding housing loan. Many also had a large level of debt relative to income. For 55,000 households, their level of debt was at least three times their annual disposable income. These households' share of the total lending stock was 15%. Therefore, any problems with servicing their debt could have major implications for lenders and be reflected more widely in the overall performance of the economy and the housing market.

Since 2002, the level of households' total debt has increased by approximately one fifth. This probably signifies both a rise in the average size of individual debts and a continuation of the rise in debt ratios. For instance, the Finnish Bankers' Association survey on saving and use of credit published in May 2004 indicates that the average amount of new housing loans

has already increased to EUR 80,000.

Thus, the risks related to household indebtedness have increased in recent years. However, the significance of these risks should not be over-emphasised. The situation differs in many respects from that prevailing prior to the recession of the 1990s. Loan repayment periods are now much longer: monthly debt-servicing expenses have not necessarily increased even if the amount borrowed has risen. In addition, more stable monetary conditions have diminished the likelihood of risks materialising. Although interest rates could rise by as much as several percentage points from their current level within a normal business cycle, they will most probably remain well below the levels of the early 1990s. For many households, interest rate changes will not necessarily be reflected in monthly debt-servicing expenses if the loan repayment period responds flexibly to increases or reductions in interest rates. Many households have also taken out payment protection insurance on their loans, which should help them service their debt if problems arise. According to the above-mentioned survey by the Finnish Bankers' Association, the larger the amount of loan, the more common it is for households to take out this insurance.

deposit stock. In Finland, only a very small proportion of the deposit stock is held in high-yielding fixed-term accounts, which are common elsewhere, particularly in Germany. Similarly, the average interest on the loan stock in Finland is below the average for the euro area as a whole. Particularly low in Finland is the interest on the housing loan stock. The average rate on new housing loans in Finland in the second quarter of this year was the second lowest in the euro area after Spain (chart 10).

The forecast assumes a moderate rise in short-term market rates in line with market expectations. This is also expected to be passed on to interest rates on loans and deposits. But these are subject to other factors as well. In Finland consumer credit is increasingly being granted via finance companies instead of directly by the banks. One consequence of this has been a relaxation in collateral requirements and an increase in interest rates. This trend could continue in the years ahead.

As a consequence of the Basel II reform currently under preparation banks are overhauling the pricing of their loans. The reform is expected to enhance the visibility of risks in the prices charged, but it is unlikely to significantly affect the average interest on the loan stock.

Supply

Output

In the first half of 2004, Finnish output grew slightly faster than estimated in the Bank of Finland's winter forecast. Based on the better-than-anticipated data on the early part of the year, this year's GDP growth will reach 3%, while the estimate in the winter forecast was for growth of 2.6%. Fairly favourable growth will continue through 2005–2006, but at a slightly slower pace than this year. The Finnish economic cycle is thus more or less in step with the international cycle.

Industrial output growth in the first and, especially, the second quarter of the year indicates the global recovery has at last begun to make itself felt in Finland. As forecast, growth has been spread fairly widely across all sectors. Moreover, confidence is high in both services and manufacturing. Industrial output has picked up in recent months, and the industrial confidence indicator, which provides a good picture of expected output, has risen faster than corresponding upwardly moving indicators in the euro area (chart 11).

According to a survey by the Confederation of Finnish Industry and Employers, industrial confidence has been boosted by the return of order books to their normal level and brighter output expectations. However, there is no sign of a widespread recovery in the size of stocks of finished products. It could be that manufacturers are waiting for even surer signs of a recovery in demand before beginning to stock their inventories. Another explanation could be that producers are changing how they operate, intensifying their

production chains so as to produce directly to order, thus avoiding unnecessary storage of products.

The recent recovery in output, particularly in the forest industries and electronics, and continued contraction in industrial investment have boosted capacity utilisation rates (chart 12). In the first half of the year, capacity utilisation rates have improved across all segments of manufacturing industry, with a rate of over 90% in the forest

Chart 11.

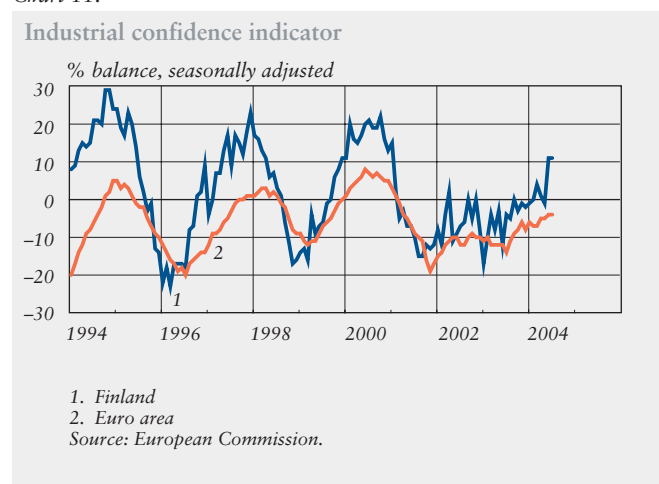
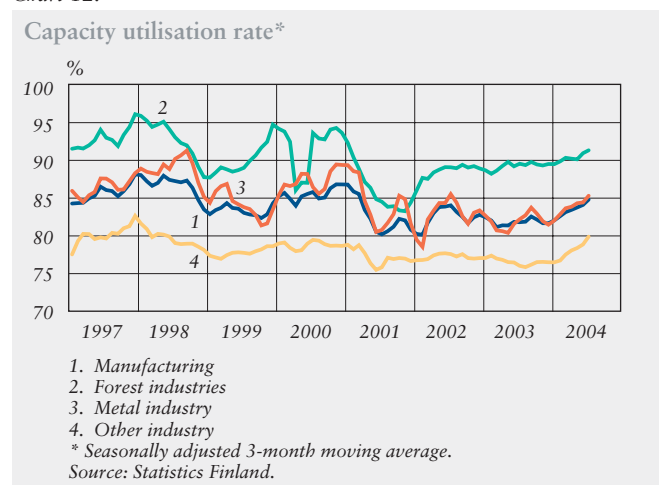


Chart 12.



industries and 85% in the metal and engineering industries.

In longer-term perspective, manufacturing capacity utilisation is only slightly above the average since 1997. Thus, according to the Confederation of Finnish Industry and Employers' survey, manufacturers in general do not see a lack of capacity or skilled labour as restricting output growth. One exception is housing construction, which has seen a sustained period of strong demand, and some operators

believe a lack of skilled labour is seriously limiting growth.

Employment

In the first half of 2004 the number of employed averaged 17,000 less than during the same period a year earlier (chart 13). In recent months, there has been an increase in the number of employed, although the unemployment rate has remained unchanged. Employment growth has been sustained during the past couple of years primarily by public and other services, construction and transport. The industrial sector has seen a major decline in employment in recent years.

Industrial employers expect a continuing drop in their average work force in the near future. In contrast, surveys indicate fairly stable employment expectations in the retail and construction sectors. Only the service sector has rising employment expectations (chart 14).

If they are to meet the challenges of stiffer competition, manufacturers will need to improve productivity. If this cannot be achieved by technological advances, it will require adjustment of labour input. This is the prospect facing many traditional production sectors despite the recent strengthening of order books. There is no immediate prospect of a significant increase in industrial employment. On the contrary, further loss of jobs can be expected.

Since the recession of the 1990s, the unemployment rate in Finland has come down only slowly in recent years. It now stands at around 9%, the level

Chart 13.

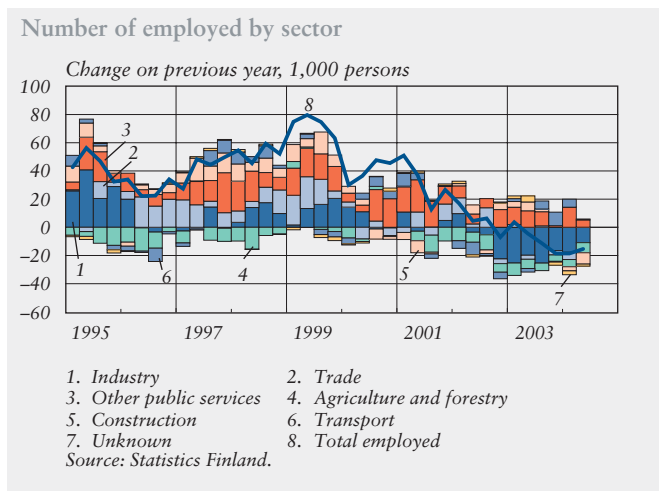
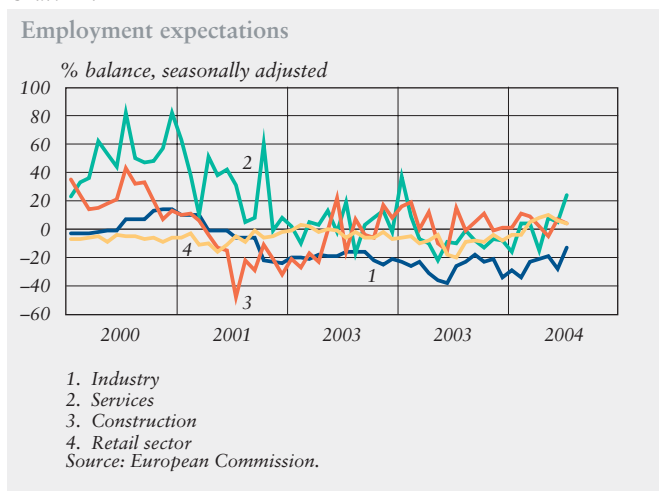


Chart 14.



to which euro area unemployment has climbed. The number of unemployed has for some years been 230,000 – 240,000. Over the same period, the number of people of working age outside the labour force has also grown. The present forecast projects the start of a gentle growth in both the labour force and the number of employed, but this will be insufficient to bring the unemployment rate below 8%, or the number of unemployed below 200,000 (charts 15 and 16).

Labour supply will continue to grow moderately during the forecast period. However, demographic factors – primarily the smallness of the population cohorts entering the labour market and the largeness of those leaving it – will begin to be felt. In 2004 and 2005 the net loss will still be relatively small, but from 2006 onwards the changes will already be considerable. The employment rate – the proportion of employed among the total population of 15–64-year-olds – is expected to rise only slightly from the present 67% during the forecast period. In longer-term perspective (see box 4, p. 30) it is estimated that the employment rate will in the future rise almost entirely as a result of demographic change.

The employment rate in Finland is currently higher than the EU average, due to the fact that in Finland women participate in the labour market more than elsewhere in the EU. However, compared with the other Nordic countries, Finland has a low employment rate (chart 17). For example, the Swedish employment rate

Chart 15.

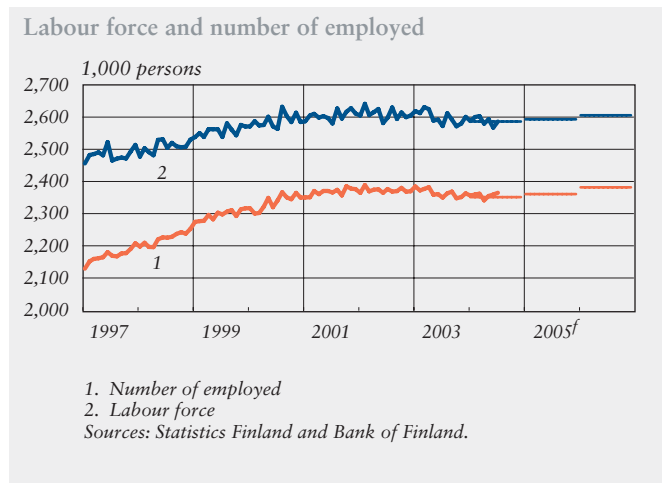


Chart 16.

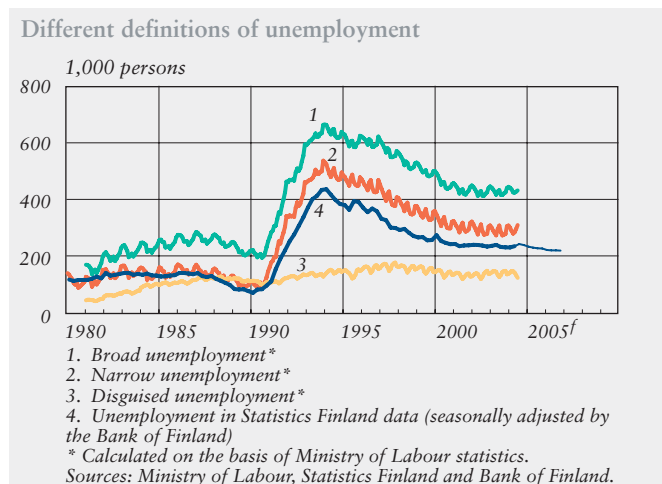
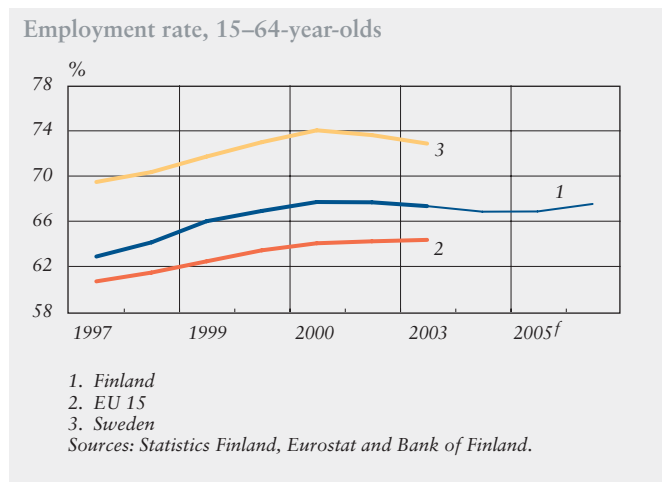


Chart 17.



is higher, largely because it is more common in Sweden for 55–64-year-olds to participate in working life.

Productivity

Increases in labour input will be restricted by demographic factors. Finland's working-age population will already begin to contract in the next few years. If the employment rate does not rise, the labour force will also begin to contract. However, economic growth can only come about by increasing

labour and capital inputs and improving productivity. If growth in labour input is very slight or even negative, wealth growth will be even more dependent than before on productivity and investment growth.

Labour productivity growth in Finland has been relatively rapid in European comparison. GDP per employed person has in recent years grown half a percentage point faster than the EU average. In industry, the difference has been even greater.

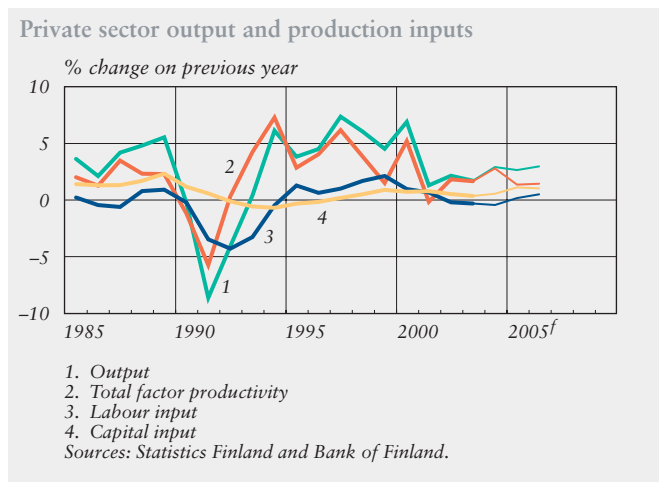
The overall picture changes, however, if we consider productivity development in Finnish companies outside electronics, telecommunications and the financial sector. In other sectors, productivity development since the mid-1990s has been average at best (table 2). If we omit electronics, average productivity growth for the rest of the manufacturing sector over the past five years has been an unimpressive 1.4%. This is below the average for manufacturing in Europe as a whole, which over the same period achieved productivity growth of 2%.

In chart 18, the pace of growth in labour productivity is broken down into two components: growth in total factor productivity and the productivity impact of capital intensity. This reveals that labour productivity growth has been almost entirely due to an increase in total factor productivity. This, in turn, is a consequence of technological progress and operational reorganisation. The productivity impact of capital intensity in the second half of the 1990s was negative, reflecting particularly the slow pace of growth in investment in

Chart 18.



Chart 19.



equipment and machinery. Lack of investment also goes some way to explaining why productivity has grown relatively slowly in traditional sectors.

For cyclical reasons, there will be brisk growth in private sector labour productivity per person employed during the forecast period. Productivity growth normally accelerates during an economic upswing when the capacity utilisation rate rises and employment growth has not yet taken off. Private sector labour productivity growth of almost 4% is forecast for 2004.

Thereafter, the pace of productivity growth will ease considerably, and in the private sector will be around 2% at the end of the forecast period. Labour productivity in the public sector is expected to remain low.

In chart 19, private sector output growth is broken down into three components: change in labour input, change in capital input and growth in total factor productivity. Labour input is measured by the number of employed, which adjusts to cyclical fluctuations slightly more slowly than

the number of hours worked.

Meanwhile, capital input is by its very nature slow to change, being a function of changes in net investment. Private sector output growth will continue in the years ahead to be mainly dependent on total factor productivity growth, which during the forecast period will itself be only half what it was in the second half of the 1990s (table 2 and box 3, p. 28). A slight pick-up in investment will have little or no impact on capital input as a source of growth.

Table 2.

Productivity per employee in Finland and the EU 15					
% change on previous year	1999	2000	2001	2002	2003
EU 15					
Total economy	1.1	1.8	0.5	0.5	0.5
Total industry (C+D+E)*	2.1	4.1	0.2	1.8	1.9
Finland					
Total economy	1.0	3.5	-0.3	1.3	1.5
Total industry (C+D+E)	3.4	9.2	-0.4	4.2	4.1
Manufacturing excl. electronics (D-DL)	0.6	3.6	-1.1	1.1	2.9
Electronics (DL)	13.2	34.3	-0.7	14.5	7.2
Construction (F)	-6.1	-6.0	-1.3	1.8	0.3
Trade (G)	1.2	2.2	2.7	0.1	3.2
Transport, storage and communications (I)	4.6	7.1	2.3	2.6	2.1
Finance and insurance (J)	17.4	0.4	-9.4	0.6	13.8

Sources: Eurostat and Statistics Finland (National Accounts).

* Letters on brackets indicate sectoral classifications in national accounts.

Structural change in Finnish industry

The Finnish economy has undergone rapid structural changes since the mid-1990s. The determinants of this process have been an export-led recovery from the early 1990s recession and measures to stabilise the economy. Other underlying factors have been the liberalisation of markets and an environment that has gradually become increasingly competitive since Finland's accession to the EU and EMU. Ongoing globalisation of the economy offers companies and other institutions new types of challenges and opportunities. In the last few years, the structures of industrial and other export sectors have changed in a manner that will fundamentally affect the overall performance of the economy also in the forecast years.

In the last 10 years, the electronics industry¹ has developed into one of Finland's main industrial sectors, thereby complementing the traditional metal and paper industries; this has happened, above all, thanks to Nokia's success in the mobile phone markets. While the contribution of the electronics industry to the GDP value of the economy as a whole was in the range of 2% as late as the early 1990s, by 2003 it was almost 6%. Correspondingly, its contribution to the

¹ The code assigned in the National Accounts to the electronics industry (manufacture of electrical and optical equipment) is DL.

value added in industry grew from below 10% to 25%.

In Finland, the past decades have seen faster growth in industry than in the other sectors of the economy, with overall growth rates for the sector as a whole in 1996–2003 largely reflecting the strong performance of the electronics industry (table A). However, in the last few years, growth in industrial output has lagged behind other sectors, as exports have suffered from sluggish international demand, whereas the services sector has benefited from brisk domestic demand. Growth in other manufacturing industries has been subdued over the last few years,

growth rates being actually negative in 2001–2002.

Performance has been much weaker than could have been expected based solely on the sluggishness of export demand. The loss of market share is an indication of problems in competitiveness. In the electronics industry, too, the last few years have marked a period of more moderate growth; however, strong month-on-month variations in output have continued.

Employment growth in the electronics industry was for several years considerably faster than in other industries or in the economy as a whole (table B). In recent years, however, due to the

Table A.

Change in output volume at basic prices, %

	Total economy	Total economy excl. industry	Industry	Electronics	Other industries	Total economy excl. electronics
1996	4.0	4.4	2.8	13.1	1.4	3.8
1997	6.2	5.3	9.4	19.4	7.9	5.8
1998	4.8	3.9	7.8	34.9	3.3	3.8
1999	3.5	2.9	5.4	24.9	1.3	2.6
2000	5.8	3.6	12.4	38.3	5.6	4.0
2001	1.2	1.7	-0.2	0.4	-0.4	1.3
2002	2.2	2.2	2.1	9.4	-0.4	1.7
2003	1.5	1.9	0.3	0.7	0.2	1.6
Average 1996–2003	3.7	3.3	5.0	17.6	2.4	3.1

Source: Statistics Finland (National Accounts).

Table B.

Employment growth, %

	Total economy	Total economy excl. industry	Industry	Electronics	Other industries	Total economy excl. electronics
1996	1.4	1.6	0.6	5.9	-0.1	1.3
1997	3.3	3.4	3.0	4.3	2.9	3.3
1998	2.0	1.8	3.0	8.5	2.1	1.8
1999	2.5	2.7	2.0	10.3	0.6	2.3
2000	2.3	2.3	2.0	3.0	1.9	2.2
2001	1.5	1.7	0.7	1.0	0.7	1.5
2002	0.9	1.6	-1.9	-4.4	-1.4	1.1
2003	0.0	0.7	-3.2	-6.1	-2.7	0.1
Average 1996–2003	1.7	2.0	0.8	2.8	0.5	1.7

Source: Statistics Finland (National Accounts).

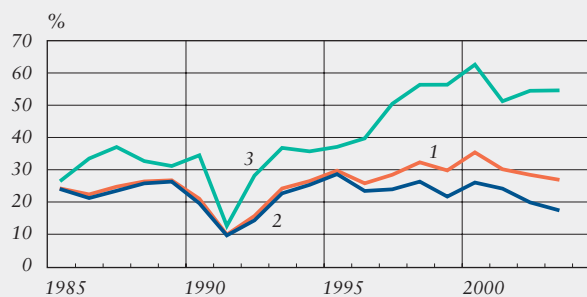
worldwide recession and tighter competition, employment in the Finnish electronics industry has started to decline at an even faster pace than in other industries.

Comparison of productivity levels between various economic sectors shows that productivity in the electronics industry has increased exceptionally fast since the mid-1990s. While productivity, ie value added per working hour, in the electronics industry improved on average at double-digit rates, annual productivity growth in other industries and all other sectors remained at close to 2% on average (table C).

By contrast, the development of labour costs followed a much more uniform trend in 1996–2003: in the electronics industry, hourly labour costs increased on average by 5%, compared to 3½% in other sectors and industries. Growth in labour

Chart.

Operating surplus as a proportion of value added



1. Industry
2. Industry excl. electronics
3. Electronics

Source: Statistics Finland.

costs has been slower than productivity growth only in the electronics industry, whereas labour costs in all other sectors have since 1996 increased twice as rapidly as their respective productivity.

In addition, the electronics industry differs from other industrial sectors in terms of profitability, which has been unparalleled for this industry since the mid-1990s. While operating surplus relative to

value added in industry as a whole has remained at around 30%, the corresponding ratio of other industries has decreased to just over 20% since the mid-1990s.

In the forecast years, the electronics industry will continue to record clearly faster productivity growth than other economic sectors, and this will be reflected in eg lower prices for electronics exports.

Table C.

Labour productivity and hourly labour costs, % change

	Total economy		Total economy excl. industry		Industry		Electronics		Other industries		Total economy excl. electronics	
	Productivity	Labour costs	Productivity	Labour costs	Productivity	Labour costs	Productivity	Labour costs	Productivity	Labour costs	Productivity	Labour costs
1996	2.7	2.9	2.8	2.9	2.5	3.2	8.6	4.1	1.7	3.0	2.5	2.8
1997	3.0	2.1	2.3	2.3	5.3	1.2	13.7	0.4	4.1	1.3	2.7	2.1
1998	3.3	6.1	2.9	6.3	4.0	4.8	23.4	9.3	0.6	4.0	2.5	5.9
1999	0.8	1.9	-0.2	1.9	4.6	2.8	13.3	6.2	2.0	2.0	0.0	1.7
2000	4.3	4.8	2.3	4.8	10.1	4.6	33.2	3.2	3.8	4.9	2.7	4.8
2001	0.6	6.0	1.1	5.9	-0.6	6.4	-0.5	8.5	-0.7	6.0	0.7	5.9
2002	1.6	2.4	1.0	2.5	4.6	3.1	14.3	4.8	1.7	2.8	1.0	2.4
2003	2.0	3.7	1.7	4.1	4.1	3.3	5.7	3.4	3.7	3.3	1.9	3.8
Average 1996–2003	2.3	3.7	1.7	3.8	4.3	3.7	13.9	5.0	2.1	3.4	1.7	3.7

Source: Statistics Finland (National Accounts).

Box 4.

Long-term outlook for labour supply

Demographic ageing will have a considerable impact on the labour market during the next 10 years with the rapid rise in the proportion of the working-age population approaching retirement age (chart A). According to the population prognosis of Statistics Finland,¹ the number of persons aged 55–74 will increase by 310,000 by the middle of next decade. At the same time, the number of people of prime working age will decrease by almost 280,000, and that of young people aged 15–29 by over 20,000. The relative share of older people will also remain large in the longer term, as life expectancy increases and the birth rate remains low.

The labour force supply of older workers is vital to the overall trend in employment. The employment rate for older workers has risen steadily in recent years and already clearly exceeds the level prevailing prior to the recession. In contrast, the employment rate among both the young and those in their prime has remained at the level of 1999 (chart B).

The employment rate for older workers will probably rise further. In addition to the cuts already made in early retirement benefits and the reform of the old-age pension schemes, this is

also due to an improvement in educational levels and the overall health of the population. The following projection is based on the assumption that the employment rate among 55–74-year-olds will rise further by 3–4 percentage points on average by 2015. Even so, it is estimated that the ratio of working-age pensioners (15–74-year-olds) to

total working-age population will increase by about 2 percentage points by 2015. If we assume that the labour market status of other groups outside the labour force – students, persons doing housework, etc – remains relatively unchanged by age group, the change in population structure would not increase labour supply in this

Chart A.

Working-age population (15–74-year-olds) by age group

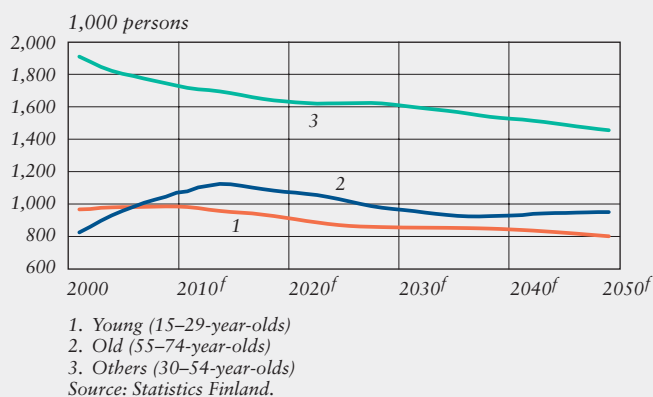
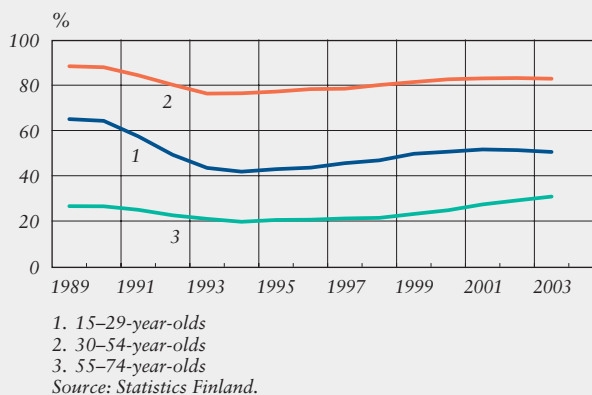


Chart B.

Employment rates by age group



¹ Statistics Finland (2002).

Table.

Population and labour force

1,000 persons	2002	2003	2004	2005 ^f	2010 ^f	2015 ^f
Total population	5 206	5 220	5 229	5 238	5 276	5 306
Working-age population (15–74-year-olds)	3 921	3 931	3 943	3 946	4 006	4 018
Labour market status of 15–74-year-olds						
Employed	2 372	2 365	2 351	2 361	2 380	2 371
Employment rate (15–64-year-olds)	67,6	67,3	66,6	66,5	67,3	69,5
Non-employed	1 549	1 567	1 592	1 585	1 626	1 647
Disabled	219	222	225	231	245	232
Retired due to age	559	558	562	554	571	664
Persons doing housework	89	89	89	88	88	87
Unemployed	237	234	236	229	236	203
Students	324	332	331	332	335	316
Others	121	131	149	151	151	145
Unemployment rate, %	9.1	9.0	9.1	8.8	9.0	7.9
Ratio of non-employed, %	39.5	39.8	40.4	40.2	40.6	41.0
15–74-year-old pensioners relative to working age population, %	19.8	19.8	20.0	19.9	20.4	22.3

f = forecast

Sources: Statistics Finland and calculations by the Bank of Finland.

respect either. As well as pensioners, there are, for instance, also far more students outside the labour force than before the recession years (chart C). For example, the category ‘Others’ in the attached table increased after the recession years, and it will

also remain relatively large in the future, as it consists mostly of young adults and age cohorts close to retirement age.

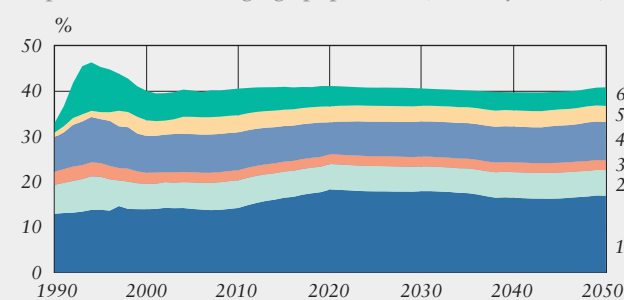
The overall employment rate (in terms of age group 15–64) is estimated to rise close to 70% during the next 10 years

(table), after which it will gradually rise further, to almost 72%. Although structural unemployment is estimated to fall 2–3 percentage points, the ratio of non-employed to working-age population will remain virtually at the current level, ie approximately 40%.

There will therefore be only a slight growth in labour supply during the next 10 years. Long-term calculations² suggest the number of employed will be somewhat lower in 2015 than in 2003. The rise in the employment rate would thus have no effect on overall output growth.

Chart C.

Proportions of working-age population (15–74-year-olds)



1. Retirement pension
2. Disabled
3. Housework
4. Students
5. Others
6. Unemployed

Sources: Statistics Finland and Bank of Finland.

² See the article ‘Expenditure pressures on public finances: how much can we afford?’ on p. 101.

Demand

Consumption

A more precise picture of the structure of growth in 2003 became available when Statistics Finland published updated National Accounts figures in summer 2004. The estimate for GDP growth was only slightly adjusted, from 1.9% to 2.0%. In contrast, private consumption now appears to have grown by over 4% (more than previously estimated). On the other hand, import growth was also adjusted upwards, leaving the contribution of net exports to GDP growth negative, ie tending to slow the pace of

growth. Private investment continued to contract.

During the forecast period the structure of demand will change again. Although private investment will begin to have a positive impact on growth, it will be a very moderate positive impact. Private consumption will retain its position as a key source of growth, although its increase will level off somewhat from the present trend. Exports will recover to such an extent that the growth impact of net exports (the difference between exports and imports) will be positive from 2004 onwards. Stronger exports, continued strong consumption and the beginnings of investment growth in 2004 explain the timing of the peak of the cycle at the turn of the year 2004/2005. Economic growth will remain good throughout the forecast period. It will, however, dip slightly in line with international trends once the fastest phase of growth is over in both consumption and net exports (chart 20).

The consumer confidence indicator reflects consumers' confidence in both their own finances and the general trend of the economy. Consumer confidence in both Finland and the euro area as a whole has remained more or less unchanged during the past year. In recent years, consumer confidence in Finland has been higher than the euro area average (chart 21). The indicator for the euro area has been particularly weakened by Germany and Italy, where there has also been little growth in private consumption in recent years.

Private consumption continued to grow briskly in the first half of 2004

Chart 20.

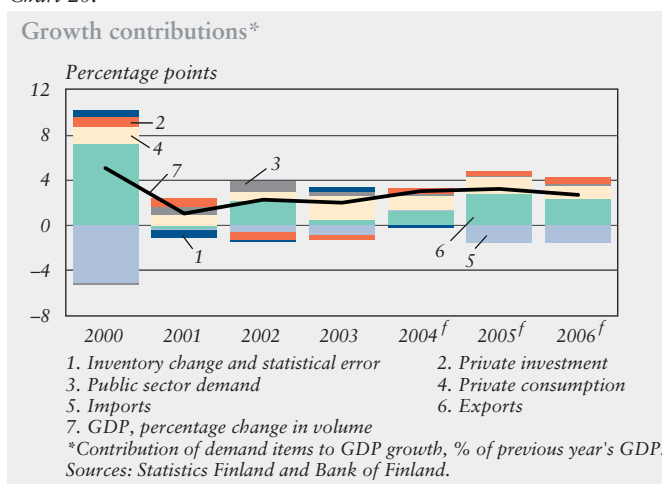
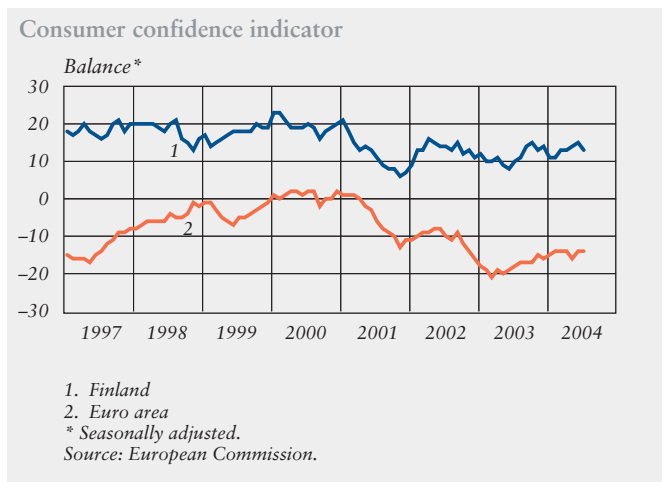


Chart 21.



(almost as fast as in 2003) as a result of continued strong growth in real incomes. Aggregate wages grew around 4% on the same period the previous year, ie the pace of wages growth picked up as expected. Cuts in income tax and slower inflation also boosted household purchasing power.

During the summer, consumption growth was not quite as strong as earlier in the year, but it nevertheless remained brisk. Car sales are no longer expected to boost growth in the second half of the year, as adjustment to the reduction in car tax is thought to be largely complete. Thus, after the impact of extraordinary factors, the pace of consumption growth is now settling down at around 2½%.

Household incomes will continue to develop favourably throughout the forecast period. Growth in aggregate wages will benefit from the onset of a slight improvement in employment, with nominal wages estimated to grow at a stable 3½–4% per annum. In 2004, incomes will be boosted and the savings ratio raised by exceptional growth in dividend income as companies distribute large amounts of dividend before the coming into effect of the recent reform of corporate and capital taxation. Income transfer growth will remain stable during the forecast period, and the forecast assumes the only changes in income tax in 2005–2006 will be inflation adjustments. Thus, growth in households' disposable income in 2005–2006 will largely follow the pace of growth in wages (chart 22).

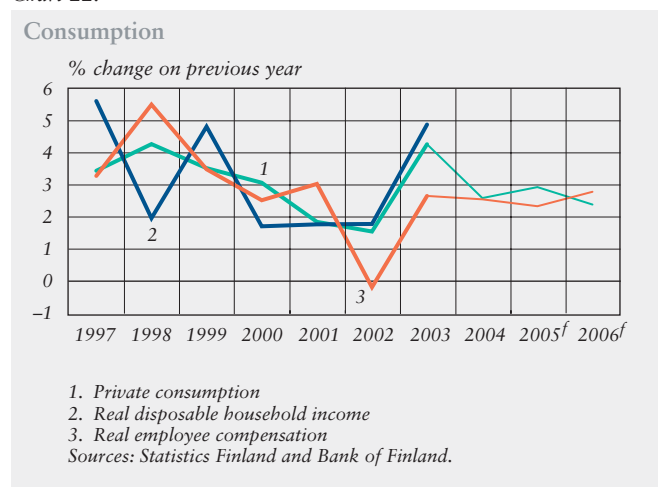
The strong pace of growth in households' real disposable income (purchasing power) will level off some-

what as inflation gradually accelerates at the same time to just under 2%. Taken together with an assumed simultaneous gradual rise in interest rates, this will mean a gradual slowing in consumption growth from 3% this year to 2% in 2006. Behind this consumption forecast lies an assumption of moderate growth in households' housing assets during the forecast period.

General government

The favourable development of the economy will improve the position of general government finances during the forecast period. The combined fiscal position of central and local government and social security funds will improve to produce an average surplus of approximately 2½% of GDP. There will be a contraction in general government debt relative to GDP. The total tax ratio will decline both this year and next, but will begin to rise again there after. The growth impact of government measures is expected to be fairly marginal during the forecast period.

Chart 22.



Despite the tax cuts already implemented this year and decided on for next year, the central government fiscal position will show a slight surplus in 2004, and will still be almost in balance in 2005. The forecast does not contain any estimate of tax cuts that might be agreed in the present round of negotiations on a general incomes policy settlement. In the absence of new measures reducing central government revenues or increasing central government expenditure, central government finances will return to surplus in 2006. The local government fiscal deficit will contract, with local authorities raising more taxes and postponing investments at the same time as central government transfers to local government increase. The surplus in the social security funds will remain a full 2½% of GDP.

Despite the improved fiscal position of central and local government, the general government fiscal surplus still rests almost entirely on the surplus in the employment pension funds. Moreover, calculations charting potential long-term expenditure pressures¹ demonstrate that the next twenty years could see the development of an unsustainable general government fiscal deficit.

Finland's gross central government debt will grow slightly during the forecast period. Income from the sale of shares in Sampo Insurance Company plc will enable a reduction in central government debt in 2004, but in 2005 the on-budget deficit will have to be covered by extra debt. In 2006 the level of gross debt will remain unchanged.

¹ See attached article, Kinnunen, H: 'Expenditure pressures on general government finances: how much can we afford?' (p. 101).

Due to the local government fiscal deficit, the gross general government debt will continue to grow throughout the forecast period. Moreover, the employment pension funds, which are classified as part of the public sector, will continue to run down their investments in government securities, which will also contribute somewhat to increasing the level of general government debt. Relative to GDP, however, both central and general government debt will contract.

General government revenue relative to GDP will remain unchanged during the forecast period. Reductions in excise duties on alcohol and taxes on earned income, corporate income and capital income will slow growth in tax revenues this year and next. On the other hand, general government revenue from taxes and social security contributions will be simultaneously augmented by the following factors: the average local government income tax rate will rise, there will be a shift from the imputation system of corporation tax to the partial double taxation of dividend income and a cut in tax deductions for voluntary pension insurance premiums, and unemployment insurance and employment pension contributions by the insured will also go up. Moreover, the exceptionally large dividend payments by Finnish companies this year will bring in substantially higher levels of revenue than in 2003 for both central government and the employment pension funds.

As a result of discretionary changes, the tax ratio will decline by approxi-

mately ½ a percentage point altogether in 2004 and 2005. However, the increase in tax on dividend payments and the cut in deductions for voluntary pension insurance premiums will not come fully into effect until 2006. In view of the proposed raising at this time of the lower and upper limits of local government real estate tax, the scheduled inflation adjustment to central government income tax scales will be insufficient to prevent a rise in the tax ratio in 2006.

General government expenditure relative to GDP will decline during the forecast period (table 3). General government consumption expenditure will rise by an average of around 4%, and other categories of expenditure by an average of 3% per annum. Due to a slight rise in the number of local government employees, consumption expenditure will also rise in real terms. In contrast, other categories of expenditure will not grow at all in real terms during the forecast period, being held in check by a rapid reduction in central government interest payments

and a temporary moratorium on growth in local government investment expenditure. Unemployment expenditure will increase this year as the Government devotes additional resources to implementing labour policy. Thereafter, a reduction in the number of unemployed will gradually begin to reduce unemployment expenditure as well. Expenditure growth in categories other than consumption expenditure will be sustained by growth in the sum paid out in employment pension.

The Government has set itself the target of achieving central government fiscal balance (as measured by National Accounts concepts) by the end of the present parliamentary term. If growth in central government expenditure remains within the agreed spending limits and no new measures are introduced that would reduce income to central government, central government finances will return to surplus in 2006. This will provide scope for reducing Finland's large tax wedge, which is one of the factors sustaining the high level of structural

Table 3.

General government revenue, expenditure, financial balance and debt, % of GDP						
	2001	2002	2003	2004 ^f	2005 ^f	2006 ^f
<i>General government revenue</i>	54.4	54.4	53.2	53.3	52.9	53.1
<i>General government expenditure</i>	49.2	50.1	51.1	51.1	50.7	50.3
<i>General government primary expenditure</i>	46.4	47.9	49.1	49.3	49.1	48.8
<i>General government interest expenditure</i>	2.7	2.2	2.0	1.8	1.6	1.5
<i>General government net lending</i>	5.2	4.3	2.1	2.2	2.2	2.8
<i>Central government</i>	2.0	1.4	0.2	0.3	-0.1	0.2
<i>Local government</i>	-0.4	-0.2	-0.5	-0.5	-0.3	-0.1
<i>Social security funds</i>	3.6	3.0	2.4	2.5	2.7	2.7
<i>General government primary balance</i>	7.9	6.5	4.1	4.0	3.8	4.3
<i>General government debt</i>	43.8	42.6	45.6	44.4	43.4	41.8
<i>Central government debt</i>	45.6	42.4	44.4	42.6	41.3	39.6
<i>Tax ratio</i>	45.8	45.8	44.8	44.7	44.2	44.5

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

unemployment and hampering economic growth. Moreover, the increased tax competition as a result of EU enlargement will in any case create pressures for further tax cuts in the years ahead.

Central government spending limits impose strict limits on growth in central government expenditure. This year's Budget and supplementary budget and the Government's proposal for next year's Budget indicate that these limits are not about to be relaxed. Although the Government is channelling more money into labour policy implementation, education, social welfare and health care, and family support, growth in expenditure categories that fall within the scope of central government spending limits would appear to be within the limits set.

The situation in local government is more problematical. On one hand favourable earnings development and increases in local government taxation will mean higher tax revenues. Moreover, the growth in central government transfers to local government and the temporary moratorium on growth in local government investment expenditure will also boost local government finances in the immediate years ahead. On the other hand, the rapidly changing population structure will gradually increase demand for public services at the same time as local government employees begin to retire at an increasing pace. The medium-term expenditure pressures on the public finances have been explored in the appendix referred to above. As is clear from the calculations presented there, growing demand for services coupled

with the retirement of local government employees will create a labour shortage. Filling this shortage threatens to increase the pace of expenditure growth. However, central government spending limits will not allow additional transfers to local government, while a moratorium on growth in local government investment expenditure is not a sustainable way to control expenditure growth over the longer term. Higher local government taxation, meanwhile, would undermine the general prospects for economic growth. In this situation, the sustainability of local government finances can be better ensured by controlling expenditure growth through more cost-effective service provision. There is no longer any scope for increasing the statutory duties of local government.

Investment

Investment activity in recent years has been very lacklustre. Private non-residential investment has declined in each of the past two years. Despite growth in both housing investment and public investment, the investment ratio has shrunk in recent years. The lack of investment is also reflected in Finland's exceptionally large current account surplus.

The investment ratio of the Finnish economy – the GDP ratio of gross fixed capital formation (fixed non-residential investment and housing investment) at current prices – has been smaller than the euro area investment ratio for the past 10 years (chart 23). At present, it stands at around 18%.

The Bank of Finland forecasts a slight increase in the investment ratio of

the Finnish economy as a whole during the forecast period, largely due to investment in housing construction and certain large individual investment projects. In contrast, there will be little recovery in industrial investment in machinery and equipment. This year's indicator data, such as the investment survey by the Confederation of Finnish Industry and Employers, suggests a further fall in the industrial investment ratio.

The factors behind the current lack of corporate investment are by and large not new. For many companies, expansion abroad is essential for competitive reasons. Operations in the domestic market have been hampered by rising taxation, including an increase in the tax rate for corporate income from 25% to 29% in 1996–2000. Finnish companies have effectively paid more corporate income tax than companies in any other euro area country with the exception of Luxembourg.

The impact of the corporate tax reform on investment is unclear. Lowering the tax rate for corporate income will support investment, while higher taxation of Finnish shareholders could increase the required return on investment. The changes in taxation of dividend income shift the balance in favour of low-risk investments, such as real estate and fixed-income securities. As, with the exception of the trade sector, foreign companies have not shown any previous interest in investing in new output, new investment capital is unlikely to be forthcoming for high-risk investments to expand productive capacity. The required return on investment in Finland is already high

due to the low market value of Finnish companies. With the exception of some of the largest companies, the liquidity of listed Finnish companies is poor. Because of their low valuation levels, Finnish production plants will in the future, too, be more likely to be the subject of takeovers than dynamic enterprises capturing market share.

Besides a higher required return, investment by companies in the export sector is also inhibited by weak profitability development. As well as the electronics sector, profitability has developed well in the basic metals industry, supported by rising prices for metals. However, in many sectors, export prices will remain low compared with the normal pattern in a period of economic expansion. Apart from electronics, growth in export volumes will also be sluggish, as there has been little investment in previous years in product development.

If Finland is to meet the challenges and changes in demand brought by globalisation, the country's production structure will require a thorough overall.

Chart 23.

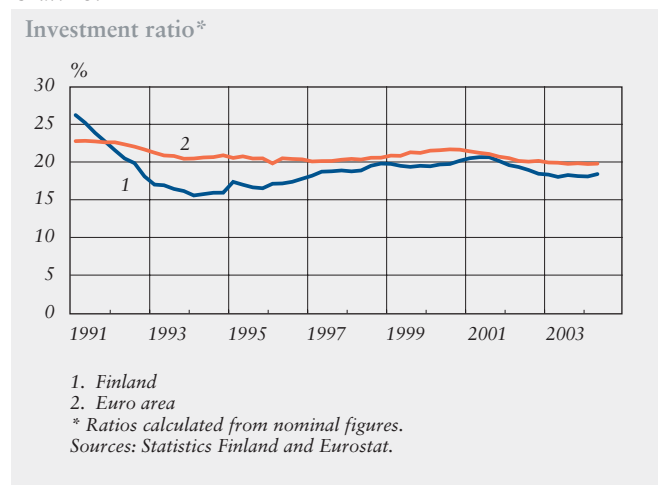
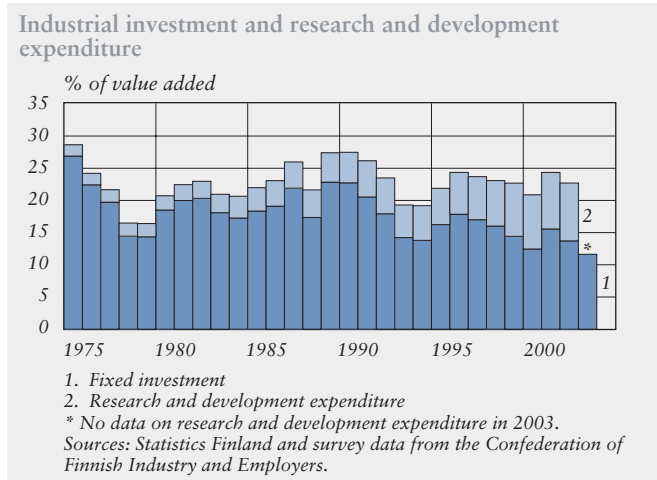
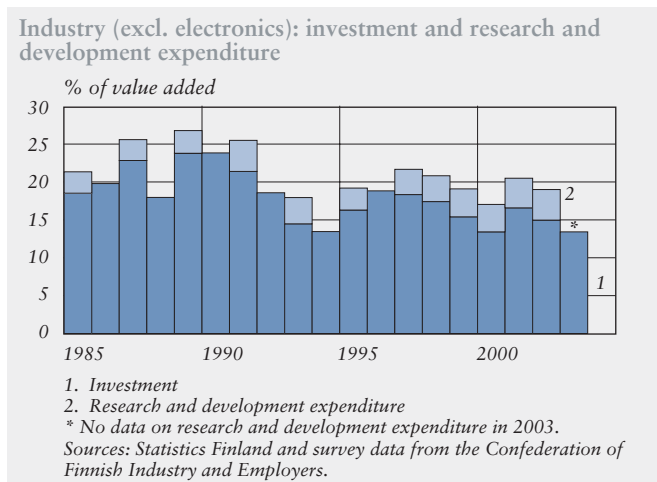


Chart 24.



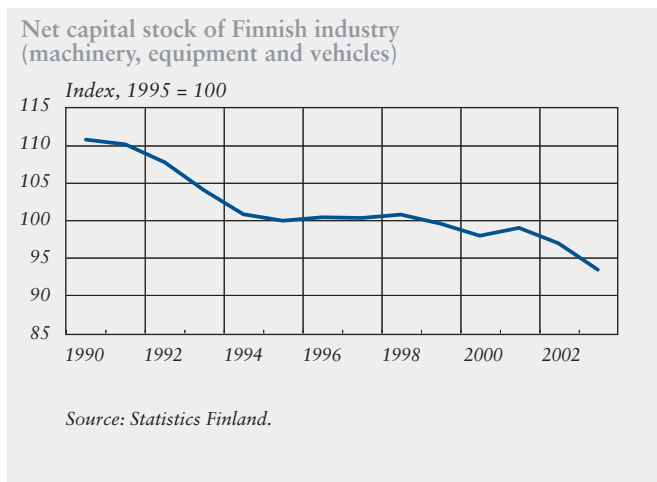
However, such a structural change cannot happen overnight. One positive factor is that Finnish companies have recently begun to invest more in information technology (see box 5, p. 45). Moreover, investment in the planned new nuclear power plant will create scope for expanding production in the future. Taken alone, however, these factors will not be enough to boost employment and support Finnish companies' capacity to pay competitive wages.

Chart 25.



The investment picture changes to some degree if fixed investment is supplemented by investment in research and development. Calculated thus, the overall industrial investment ratio would be no lower than the level of the 1980s (chart 24). However, if electronics is left out of the equation, the industrial investment ratio would have contracted even with the inclusion of expenditure on R&D (chart 25). In traditional industrial sectors, R&D investment relative to value added has in recent years been at the level of the 1980s.

Chart 26.



Long-term growth in industrial investment in machinery and equipment has not been enough to compensate for capital depreciation. In other words, the net capital stock has been in long-term decline (chart 26). The forecast growth in investment will not change this trend.

The decline in the net capital stock could be due at least partly to outsourcing and the increased leasing of capital goods. But it is also possible the lack of investment in machinery and equipment reflects a much deeper structural shift in operating methods or a use of new technology that has led

to more efficient or intensive use of capital. However, this should have been reflected sooner than it has been in productivity and export growth in traditional industry.

The world economy and foreign demand

The world economy grew briskly during the first half of 2004, with growth also more widespread than before. Developments in the United States were for the most part as forecast in the winter, while in the EU 15² as well as in Japan and the rest of Asia growth was slightly faster than forecast. There were considerable differences in the structure of growth in different countries. In the United States, growth was largely based on household demand and IT investment. In the EU 15 and to some extent also in Japan, export demand provided an important stimulus for growth, while in China growth was boosted by a lively construction sector and other investment activity.

The most rapid phase of the global upswing would appear to have already passed. The second quarter certainly saw quieter growth in eg the United States and Japan (chart 27). On the other hand, indicator data from the third quarter has been in many respects cautiously positive. For example, the key confidence indicators in the United States and the euro area have remained almost unchanged in July and August (charts 28 and 29). There is no immediate sign of a

² The EU 15 refers to the Member States of the European Union prior to the recent enlargement on May 1 2004. The countries concerned are the 12 members of the euro area (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain) plus Denmark, Sweden and the United Kingdom.

Chart 27.

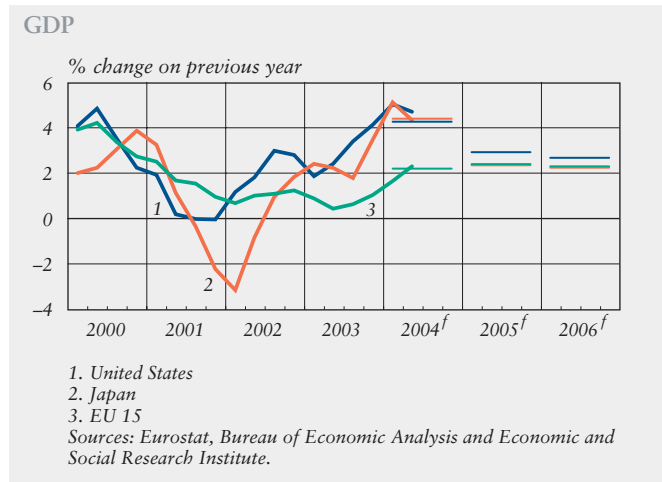


Chart 28.

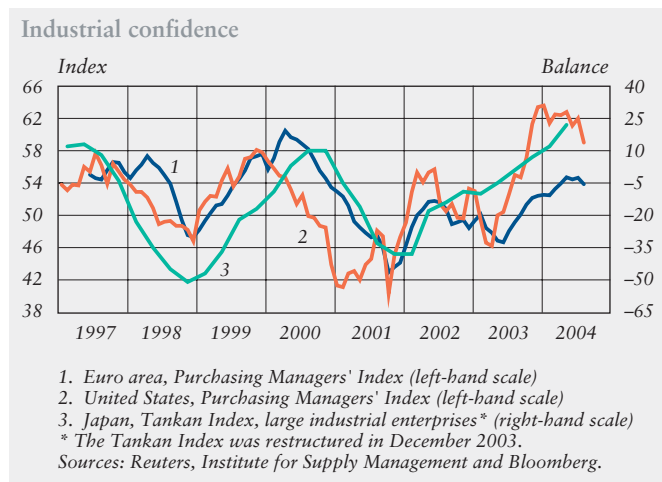
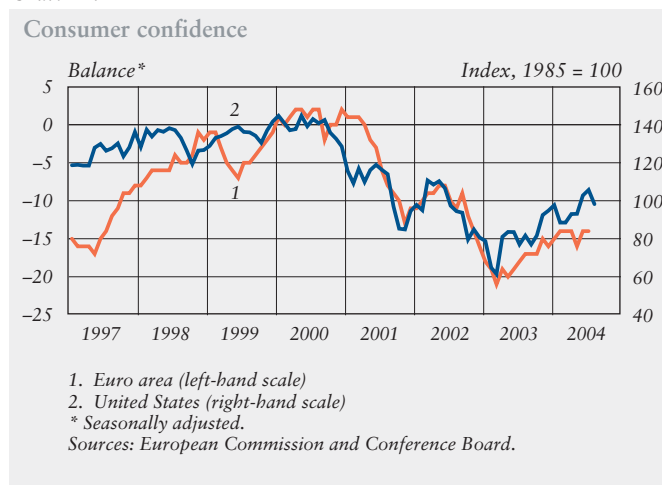


Chart 29.



serious slowing in the pace of world growth; on the contrary, the forecast estimates a fairly brisk pace of growth in late 2004 and 2005–2006. Thus, the view of the future in the present forecast does not differ significantly from that presented in the winter.

Behind the forecast flattening off of growth lie factors such as the gradual redressing of the imbalances in the US economy, a tightening of economic policy in China and a dramatic rise in the price of oil. However, the impact of the latter is expected to be limited and affect primarily the quarters immediately ahead. The forecast assumes that the recent dramatic rise in oil prices will be largely temporary, and that the price of oil will return to around USD 30 a barrel towards the end of the forecast period as supplies gradually recover. Although the present price of oil is nominally high, in real terms it is not yet that high. The real price of oil at the turn of the 1970s/1980s was over twice the present level.

According to the forecast, world growth will reach a full 4½% in 2004 (table 4). The level of growth will be

above average in Asia outside Japan and in the transition economies. The global economy will continue to grow at around 4% in 2005–2006, while national differences in the pace growth will even out somewhat.

There was some easing in the pace of growth in the United States in spring and early summer 2004. Growth should continue to slow slightly during the second half of the year and settle at just under 3% in the years ahead. The slowing pace of growth reflects a number of factors. In recent years output growth has been driven by private consumption. The outlook for consumption growth is no longer as bright as it was, as the impetus from tax cuts is coming to an end and interest rates have begun to rise. Moreover, households are expected to respond to the weak public finances by increasing their level of savings. The large current account and federal deficits have scarcely contracted at all during the present period of growth, which means this is an issue that will still have to be addressed in the future.

Besides the euro area, the EU 15 also includes Sweden and the United

Table 4.

International growth rates					
	2002	2003	2004 ^f	2005 ^f	2006 ^f
GDP, % change					
World	2.9	3.8	4.6	4.0	4.0
United States	2.2	3.0	4.3	2.9	2.7
EU 15	1.0	0.8	2.2	2.4	2.3
Japan	-0.3	2.5	4.4	2.4	2.2
Imports, % change					
World	2.7	5.3	7.8	7.5	7.3
United States	3.3	4.4	9.0	5.0	4.5
EU 15	0.9	1.9	4.4	6.3	6.3
Japan	1.9	5.0	9.7	8.7	7.1
Imports in Finnish export markets	2.8	5.4	7.6	7.6	7.2

^f = forecast
Source: Bank of Finland.

Kingdom – which are very important for Finnish exports – as well as Denmark. There was only moderate GDP growth in this larger area in the latter part of 2003 and early 2004, and the gap with the United States remained large. This year's GDP growth is expected to climb a little above 2%, or around ½ a percentage point higher than forecast in the winter. Much of the adjustment is due to faster-than-forecast first quarter growth in the euro area. Growth is not expected to pick up much more in 2005–2006, settling at just under 2½%. As before, euro area growth, in particular, is expected to be largely dependent on exports and private consumption.

Japanese growth surged ahead last year, and growth continued at a brisk pace in the first half of 2004. We have therefore made a significant upwards adjustment in the growth forecast for 2004. The economic upswing in Japan has been partly export-driven, but late last year domestic demand also began to grow at a faster rate. The recovery in domestic demand is seen as a sign of better times for the Japanese economy. According to the forecast, Japanese growth over the next few years will continue to be above the 1990s average, despite slowing from the very rapid pace of late 2003 and the first half of 2004. This is due to largely the same factors as before. The various structural problems of the Japanese economy are still largely unsolved, the country has a large central government debt and the population is ageing fast.

In the second half of last year and the early part of 2004 the Chinese

economy grew at an annual rate of almost 10%. Growth was fuelled particularly by investment, concentrated especially on the steel and automobile industries and construction. This spring the Chinese leadership attempted in various ways to prevent the overheating of the economy and overcapacity in these sectors. These efforts would appear to have succeeded in subduing investment and growth in the second quarter of the year. The forecast estimates that these measures will continue to bite and that the Chinese economy will grow in the immediate years ahead at a slightly slower pace, around 7–8 % per annum. Growth will be driven particularly by exports and private consumption.

The Russian economy has been growing very quickly for several years, sustained by a number of factors. The high prices for oil and other commodities have enabled Russian companies to invest more. The inward flow of export receipts has boosted investment in construction and private consumption. Meanwhile, the economic reforms of recent years have boosted the productivity of Russian companies. Economic policy has also brought stability to the economy. Monetary policy has been fairly neutral, the chief goal being the stability of the nominal exchange rate.

The marked improvement in the productivity of Russian companies will make the country less vulnerable to changes in the price of oil and other commodities. The price of oil is, however, forecast to remain so high in the immediate years ahead that energy sector output and investment will grow

much faster than the long-term trend growth for the sector. This will boost the pace of growth for the economy as a whole, both directly and indirectly. Growth in oil exporting capacity is forecast to continue in both 2005 and 2006, if at a slower pace. Continued growth in export receipts is expected to strengthen the real rouble exchange rate, which will in turn undermine the price competitiveness of Russian manufacturing despite the aforementioned growth in productivity. Russia's rapid GDP growth and the appreciation of the real exchange rate will considerably boost imports. Demand for capital goods and other construction materials is forecast to continue at a very rapid pace as Russian companies expand their capacity.

World trade is forecast to grow almost by 8% in 2004, which contrasts with our winter estimate of 6½%. The difference is mainly due to the strong upturn in trade in the Pacific Rim in late 2003 and early 2004. Chinese, Japanese, US and Canadian import growth at that time boosted world trade. As with output growth, the most rapid phase of growth in world trade is now over. Over the next few years the pace of growth is expected to settle at around 7%. Import growth in Finland's most important trading partners will largely follow the pattern of growth in world trade.

Exports and export prices

The volume of Finnish exports of goods and services has hardly grown at all since the first quarter of 2003. In the second quarter of 2004 export performance was very poor indeed. This

means Finnish exports have not taken off in line with the growth of the world market. There was fairly rapid growth in Finnish export markets during the first half of this year, partly due to the surge in Russian imports. Export growth in the first half of the year was also much poorer than expected in the Bank of Finland's winter forecast.

The only sector in which exports have kept step with the world market is basic metals. Export volume growth in the forest industries has been fairly weak, due to poor demand in Europe. New suppliers have also entered the market from outside Europe, which has increased competition and eroded prices. Export volume in other sectors have actually declined.

The long decline in goods export prices continued until the beginning of 2004. The downward trend was finally turned around in the period March to May by a rise in the export prices of raw materials, primarily for the metal and chemical industries. The main reason for the rise in world market prices for metals has been the rapid investment growth in China, which has boosted demand for metals. Rising prices for chemical exports are in turn due to higher oil prices.

Accelerating world growth has not led to higher export prices for forest industry products, as has generally been the case in the past. Pulp prices have remained unchanged in recent months, possibly due to increased supply in new producer countries. Paper prices have also remained fairly stable.

The value of electronics exports in the first half of the year was well below

the level of the same period in 2003. The reason for this is not entirely clear, as different statistical sources give mutually contradictory data. Sectoral output was up on both the first and the second halves of 2003. At the same time, the export price index has remained stable.

The Bank of Finland forecast estimates that growth in export of goods and services will accelerate to 3% this year. This would mean fairly rapid export growth in the second half of the year. In 2005, export growth is forecast to exceed 6½%, thereafter falling back to around 5½%. Export volume growth will be boosted during the forecast period by the electronics sector, with continued rapid expansion of markets for electronics products. However, export prices for the sector will continue to decline. In contrast, the scope for a significant increase in exports by the forest industries will be limited by relatively slow market growth in the sector. However, by restricting output the forest industries will be able to achieve a rise in export prices and in this way improve their profitability. Other export growth will also be relatively subdued.

Taken as a whole, Finland's export growth in all the years covered by the forecast will be much slower than growth in the export markets. Thus, in terms of export volume Finland will lose market share throughout the forecast period.

Finland's export prices are forecast to remain almost unchanged, whereas the export prices of Finland's competitors are expected to rise 1½–

2% in 2005–2006. This means that in terms of export values Finland's loss of market share will be even greater than the loss in terms of export volumes.

In recent years, the production structure of Finland's export sector has no longer matched the structure of demand on the world market. Relative to the rest of the euro area, growth in export values has been much slower (chart 30). At the same time, industrial labour costs have risen slightly faster than in other euro area countries. In some companies, particularly in the electronics sector, exports have been replaced by production abroad. Meanwhile, the forest industries have faced a more difficult market situation than the average industrial enterprise in the euro area. Some of the traditional export sector would seem to be facing real competitiveness problems as a consequence of underdeveloped product development. Expenditure on research and product development is after all concentrated in just a few companies. There are no signs of any reduction in structural problems during the forecast period, a situation reflected in the poor development of export values relative to competing countries.

Current account

During the 12 months to June 2004 Finland's current account accumulated a surplus of EUR 9.0 billion, against a surplus of EUR 8.1 billion in 2003. This is explained by a combination of growth in the surplus on goods and a shrinkage of the deficit on the income account.

Finland has had a large current account surplus (5–8% of GDP) for

several years, and the forecast does not envisage any decline in the size of the surplus in the immediate years ahead. The surplus will settle at around 6% of GDP during the forecast period.

As before, the surplus during the forecast period will be based on goods and services, primarily the considerable surplus on goods exports. The import forecast assumes that the propensity to import – ie total import volume relative to GDP – will as in recent years be fairly stable. Thus, mirroring the trend in exports and investment, import growth will be very modest in 2004, picking up thereafter to around 5% in 2005–2006.

Most of the current account surplus – the surplus of savings over investment in the national economy – is accounted for by the corporate sector surplus, which has been growing for the past 10 years. Admittedly, many of the factors that have swollen the surplus will fade in the future, but the immediate years ahead will see the continuing accumulation of a consider-

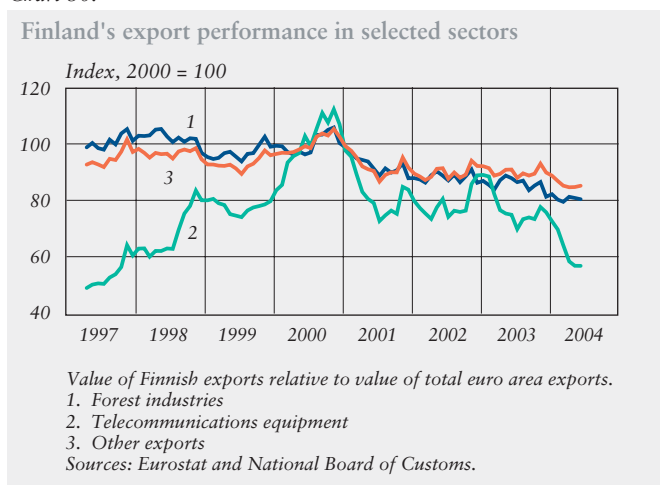
able surplus, above all due to the low level of corporate investment. The general government surplus will also remain more or less at last year's level throughout the forecast period, at around 2.5% of GDP.

The balance of services is expected to remain in their traditional deficit. Net current transfers abroad – primarily payments to the EU and development assistance – will develop in predictable fashion; ie outward transfers will exceed inward transfers.

It will be interesting to see how quickly the deficit on the income account will shrink. It looks likely there will be little deficit left by the end of the forecast period. The background to this is that the net interest-bearing external debt has been paid off. The net external debt, or net international investment position, is calculated as the difference between assets and liabilities excluding equity items (ie foreign holdings in Finnish listed companies), and it is currently positive, in the amount of approximately EUR 1 billion. On the other hand, the shrinkage of the deficit on the income account will be slowed by the size of dividend payments relative to dividend income.

Meanwhile, the offsetting entry to the current account surplus – net income from financial operations – is in currently deficit. This means there is a net outflow of capital. A considerable proportion of capital exports are in direct investment, of which there is also a net outflow. Another major channel for the export of capital is foreign investment by the employment pension funds.

Chart 30.



Investment in information and communication technology

Until the past few years, firms in Finland and other European countries have made relatively small investments in information and communication technology (ICT) as compared with the United States (chart A)¹. ICT has helped the United States to increase productivity considerably in a number of manufacturing sectors, and in private services such as retailing.

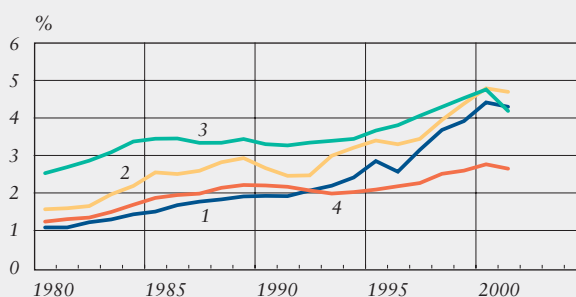
In recent years, Finland and Sweden have also begun to invest much more in ICT. This is partly explained by the expansion of the electronics industry and the large ICT investments made by teleoperators and the financial sector. Productivity growth has been especially strong in these sectors. Insofar as these kinds of investment have been made by firms outside the IC sector, they can be expected to accelerate national productivity growth in the years ahead.

¹ There is so far no official data available on investment in information and communication technology. The figures presented in this article are based on the following publications: Timmer, Ympa and van Ark (2003), *IT in the European Union: Driving Productivity Divergence?* Research Memorandum GD-67, University of Groningen, and Pohjola (2003), 'The adoption and diffusion of ICT across countries: Patterns and determinants', in Jones D C (ed), *New Economy Handbook*, Elsevier/Academic Press, San Diego 2003, p. 77–100.

Despite its rapid growth, the ratio of ICT capital to the total capital stock is still relatively small in Finland compared with the United States, and even compared with Sweden. This shows that there is still ground to make up. Because

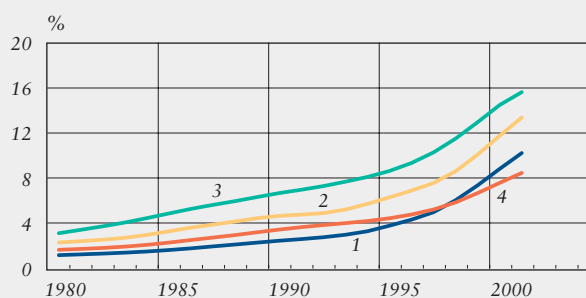
information technology becomes obsolete relatively quickly, the investment ratio should rise as the ratio of ICT investment to capital stock rises. On the other hand, the fall in the prices of ICT equipment will reduce the costs of these investments.

Chart A.
ICT investment* relative to GDP



1. Finland
2. Sweden
3. United States
4. EU 15 excl. Luxembourg
* Computers, telecom equipment and software.
Sources: Timmer, Ympa and van Ark (2003).

Chart B.
ICT capital* relative to total capital stock



1. Finland
2. Sweden
3. United States
4. EU 15 excl. Luxembourg
* Computers, telecom equipment and software.
Sources: Timmer, Ympa and van Ark (2003).

Finland's trade relations with new EU Member States

Finland's economic relations with the new EU Member States in Central and Eastern Europe are so far rather modest. The most important trading partners and investment areas for Finland are Estonia, Poland and Hungary. Although Lithuania and Latvia are very small countries, they are both more important to the Finnish economy than eg the Czech Republic.

Taken together, however, the new Member States are starting to make a considerable contribution to Finland's economic relations. In 2003, Finnish exports to the new Member States totalled EUR 3.3 billion, which represents about 7% of total Finnish exports and is on a par with exports to the United States or the United Kingdom. Imports from these countries to Finland amounted to EUR 2.3 billion, which accounts for 6.3% of total Finnish imports. On a whole, trade with the new Member States has returned a surplus to Finland, but the situation varies from country to country.

According to Bank of Finland's balance of payment statistics, less than 3% of Finland's direct foreign investment stock in 2002 was in the new Member States. Estonia has remained the most important investment area within the group, but Poland has also

significantly increased its share of Finnish investment. Although the combined total of Finnish direct investment in the new EU Member States is only a tenth of the amount invested in Sweden, it is nevertheless almost as large as the total amount of Finnish investment in Asia.

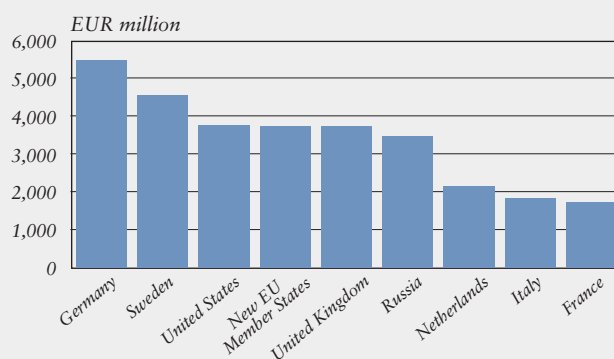
According to an investment survey by the Confederation of

Finnish Industry and Employers,¹ Finnish companies employed about 270,000 people abroad in 2002. About a tenth of these, ie some 25,000 people, worked in the new EU Member

¹ *Teollisuuden ulkomaantoiminta. Kilpailukykyä EU:n laajentumisesta. ('Finnish industry abroad. EU enlargement boosts competitiveness.')* Confederation of Finnish Industry and Employers (2004).

Chart A.

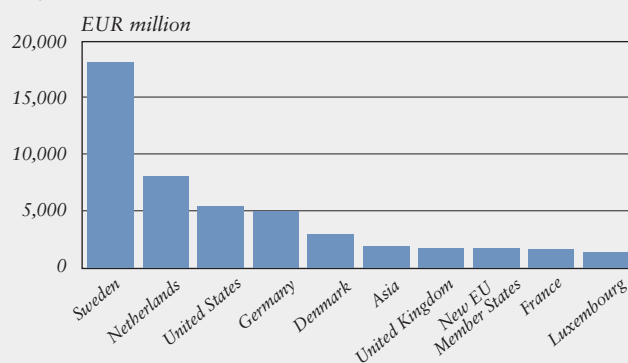
Finnish exports to key markets in 2003



Source: Finnish Customs.

Chart B.

Stock of Finland's direct outward investment in key host areas in 2002



Source: Bank of Finland.

States. As many as 80% of this figure were working in production; the share of research and development was smaller than elsewhere abroad or at home in Finland.

Estonia the most important export and investment area

Finnish exports to Estonia accounted for 2.4% of total Finnish exports in 2003. This was more than a quarter of total Estonian imports. The main Finnish exports to Estonia were electronic equipment and appliances, motor vehicles, iron and steel.

Estonian exports to Finland amounted last year to a good EUR 1 billion, which accounts for about 2.8% of total Finnish imports. The main imports from Estonia were telecommunications equipment (telephones, radios, TVs etc), other electronic equipment and appliances,

clothes, timber and furniture. Finland accounts for about a quarter of all Estonian exports.

Part of the trade between Finland and Estonia is explained by the fact that Finnish companies ship their materials or components to Estonia, where they commission some of their production due to cheaper labour costs and then import the finished goods back to Finland.

This explains why the same product groups hold the top places in both export and import statistics.

Finnish companies' direct investment in Estonia has continued growing even in recent years. However, the share of Estonia in the stock of Finnish direct investment abroad was less than 1% at the end of 2002. According to a study by Finpro, there are about 800 Finnish companies with active operations in Estonia.

Poland growing in importance

At the beginning of the 1990s, Poland was still a more important export area for Finland than Estonia. At present, Poland holds second place with a safe margin and is catching up on Estonia. Over 60% of Finnish exports to the new EU Member States go to Estonia and Poland.

Last year, Finland's trade surplus with Poland amounted to EUR 500 million. The most important Finnish export items in the trade with Poland have been telecommunications equipment, paper products, iron and steel. In turn, Finland imports from Poland coal, machinery and equipment of various types.

Finnish companies had fairly little direct investment in Poland in 2002 – only a good ½% of the stock of all direct Finnish investment abroad. Polish companies have made some investments in Finland. The stock of direct investment by Polish companies in 2002 was only 0.05% of the stock of all direct foreign investment in Finland.

Trade with the Czech Republic and Hungary in deficit

Finland's economic relations with the Czech Republic and Hungary are still very modest. Each of these countries' share of

Table.

Significance of new EU countries in Finnish exports and outward investment

	Exports in 2003		Stock of direct investment in 2002	
	Share of total exports, %	Share within the group, %	Share of total, %	Share within the group, %
Estonia	2.4	34.5	1.0	35.4
Latvia	0.7	9.6	0.2	6.1
Lithuania	0.6	8.0	0.3	9.6
Poland	1.9	26.3	0.6	20.1
Czech Republic	0.5	6.5	0.1	3.6
Slovakia	0.2	2.7	0.0	1.6
Slovenia	0.1	1.0
Hungary	0.8	10.9	0.6	20.4
Cyprus	0.0	0.4	0.1	3.3
Malta	0.0	0.1
Total	7.1	100.0	2.8	100.0

Sources: Bank of Finland and Finnish Customs.

Finnish exports and direct foreign investment amounts to less than 1%.

Exports to the Czech Republic consist mainly of the products of the forestry and paper industry, but also various sorts of machinery and equipment make up a large proportion of the exports. Over two thirds of imports are machinery and equipment. Investment by Finns in the Czech Republic has remained limited.

Telecommunications equipment and other electronic equipment comprise the bulk of exports to Hungary. However, significantly more

telecommunications equipment is imported from Hungary to Finland than exported in the other direction. This is explained by the same phenomenon as in the Estonian trade, ie Finnish companies exporting intermediate goods and importing finished products.

Future prospects

Although Estonia remains Finland's most important trading partner and investment area among the new EU Member States, its small size, measured by both population and GDP, is becoming a limiting factor. The same problem also applies to

Latvia and Lithuania. Although their proportion of Finnish exports and investment has shown relatively strong growth in recent years, the levels still remain very low.

Among the new EU Member States, Poland clearly stands out. Measured by GDP, the economic area is almost three times larger than Finland, and by population over seven times larger. Its brisk economic growth also makes Poland an interesting export and investment area for Finnish companies.

Costs and prices

Labour costs

Over the past six years, the index of wage and salary earnings, which depicts the trend in basic pay for normal working hours, has risen in Finland at a rate of 3–4% per annum (chart 31). Around one third of this increase has been due to wage drift.

Wage-earners' real purchasing power has grown at a brisk pace in recent years, and the main cause of the rapid rise in real earnings over the past couple of years has been very low inflation.

The current two-year general incomes policy settlement runs out in February 2005. Employer and employee organisations have begun preliminary talks on achieving a new settlement. The Government has promised tax cuts if the two sides can agree a sufficiently comprehensive and moderate incomes settlement.

As the outcome is still unknown, the forecast cannot take account of possible tax cuts and any impact they may have on negotiated pay increases. Wages development has therefore been assumed to follow the average trend in recent years. Accordingly, average wages (ie wages per employee) are

assumed to rise almost 4% per annum in 2005 and 2006. This year the figure will be even higher. The index of wage and salary earnings will follow the change in average wages.

Next year there will be a marked easing in the pace of growth in real earnings. This is due to the end of the impact of extraordinary factors such as the reduction in excise duties on alcoholic beverages, and hence a normalisation in the rate of inflation.

Labour costs comprise the wages, salaries and social contributions paid out by employers, and these are rising

Chart 31.

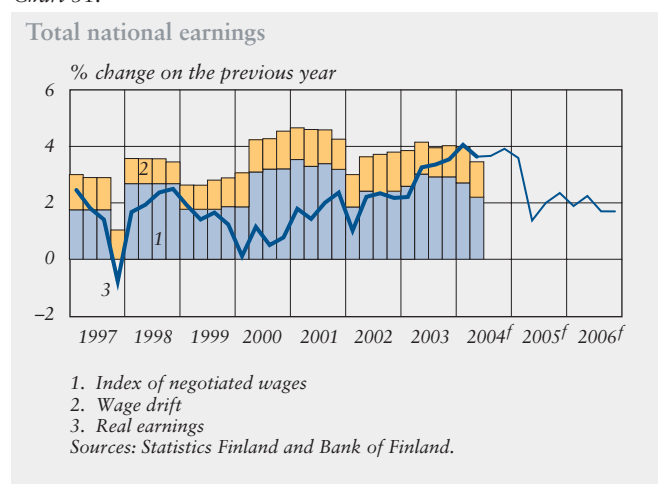


Table 5.

Unit labour costs in Finland and the EU 15, total economy					
% change on previous year	2002	2003	2004 ^f	2005 ^f	2006 ^f
Finland¹					
Unit labour costs	0.7	1.7	0.8	1.6	2.1
Wages and social security contributions	2.7	3.5	4.1	3.4	3.8
Productivity	1.9	1.8	3.2	1.8	1.7
EU 15²					
Unit labour costs	2.4	2.4	1.3	1.3	
Wages and social security contributions	2.9	3.1	2.9	2.9	
Productivity	0.5	0.6	1.6	1.6	

¹ Per employed (Labour Force Survey).
² Per wage-earner, European Commission Forecast, Spring 2004.
f = forecast
Sources: European Commission, Statistics Finland and Bank of Finland.

much faster in Finland than the average for the EU 15 (table 5). Finland's faster labour productivity growth is also forecast to continue, with the result that unit labour costs in Finland this year and next will rise slightly slower than the average for our European competitors. However, continuation of the recent wages trend and slower growth in labour productivity in 2006 will mean a faster rise in unit labour costs.

Productivity growth in most traditional sectors will continue to be fairly low. Together with the forecast trend in wages, this means that unit labour costs in these sectors will rise much faster than in our European competitors.

Commodity prices

The pick-up in world growth in the second half of 2003 was quickly reflected in commodity markets (chart 32). The global operating environment has been relatively stable in 2004. Exchange rate changes have been minimal and monetary policy has remained relaxed. In early

2004 the world economy grew faster than forecast. The trend in prices, which had periodically dipped so low as to be deflationary, turned upwards during the spring.

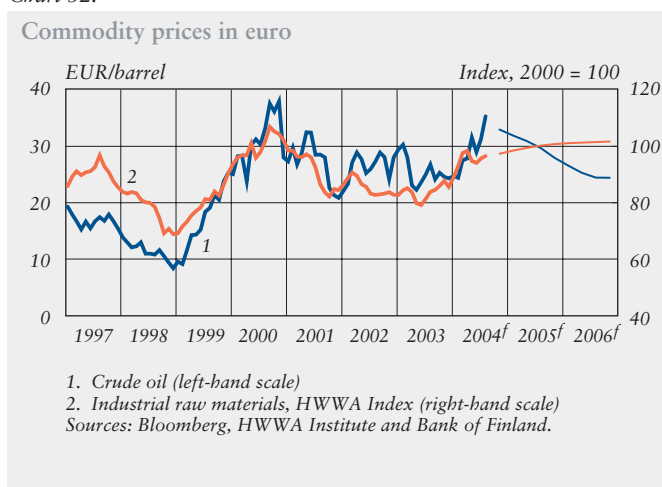
Since the end of last year, increased global demand together with abundant liquidity has been reflected in a sharp rise in commodity prices. The price of oil is now exceptionally high. Besides growth in consumption, other underlying factors have been the shortage of available production capacity in oil-producing countries and the tensions in the Middle East.

As recent growth in China has focused primarily on investment, and in the United States primarily on consumption, the accelerating pace of growth has been reflected in different ways in different commodity markets. The strength of Chinese demand has led to brisk price rises for oil, coal and metals. World market prices of industrial raw materials have also remained high through the summer months.

Higher metal prices have increased costs in Finland, eg in the construction sector. Stiff competition means exporters, who are big users of raw materials, can only pass on some of their increased costs in their own prices. On the other hand, there have been only fairly negligible price rises for sawn goods (and pulp), which are important to overall cost development in Finland.

The forecast levelling off in world growth means a gradual easing in the pressures driving up commodity prices. The slightly slower pace of growth in China will be particularly significant in dampening price rises. At the same

Chart 32.



time, the supply of commodities is set to increase. We estimate that the pace of commodity price rises will begin to ease next year, and in 2006 their nominal price rise will be slower than the rise in consumer prices in the industrial economies.

We expect continued instability in the oil market over the next few months. With output at close to maximum capacity, even small disturbances in output, or the threat of a disturbance, will be reflected immediately in prices. The high price of oil should, however, gradually stimulate increased supply. This will in turn ease the close balance of supply and demand and reduce the risk premium from the threat of disturbances in output currently factored into the price. At the same time the high price will gradually depress demand. The price of a barrel of crude is therefore expected to return to around USD 30 by the end of 2006. Even so, this would still be above OPEC's earlier price spread (22–28 dollars a barrel), reflecting both the weakness of the dollar and growth in global demand.

Viewed from Finland, the assumed fall in the price of oil during the forecast period will reduce cost pressures. On the other hand, the rise in industrial raw material prices caused by the strength of demand in China and, to some extent, in India will, even if moderated somewhat, still sustain cost pressures in Finland. We can expect a gradual increase in the price of sawn goods in Finland, as elsewhere, as investments pick up. Admittedly, supply from new producer countries will to some extent hold back the rise in sawn goods prices.

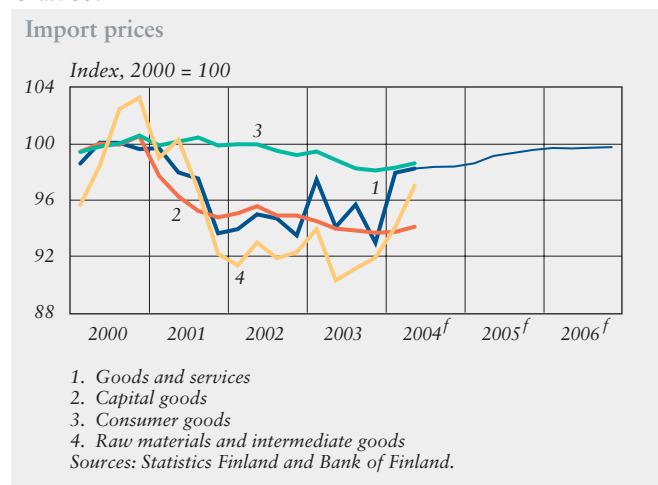
Import prices

Import prices for goods and services have risen considerably since the beginning of the year. This is mainly due to the sharp rise in energy and commodity prices in the second half of 2003 and the first half of 2004. On average, it takes around half a year for energy (incl. oil) and commodity price rises to be passed on to import prices for goods and services.

The recent sharp rise in the price of oil should be seen in the import price statistics for August and September, but the impact will be moderated by the relative stability of petrol prices on the world market. The end of the summer holiday season in both the United States and Europe has reduced demand for petrol.

The import prices for consumer goods imported into Finland have also begun to rise slightly during the first half of 2004 after almost three years of steady decline (chart 33). The continued brisk growth in the world economy, the stabilising of the external value of the

Chart 33.



euro and the strong rise in the prices of commodities and intermediary goods would suggest that the rising trend in import prices for consumer goods will also continue in the years ahead. On the other hand, the recent rise in capital goods prices has been more moderate than before, although here too the decline in import prices is coming to an end.

The pace of rise in import prices for goods and services is forecast to slow already in the second half of 2004. An increase of 3.4% is forecast for the

year as a whole, primarily based on the pattern in the first half of the year. The annually adjusted rise in import prices will ease back to just over 1% in 2005 and 2006, mainly due to the forecast fall in the world market price of oil.

Domestic producer prices

In the National Accounts, value added is divided into a volume component and a price component. The price component is customarily referred to as the value-added deflator. The 3.1% rise in the deflator measuring the development of private sector output prices in 2001 was transformed in the space of two years into a 0.8 decline in 2003. Private sector output includes both goods and privately produced services.

Since 2003, however, private sector output prices have once again begun to rise (chart 34). This is due to increases in both wage costs and import prices.

Private output prices are forecast to rise 1.3% in 2004 and at around 1½% per annum in 2005 and 2006.

The rise in unit labour costs will accelerate slightly towards the end of the forecast period, but the rise in energy and other commodity prices is expected to come to an end.

Industrial producer prices are also subject to price pressures. Although they have risen much more slowly in Finland in recent years than in the euro area as a whole, the upward trend in recent months has been clear and the pace of increase in Finland has approached that of the euro area (chart 35).

Import prices for industrial raw materials and capital goods have risen 5.1% since January 2004, while

Chart 34.

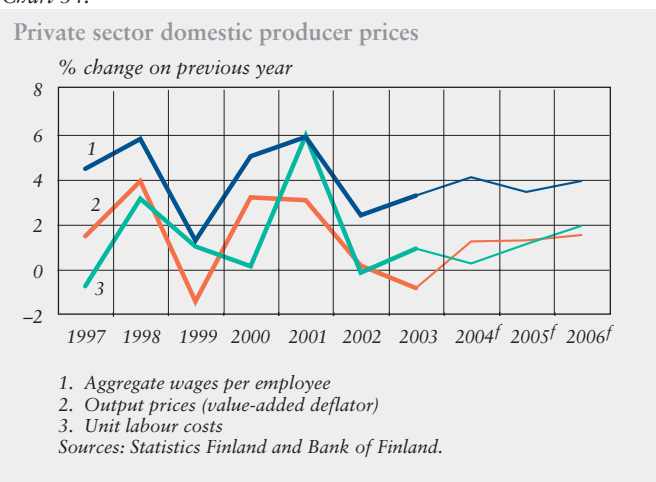
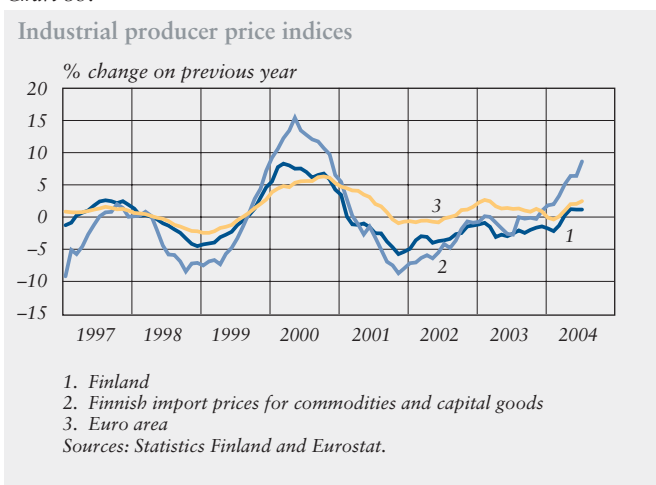


Chart 35.



industrial producer prices have so far risen much more moderately, by 0.5%. In July 2004 the respective changes compared with a year earlier were 8.6% and 1.2%. It is probable the cost pressures caused by the rise in import prices have not been passed on in full to domestic producer prices. In transport, for example, many companies in the sector are prevented by stiff competition from passing the present high fuel costs on to their customers.

Consumer prices

Finland has in recent months had the lowest consumer price inflation in the EU. As measured by the Harmonised Index of Consumer Prices (HICP), the rate of inflation between March and June was actually slightly negative. In July, too, it was still very low, at 0.2%. The corresponding rate on inflation in the euro area in July was 2.3%. Including the United Kingdom, Sweden and Denmark, inflation in the EU 15 was 2.1% (chart 36).

There are several reasons why inflation in Finland has since the end of 2002 fallen below the rate for the euro area as a whole. The most important single factor has been increasing competition in several sectors at once, particularly in communications, air transport and retailing. Another important factor has been the large cuts in indirect taxation, particularly excise duties on alcoholic beverages and the tax on cars. The inflation impact of one-off changes in taxation is, however, normally temporary. Even so, increasing competition is expected to continue to slightly moderate the pace of inflation in the future.

Below, we examine the impact of increased competition and tax cuts on the main categories of the HICP.¹ Most weight in the index is given to services, whose inflation rate in Finland – in contrast to the historical trend – has in recent years fallen well below that of services in the euro area as a whole,

¹ The HICP is composed of five main categories, each of which influences the overall index according to its own weighting. These are (weightings in brackets): services (41%), non-energy industrial goods (30%), energy (7%), processed foods (16%) and unprocessed foods (6%).

Chart 36.

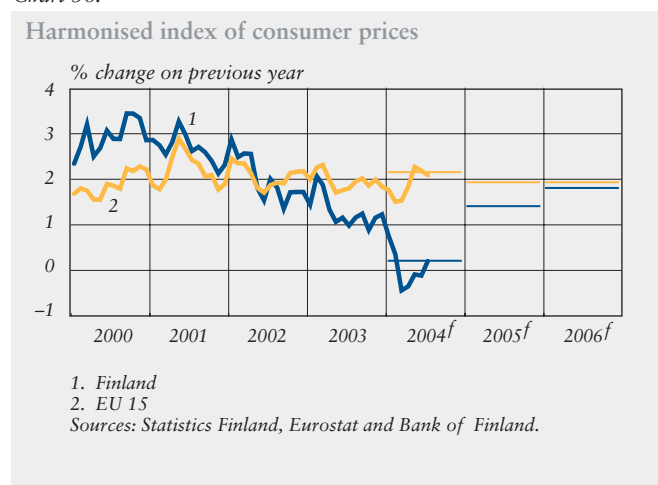
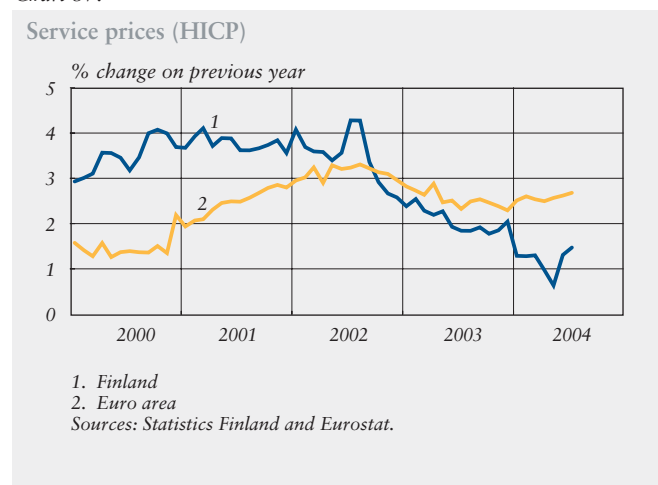


Chart 37.



from a full 4% in 2002 to under 1.5% in 2004 (chart 37). Over the same period, services inflation in the euro area also eased back, but only slightly.

One example of the impact of increased competition in the service sector is the price of air travel (chart 38). In late 2003 the price of air travel fell by several tens of per cent. Competitive changes have been reflected strongly in prices, as new competitors have entered or left the market. Admittedly, prices have also

been affected by increased fuel costs as a result of the rising price of oil.

Competition in the retail sector has also increased considerably in recent years, a trend that would appear to be continuing, particularly in the grocery sector. In processed foods, the rate of inflation already fell well below the euro area average a couple of years ago (chart 39). Alcoholic beverages are included in the statistics under processed foods. The reduction in excise duties on alcoholic beverages explains the one-off drop of several percentage points in processed food prices in March 2004. The reduction in alcohol duties has also to some extent been passed on to service prices, particularly in the hotel and restaurant sector. The annually adjusted impact of lower alcohol duties is a reduction of 0.8 percentage points in the pace of increase in the HICP. The impact will last until March 2005, after which it will no longer be included in the calculation of annual inflation.

The arrival of new retail chains in the Finnish market has spread to the consumer electronics, clothing, building goods and sporting goods sectors. The resulting increased competition will continue to moderate price rises in the HICP's industrial goods category in the years ahead. The average rise in industrial goods prices in Finland in the past couple of years has already been considerably less than the average for the euro area as a whole. The impact of the reduction in car tax in 2003 is also seen in this category of the HICP. Used car prices are still falling. In the euro area as a whole, recent price

Chart 38.

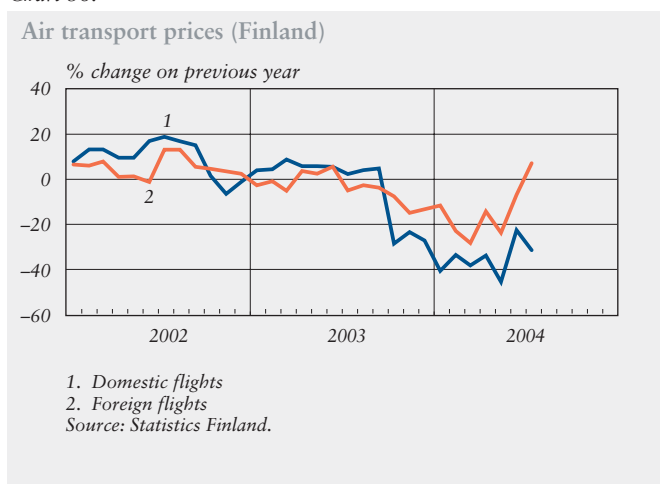
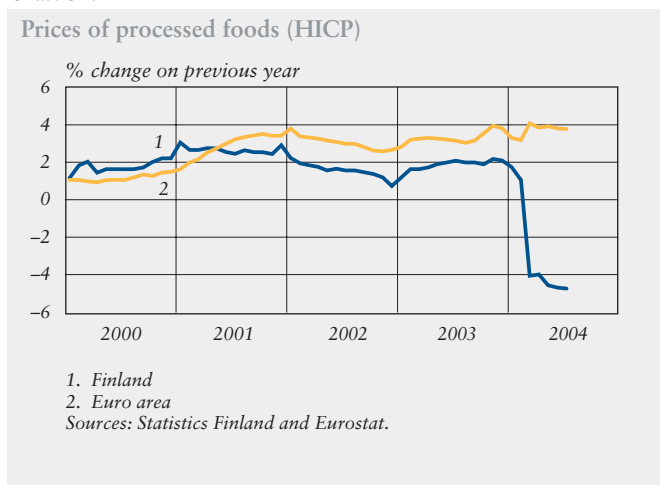


Chart 39.



development in industrial goods has also been rather moderate. Besides the general sluggishness of the economy and the earlier appreciation of the euro, this also reflects increasingly tough international competition (chart 40).

Energy prices have risen sharply during the past half year as the world market price of oil has climbed higher (chart 41). Oil products account for a full 2/3 of the energy category of the HICP. Changes in the price of oil are reflected almost immediately in the prices of transport fuels, eg petrol. In percentage terms, however, the price of petrol does not fluctuate as much as the price of oil. The main reason for this is the effect of taxation in moderating the impact of price changes. According to the forecast, a gradual fall in the world market price of oil will subdue the rise in energy prices in 2005 and 2006.

During spring and summer of this year, Finnish consumers' inflation expectations have been rising slightly, partly due to the trend in the price of oil. According to Statistics Finland's consumer confidence indicator, Finnish households believe the pace of inflation a year from now will be around 2%. Meanwhile, a survey by the European Commission indicates that Finnish consumers' inflation expectations do not greatly differ from those of consumers throughout the euro area (chart 42).

Chart 40.

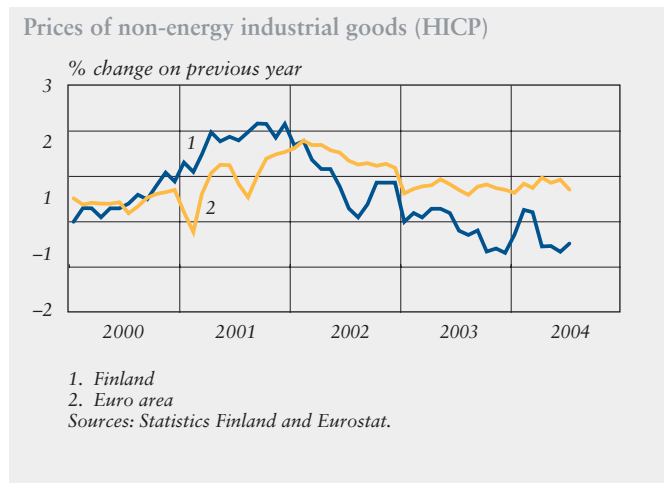


Chart 41.

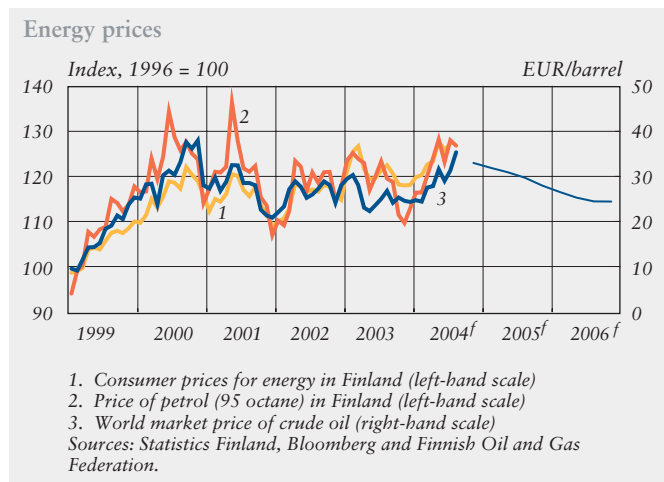
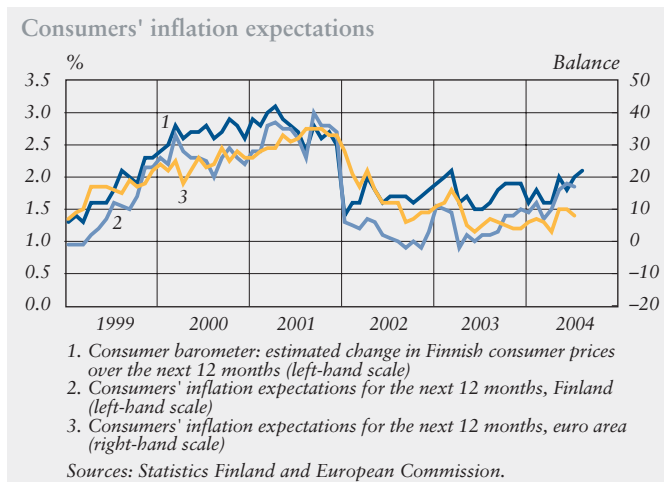


Chart 42.



Forecast summary and risk assessment

International economy

According to the Bank of Finland's new forecast, the present phase of world growth passed its peak in late 2003 and early 2004. In the second quarter of 2004 growth slowed in eg the United States and Japan. The strong rise in the price of oil is subduing growth in oil-importing countries. World trade is forecast to expand by almost 8% in 2004. There is no immediate sign of a significant slowdown in the world economy. On the contrary, the rate of growth is expected to settle at around a fairly rapid 4% in the next couple of years.

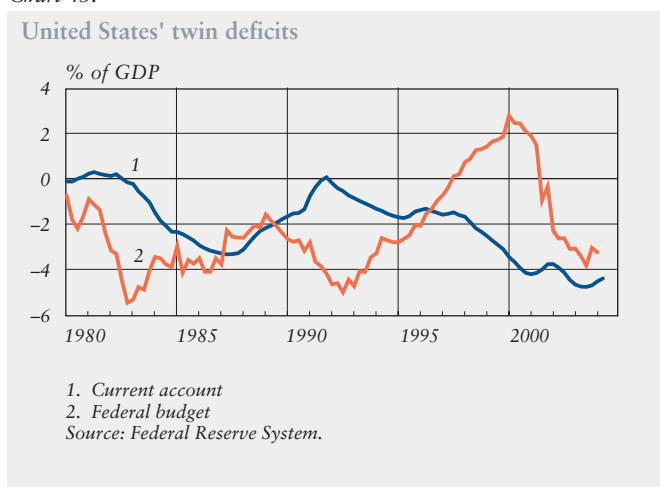
GDP growth in the EU 15 has been moderate at best and is expected to stabilise at under 2½%. Japanese growth in the immediate years ahead will be faster than the average for the 1990s, and the Japanese economy will grow at about the same pace as the euro area. In the United States, growth will ease back a little more in the second half of 2004 and settle over the

next couple of years at just under 3%. Chinese growth will slow slightly, to around 7–8 % per annum, as a result of the tightening of economic policy in China.

The world economy currently faces risks in four main areas: the continuing imbalances in the US economy, the manageability of Chinese growth, the strong rise in the price of oil, and the possible inflationary pressures from the current abundance of liquidity. There is also the related question of how to combat these pressures.

The US current account and federal deficits have remained large during the present economic upswing (chart 43). The forecast envisages the start of a gradual and relatively steady return towards balance. Actual developments could, however, be less stable than assumed. Financing the deficits has so far proved relatively straightforward. The situation has been eased by the strong growth in the United States, as a result of which the return on equity has remained good and the inflow of capital has continued without serious disturbances. This situation could change, however, if expectations regarding the pace of growth or the reduction of the federal deficit turn out to be too optimistic. A considerable further depreciation of the dollar and rising interest rates could seriously hamper growth, particularly in Europe. The process of correcting the US economy could also begin in the household sector, which has in recent years become heavily indebted. For example, weaker-than-expected employment figures could trigger a

Chart 43.



substantial increase in the savings ratio.¹

The second risk relates to the tightening of Chinese economic policy that began in spring 2004 (box 7, p. 69). It is possible that the brake on growth will be greater than planned. The effects of this would also be felt outside China, particularly in Japan, which remains vulnerable despite the recent favourable period in the Japanese economy. A greater-than-expected slowdown in Chinese growth would also be reflected in the commodity market and would probably depress the price of oil, and also of many metallic raw materials.

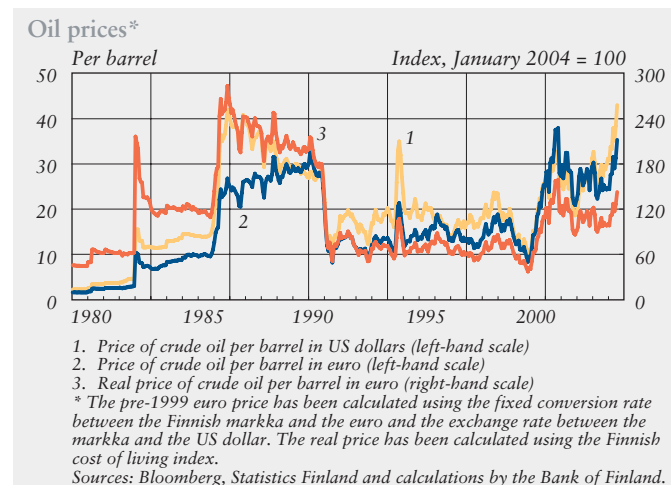
It is also possible that the impact of the Chinese Government's measures will be only temporary and that investment growth will pick up again. This would renew the risk of overheating. If investment were to lead to overcapacity, Chinese companies and foreign companies operating in China would probably seek to find a home for their output on the world market. The resulting increase in competition would put pressure on the prices of many industrial products and could cause renewed interest in moving production out of the industrial countries.

The third risk relates to the recent strong rise in the price of oil (chart 44). If oil prices remain very high for a long time, this could have a significant impact on the world economy. There could be disturbances in economic development,

particularly in China, which is dependent on oil imports, but also on many other countries in Asia, and on the United States. Even so, the possible impact would probably be much less than what was seen during the oil crises of the 1970s and 1980s. The real price of oil is still much lower than it was during the oil crises, and the oil-dependency of output in the industrial countries has been reduced in subsequent decades. Moreover, the world economy is now considerably more open and flexible, and thus better equipped to deal with even major disturbances.

It is also possible that the forecast underestimates the impact on prices of the abundant liquidity currently circulating in the world economy. If there is a general acceleration in inflation and a major rise in inflation expectations, world growth could become disturbed towards the end of the forecast period. Rising commodity prices over the past year and the dramatic rise in house prices in almost

Chart 44.



¹ The significance of the US current account deficit for economic development in the United States and the rest of the world is assessed in Kortelainen, M: 'The US current account deficit', Bank of Finland Bulletin 1/2004, p. 69–75.

all developed countries in recent years both suggest inflationary risks.

There are also certain upward risks that economic performance could actually be stronger than forecast. The recent performance of the Japanese economy has surprised many forecasters. If China can achieve calmer growth in a controlled manner, the Japanese economy could cause another surprise over the next couple of years by continuing its brisk growth for longer than expected. This could, however, have only a minor impact on the rest of the world economy, as imports are of secondary importance to Japan, at just 10% of Japanese GDP. The impact could be much greater if the continuation of economic reforms were to mean a greater opening of the Japanese market to foreign companies.

Finland's growth outlook

Finland's GDP growth in recent years has been faster than growth in the EU 15, mainly as a result of the strength of domestic demand. Finland's

long-term growth has been of the same order as average growth in the EU 15 (chart 45). The ground lost in the recession was thus recovered in ten years.

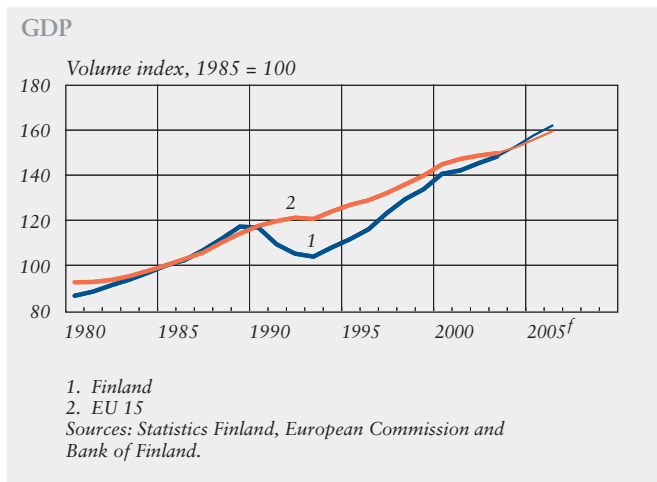
Despite the fact that real GDP growth this year and in 2005 will be a full ½ a percentage point more than expected in last winter's forecast, there remain many features that give cause for concern. Above all, growth will not be reflected in employment, as output is growing specifically in those sectors where creation of new jobs is slow. In addition, exports and investment are both fairly sluggish.

Household consumption growth will slow from 2.6% in 2004 to 2.4% in 2006. The consumption forecast is based on two assumptions: there will be moderate growth in the price of households' housing assets during the forecast period, and earnings development will at the same time continue to be favourable. Consumption growth will be depressed by a drop in the rate of purchasing power growth caused by a gradual acceleration in inflation and an expected upturn in interest rates.

The decline in private investment of the past couple of years will come to an end in 2004. However, industrial investment growth will continue to be sluggish. In contrast, many companies will continue to invest abroad.

The lack of investment in new productive capacity poses problems for both employment and productivity development. The lack of investment will hamper the development of new products and the full exploitation of technological advances, which will in

Chart 45.



turn slow productivity growth. Investment is also essential to employment (chart 46). The lack of investment will be reflected before long in weakening export receipts as capacity shrinks. Growth in export receipts will also be inhibited by deteriorating terms of trade. Productivity growth will compensate for this in only part of the corporate sector. An improvement in employment will require good performance in both productivity and profitability.

In contrast to the rest of the euro area, Finnish exports have not caught up with the pace of growth in the world market. Finnish export growth in the first half of 2004 was very sluggish and much weaker than envisaged in the winter forecast. The impact of euro appreciation is now beginning to be felt – this was seen as a potential problem already in the winter forecast.² Exports are growing more slowly than the export markets, which means a continued loss of market share. Exports are, however, recovering to such an extent that the contribution of net exports (the difference between exports and imports) to GDP growth will be positive from 2004 onwards.

Stronger exports, continued strong consumption and the beginnings of growth in investment in 2004 explain the timing of the peak of the cycle at the turn of the year 2004/2005. Economic growth will remain good throughout the forecast period. It will, however, dip slightly in line with inter-

² See 'The impact of euro appreciation on the Finnish economy'. Bank of Finland Bulletin 1/2004, box 6, p. 55–57.

national trends once the fastest phase of growth is over in both consumption and net exports.

Growth in labour supply will continue moderate throughout the forecast period, but demographic factors will begin to be felt towards the end of the period. The employment rate – the proportion of employed among the total population of 15–64-year-olds – will rise only slightly from the present level of 67%. The employment situation in industry will continue to deteriorate, and there is no prospect of any serious improvement in employment outside of the service sectors. In longer-term perspective, any future increase in the employment rate will be almost entirely due to demographic factors.

The unemployment rate in Finland now stands at around 9%, about the same level to which euro area unemployment has now risen. In Finland, the number of people of working age outside the labour force has also grown. The present forecast assumes the start of moderate growth in both the labour

Chart 46.

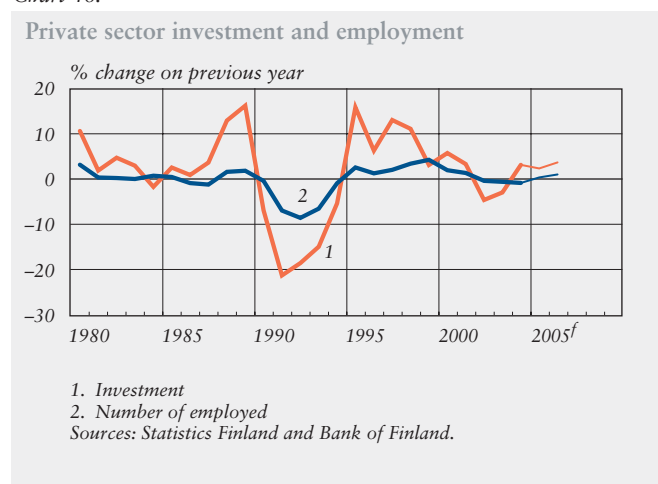


Table 6.

Forecast summary

Supply and demand 2002–2006 (2000 prices)

	2002	2003	2004 ^f	2005 ^f	2006 ^f
<i>% change on previous year</i>					
GDP	2.3	2.0	3.0	3.2	2.7
Imports	1.9	2.6	-0.1	5.0	4.8
Exports	5.1	1.1	3.0	6.6	5.3
Private consumption	1.5	4.3	2.6	2.9	2.4
Public consumption	3.8	1.6	0.9	0.9	0.9
Private fixed investment	-4.6	-3.0	3.1	2.3	3.7
Public investment	6.6	2.7	-1.0	-0.2	-0.3
Inventory change + stat discrepancy, % of previous year's total demand	-0.1	0.3	-0.2	0.0	0.0
Total demand	2.2	2.2	2.2	3.7	3.2
Total domestic demand	0.8	2.7	1.9	2.3	2.2

Key economic indicators

	2002	2003	2004 ^f	2005 ^f	2006 ^f
<i>% change on previous year</i>					
Harmonised index of consumer prices	2.0	1.3	0.2	1.4	1.8
Consumer price index	1.6	0.9	0.1	1.4	1.9
Wage and salary earnings	3.5	4.0	3.9	3.8	3.8
Labour productivity	1.9	1.8	3.2	1.8	1.7
Unit labour costs	0.7	1.7	0.8	1.6	2.1
Number of employed	0.2	-0.3	-0.6	0.4	0.9
Employment rate, 15–64-year-olds, %	67.7	67.3	66.8	66.9	67.5
Unemployment rate, %	9.1	9.0	9.1	8.8	8.4
Export prices of goods and services	-4.8	-3.0	1.5	0.0	-0.3
Terms of trade (goods and services)	-1.9	-3.8	-1.8	-1.0	-0.8
<i>% of GDP, national accounts</i>					
Ratio of taxes to GDP	45.8	44.8	44.7	44.2	44.5
General government net lending	4.3	2.1	2.2	2.2	2.8
General government debt (EMU definition)	42.6	45.6	44.4	43.4	41.8
Goods and services account	8.5	6.5	7.0	7.3	7.2
Current account	7.6	5.7	6.0	6.2	6.2

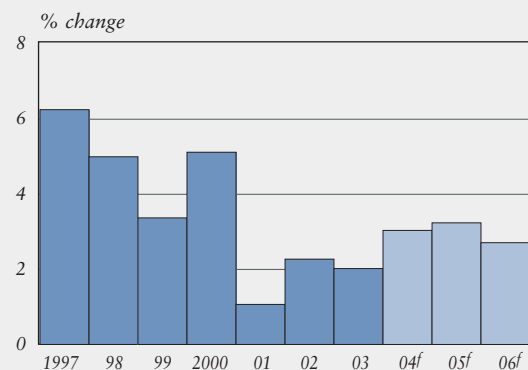
f = forecast

Sources: Statistics Finland and Bank of Finland.

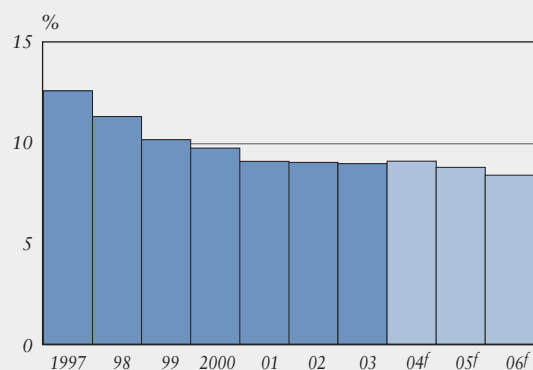
Chart 47.

Key economic indicators

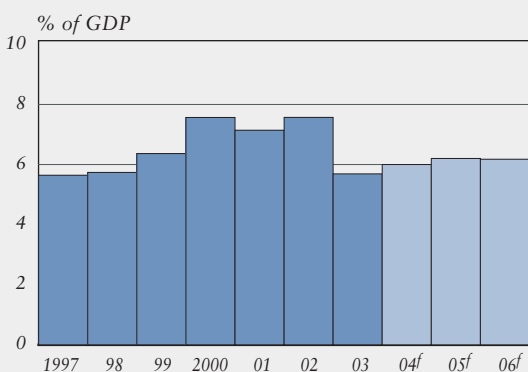
Gross domestic product



Unemployment rate

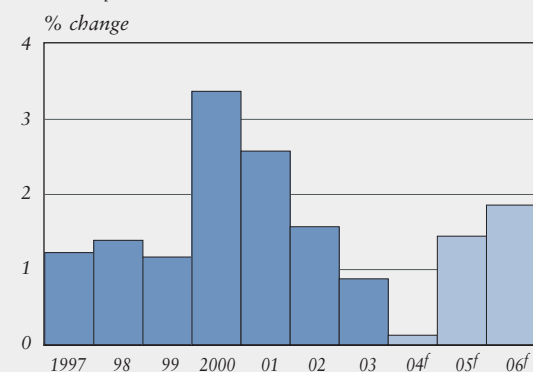


Current account

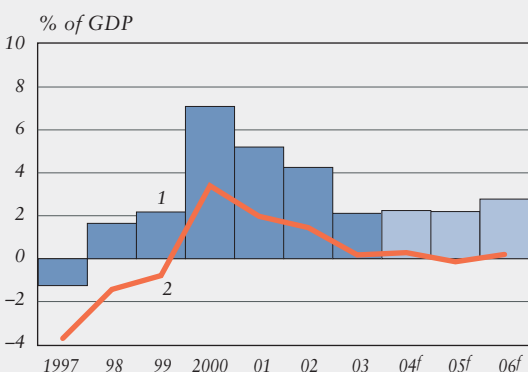


Inflation

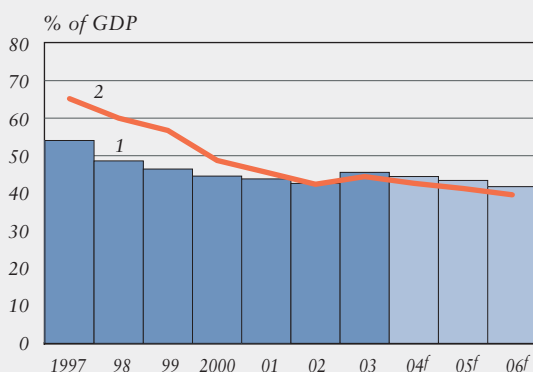
Consumer price index



General government fiscal position



General government debt (EMU)



1. Public sector

2. Central government

Sources: Statistics Finland and Bank of Finland.

force and the number of employed, but this will be insufficient to bring the unemployment rate below 8%, or the number of unemployed below 200,000.

There has been no significant change in the outlook for general government finances during the present budgetary year. The central government fiscal position will show a slight surplus in 2004, and will still be almost in balance in 2005. In the absence of new measures that reduce central government revenues or increase expenditure, central government finances will return to surplus in 2006. The forecast does not anticipate the impact of any additional tax cuts.

The local government fiscal deficit will contract as central government income transfers to local government increase and the local authorities also raise more taxes and impose a temporary moratorium on investment. The surplus in the social security funds will remain a good 2½% of GDP.

The combined structural balance of central and local government finances and social security funds will improve to produce an average surplus of approximately 2.5% of GDP. There will be a contraction in general government debt relative to GDP. The total tax ratio will decline both this year and next, but will begin to rise again thereafter. The growth impact of government measures is expected to be fairly marginal during the forecast period.

The risks to economic growth in Finland independent of developments in the world economy are unchanged. Population ageing will impact on employment, growth and the sustaina-

bility of general government finances. Problems of labour market efficiency and poor coordination of taxation and benefits will continue to be reflected in high long-term unemployment and weak employment development. A high average tax rate and heavy marginal tax rates will undermine Finland's ability to compete for high-value-added activities. Sluggish domestic investment and falling export prices will undermine future wealth growth.

Although Finland is a small, open economy and dependent on international business cycles, the long-term success of the Finnish economy lies in Finnish hands. The stable conditions of Economic and Monetary Union provide an opportunity to use economic policy, and particularly structural policy, to achieve clear improvements in both economic growth and the country's long-term growth potential. These challenges require a sufficiently prompt and determined response.

Competition has increased in several sectors of the economy in Finland since membership of the European Union and Economic and Monetary Union. This is reflected in an increase in consumer welfare, as prices fall and choice grows. However, there still remains much to be done to improve competition. Growing competition has the greatest impact on closed sectors, particularly in services and construction. Studies indicate that increased competition also fosters higher productivity.

The contraction in private fixed investment in 2002–2003 and only moderate growth in 2004–2006 show

that the Finnish economy is not very attractive to investors. The expected return on investment on many investment projects in Finland is too low. If it can be raised, this will make it possible to attract more investment and thus boost the growth potential of the economy. High hopes have therefore been attached to the reform of corporate and capital income tax. The actual impact could, however, be slight. For some companies the reform will encourage increased investment, but for other Finnish-owned companies it will have the opposite effect.

The return on investment often comes far into the future. Unstable and unpredictable policy-making therefore hampers investment and hence growth. It is worth asking whether Finland's peripheral geographical location might make it advisable to have tax rates well below the euro area average in order to attract investment. A related question is how much faster investment and employment might have grown if the tax rate for corporate income had been held at 25% in the second half of the 1990s instead of being raised in stages to 29%.

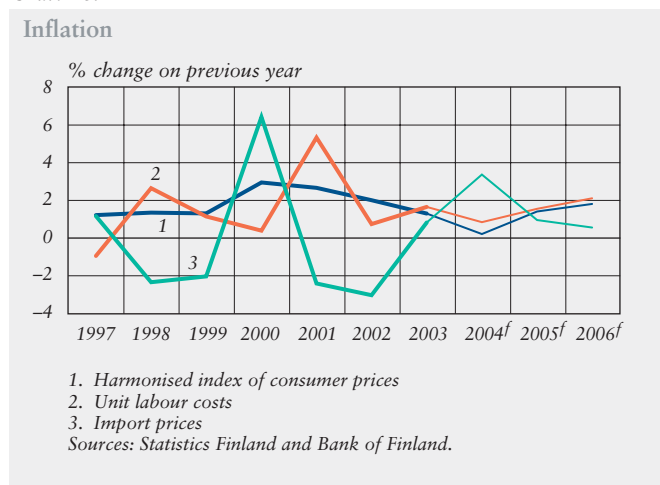
Inflation

One key factor contributing to the relatively moderate inflation forecast is fairly strong (if now slowing) productivity growth in domestic market production. If realised, this will moderate the increase in domestic costs. Another key factor is the international environment, in which inflationary pressures are under control and exchange rates stable. As the external value of the euro relative to the other

key currencies has remained more or less unchanged since the winter forecast, the earlier appreciation of the euro is no longer expected to significantly dampen import price growth in 2005 and 2006.

Consumer prices will for the most part follow the development of domestic costs and import prices. Private sector unit labour costs will increase during the forecast period, with the pace of increase gradually rising in stages to 2% per annum. The same is expected of import prices for consumer goods, where the pace of increase will settle at 1½%. An examination of cost trends for the economy as a whole (chart 48) indicates that here, too, the increase in unit labour costs will accelerate to 2%. In contrast, the aggregate rise in import prices in 2005 and 2006 will be less than the rise in consumer goods prices, due to a fall in the price of oil and a slower rise in commodity prices.

Chart 48.



The inflation impact of the reductions in excise duties on alcohol and car tax already implemented will not be repeated, but increasing competition is expected to further slow the pace of inflation to some extent during the forecast period. On the other hand, growth in domestic labour costs together with import costs mean the pace of increase in consumer prices will rise by degrees during the forecast period to almost 2% per annum.

As calculated by the Harmonised Index of Consumer Prices (HICP), inflation in Finland is expected to be around 0.2% in 2004. Thereafter it is forecast to accelerate to 1.4% in 2005 and 1.8% in 2006. The differences between Finnish inflation and the average rate of inflation in the EU 15 is forecast to decrease or disappear altogether during the forecast period (see chart 36, p. 53).

Inflation as measured by the national Consumer Price Index will over the next few years scarcely differ from HICP inflation (table 6, p. 60). The capital costs of housing included in the national index will increase slightly faster than the general price trend during the forecast period due to the expected rise in interest rates and rising housing prices.

In the first few years of Economic and Monetary Union (ie from 1999 onwards) Finnish inflation was initially faster than average inflation in the euro area. In 2002, however, the picture was reversed. In the HICP this turnaround is apparent in that from 1996 to the present Finnish consumer prices have risen less than the average rise for the euro area as a whole (chart 49). This has meant a considerable strengthening of Finnish consumers' purchasing power in recent years. Accordingly, private consumption in Finland has grown faster than the euro area average over this period.

Further information on the development of Finnish consumers' purchasing power in relation to that of consumers in other countries can be gleaned from comparisons of

Chart 49.

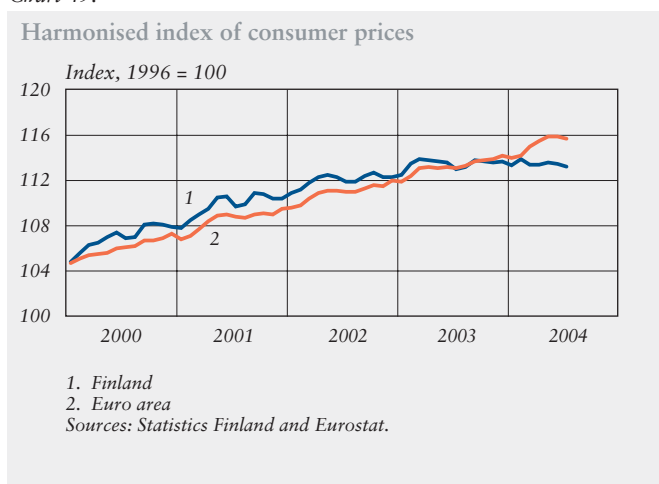
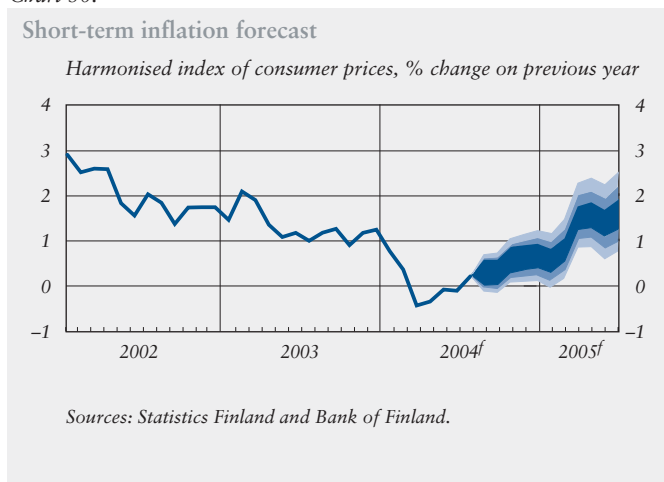


Chart 50.



purchasing power parity. For example, according to calculations published by the OECD, prices in Finland are still higher than in the rest of the euro area, and the size of the difference has remained unchanged in recent years. Thus, there would still seem to be scope for increasing competition in Finland's product markets.

Stronger-than-expected competition could actually be the most important factor moderating the rise in consumer prices. Meanwhile, risks of faster-than-forecast inflation stem primarily from the inflation risks in the international economy.

All in all, the forecast risks relating to the short-term inflation forecast are more or less in balance (chart 50). Towards the end of the forecast period, the two-way uncertainty in relation to productivity development will also extend to the estimate of inflation risks. The forecast envisages a return to strong productivity growth, particularly in export sectors, and especially electronics. This is important to the competitiveness of the sector, but the price benefits will naturally be felt by mobile phone purchasers around the world. Domestic productivity development could produce a positive surprise, eg via extensive investment in information and communications technology. This would mean a boost to employment coupled with still moderate inflation. If, on the other hand, productivity development in the domestic sector were to be weaker than forecast, this would increase cost pressures and hence the inflation risk, while at the same time also endangering

the forecast improvement in employment.

Increasing competition and declining price margins

Globalisation has brought stiffer price competition in product markets, in Finland as elsewhere. Companies that have retained a presence in Finland are seeking to meet the increasingly harsh international competition by rationalising their production processes and adjusting the prices of their products closer to the international level. Rationalisation of production processes often leads to innovations, but these are visible only in the longer term in corporate earnings and increased efficiency.

In the short term, companies are forced to adjust the price margins on their products, resulting in lower prices in the domestic market. For example, the arrival of international retail chains has brought stiffer competition to the Finnish consumer non-durables market. This has been reflected in a drop in the price of many products, as domestic traders have begun to compete for market share.

If productivity remains unchanged, falling prices are passed to company profits and market valuations. When anticipatory behaviour by both consumers and producers is taken into account in model calculations, the short-term changes in the real economy can be surprising. In the long term, declining price margins improve the outlook for consumption and hence most probably also consumer wealth.

³ See also the article on the Aino model, p. 71.

An alternative calculation using Aino³, the Bank of Finland's new dynamic general equilibrium model of the Finnish economy, assumes a long-term decline in price margins that makes them 0.5% smaller than in the baseline forecast scenario. Price margins are also expected to adjust considerably more quickly than in the baseline scenario. It is also assumed that economic agents are aware of the decline in price margins. In the baseline scenario, price margins are expected to decline by an average 0.3% per annum in 2005–2006. In the alternative calculation, it has been assumed that price margins will decline during 2005–2006 by an average 0.7 percentage points more quickly than in the baseline scenario (table 7). However, the rapid decline in price margins is not permitted to show in import prices of

goods and services. This reflects a situation in which domestic companies prepare for increasing competition by pricing products produced in Finland closer to the level of international prices.

It could also reflect the steps taken by Finnish authorities to remove obstacles to competition. One example worth mentioning is the mobile phone market, where obstacles to competition have been removed by making it easier for customers to change operators. The increased competition can already be seen in the price of calls and operators' margins.

The decline in price margins means on average a 0.2 percentage points slower rise in private sector output prices during the forecast period than in the baseline scenario. As a result, the rise in consumer prices is also slightly more moderate than in the baseline scenario. The decline in private output prices is also passed on to export prices, which rise more moderately in 2005. Similarly, in 2006 export prices decline slightly faster than in the baseline scenario. This results in a slight pick-up in exports, which grow 0.3 percentage points faster in 2005 than in the baseline scenario.

Changes in price margins and prices per se affect the real domestic economy in two ways. In the first place, declining price margins mean profit growth in Finnish companies slows down. This is reflected in companies' market values, which, via the wealth effect, impact on private consumption. Measured per share, companies' market values are approximately 1.5% lower than in the baseline scenario.

Table 7.

Stiffening competition: key figures for the forecast period			
<i>Difference from baseline scenario</i>			
	2004	2005	2006
GDP, % points	-0.1	0.2	0.2
Private fixed investment, % points	0.5	1.6	0.4
Private consumption, % points	-0.5	-0.3	0.2
Number of employed, % points	-0.1	0.5	0.3
Corporate market values (PE ratio), %	-1.3	-2.0	-1.7
Private sector output prices, % points	-0.1	-0.3	-0.2
Change in price margins, % points	0.0	-0.9	-0.5

Source: Bank of Finland.

Table 8.

Stiffening competition: key long-term figures	
<i>Difference from baseline scenario</i>	
Private consumption, %	0.4
Capital stock, %	0.7
Number of employed, %	0.2
Employment rate, % points	0.2
Price margins, %	-0.5
Private sector output, %	0.5
Private sector productivity, %	0.2

Source: Bank of Finland.

The wealth effect has a fairly large short-term impact on consumption. Despite the fall in consumer prices, average growth in private consumption in 2004–2005 is slightly less than in the baseline scenario. In similar vein, the employment situation deteriorates slightly more relative to the baseline scenario in 2004, but then recovers quickly and starts improving much faster than in the baseline scenario in 2005–2006.

In the second place, the decline in private sector output prices also affects relative prices. If import prices remain unchanged, the relative shares of demand for domestic and foreign products will change as consumers substitute domestically produced goods for foreign goods. From this it also follows that corporate investment recovers more quickly than in the baseline scenario. Calculations show that during the forecast period, private sector investment grows on average 1 percentage point faster than in the baseline scenario. In particular, there would be a very strong recovery in private investment in 2005, with per annum growth of 3.9%.

The calculations indicate that investment and employment growth for the economy as a whole during the forecast period could be slightly faster than in the baseline scenario. Similarly, developments in respect of prices and consumption could be slightly more moderate. If other factors were to remain unchanged, this would mean that GDP growth would be slightly faster on average during the forecast period.

However, it should also be noted that even if private consumption growth were to slow in the short term, declining price margins would provide more scope for consumer spending across the economy as a whole in the long term. Calculations to assess this indicate a 0.5 percentage points per capita increase in private consumption compared with the baseline scenario once the economy has adjusted to the long-term equilibrium (table 8). Similarly, stronger consumption would also be sustained by a larger capital stock and improved employment.

An alternative calculation assuming a favourable trend in investment costs

The following calculation examines what the macroeconomic impact would be of a permanent reduction in investment costs. This could, for

Table 9.

Declining investment costs: key figures for the forecast period			
<i>Difference from baseline scenario, % points</i>	2004	2005	2006
GDP	0.0	0.3	0.3
Private fixed investment	0.0	1.7	1.5
Consumer price index	0.0	0.0	0.0
Private investment deflator	-0.3	-1.0	-0.6
Number of employed	0.0	0.1	0.1

Source: Bank of Finland.

Table 10.

Declining investment costs: key long-term figures	
<i>Difference from baseline scenario, % points</i>	
Investment ratio	0.3
Consumption	1.7
Employment rate	0.0
Labour productivity	0.4

Source: Bank of Finland.

example, result from more efficient production of capital goods and services, for instance in construction. A similar outcome would also be produced by a reduction in the uncertainties surrounding investment costs. The key channel through which the effect is mediated under these alternative explanations is a reduction in the relative price of investments. Thus, relative to the baseline forecast scenario, capital goods inflation decelerates less than general inflation.

The calculation assumes a deceleration of almost 1 percentage point in the private investment deflator relative to the baseline scenario in 2004, and a further deceleration of approximately ½ percentage point in 2005 and 2006. In the Aino model this reflects a permanent increase in the use of domestic intermediate goods in the production of capital goods. This leads directly to a reduction in the relative price of investment and a lower required return on investment. This, in turn, boosts demand for capital services. Indeed, growth in investment volume throughout the forecast period is almost 2 percentage points stronger than forecast (table 9).

Increased investment also means an increase in domestic demand, and before long also in labour demand. Increased demand also generates pressures for faster growth in labour costs relative to the baseline. On the other hand, the resulting growth in revenue from employers' pension and social security contributions allows reductions in indirect labour costs without endangering budgetary

balance. However, the impact of rising labour costs in subduing labour demand is so marginal that employment grows slightly faster than in the baseline forecast scenario. Real wages rise in terms of both producer prices and consumer prices.

The alternative calculation assumes the same level of exports as in the forecast. For its part, the government sector abides by the limits on revenue and spending. Because the price of capital goods falls relative to comparable imports, import growth is slower than in the forecast. Private consumption is as in the forecast. Growth in aggregate demand means GDP growth, too, is faster than in the forecast. This means that consumer price inflation is slightly slower than in the forecast. The permanent decline in relative investment prices also has clear positive effects in the long term. The investment ratio rises 0.3 percentage points, per capita consumption grows almost 2 percentage points and the employment rate also rises slightly. Increasing capital intensity means private sector labour productivity grows on average almost ½ percentage point faster than in the forecast.

Box 7.

China facing threat of bottlenecks and overheating

The Chinese economy has grown very rapidly in recent years. In 2003, GDP was up 9.1% on the previous year. The rapid pace of growth is expected to continue, if at the slightly slower annual rate of 7–8% in the next few years. China's rapid growth is based on growth in exports, consumer spending and particularly investment. An already high investment rate has now climbed to well over 40% of GDP, which has given rise to fears of a partial overheating of the Chinese economy. Indeed, the main risks to the forecast stable growth in China are overheating and production bottlenecks, along with the potential unforeseeable consequences of government measures to prevent overheating.

Although it has ambitious growth objectives, the Chinese Government is keen to avoid imbalances in the country's economic development. Possible overinvestment in certain industries, production bottlenecks and rising inflation have all been potential sources of concern. The prices of many commodities have risen sharply since autumn 2003, and overdemand for energy and transport services has caused additional difficulties in the economy. On the other hand, production capacity is expected

to outgrow demand in some industrial sectors in the next few years.

The Chinese Government and central bank took steps last year to prevent overinvestment, and these were strengthened at the beginning of this year. In an effort to reduce lending by banks to rapidly growing industries – steel, aluminium, cement, automobile and real estate – banks' reserve requirements were tightened and various new guidelines and regulations were issued. The authorisation procedures for construction projects were slowed down and the issuance of new investment permits was tightened. In contrast, lending for energy production and infrastructure development was encouraged. The People's Bank of China has not as yet raised its key monetary policy rate.

In recent months, there has been mixed information on the impact of the Government's measures, so the debate on the perils of overheating has not yet been settled. Although lending growth has slowed, so far there are only tentative signs of a cooling in the pace of investment growth. The Chinese Government seems most concerned about the risk that consumer price inflation could accelerate from the fully 5% recorded in July.

The last wave of overinvestment in the early 1990s resulted in inflation that reached

24% at its height in 1994. The consequences then included growing unemployment and income disparities. This time, the rise in consumer prices has so far been mainly due to higher food prices following last year's poor grain harvest. However, the Government wants to ensure that the increase in commodity prices will not lead to the rapid hike in consumer prices and wage levels seen a decade ago. Continued steady jobs growth is essential if China is to remain politically stable.

In the immediate years ahead, Chinese growth will be somewhat constrained by the availability of energy. The country's energy consumption has grown very rapidly in recent years, and the Government has its hands full trying to expand electricity generating capacity to keep pace with demand. Almost all Chinese provinces suffered from recurrent shortages of electricity in summer 2004, and many factories had to adjust their operations accordingly. China has become the world's second largest consumer of crude oil, which has forced it to significantly increase its oil imports. The Chinese authorities estimate that crude oil imports will reach 110 million tonnes already this year, while in 2002 to the figure was less than 70 million tonnes.

Although recent economic data does not support the view

that the Government's measures have slowed growth too much, it is nevertheless fair to ask if these measures have been directed correctly. There is a fear that the largely state-owned banks have excessively reduced their lending to private corporations, which were already suffering from a lack of finance. The consequences could be both an increase in illegal funding channels and an increase in relative position of state-owned and often inefficient corporations in Chinese output. According to statistical authorities, state-owned corporations and units accounted for as much as 60% of all fixed investment in January–July 2004. Obviously, the possible inefficiencies could have an adverse impact on Chinese economic development in the coming years.

Somewhat surprisingly, there were reports in the summer of an emerging labour shortage in some areas of China, particularly in a few rapidly

developing coastal cities.

Although the problem is probably not yet very widespread, it indicates that a reform of the Chinese labour market is also extremely important for future economic growth. According to the most recent estimates, there are about 100 million internal migrants in China who have moved from rural to urban areas in search of employment, and it is estimated that in the rural areas there is still an underemployed population of 300–400 million people. However, it is increasingly difficult to attract these people to the cities as the living standard in rural areas gradually improves. In contrast, living expenses have risen considerably in the largest cities, and a low-paid employee can no longer be certain of a higher standard of living in the city.

Another problem is the poor educational level of the rural population. People who are unable to read and write cannot

perform all the tasks required in growing industries. Migration from rural to urban areas is further hindered by the fact that people migrating to the cities often have a very poor position in society: it is common for employers not to pay wages on time, and there is often no guarantee of access to school for the children of migrants. The emerging trend of moving production facilities from the coast to less-developed areas further inland is likely to continue at a brisk pace in the coming years.

Aino: the Bank of Finland's new dynamic general equilibrium model of the Finnish economy

Juha Kilponen, Economist, Economics Department

Antti Ripatti, Economist, Economics Department

Jouko Vilmunen, Research Supervisor, Research Department

Background

Many banks, economic research institutes, the Bank of Finland and the Ministry of Finance all prepare and publish macroeconomic forecasts on a regular basis. The purpose of these forecasts is to support economic agents' decision-making by providing a coherent picture of the present state of the economy and the outlook for the future. The forecast presented is the scenario identified as most likely. Apart from Bank of Finland forecasts, the systematic analysis of alternative scenarios has either not attracted much attention or been based purely on qualitative assessments.

The preparation of alternative calculations requires a systematic description of economic agents' behaviour across the economy as a whole. Such a description is referred to as a macroeconomic model. The Bank of Finland has traditionally put a lot of effort into developing macroeconomic models specifically for use in the drafting of alternative scenarios. Macroeconomic models have also proven useful when assessing how changes in economic policy or in the external environment propagate through the Finnish economy.

In recent years, a key tool for preparing the Bank of Finland's macroeconomic forecast has been the BOFMINI model.¹ This was developed in the mid-1990s to address a number of topical issues in economic policy. Key questions from the perspective of the central bank included the calibrating of

interest rate decisions in an environment of floating exchange rates and issues relating to financial market stability, eg assessing the effects of the banking crisis. The model proved equal to the challenge. Turning to the present and future challenges in economic policy, these are very closely connected with fiscal policy, demographic ageing and changes in production technology and technological development in general.

To meet these new challenges, the Bank of Finland launched a project in 2001 to develop a new macroeconomic model. The idea was to develop a model that would take advantage of recent developments in macroeconomic theory and the experience the Bank had gained in developing the EDGE model of the euro area.² In the new model (called Aino), the behaviour of economic agents is based on dynamic optimisation, and the model is internally consistent.³ As a result of the latter, all flow variables accumulate into corresponding stocks, and in the general equilibrium of the model the time paths of the variables converge with the well-defined long-term equilibrium. This is helpful in

¹ The BOFMINI model is an aggregative version of the BOF5 model (see Willman, Kortelainen, Männistö and Tujula (1998), 'The BOF5 Macroeconomic Model of Finland, Structure and Equations'. Bank of Finland Discussion Papers 10/1998). As such, it covers less sectors than BOF5. The Bank of Finland has a long tradition in the development and application of macroeconomic models stretching back to the early 1970s.

² See Kortelainen (2002) 'Edge: a Model of the Euro Area with Applications to Monetary Policy'. Bank of Finland Studies E:23.

³ Aino follows the branch of research into macroeconomic theoretical dynamic stochastic general equilibrium (DSGE) models in which a real business cycle (RBC) model is combined with price and wage rigidities.

preparing both short- and long-term calculations.

The final result of the project is a new model known as Aino. This has so far been tested only in the preparation of forecasts. The idea is to gain experience of how precisely the model describes the various aspects of the Finnish economy before using it in evaluating economic policy options.

Demographic change and fiscal policy

Demographic ageing will affect medium- and long-term macroeconomic development by affecting households' decisions on consumption and labour supply and influencing the distribution of wealth between the generations. It will also lead to increased expenditure on social welfare and health. To the extent these services are funded out of the public purse, the growth in the proportion of elderly people will increase the tax burden on the working-age population and the public sector's share of the national economy. If, in such a situation, the costs of servicing general government debt are also large, this will further restrict the scope for the active use of fiscal policy for short-term stabilisation and long-term growth objectives. At its most serious, the ageing of the population could threaten the sustainability of public finances. If other factors remain unchanged, an ageing population will reduce labour supply across the country as a whole, and this in turn will be reflected before long in rising wage levels.

Thus, when assessing the long-term impact of fiscal policy, a macro-

economic model must be able to take account of the effects of demographic changes on the long-term equilibrium of the economy and the sustainability of fiscal policy. When considering the impact of demographic factors on households' decisions on consumption and savings, the channels of influence are many. Demographic changes can also decisively alter the impact of monetary and fiscal policy on macroeconomic equilibrium.

The above factors make it essential for a macroeconomic model to have a well-defined long-term equilibrium to which its variables converge. In the long-term equilibrium, the price and quantity variables and their long-term rates of growth must be consistent with the general equilibrium of the model. Similarly, to take one example, tax revenues must be in long-term equilibrium in accordance with public expenditure so as to satisfy the Government's budget constraint. This is achieved in the model by determining the level of tax rates endogenously. Also, when assessing the short- and medium-term impacts of fiscal policy, a macroeconomic model must be able to take account of the heterogeneity of consumers in their decisions bearing on consumption and labour supply.

Consumers

In Aino, in the spirit of general equilibrium theory, consumers make optimal decisions on consumption and labour supply. As is normal in modern macroeconomic models, consumers in the Aino model seek to hold their lifespan consumption as stable as

possible. Consumers are viewed as being free from periodic credit constraints, and consumption decisions are thus neutral as regards risk considerations. Consumption decisions are, in contrast, influenced by household assets over the lifespan of the household, ie, in addition to existing financial assets, the present value of future earned income and income transfers. Thus, any economic factor that can be expected to influence the level of future earned income and income transfers will be reflected in consumers' behaviour already today.

In this sense, consumers in the Aino model also take account of the long-term budget constraints on general government finances when making decisions on consumption and labour supply. This is a typical feature of modern dynamic general equilibrium models, in which the behaviour of economic agents is based on dynamic optimisation at the micro level.

The heterogeneity of consumers is taken into account by assuming that for part of their lifespan they are retired. People of working age take account of their possible future retirement in their decisions on consumption and labour supply. The probability of retirement and the subsequent drop in income also causes people of working age to discount their future earnings more than if their planning horizon were infinite.

The planning horizon of pensioners is thought to be shorter than that of people of working age. Therefore, in the model, pensioners' propensity to consume from wealth is greater than that of the working-age population. As a

consequence of the different consumption behaviour of these different groups of consumers, fiscal and monetary policy can even in the short term alter the distribution of wealth between those of working age and the retired.

Under these assumptions, increased public consumption, eg financed by central government debt, will stimulate consumption demand only in the short term. Consumers will take into account the higher future taxes that will result from increased public consumption by increasing their savings in the medium term. The short-term expansionary effect of fiscal policy depends fundamentally on households' saving propensity. The faster household savings respond to changes in interest rates, the weaker the expansionary effect of fiscal policy will be.

Consumer heterogeneity means that increases in social security expenditure, including higher income transfers to pensioners from the working-age population, boost consumer demand, because the retired are more ready to consume than the working-age population. However, this has direct implications for labour supply, particularly when the increases in social security expenditure are financed by higher taxes. Increasing social security expenditure makes pensioners better off, but the long-term effect is to slow capital formation and hence weaken the economy's production potential.

As, in the model, labour supply and wage levels are determined endogenously, changes in consumption are also reflected in changes in labour

supply and hence in wages. In the short term, the strength of the response in consumption and labour supply depends fundamentally on the rate of substitution between the two, ie how households value consumption relative to leisure. In the long term, labour supply will also be affected by demographic factors, the pace of advance in labour-saving technology and long-term inflation and wage levels.

Labour market

In Aino, labour supply is determined endogenously via consumers' optimal decisions on consumption and labour supply. In the model, the labour market is imperfectly competitive due to the price setting power of employees. This means that real wages will settle in the long term at a level above the competitive equilibrium. This, in turn, means that the model's long-term equilibrium will include unemployment.

In the short term, real wages can depart from the long-term equilibrium described above. This is because of the slow adjustment of nominal wages, reflecting the long duration and overlapping nature of wage contracts. The slow adjustment of wages has been modelled using 'Calvo contracts'.⁴ In the model, the pace of nominal wage adjustment and employees' price setting power can if necessary be adjusted to suit the prevailing conditions in the labour market.

In Aino, labour demand is determined by domestic producers of

⁴ A Calvo contract is a technical approach used in modelling, the use of which means that wages do not adjust immediately to the level they would under frictionless market equilibrium.

intermediate products, which set labour demand optimally in accordance with the relative prices of capital and labour. Because of the slow adjustment of nominal wages and prices, short-term labour supply and demand can differ from the long-term equilibrium levels.

Public sector and employment pension funds

In Aino, the public sector buys goods and services from publicly-owned companies and uses labour to produce public services. It also distributes income transfers between consumers. The public sector finances its operations by collecting both direct and indirect taxes from the private sector and borrowing in the capital markets at the prevailing rate of interest. In Aino, tax revenues must be in harmony with the expenditure caused by public consumption and investment, income transfers and interest expenditure on public debt. This is ensured in the model by the use of a fiscal policy rule. This sets the tax rate so as to ensure the validity of the long-term budget constraint. The fiscal policy rule largely determines how quickly tax rates respond to changes in the economic operating environment. Adjustment is typically assumed to be slow.

Employment pension funds are distinguished from the public sector as a separate fund that distributes some of the income transfers between the working-age population and the retired. The funds collect employment pension contributions from the private sector – from companies and employees. The part of these contributions that is not

paid out to pensioners is saved into a fund. In Aino, the employment pension funds are owned by the private sector. Thus, the asset position of the employment pension funds has a long-term influence on consumption and labour supply.

Corporate sector

The particular challenge for the component of Aino that describes corporate behaviour – ie the supply component – is to describe the major changes in the structure of the economy that occurred in the 1990s: eg the dramatic decline in the labour share, the rapid improvement in average capital productivity and the growth in price margins. Aino has been built around the conventional assumption that economic growth depends ultimately on the efficiency and volume of labour input.⁵ Strictly speaking, the model does not explain the causes of technological development and hence growth in labour productivity. Therefore, the pace of technological change has to be estimated against the historical trend, from which the necessary assumptions as to the future pace of change are drawn.

In Aino, the temporary sources of growth and slump can be of many different types. Capital-saving technological advances are important in explaining the 1990s phenomenon whereby, despite rapid growth in output, investment recovery was, historically speaking, slow. According to Aino, this was because considerably

more output was extracted from the existing capital stock eg via the rearrangement of working hours. Moreover, changes in the structure of output are seen in the model as changes in the parameters depicting technological development. In the 1990s, output growth was strongest in sectors that required little in the way of productive capital per se. The structure of Aino also makes it possible to take into account temporary changes in consumer preferences. Such changes can be seen in eg growing demand for domestic products relative to imported goods irrespective of any movements in relative prices.

In Aino, the corporate sector comprises five imaginary firms. A key role is played by domestic producers of intermediate products, which combine capital and labour inputs to produce domestic intermediate products. In these companies' production technology, capital and labour inputs are technically complementary. Domestic producers of intermediate products operate in monopolistic product markets. Thus, they have pricing power in relation to their products. Such power is a consequence of the products' imperfect substitutability and is determined outside the model.

The model assumes that not all companies are able to constantly change the prices of their products at will (Calvo pricing). Therefore, prices do not adjust immediately to an optimal level from the perspective of the company. The friction associated with pricing forces companies to take

⁵ Technically speaking, long-term economic growth depends on the pace of development in labour-saving technology and the pace of growth in labour input.

account in price-related decision-making of how they expect their cost factors – eg capital costs, pay costs, changes in production technology, competitive factors – to develop in the future. In the model, such things as anticipated future pay rises already affect current prices, factor demands and output volume.

Domestic producers of intermediate products purchase their capital inputs (capital services) in a competitive capital market (from companies providing capital services) in which capital is freely for sale and transferable for use by other companies. An alternative to changes in the physical capital stock is to change the capacity utilisation rate. The cost here is that more intensive capital utilisation also speeds up capital depreciation. This leads before long to a need for more investment. Capital utilisation also causes other costs: interest costs must be paid to the capital financier, and building up the capital stock also requires time and physical resources. Because it takes time to build up the physical capital stock, when deciding on an investment companies must take into account what the economic operating environment will be like by the time the investment has matured into functioning production capacity.

The optimal investment decisions in the real world described above together with the pricing feature make firms' behaviour forward-looking. In this respect, Aino emphasises, in line with modern macroeconomic theory, the importance of expectations in the behaviour of economic agents. Taking

expectations into account has a crucial effect on how Aino is used in making forecasts. This is because the model's outcome also fundamentally reflects an assessment of economic agents' expectations.⁶

Domestic intermediate products are used in the production of final products. Companies producing consumer goods combine domestic and foreign intermediate product inputs. Capital goods and services producers and producers of goods and services for export also operate in a similar way. All three types of final producer operate in competitive product markets in which they take the market price for their products as given in their own decision-making. Thus, they only decide their own output volumes and the intermediate products they will use within the limits set by their production technology. Because of this, total imports depend on consumption, investment, exports and the relative prices of imports.

⁶ Among other means, economic agents' future expectations are traditionally measured by barometer surveys. These can be used in selecting parameter values for the model. There is also fairly plentiful indirect data available on the future expectations of economic agents. An appendix to the Bank of Finland's winter forecast (Bank of Finland Bulletin 1/2004) ('Deriving growth and inflation expectations from financial market prices') describes how growth and inflation expectations can be estimated from bond and share prices. For many products, eg oil or electricity, there are markets where future trade volumes and prices can be agreed in advance. The prices on these futures markets indicate almost directly economic agents' expectations regarding the future prices of these products. The oil price assumptions in the present forecast are based partly on these price expectations. Similarly, the forecast's interest and exchange rate assumptions are derived directly from financial market instruments. It is, however, impossible to get comprehensive data on economic agents' expectations, particularly in respect of macroeconomic variables.

In Aino, the impact of relative prices is estimated to be fairly strong. This means eg that if the prices of imported intermediate products (import prices) rise strongly relative to the price of the domestic intermediate product, the final producer will to a large degree substitute the imported input with domestic input. An exception to this is that in the manufacture of goods for export the domestic and foreign intermediate product inputs are rarely interchangeable, but rather complement each other. For example, the assembly of mobile phones requires Finnish know-how and imported parts. In contrast to many other models, Aino is consistent in respect of how different sectors' internal input demand, prices and output volumes are interlinked.

The construction in Aino of international prices and the import prices derived from them is described in the accompanying box (p. 78–79). Import prices are assumed to be inflexible in a manner corresponding to domestic prices. It is also assumed that, in the short term, exchange rate pass-through to import prices is incomplete. This is due to the fact that some international companies price their products in accordance with demand in the specific market area.

Aino as a forecasting instrument

In developing Aino, particular attention was given to changes in production technology, demographic changes and taking account of economic agents' preferences and expectations. Combined with modern general equilibrium theory, these factors help to

achieve a systematic analysis of short- and long-term trends in the Finnish economy.

Aino's structure also makes it easier to use in forecasting. In forecasting work, the experts' own assessments of the various sectors of the economy often exceed the forecasting ability of a model, but models are nevertheless an important tool in constructing a consistent overall picture. After all, the model is only an instrument. No model is perfect, as they are always simplified descriptions of the real world. However, Aino reflects the conceptual framework of the economists who prepare the forecast and helps focus their deliberations and clarify the process of shaping the forecast assumptions and expert information into the final figures presented in the forecast.

Aino has been used here for the first time in preparing the Bank of Finland's forecast.

Box.

Measuring the export prices of Finland's competitors

*Hannu Viertola
Economist
Economics Department*

The industrial economies' export price development has a considerable impact on a small open economy such as Finland. Changes in international export prices are reflected via import prices in domestic costs and income formation, relative prices such as the terms of trade, and eventually in domestic inflation. Changes in international export prices directly affect companies' raw material and investment costs and the prices of final products. On the other hand, production costs are also affected by the price of energy and many commodity prices. Import prices are also reflected to some extent in export prices, via raw material and capital goods costs.

International export prices can be measured in a number of different ways. Most often, they are monitored by reference to different countries' export price indices. The direct simultaneous comparison of several countries' export prices with import prices is misleading. Therefore, in the case of Finland, the export price indices of different countries are most often used to calculate an index that gives as good a picture as possible of the overall development of export prices in Finland's competitors, ie the

developed industrial economies. A good index of competitors' export prices will cover as well as possible those developed industrial economies who have a significant share of Finland's foreign trade and who also compete with Finland in the international export market. Competitors' export prices are thought to match fairly well the structure of Finland's foreign trade and hence the development of import prices. Thus, the index should correspond to the international price trend in the main import items, ie capital goods and services and consumer goods and services. Energy and commodity prices, in contrast, are largely determined on the world market. To ensure accurate, up-to-date calculations, it is also important to take account of the ready availability and reliability of the statistics used.

The historical development of Finland's import and export prices has been hard to assess with sufficient precision through the use of competitors' export price indices. The structure of Finland's foreign trade is rather different from that of other developed industrial economies. Comparison is also made more difficult by the large fluctuations in energy and commodity prices, as these impact differently on Finland's foreign trade prices and competitors' export prices. However, in general, competitors' export price indices

give a good picture of international price trends.

Competitors' export prices and Finland's import prices are also important when preparing economic forecasts using the Bank of Finland's macroeconomic forecasting model (Aino).¹ However, use of the competitors' export price index in preparing a forecast also requires a forecast of the development of both competitors' export prices and exchange rates.

The competitors' export price index covers the following 6 countries: Sweden, Germany, the United States, the United Kingdom (excl. oil), Japan and Italy. A large proportion of Finland's foreign trade is with these countries. In terms of value, they account for slightly under 50% of Finland's foreign trade. The euro area is represented by Germany and Italy, whose combined share accounts for approximately 48% of exports to the euro area. In value terms, the euro area as a whole accounts for 33% of Finnish exports.

The export price indices for the different countries are aggregated into a single competitors' export price index by weighting the index for each country according to its share of Finland's export value and

¹ *The model is described in more detail above in the article 'Aino: the Bank of Finland's new dynamic general equilibrium model of the Finnish economy' (p. 71–77).*

converting this into euro using the country's bilateral exchange rate. The export value shares are calculated as annual moving weightings, as the structure of foreign trade has changed considerably in the past 20 years.

Over this period, competitors' export prices have fluctuated somewhat more than Finland's import prices. Dramatic exchange rate movements and several different exchange rate regimes in the 1980s and 1990s are reflected as nominal changes in the euro-denominated index. Exchange rate changes do not translate in the same way into import prices, because many companies take account of competition and demand factors in the market area when pricing their products. The recession of the early 1990s

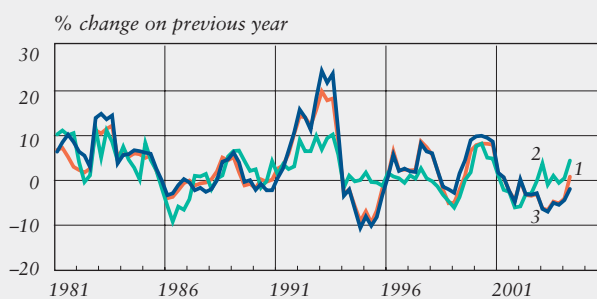
and a lack of competition have also contributed to the gap between international prices and Finland's import prices.

Apart from one or two exceptional periods, competitors' export prices have been relatively successful in explaining the development of Finland's

import prices. Moreover, the present index, which is aggregated in a slightly different way using moving weightings, explains Finland's import prices somewhat better than the fixed-weight index used as a comparison.

Chart.

Competitors' export prices v. Finland's import prices



1. Competitors' new export prices, euro
 2. Import prices of goods and services
 3. Competitors' export prices used as comparison
- Sources: Statistics Finland and Bank of Finland.

Forecast errors in the Bank of Finland's forecasts

Hanna-Leena Männistö
Adviser
Economics Department

Central banks prepare macroeconomic forecasts in support of their monetary policy decisions and with a view to participating in overall economic policy discussions. In this respect, Finland's accession to Economic and Monetary Union has meant for the Bank of Finland new areas of emphasis and new challenges. In the period of independent monetary policy and inflation targeting, the Bank's forecast for the domestic economy constituted a key tool for determining and signalling the stance of monetary policy. The Bank's participation in monetary policy preparation for the euro area as a whole has shifted the focus of its macroeconomic analysis increasingly on to euro area-wide assessment. However, analysis of the Finnish economy continues to be important from the point of view of anticipating the repercussions of the single monetary policy on the Finnish economy and signalling them to other economic policy agents and the general public. In addition to assessing cyclical conditions, the Bank's forecast analysis also provides a starting point for an examination of growth and stability-related structural issues.¹

As required by its inflation targeting regime, the Bank of Finland gradually started to adopt a transparent approach to communication in its economic review *Markka & talous* in 1993. Inflation and growth forecasts were not yet at that time published

systematically in figures, whereas the outlook for the economy was regularly reported. Since 1999, ie from the start of Economic and Monetary Union, the Bank's communication stance has become increasingly transparent in its publication *Euro & talous* (translated into English as the Bank of Finland Bulletin), where macroeconomic forecasts with risk analyses are reported in full. In addition, the Bank's forecast reports since 1980, previously issued for in-house use only, have subsequently been published on the Internet.

Forecast articles explain why estimates have changed over time. However, closer assessment of forecast accuracy requires a more systematic approach. This can most suitably be done at the current juncture, when a new macroeconomic model, known as *Aino* (see article on *Aino* above, p. 71), has been introduced to the set of forecasting tools. This enables the use of experience gained in preparing forecasts for 1997–2003, when the Economics Department employed the BOF5 Macroeconomic Model as a tool for integrating forecast information and perspectives.²

This article does not, however, assess the role of the macroeconomic model or its supplementary tools in forecasts, or the internal organisation of the work; rather, the point of view is that of a forecast user. The article compares growth and inflation forecasts with actual outcomes and considers the nature of forecasts. The aim is to shed light on forecast uncer-

¹ This article deals only with the Bank of Finland's own forecasts rather than cooperation with the Eurosystem in the area of forecasting. In addition to publishing annually two forecasts of its own, the Bank of Finland also participates in eg the production of the biannual Eurosystem staff macroeconomic projections for the euro area.

² Sources: Bank of Finland's BOF model forecast database, Bank of Finland's forecast reports and tables, *Euro & talous* 1/1999–1/2004, and Willman, Kortelainen, Männistö and Tujula (2000).

tainty and forecast conditionality on assumptions. The article provides a statistical analysis of forecast errors in respect of the Bank of Finland's forecasts and, by way of comparison, also in respect of forecasts published by Consensus Economics, referred to hereafter as consensus forecasts.³ Consensus forecasts represent averages of forecasts collected monthly from several private forecasters and therefore, as shown by international studies, are deemed to perform well in terms of forecast accuracy compared to predictions by large international forecasters.⁴ The aim of the present forecast error analysis is to promote further development of forecast analysis; the analysis is comparable to corresponding studies by other research institutes and central banks.

What makes forecasts inaccurate?

Forecast errors are due in part to erroneous assessments by forecast compilers and shortcomings in forecast models. Large forecast errors seldom arise from decisive changes in household or corporate behaviour. By contrast, changes in economic policy and the economic policy regime have caused major surprises. Forecasts are always unavoidably conditional on the type of information that is available on the current situation. Information is typically uncertain, especially at cyclical turning points.

For a small open economy such as Finland, the conditionality of forecasts on assumptions concerning the world

economy and economic policy is of primary concern. Typically, some of the key assumptions tend, before long, to deviate from forecast paths, which makes it necessary to update the macroeconomic forecast in its entirety. This adjustment of assumptions and resultant revision of forecasts is an integral part of a forecaster's day-to-day business, as the factors causing fluctuations in eg oil prices and exchange rates during the forecast period are often unexpected.

Growth and inflation forecasts

The present forecast error analysis deals with the Bank of Finland's growth and inflation forecasts for 1997–2003. The changes in GDP growth forecasts from one forecast round to another are shown in chart 1. (Forecasts and actual outcomes for each year are shown using curves of different colour. The square-shaped point indicates the actual outcome. Correspondingly, chart 2 shows the changes in inflation forecasts for the same years.)

GDP growth forecasts for 1997–2000 often underpredicted growth (chart 1). The deceleration of growth at the start of 2001 was not discerned until autumn 2001. Subsequently, growth forecasts have been fairly close to actual outcomes – although that growth strengthened more moderately than was forecast in autumn 2002. Forecast errors in respect of domestic economic growth were linked with developments in the world economy.

Inflation for 1998 and 1999 was overpredicted, and subsequently inflation for 2000 and 2001 was under-

³ Consensus Forecasts, Consensus Economics Inc. (1996–2003).

⁴ Batchelor (2001).

predicted (chart 2). One of the main reasons for this was the movement in the price of oil, which diverged from the forecast path derived from the oil futures markets and the expected medium-term equilibrium price: the price of oil fell substantially in 1998 and rose in 2000.

Forecast errors for inflation have been smaller than those for GDP growth. On the other hand, the variation in their respective actual outcomes has also been different: inflation has fluctuated between 1% and 3%, and GDP growth in a range of as much as 1% to 6%. During this period, the fluctuations in Finnish GDP growth have been large in international comparison. Admittedly, it generally holds that, in a period of subdued inflation when central banks have been successful in anchoring the inflation expectations of the general public at a moderate level, inflation has been predicted with more precision than growth.⁵

For a comparison between forecasts and actual developments, measures of inflation, such as the consumer price index (CPI) and the Harmonised Index of Consumer Prices (HICP), are useful indicators, considering Statistics Finland's short time lag and the extensive information coverage of these indices immediately at the time of release. The choice of a measure for actual outcome in growth is more difficult, as the National Accounts preliminary data are revised on several occasions and, in addition,

the system may be subject to methodological changes that also affect historical data (see article below, p. 91). Updates of GDP figures are reflected in later changes in actual growth figures (chart 1) even long after the forecast date.

To gauge actual GDP growth, the latest National Accounts update by Statistics Finland can be regarded as the appropriate measure. One alternative would be to use Statistics Finland's estimate published in the summer

Chart 1.

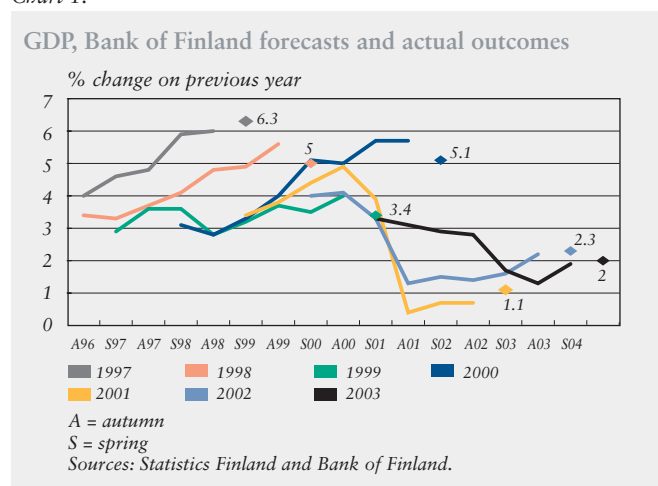
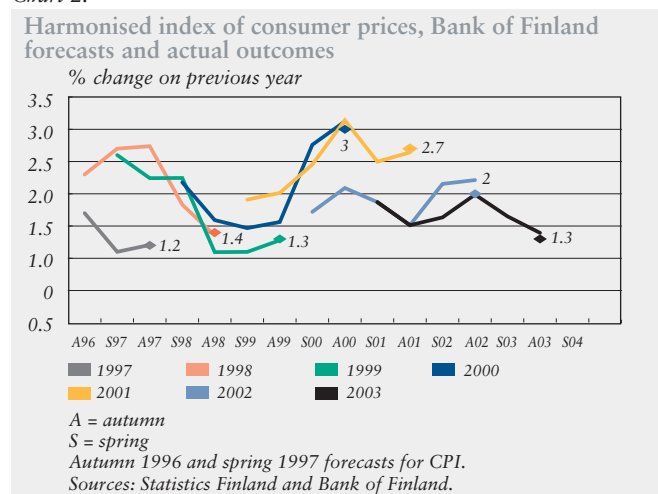


Chart 2.



⁵ Blix, Wadefjord, Wienecke and Ådahl (2001).

following each forecast year. This latter benchmark would be fairer in the sense that, in practice, forecasters very seldom use statistical data that deviate from estimates – or preliminary estimates – published by Statistics Finland.⁶

Forecasts up to one year and two years ahead

The Bank of Finland's forecast horizon is the current year and the next two years. This somewhat longer horizon than usual was chosen to allow for an analysis of the adjustment of the Finnish economy to interest rate and exchange rate changes, other policy changes and external shocks.

In the following, stock is taken of the Bank of Finland's forecasts prepared

⁶ In this article, the first approach was chosen, modified so that a statistical analysis based on quarterly data is prepared using the February 2004 National Accounts update. This makes it possible to avoid benchmark data being affected by a methodological change introduced by Statistics Finland in June 2004, its new seasonal adjustment method and working day adjustment. The GDP estimate for 2003 remained almost the same in the June update (2.0%) as in the February preliminary data (1.9%).

and published between autumn 1996 and spring 2002 for real economic growth and inflation in 1997–2003.⁷

The forecasts were prepared on the basis of quarterly data, which are used for the analysis presented in table 1 but were initially published on an annual basis. The time span being very short, the number of observations is small from the statistical point of view. The statistics used are intended to help identify forecast problems and enhance comparability with forecasts by other forecasters.

The mean of forecast errors shows whether forecasts systematically over- or underpredict the correct outcome. The Bank of Finland's growth forecasts extending two years ahead have, on average, been 0.5 percentage points too optimistic in the period under review (table 1). Otherwise, the mean values of

⁷ Observations of HICP inflation are less frequent than those of GDP, because quarterly production of the HICP forecast did not begin until autumn 1997. By way of comparison, a forecast concerning the national consumer price index is also included, even though it does not deviate appreciably from the HICP forecast.

Table 1.

Bank of Finland's forecast errors for GDP growth and inflation from autumn 1996 to spring 2002				
<i>Forecasts as percentage changes on the corresponding quarter of the previous year</i>				
Variable and forecast horizon	Forecast errors (actual outcome less predicted value)			Number of forecasts
	Mean	Mean absolute error	Root mean square error (RMSE)	
GDP, %, 1 year ahead	0.2	1.7	2.2	12
GDP, %, 2 years ahead	-0.5	1.6	2.6	10
HICP, %, 1 year ahead	0.3	0.9	1.0	10
HICP, %, 2 years ahead	0.2	0.7	1.0	8
CPI, %, 1 year ahead	0.0	1.0	1.2	11
CPI, %, 2 years ahead	-0.3	1.1	1.2	9

Source: Bank of Finland.

The statistics are calculated as follows (f denotes the forecast of period t , y the actual outcome and h the number of forecasts:

$$\text{mean} = \sum_{t=1}^h (y_t - f_t) / h, \text{ mean absolute error} = \sum_{t=1}^h |y_t - f_t| / h, \text{ root mean square error (RMSE)} = \sqrt{\sum_{t=1}^h (y_t - f_t)^2 / h}.$$

forecast errors are close to zero; hence, there has been no major bias in growth or inflation forecasts.

If upward and downward errors alternate, forecast accuracy may seem good in terms of the mean error, even if the forecasts were inaccurate. In such cases, large mean absolute values of forecast errors show that there has been considerable variation in forecasts on both sides of the actual outcome. Forecast errors for GDP growth have been fairly large, nor have forecast errors for inflation developments been insignificant (table 1). Forecast inaccuracy does not seem to grow much when the forecast horizon lengthens from one year to two years.

The root mean square error (RMSE) provides a third method for analysing forecast errors. It penalises large single forecast errors. This would seem to hold in the case of GDP growth forecasts, especially when the forecast horizon is two years (table 1). Failure to forecast the 2001 cyclical downturn considerably impaired statistical outcomes. Many other forecasters of the Finnish economy also failed in this respect, such as the Ministry of Finance⁸ and the Research Institute of the Finnish Economy, ETLA. Consensus forecasts, too, went wrong. The Research Institute of the Finnish Economy has published a report on its forecast errors and forecast accuracy, employing, however, somewhat different methods and periods than used in the present article. The growth and inflation forecast errors of the

Research Institute of the Finnish Economy are roughly of the same magnitude as those of the Bank of Finland.⁹

Central banks that have adopted inflation targets typically publish, in their inflation reports, forecasts extending two years ahead from the release date of the report. In their publications, they also present evaluations of the accuracy of their predictions, analysing the link between monetary policy measures and forecasts. Comparison of the Bank of Finland's forecasts with corresponding forecasts by the Swedish¹⁰ and Norwegian¹¹ central banks does not reveal major differences in the precision of growth and inflation forecasts. The Bank of England has reported its forecast errors for almost the same review period as that discussed in this article. Measured in terms of absolute values of forecast errors, the forecast errors of the Bank of England have been smaller than those of the Bank of Finland.¹²

Current-year and year-ahead forecasts

Tables 2 and 3 compare the Bank of Finland's forecasts with consensus forecasts by analysing published annual forecasts and four different forecast horizons, ie same-year and previous-year spring and autumn forecasts. Of consensus forecasts, forecasts published in March and September are included, which fairly well corresponds to the

⁸ Ministry of Finance, Economics Department (2001).

⁹ Research Institute of the Finnish Economy, ETLA (2004).

¹⁰ Blix, Friberg and Åkerlind (2002).

¹¹ Hoegh-Omdal (2004).

¹² Bank of England (2003).

publication frequency of the Bank of Finland's forecasts.

On the basis of the mean values of forecast errors, the Bank of Finland's growth and inflation forecasts have been almost unbiased (tables 2 and 3). However, previous-year forecasts have, on average, slightly (0.3 percentage points) overpredicted inflation. The consensus forecast has, in turn, slightly underpredicted growth. The mean absolute values of forecast errors become smaller, as expected, when the forecast horizon shortens and data on the year under forecast begins to accumulate.

Even in the same-year spring forecasts for growth, there have been some major forecast errors. This is indicated by the root mean square error (RMSE), which diminishes only slowly upon transition from previous-year

forecasts to same-year forecasts. In consensus forecasts, growth in 1997 was underpredicted even in same-year September forecasts by a good 2 percentage points, whereas growth in 2001 was overpredicted by almost 2 percentage points. Accordingly, not even consensus forecasts were able to anticipate cyclical turning points. The Bank of Finland's forecasts for 1997 and 2001 were almost equally inaccurate (chart 1).

Owing to the small number of observations, even this broadly comparable analysis fails to present precise arguments as to the relative superiority of forecasts, but it may be generally noted that, in the period under review, the Bank of Finland's forecast errors have been of roughly the same order as those in consensus forecasts.

Table 2.

Forecast error for growth, actual outcome less predicted GDP change in forecasts for 1997–2003						
Change in GDP, % Release date of forecast	Bank of Finland's forecast errors			Consensus forecast errors		
	Mean	Mean absolute error	Root mean square error (RMSE)	Mean	Mean absolute error	Root mean square error (RMSE)
Previous year, spring	-0.3	1.5	1.8	0.4	1.9	2.0
Previous year, autumn	0.2	1.6	1.9	0.2	1.8	2.1
Same year, spring	0.1	1.0	1.3	0.5	1.4	1.7
Same year, autumn	0.5	0.6	0.7	0.5	1.0	1.3

Source: Bank of Finland.

Table 3.

Forecast error for inflation, actual outcome less predicted CPI change in forecasts for years 1997–2003						
Change in CPI, % Release date of forecast	Bank of Finland's forecast errors			Consensus forecast errors		
	Mean	Mean absolute error	Root mean square error (RMSE)	Mean	Mean absolute error	Root mean square error (RMSE)
Previous year, spring	-0.3	0.9	1.1	-0.2	0.8	0.8
Previous year, autumn	-0.3	0.8	1.0	-0.1	0.6	0.7
Same year, spring	-0.1	0.4	0.4	0.1	0.4	0.5
Same year, autumn	-0.1	0.1	0.1	0.0	0.1	0.2

Source: Bank of Finland.

Breakdown of forecast errors into components

Consensus forecasts are by nature such that their underlying assumptions change from one forecaster to another. However, the sources of the largest forecast errors are probably basically the same as those of the Bank of Finland's forecast errors. Export growth in 1997 was surprisingly strong due to a considerable increase in the exports of electronic equipment. Forecasts failed to anticipate the Nokia phenomenon, so that actual growth in 1997–2000 was higher than predicted in all consensus forecasts and in almost all Bank of Finland forecasts. Forecasters were also puzzled by the large month-on-month variation in the volume of ICT output. In addition, compilers of statistics had problems in breaking down the value added and exports of the rapidly enlarged electronics industry into price and volume changes. Partly for this reason, in summer 2001, Statistics Finland, too, overpredicted growth generated in 2000.

In 2001, with the world economy rapidly drifting into recession, exports disappointed expectations. In addition, the above factors that complicated the

interpretation of current information made it difficult to fully understand the changed situation. In the Bank of Finland's autumn 2000 forecast, it was still assumed that world trade would reflect very robust growth and that import volume in Finnish export markets would grow by 9% in 2001 and by 8% in 2002. The 2001 spring forecast had already revised downwards the growth estimate for world trade, but it was not until autumn 2001 that the abrupt change in the situation was realised. Even so, too much hope was placed on the strengthening of world trade in 2003. The export forecast for 2001 was 9½% in autumn 2000 and 6% as late as spring 2001. Only in autumn 2001 did we see that export volume decreased slightly that year.

Given the considerable uncertainty that is associated with forecasting international price and exchange rate movements and the increased difficulty in making price/volume estimates owing to structural changes in exports, exports have understandably constituted the hardest expenditure component to forecast during the period under review (table 4). Errors in forecasting exports also weigh heavily

Table 4.

Analysis of growth forecast error, forecasts for percentage changes in 1997–2003							
Forecast error and horizon	GDP	Total consumption	Total investments	Exports	Imports volume in Finnish export markets	Import prices in Finnish export markets in Finnish currency	Employment
Mean, 1 year	0.2	0.3	-2.4	3.8	-0.1	1.1	0.3
Mean, 2 years	-0.5	0.5	-5.3	0.0	-1.9	-1.2	0.1
Mean absolute error, 1 year	1.7	0.8	3.1	8.0	4.2	5.6	0.7
Mean absolute error, 2 years	1.6	0.9	5.3	5.8	4.5	4.9	1.5

Source: Bank of Finland.

on GDP forecasts. By contrast, they are not so strongly reflected in employment forecasts, which have been more accurate than forecasts for total output. Investments, too, which are typically prone to wide cyclical fluctuations, are difficult to forecast. The investment forecast has, on average, been too strong, ie the risks of weaker-than-forecast domestic investment performance have been realised. By contrast, it has been quite easy to anticipate consumer behaviour and its underlying factors.

Errors in the inflation forecast are analysed by comparing forecast errors relating to domestic cost developments and import price developments (table 5). In forecasting domestic unit labour costs, ie developments in wages, social security contributions and productivity, it has been possible to achieve much greater precision than in forecasting import price developments. Even though import prices in Finnish currency did not, on average, rise as much as forecast, no systematic bias was generated in the inflation forecast. The estimate of exchange rate pass-through to euro-denominated import prices has been revised downwards in recent forecasts in order to improve forecast accuracy in this respect.

Conclusions

Forecast conditionality on assumptions has clearly surfaced in the present analysis of forecast errors. The Bank of Finland's key forecast assumptions aim at providing, to the extent possible, a broad-based view of the world economy. For the sake of consistency, assumptions concerning future developments in market interest rates are derived from financial market information. In addition, in connection with the Bank's forecast, a sensitivity analysis is conducted to estimate how changes in individual forecast assumptions would affect overall economic performance.

The Bank's forecast analysis has required that the economy also be examined by main sector of industry. In the electronics industry, for instance, there are certain special features that need to be taken into account separately. Major structural changes in the economy, in response to the expansion of the ICT industry, and technological advances have contributed to pressures towards reforming the Bank of Finland's macroeconomic model. On the other hand, many questions concerning fiscal policy and globalisation have required an analysis of their own, the results of

Table 5.

Analysis of inflation forecasts error, forecasts for percentage changes in 1997–2003			
<i>Forecast error and horizon</i>	<i>HICP</i>	<i>Unit labour costs</i>	<i>Import prices</i>
<i>Mean, 1 year</i>	0.3	-0.3	-1.7
<i>Mean, 2 years</i>	0.2	-0.2	-2.6
<i>Mean absolute error, 1 year</i>	0.9	2.0	4.1
<i>Mean absolute error, 2 years</i>	0.7	1.9	4.9

Source: Bank of Finland.

which have been incorporated into the forecast framework provided by the macroeconomic model. This will be the case also in the future.

The Bank's forecast provides, at the time of compilation, the most probable scenario of future developments. In alternative scenarios – eg upon realisation of a risk affecting the world economy – events follow a course that, in a certain decisive respect, clearly differs from what was forecast; hence, Finnish economic performance may diverge significantly from the predicted scenario. Such alternative scenarios will also be reported to the public whenever the degree of probability for their realisation is high enough or they have important economic consequences. Risk scenarios are an effective way of signalling the challenges that households, companies and policy-makers may have to face in the next few years.

The Bank of Finland's forecast reports have always included an assessment of forecast uncertainty and risks. However, risks have not always been quantified; rather, the focus of the analysis has been on probable threats or risks that, during the forecast period, may lead to developments that clearly diverge from the forecast scenario. The reports provide estimates of whether there are upside or downside risks to growth and inflation, or if the risks are in balance. However, these assessments are not presented in the relevant forecasts so systematically as to permit measurement of the correlation between forecast risks and actual forecast errors. However, a comparison of published

forecast texts with forecast errors suggests that perceived risks and actual errors have often been in the same direction.

In the present analysis, the Bank of Finland's forecast errors proved to be of roughly the same magnitude as those of other forecasters of the Finnish economy. Identifying the sources of errors in assessing the current situation and in setting forecast assumptions will be useful for further development of forecast models. The use of forecasts will continue to depend on our ability to signal the unavoidable element of forecast uncertainty. In this respect, the development of risk analyses and alternative scenarios is of primary concern.

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The accuracy of preliminary National Accounts data

*Olli Savela, Senior Statistician, Statistics Finland
Pentti Forsman, Economist, Economics Department*

As the name suggests, the National Accounts give a comprehensive and systematic description of national monetary transactions. In order to compile the National Accounts, Statistics Finland collects a wide range of varied data on economic developments. Naturally, this takes time. It takes approximately two years before the 'final' National Accounts data becomes available in Finland.

The compilation and release calendar for the National Accounts therefore differs from that of most other economic statistics. For example, price indices and labour statistics are available in two or three weeks after the end of the reference period, and the data is also final from the outset. This is naturally excellent for the users of the statistics. The 'slowness' of the National Accounts is often considered a problem, since rapidly available statistics are needed to support decision-making on economic policy.

The conflict between speed and accuracy

In order to solve this problem of slowness, preliminary data is released. However, this poses the unresolved issue of accuracy. If the preliminary data differs greatly from the final data its usefulness is questionable and it can even give an erroneous picture of economic developments. In Finland, however, the preliminary data has generally been quite accurate.

There are two main factors that affect the release calendar for the National Accounts: the needs of the users and the availability of source statistics.

The most important user of the National Accounts in Finland is the Ministry of Finance. It issues twice a year, in March and September, an Economic Survey which serves as the most important background material in the preparation of the Budget. In order to draft the Survey, the Ministry requires up-to-date information on economic developments. The Bank of Finland and other economic survey institutions also use the latest National Accounts data as the basis of their economic forecasts.

Monthly GDP indicator

The monthly GDP indicator provides the first in-depth picture of economic developments. It is published around 55 days after the end of the reference period and compiled mainly on the basis of statistical information that is quickly available. The monthly GDP indicator can also be described as the GDP volume indicator. It measures the volume of output from the perspective of supply, without considering national demand. It covers 6 economic sectors.

Every three months the monthly GDP indicator is published more quickly, 45 days after the end of the reference period. In these cases the indicator is used as the basis for calculating the flash estimate of quarterly GDP growth for EU-wide statistical needs.

Quarterly National Accounts

The formal quarterly National Accounts are published for the first time 70 days at most after the end of the reference quarter. Instead of

measuring only output volume, they observe economic developments more extensively from the perspective of both supply and demand. This means the compilation of a balance of resources and expenditure. The quarterly accounts statistics cover about 20 economic sectors. In addition to measuring volume growth, they also include data calculated at current prices.

Earlier monthly GDP indicator and quarterly accounts data can be revised whenever new monthly or quarterly statistics are compiled.

Annual National Accounts

The first version of the annual National Accounts is published at the end of February following the reference year. In this version, the balance of resources and expenditure is based on the quarterly accounts, which means that the fourth quarter is calculated slightly faster than the other quarters. The preliminary annual National Accounts also include the first version of institutional sector accounts.

The first complete version of the annual accounts is compiled in July. In this version the classification of industrial sectors and individual consumption itemised according to purpose is far more detailed than in the quarterly or preliminary annual accounts. The July release covers about 100 industrial sectors. The balance of resources and expenditure as well as sector accounts are revised in the June release.

The data is revised for the second time in January, about 13 months after

the end of the reference year. The final data used to be available approximately 18 months after the end of the reference year, but the time lag is currently about two years. The slow publication of the final data is counterbalanced by its quality, which has improved considerably. The final annual accounts are currently based on balanced product accounting, ie supply and use tables. The second revision covers about 950 products. There are also more industrial sectors than in the earlier releases: 184 in all.

As with other releases, the data included in the second revision is final only for a given period. There have recently been improvements to the National Accounts every four or five years due to revisions in international accounting systems. At the same time, there have also been 'level revisions' dating back to 1975. In fact, National Accounts data never becomes really final.

Reasons for improved accuracy of statistics

Clearly the most important reasons for the improved accuracy of National Accounts data are the availability of new information sources and the improved accuracy of source statistics. Sometimes the accounting methods can also be revised. In addition, changes in base years also alter the data to some degree. Similarly, the introduction of the new international accounting systems, SNA93 and ESA95, in Finland in 1999 changed the figures. For example, the level of GDP increased by about 2%.

New information becomes available all the time

When the monthly GDP indicator is calculated there are about 10 key volume indicators available for the various economic sectors. The most important of these is the volume index of industrial output. Other key data sources are the volume indices of wholesale and retail trade, the index of construction materials and data on the sale of diesel oil.

When the quarterly National Accounts are compiled there is already more information available on both the supply and the demand side. In addition to numerous volume indices, turnover indices based on value added data also measure the development of output growth. Foreign trade statistics, current account statistics, trade statistics and quarterly statistics on general government income and expenditure, among others, provide information on demand. Price statistics, labour statistics, the average earnings index and aggregate wage indices also help to outline economic developments.

When the preliminary annual National Accounts are compiled the above-mentioned and several other general government statistics are available. These include the estimated financial statements of the local government municipalities and joint municipal boards, central government financial data from January to November and estimates for December, and the statistics of the Finnish Social Insurance Institution.

The second release in July is already largely based on final accounts

data. Several source statistics have also become final by this time. These include most of the primary production output statistics, the volume index of new residential construction, trade sales statistics, final central government accounts, banking statistics, foreign trade statistics, and turnover and aggregate wage indices. Preliminary data on structural statistics for industry and many other economic sectors, and financial statistics on local government and the joint municipal boards, are also available at this time. The structural statistics are especially important.

When the third version of the annual National Accounts is compiled in January, new statistical data has become available on taxation and insurance companies, among others. Final statistics now available are the register of enterprises, structural business statistics, the average earnings index and financial statistics on local government and the joint municipal boards.

When the final supply and use tables are compiled there are final statistics available on industrial products, consumption surveys (in those years when they are conducted), accident insurance premiums, employers' earnings-related pension contributions, agricultural business and income statistics, and current account statistics.

Compilation of electronics statistics poses problems

The electronics sector presents its own particular problems for the compilation of preliminary statistics, and partly for

final statistics, too. Businesses do not provide Statistics Finland with sufficiently detailed information on eg the breakdown of turnover by products. It is also difficult to break down production into volume and price components.

In the quarterly National Accounts (and the preliminary annual accounts that are based on them), output volume is measured by the monthly index of industrial volume, which is in turn based primarily on output volumes (number of mobile phones produced, etc). Because improvement in quality is

also a part of volume growth, preliminary data easily underestimates the true level of growth.

GDP volume change revised by 0.6 percentage points on average

The most important information the National Accounts provide is the change in the volume of GDP. The accuracy of the preliminary annual accounts data released at the end of February is best measured by comparing it with the 'final' data published after 1½ to two years.

Table 1.

Change in GDP volume					
	<i>Preliminary annual accounts, published in February t+1</i>	<i>'Final' data, published in July or December t+2</i>	<i>Deviation, final data minus preliminary data</i>	<i>Finnish SNA (SKT2000), current data, base year 2000</i>	<i>Deviation, current data minus preliminary data</i>
1979	6.6	7.6	1.0	6.7	0.1
1980	5.3	6.0	0.7	5.1	-0.2
1981	1.0	1.5	0.5	2.1	1.1
1982	0.9	3.0	2.1	3.2	2.3
1983	3.3	2.9	-0.4	2.8	-0.5
1984	2.9	2.7	-0.2	3.2	0.3
1985	2.8	3.3	0.5	3.4	0.6
1986	2.0	2.1	0.1	2.3	0.3
1987	3.2	4.0	0.8	4.3	1.1
1988	4.6	5.4	0.8	4.7	0.1
1989	5.0	5.4	0.4	4.8	-0.2
1990	0.3	0.3	0.0	-0.3	-0.6
1991	-6.2	-7.1	-0.9	-6.4	-0.2
1992	-3.5	-3.6	-0.1	-3.8	-0.3
1993	-2.6	-1.2	1.4	-1.2	1.4
1994	3.9	4.5	0.6	3.9	0.0
1995	4.4	5.1	0.7	3.4	-1.0
1996	3.2	3.6	0.4	3.9	0.7
1997	5.9	6.3	0.4	6.3	0.4
1998	4.9	5.3	0.4	5.0	0.1
1999	3.5	4.1	0.6	3.4	-0.1
2000	5.7	6.1	0.4	5.1	-0.6
2001	0.7	1.1	0.4	1.1	0.4
2002	1.6			2.3	0.7
2003	1.9			2.0	0.1
<i>Mean</i>			0.5		0.2
<i>Mean absolute deviation</i>			0.6		0.5

Systems SKT75, SKT80, SKT85 and SKT90 are based on SNA68. Systems SKT95 and SKT2000 are based on SNA93 and ESA95. Source: Statistics Finland.

Another alternative would be to compare the preliminary data with the existing figures of the current Finnish System of National Accounts (STK2000). In this case, changes in base years and the introduction of the new SNA93 system would cause problems for comparison.

When the first preliminary annual National Accounts for 1979–2001 are compared with the ‘final’ accounts published after 1½ to 2 years, it transpires that the volume of GDP has been revised upwards by 0.5 percentage points on average from the first estimate. The fluctuation band has varied between –0.9 percentage points (in 1991) and +2.1 percentage points (in 1981). The percentage change for GDP volume was smaller in the final annual National Accounts than in the first preliminary accounts in only four cases, and in 19 cases it was larger. The mean absolute value of deviations was 0.6 percentage points. (Table 1 shows the deviation from the preliminary GDP data, calculated on the basis of both data from the reference year and current data.)

According to a comparative study carried out by Statistics Sweden (SCB) in 2002, the corresponding mean absolute value of deviations for 12 OECD countries (from 1980 to 1998) was 0.5 percentage points. This puts Finland close to average deviation levels. On the other hand, the differences between preliminary and final figures do not actually reveal anything about the quality of the figures, because the final data can also be misleading.

The experience in Finland has been that GDP growth is initially overestimated during an economic slowdown and initially underestimated during an economic upswing. In particular, it takes a long time to recognise economic turning points. There is at least one natural explanation for this.

In many cases the first source statistics are based on inadequate samples. When these are then extrapolated to the level of the reference population, those units are used for which there is data available from the previous period as well. New units are thus easily left outside the preliminary statistics and included only in the final data. This means that growth will be underestimated. Similarly, when a unit closes down its operations it can still be included in the preliminary data and only omitted in the final statistics. This is important in economic turning points, when there are many businesses starting up and closing down operations.

Accurate assessment of general government fiscal balance-to-GDP ratio

The general government fiscal balance relative to GDP is another of the key indicators in the National Accounts. It is difficult to compare final and preliminary figures, as the calculation methods have been revised in recent years. For instance, the timing of tax revenues has been revised. In general, the accuracy of preliminary data has improved due to better availability of data. For instance, preliminary estimates of the previous year’s final

accounts are now collected from local government and the joint municipal boards already in the January following the reference year. Reliable data is nowadays also received from surveys of central government accounting offices. From 1996 to 2002 the mean absolute value of deviation between the 'final' data and the first preliminary estimate was about 0.3 percentage points.

Revision to volume accounting methods

The next important revision to the National Accounts will be made at the turn of the year 2005/2006. Changes are planned above all to the measurement of volume trends.

Firstly, the final National Accounts data measured at constant prices will be based on supply and use tables. In the first such tables, published in December 2002, supply and demand were balanced for a wide range of products (about 950 products) at current prices. These tables are now available for 1995–2001, and the final National Accounts are based on them.

In connection with the revision, it is also intended to balance supply and demand by products at constant prices. This will mean the introduction of double deflation in all industrial sectors. So far, it has been presumed in industry that the volume of intermediate goods use changes the same way

Table 2.

Example of chaining			
	2000	2001	2002
<i>Estimate at current prices</i>			
Product A	100	120	144
Product B	100	90	81
A + B	200	210	225
Value change, %		5	7.1
<i>Product A</i>			
Value change, %		20	20
Volume change, %		0	0
Price change, %		20	20
<i>Product B</i>			
Value change, %		-10	-10
Volume change, %		20	20
Price change, %		-25	-25
<i>Current calculations at base year (2000) prices</i>			
Product A	100	100	100
Product B	100	120	144
A + B	200	220	244
Value change, %		10	10.9
Price change, %		-4.5	-3.4
<i>Calculations at previous year's prices, chaining</i>			
Product A		100	120
Product B		120	108
A + B chained at reference year (2000) prices	200	220	239
Volume change, %		10	8.6
Price change, %		-4.5	-1.3

Source: Own calculations.

as input volume (simple deflation) and the volume of value added thus follows output volume. In the new accounting method, intermediate goods use can develop differently from output, which means the volume of value-added also develops differently from output.

With regard to industry, it is also intended to start using production price indices in the deflation of output. So far the volume of output (and of value added) has mainly been calculated on the basis of volume indices.

The new system will probably be introduced retroactively as from 2001. Supply and use tables calculated at current and constant prices will in future be released approximately two years after the end of the reference period. The possibility of applying the method to preliminary data is currently being considered. The task is clearly a challenging one, and it is possible that the accuracy of preliminary data will weaken. In any case, the quality of the final data will improve.

Introduction of chain indices

Another important revision to the National Accounts is the introduction of annually chained calculations at constant prices (preliminary, final and quarterly annual account statistics). So far, the base year has been changed approximately every five years, the present base year being 2000. Figures in 2000 prices have been calculated backwards until 1975. Actually, the series are not genuinely at base year (2000) prices, as they are chained on the basis of old series for which the base year changed every five years.

After the revision, the base year will always be the preceding year, which will enable the comparison of figures from two successive years. Naturally, in practice, longer time series are actually needed. This means that the figures have to be chained by cumulating the volume changes of successive years. These will be published either in index form (2000 = 100) or in euro at base year (2000) prices.

In chained volume calculations, economic aggregates and their individual components are chained separately. As compared with the fixed base year method, the chain indices suffer the disadvantage that (except for the reference year) the individual components of economic aggregates do not produce the same total as aggregates calculated at constant prices.

The new method will give a more precise picture of real economic development than the current one, since it takes better account of recent price developments. While the old method uses prices dating back several years, actual price development can significantly alter the weightings of different industrial sectors and products. This is particularly important in Finland, where the prices of electronics products have been falling constantly during recent years, and the electronics industry has a special impact on economic conditions in Finland. (Table 2 provides an example of a chain index.) The new method also improves accuracy, as it is no longer necessary to revise the data in response to changes in the base year.

Measurement of the volume of non-market services

A possible third revision concerns the measurement of volume changes in non-market services. So far, the volume of value added in these mainly publicly produced services has changed primarily in tandem with changes in labour input. When labour input has increased, the volume of value added in non-market services has also risen. It is possible that the volume of these services will in future be measured partly on the basis of performance indicators. This would primarily concern individual non-market services such as education, health and social services.

Trial calculations are currently being conducted. Although the new method of measurement would only affect one tenth of the total value added in the economy as a whole, it could increase statistical variations. The accuracy of preliminary data could also be weakened, because performance indicator data takes time to prepare.

Other revisions

In addition to changes in volume accounting methods, one significant revision will be made to series calculated at fixed prices. Financial intermediation services indirectly measured (FISIM), ie net interest income, is to be allocated to the users. This will slightly increase the level of GDP in all EU countries (in Finland by less than 1%). The revision is unlikely to have a significant impact on our picture of economic developments or data accuracy. Other, smaller changes to series are also possible.

After the turn of the year 2005/2006 the next major revision will be conducted in Finland in about 2010. This will be largely connected to the revision of the System of National Accounts due to be completed in 2008. This system revision has been called SNA93 Revision1, the idea being to emphasise that it will not be as exhaustive as the previous SNA revision in 1993. The contents of the revision are currently under discussion in international working groups. Statistics Finland is also participating in these discussions.

Reliable statistics a sound base for economic policy decisions

From the perspective of the users of statistics the revision of preliminary National Accounts data is a difficult issue. For instance, should the accuracy of economic forecasts be measured on the basis of the first preliminary estimates or the final data? Similarly it can well be asked how the very preliminary nature of eg investment estimates can be taken into account in budgetary discussions. However, it should be noted that it is no simple matter to interpret cyclical turning points even years after the event, as shown by the recession of the early 1990s. The long delay in final data only emphasises how difficult a matter traditional counter-cyclical economic policy is.

On the other hand, the economic policy debate has in recent years turned away from concern with the business cycle to focus on structural issues. This is particularly true in Europe, which

has been suffering from low growth. It is difficult, if not impossible, to assess structural problems without reliable statistics, and it takes time before the basic source data can be made available. In the long run the economic wellbeing of people in Finland will depend on productivity growth, changes in which can only be assessed on the basis of detailed statistics. Changes in economic growth trends are therefore far more important than year-on-year changes in output. The formulation of economic policy measures that can boost productivity growth requires the backing of carefully compiled statistics, and time lags of one to two years are not particularly significant in this respect.

All in all, the preliminary National Accounts have in recent years been sufficiently reliable for the assessment of economic trends when combined with other economic data. In Finland, the ongoing rapid change in the structure of the economy will continue to hamper the compilation of statistics. Therefore, preliminary data will still presumably have to be revised in the

future, too. Statistical revisions in sight, such as the introduction of chain indices, can scarcely be expected to improve the reliability of preliminary data, but they will probably increase the accuracy of final data. Both economic forecasters and those responsible for drafting the Budget will just have to learn to accept the uncertainty surrounding the recent past and relate to revisions as naturally as to forecast errors.

Expenditure pressures on public finances: how much can we afford?

*Helvi Kinnunen
Economist
Economics Department*

The long-term prospects for general government finances still appear relatively weak. If the Bank of Finland forecast on the development of general government finances in the coming years is accurate and the employment rate remains below the Government's target, which seems likely at present, general government finances cannot be said to be on solid ground.

In assessing the sustainability of general government finances, the critical assumptions concern the internal and external pressures for change. As regards the financial base, the most interesting questions concern the impact of population ageing on the labour market. Another topical problem in the labour market is the consistently low employment rate and the fact that recently more people than before have withdrawn from the market to pursue full-time studies or for other reasons. It is worth considering the implications for growth and general government finances if this development trend continues and the employment rate of people nearing retirement age does not increase as presently expected.

The change in population structure resulting from demographic ageing will also have an impact on public expenditure in a number of ways. Increasing expenditure on pensions and social welfare and health care services for the elderly will be offset somewhat by a decrease in the number of children and young people. It is interesting to consider what the expenditure pressures look like based on of the present population growth forecasts. With an eye on the next few years, it is also worth

questioning whether the Government's current spending limits are on solid ground, ie whether the expenditure pressures resulting from the projected change in population structure will fit within the scope of the spending limits in the longer term as well.

These questions are addressed below using a long-term calculation framework. The assessment is based on the traditional dynamics of debt and deficit, but this is complemented with the population balance, employment balance and explicit estimates, based on population growth forecasts, of the development of the volume and prices of service expenditure. The assessment begins by outlining the growth pressures on general government finances, and goes on to address sustainability assessments and the impact of employment changes.

Changing age structure will increase public expenditure

The recently agreed pension reform was aimed at decreasing pension expenditure pressures. The raising of the retirement age and the linking of pension benefits to life expectancy (ie the inclusion of a life expectancy coefficient in the pension formula) plus the change in pension indexing are expected to decrease the GDP ratio of pension expenditure by about 2–3 percentage points. Even so, the ratio will still rise according to various estimates by about 5 percentage points as the number of pensioners increases.¹ The ratio of average pensions to

¹ See eg the publication 'Updated stability programme of Finland', Ministry of Finance (2003).

average wages, calculated from pension expenditure estimates by the Finnish Centre for Pensions, will increase in the coming years but decrease in the long term below the current level of 52%.

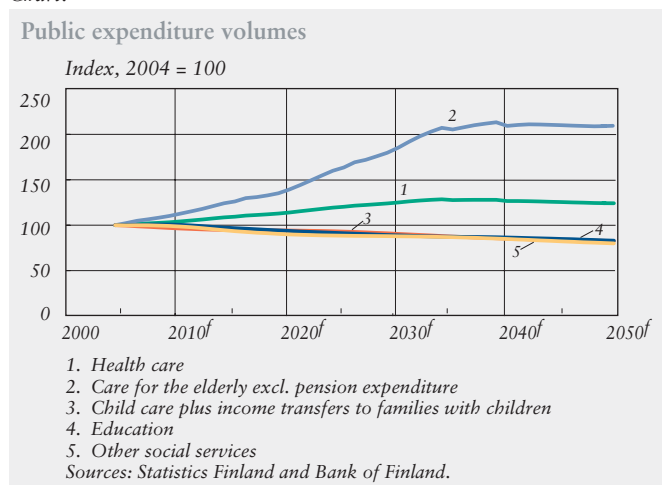
In addition to pension expenditure, the change in the population age structure will also be reflected in social welfare and health care expenditure and education expenditure. These mainly statutory services are provided by local government (municipalities). The development of service volume can be estimated by the same principle used in calculating central government transfers to local government. These are decided for each service on the basis of the distribution of costs by age groups and the age distribution in the municipality. When this calculation basis is complemented by other cost items, such as child allowance and student financial aid for different age groups, per capita public expenditure can be calculated for each category of expenditure and age cohort. Thereafter, using the population growth forecasts broken down by age

cohorts, it is possible to estimate the development of different expenditures in the long term, the assumption being that the expenditure base remains at the same level as in the first year.

The population structure causes both positive and negative changes in expenditure (chart). Ageing increases the use of care services for the elderly as well as health care expenditure. The volume of social services for the elderly will more than double in the next 30 years. The volume of health care expenditure will, in turn, increase by a third by the early 2030s. On the other hand, the contraction of young age cohorts will lead to a drop in expenditure on education and other social services, primarily day care services. On the whole, the level of welfare and education expenditure looks likely to increase fairly slowly over the next two decades, by about 3%. The pace of increase is unlikely to accelerate until the 2030s.

Assessed solely from the perspective of demographic change, the pressures for an increase in welfare services would remain relatively moderate in the next few decades. Viewed thus, the expenditure proposals contained in the Government's spending limits can be considered to be on relatively solid ground. The Government Programme contained an agreement on the system of spending limits, with the level of appropriations set so that the expenditure items included in the spending limits would have to remain unchanged in real terms. In the context of the spending limit agreement, there was little discussion on the impact of

Chart.



demographics on expenditure policy. Relative to the long-term expenditure pressures arising from population developments, the current spending limits would, however, seem to be on solid ground as regards service expenditure from the viewpoint of future governments.

There is naturally a lot of uncertainty surrounding the estimation of future expenditure, and the risk of understating expenditure is considerable. In particular, the assumption that the proportion of students by age group will remain stable may prove overly optimistic. The rapid pace of technological advance is likely to increase the education needs of the adult population. Furthermore, the development of health care methods will probably increase both the number and costs of treatments. These factors are difficult to quantify, and no attempt is made to do so in what follows below.

Public expenditure also includes items other than social, health care and education expenditure that may be unaffected by the age structure of the population. The most significant of these are security and administration expenditure and subsidies. The following calculations assume that these items will remain unchanged relative to GDP.

Public service price development is key to sustainability

The trend in public service prices was calculated with the help of the formula applied in calculating the index of central government transfers to local government. The index takes into consideration the labour costs of the

local government sector, ie wages and employer's social security contributions, and also the procurement costs for goods and services. The proportion of labour costs in the index is 67%, with general prices accounting for the remaining 33%. In determining the price index for local government service production, it is assumed that the cost structure for the various services is roughly similar. For example, education, day care and health care are assumed to require the same relative volumes of intermediate goods and labour input. It is further assumed that wage development in local government and the public sector as a whole is the same as for the economy overall, ie 3.75% per annum.²

The choice of price index has a crucial impact on the estimated trend in public service expenditure relative to GDP. As public service productivity is not expected to improve, an increase in real wages also means an increase in the GDP ratio of public expenditure. However, this calculation inevitably underestimates the costs, as wage pressures on local government will clearly increase in the coming years, since roughly a quarter of the current municipal workforce are expected to retire by the end of the present decade. Therefore, the cautious assumption applied below is that during the most intense period of recruitment, in 2008–2015, local government costs will increase 0.5% faster than they would solely on the basis of general wage development and other costs. Also

² The calculation assumes average annual productivity growth of 1.75% and 2% inflation.

adding to local government costs is the potential rise in indirect labour costs, which has been excluded from the calculations.

Based on the assumptions of the basic calculation, the annual difference between the change in the cost of public expenditure and the GDP price index is a good percentage point. This is somewhat larger than the actual difference between the indices so far. For example, in 1990–2000 the difference was a little less than a percentage point. The Baumol effect, ie the increase in public expenditure relative to GDP resulting from a rise in relative prices, would have been about 3.5 percentage points in the same period.

Withdrawal from working life undermines financial base of public finances

The following calculations assume a long-term increase of about 4 percentage points in the employment rate. This is supported by an improving equilibrium in labour market supply and demand due to a decrease in the working-age population. In particular, the employment rate of persons nearing retirement age is expected to continue rising. In other respects, the population and

labour market structure behind the long-term calculations follows the same principle, based on the relative proportions of age groups, used in estimating expenditure volumes. The relative proportions of population cohorts in the Labour Force Survey are expected to remain unchanged. Hence, the number of students or others of working age outside the labour market for one reason or another in each 5-year cohort is assumed to remain constant (see box 3, table A). For almost the entire period, about 40% of the population would be outside the labour force. The unemployment rate would stabilise at about 6%. The number of employed would stop growing at the end of the decade and start decreasing gradually. If productivity is assumed to increase annually by 1.75%, real GDP growth would amount to 1.5% on average. The real interest rate assumption used in the calculations is 2.75%.

If service volumes grow and prices develop as assumed, general government finances as a whole would not be on solid ground. Revenues would be insufficient to cover the growth in expenditure even taking into account growing components, such as an increase in income tax revenues from pensions and an increase in social insurance contributions resulting from the growth in the number of pensioners (table 1). General government finances would run into deficit by the end of the 2030s and would remain constantly in deficit for rest of the period.

In addition to the assumptions in the calculation, the results also depend

Table 1.

Public finance impact of weak employment development*			
	2010 ^f	2015 ^f	2020 ^f
Fiscal balance	-1.2	-1.7	-2.3
Central government debt	4.9	9.7	16.3
Employment pension funds	0.1	-0.9	-2.6
Net debt	4.8	10.6	18.8

f = forecast
 * Change in comparison to baseline scenario, % points
 Source: Bank of Finland calculations.

to a great extent on the balance at the outset. As these calculations made in elaboration of the Bank of Finland's forecast are based on the assumption that taxation will not be eased after 2005, it gives slightly too optimistic a starting point for long-term calculations – particularly since the calculations cannot assume that high tax rates will slow growth in the tax base, as would probably be the case in reality as tax competition intensifies. Although the results of the basic calculation must be viewed with great caution, it can be considered a starting point in assessing the significance of the various assumptions for sustainability.

From the perspective of general government finances, the key uncertainty is the labour market. Clearly, the financial base for general government finances would not be able to withstand a larger proportion of the population than at present withdrawing from the labour force eg to study or look after the home. If the current development trend were to continue so that the relative proportion of students and others of working age outside the labour force were to grow in the next 5–6 years at the same rate as in the past couple of years, and the employment rate of those nearing retirement age did not increase as assumed in the coming

Table 2.

Public revenue, expenditure and fiscal balance, % of GDP							
	2004	2005 ^f	2010 ^f	2020 ^f	2030 ^f	2040 ^f	2050 ^f
Revenue							
<i>Taxes</i>	31.9	31.6	32.1	32.5	32.7	32.6	32.6
<i>Corporation tax</i>	3.8	3.4	3.4	3.4	3.4	3.4	3.4
<i>Income tax on wages</i>	9.0	9.1	9.4	9.4	9.4	9.4	9.4
<i>Income tax on pensions</i>	1.8	1.8	2.0	2.4	2.6	2.5	2.5
<i>Taxes on unemployment benefits</i>	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<i>Taxes on other income</i>	3.3	3.3	3.3	3.3	3.3	3.3	3.3
<i>Taxes on output and imports</i>	13.8	13.8	13.8	13.8	13.8	13.8	13.8
<i>Social security contributions</i>	12.2	12.3	12.1	12.2	12.2	12.2	12.2
<i>Employee contributions</i>	3.1	3.2	3.0	3.0	3.1	3.1	3.1
<i>Employer contributions</i>	9.1	9.1	9.1	9.1	9.1	9.1	9.1
<i>Income from pension funds</i>	1.6	1.6	2.1	2.1	1.4	0.3	-0.8
<i>Other income on assets</i>	1.8	1.6	1.3	0.9	0.7	0.7	1.5
<i>Other income</i>	5.2	5.4	5.5	5.5	5.5	5.5	5.5
Total revenue	52.6	52.5	53.2	53.2	52.4	51.3	51.0
Expenditure							
<i>Health care</i>	6.8	6.8	6.9	7.4	8.0	7.9	7.7
<i>Pensions</i>	11.1	11.2	12.1	14.6	15.8	15.4	15.5
<i>Care for the elderly</i>	1.3	1.3	1.4	1.6	2.1	2.4	2.3
<i>Children</i>	3.4	3.3	3.2	3.0	2.9	2.6	2.5
<i>Unemployed</i>	2.6	2.5	2.3	1.9	1.6	1.6	1.7
<i>Other social security</i>	3.3	3.3	3.2	2.9	2.7	2.6	2.5
<i>Education</i>	6.6	6.5	6.6	5.2	5.3	5.1	5.2
<i>Expenditure on assets</i>	1.9	1.8	1.6	1.0	0.3	0.0	0.0
<i>Other expenditure</i>	13.5	13.7	13.9	13.9	13.9	13.9	13.9
Total expenditure	50.4	50.3	51.2	51.5	52.8	51.5	51.4
Fiscal balance	2.2	2.2	2.0	1.6	-0.4	-0.2	-0.3

f = forecast
Source: Bank of Finland calculations.

years, the general government deficit would grow and the level of general government debt would begin to increase rapidly (table 2).

The risk of a collapse in the financial base requires a tight policy on expenditure

The forecast balanced prospects for general government finances in the coming years also boosts the long-term prospects for general government finances compared with previous estimates, such as those presented in the Finnish stability programme a year ago. Moreover, the calculations presented here, which comprehensively account for the impact of changes in population age structure on the development of public expenditure volumes, may create a somewhat more positive general picture than previous estimates. Increased income tax revenues from pensions due to growth in the number of pensioners also improves the picture somewhat. The long-term prospects for financing public funding commitments are also fair, provided jobs growth is favourable, the retirement age rises as expected, and people do not withdraw from the labour force for any other reasons as extensively as in recent years.

However, the uncertain development of the financial base is the main risk facing the Finnish social insurance system. The long-term challenge for fiscal policy is to adjust expenditures to a level which can withstand even the gloomier scenarios. In this respect, the relatively tight controls placed on real expenditure

growth in the government spending limits also provides a good starting point for the long term.

A greater worry is the price trend in public expenditure. It is clear that the renewal of the public sector labour force due to large-scale retirement coupled with a rapidly growing need for labour will cause significant pressures for expenditure growth. Hence, improved public sector productivity, which the Government has made a strategic priority, would be a necessary and welcome step in preparing for the increase of expenditure pressures resulting from ageing. However, it is unlikely that this alone would be a sufficient solution to the increasing problem of costs. It is still essential to keep a tight rein on expenditure.

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Performance of international securities markets

Heiko Schmiedel

E:28

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Key words: exchanges, settlement systems, networks, economies of scale, efficiency

This study evaluates the performance of international securities markets by analysing efficiency, economies of scale and technological development in stock exchanges and securities settlement systems. Implications for future policy and market design are also addressed. This work provides empirical support for theoretical projections in research on stock markets.

At the heart of the study is an international comparison that explores productivity, efficiency and innovation across a wide range of stock exchanges over recent years. There is evidence of considerable variability in the efficiency of stock exchanges, both within Europe and worldwide. The evidence also indicates a positive relationship between the organisational structure and performance of the stock exchanges. It also reveals that technological change is the key driver of rising total productivity and appears to be advantageous for the performance of international securities markets.

Furthermore, the study conveys how strategic interactions between stock exchanges are affected by network activity, and examines its influence on stock market performance. The adoption of network strategies was observed to be a promising tool for creating added value in the provision of trading services, and appears to be a crucial component in the strategic decision-making and performance of stock exchanges.

The study also examines how far consolidation of and mergers among securities depository and settlement systems might go in the face of economies of scale and technological advancements. The results indicate substantial scale economies in settlement activities, although the extent of such effects differs by size of settlement institution and region. Overall, cost-effectiveness has improved in recent years, partly due to innovations and upgrades in settlement technologies.

Finally, the results are relevant for practitioners, policymakers, and monetary and regulatory authorities, as they suggest further equity market integration. Networks, alliances, mergers and so forth seek to improve market efficiency, explore the benefits of economies of scale, and reduce the average transaction cost to end-users.

Essays on financial crises in emerging markets

Tuomas Komulainen

E:29

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Key words: currency crises, banking crises, emerging markets, borrowing, collateral, contagion, liberalisation

The financial crises in emerging markets in 1997–1999 were preceded by financial liberalisation, rapid surges in capital inflows, increased levels of indebtedness, and then sudden capital outflows. This study contains four essays that extend the different generations of crisis literature and analyse the role of capital movements and borrowing in the recent crises.

Essay 1 extends the first generation models of currency crises. It analyses bond financing of fiscal deficits in domestic and foreign currency, and compares the timing and magnitude of attack with the basic case where deficits are monetised. The essay finds that although bond financing may

not delay a crisis, if a country's indebtedness is low, an impending crisis will be delayed by bond financing, especially if the borrowing is carried out with bonds denominated in foreign currency.

Essay 2 extends the second generation model of currency crises by adding capital flows. If these depend negatively on crisis probability, there will be multiple equilibria. The range of country fundamentals for which self-fulfilling crises are possible is wider when capital flows are included, and thus more countries may end up in crisis. An application of the model shows that in 1996 in many emerging economies the fundamentals were inside the range of multiple equilibria and hence self-fulfilling crises were possible.

Essay 3 studies financial contagion and develops a model of the international financial system. It uses a basic model of financial intermediation, but adds several local banks and an international bank. These banks are able to use outside borrowing, the amount of which is determined by the value of their collateral. The essay finds that the use of leverage by local and global banks and a fall in collateral prices constitute an important channel and cause of contagion.

Essay 4 analyses the causes of financial crises in 31 emerging market countries in 1980–2001. A probit model is estimated using 23 macroeconomic and financial sector indicators. The essay finds that traditional variables (eg unemployment and inflation) and several indicators of indebtedness (eg private sector liabilities and banks' foreign liabilities) explain currency crises. When the sample was divided into pre- and post-liberalisation periods, the indicators of indebtedness became more important in predicting crisis in the post-liberalisation period.

Discussion Papers

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Capital adequacy regulation and financial conglomerates

Ville Mälkönen
10/2004

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ISBN 952-462-135-5, online

Key words: banking, capital adequacy regulation, insurance, financial conglomerates

A topical concern in public-policy debate is that the current capital adequacy regulation designed for stand-alone financial institutions exhibits several weaknesses due to the emergence of large financial institutions combining several activities under common control. This paper addresses these concerns using a theoretical framework derived from the economic literature. I will first describe the possible causes of the emergence of financial conglomerates, proceed to consider the theoretical background for the regulation of financial institutions, especially insurance and banking companies, and, finally, examine the limitations of the current regulatory framework in controlling the risks in financial conglomerates. My conclusions provide little support for the view that the regulatory approach should be modified towards a more consolidated one (ie harmonization).

Equilibrium unemployment and investment under product and labour market imperfections

Heikki Kauppi – Erkki Koskela – Rune Stenbacka

11/2004

ISBN 952-462-136-3, print

ISBN 952-462-137-1, online

Key words: equilibrium unemployment, product market imperfections, investment, wage bargaining

The study looks at the implications of product market competition and investment for price setting and wage bargaining and thereby for equilibrium unemployment in an economy with product and labour market imperfections. We show that intensified product market competition reduces equilibrium unemployment, whereas the effect of increased capital intensity is more complex. Higher capital intensity will reduce equilibrium unemployment when the elasticity of substitution between capital and labour is less than one, while the reverse occurs when this elasticity is higher than one but smaller than the elasticity of substitution between products. Finally, we demonstrate how labour and product market imperfections, characterised by the wage and price setting mark-ups, affect the optimal capital stock. Our findings raise important questions for future empirical research.

Measuring the long-term perception of monetary policy and the term structure

Nicolas Rautureau

12/2004

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ISBN 952-462-139-8, online

Key words: expectations hypothesis, monetary policy, changepoints

This paper has two objectives. The first is to identify the long-term public perception of monetary policy. The second is to identify the

relationship between this perception and long-term bond rates. For German data, the use of a two-factor model of the term structure results in the best forecast of long-term interest rates for the period between January 1975 and January 2003. It also allows us to introduce as the second factor the long-term perception of inflation as a characteristic of the behaviour of monetary authorities.

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Financing choices of firms in EU accession countries

Eugene Nivorozhkin

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This paper presents evidence of actual and target capital structures of firms in five EU accession countries of Central and Eastern Europe and the former Soviet Union (Bulgaria, the Czech Republic, Poland, Romania and Estonia). We consider the financial constraints of private companies and compare the level of indebtedness and the determinants of firms' choices of capital structure in selected EU accession countries and EU countries. A dynamic non-linear adjustment model is adopted to explicitly model the adjustment of a firm's leverage to a target leverage.

Bank performance, efficiency and ownership in transition countries

John P. Bonin – Iftekhar Hasan – Paul Wachtel

7/2004

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ISBN 951-686-897-5, online

Using data from 1996 to 2000, we investigate the effects of ownership, especially by a strategic foreign owner, on bank efficiency for eleven transition countries in an unbalanced panel consisting of 225 banks and 856 observations. Applying stochastic frontier estimation procedures, we compute profit and cost-efficiency scores taking account of both time and country effects directly. In second-stage regressions, we take these efficiency measures along with return on assets as dependent variables with dummy variables for ownership type, a variable controlling for bank size, and dummy variables for year and country effects as explanatory variables. Methodologically, our results demonstrate the importance of including fixed effects, especially country effects, and also suggest a preference for efficiency measures over financial measures of bank performance in empirical work on transition countries. With respect to the impact of ownership, we conclude that privatization by itself is not sufficient to increase bank efficiency as government-owned banks are not appreciably less efficient than domestic private banks. Our results do support the hypothesis that foreign ownership leads to more efficient banks in transition countries. We find that foreign-owned banks are more cost-efficient than other banks and that they also provide better service, in particular if they have a strategic foreign owner. Moreover, the participation of international institutional investors is shown to have a considerable additional positive impact on profit efficiency, which is consistent with the notion that these investors facilitate the transfer of technology and know how to newly privatized banks. In addition, we find that the remaining government-owned

banks are less efficient in providing services, which is consistent with the hypothesis that the better banks were privatized first in transition countries. Finally, efficiency declines with bank size, which could call into question government-orchestrated bank consolidation strategies. We conjecture that the presence of many small and efficient foreign greenfield operations in these transition countries may be responsible for this result.

Privatization matters: Bank efficiency in transition countries

John P. Bonin – Iftekhar Hasan – Paul Wachtel

8/2004

ISBN 951-686-898-3, print

ISBN 951-686-899-1, online

To investigate the impact of bank privatization in transition countries, we take the largest banks in six relatively advanced countries, namely, Bulgaria, the Czech Republic, Croatia, Hungary, Poland and Romania. Income and balance sheet characteristics are compared across four bank ownership types. Efficiency measures are computed from stochastic frontiers and used in ownership and privatization regressions having dummy variables for bank type. Our empirical results support the hypotheses that foreign-owned banks are most efficient and government-owned banks are least efficient. In addition, the importance of attracting a strategic foreign owner in the privatization process is confirmed. However, counter to the conjecture that foreign banks cream-skin, we find that domestic banks have a local advantage in pursuing fee-for-service business. Finally, we show that both the method and the timing of privatization matter to efficiency: specifically, voucher privatization does not lead to increased efficiency and early-privatized banks are more efficient than later-privatized banks even though we find no evidence of a selection effect.

Equilibrium exchange rates in the transition: the tradable price-based real appreciation and estimation uncertainty

Balázs Égert – Kirsten Lommatzsch
9/2004

ISBN 951-686-960-2, print
ISBN 951-686-961-0, online

Key words: real exchange rate, equilibrium exchange rate, tradable prices, transition, cointegration

This paper sets out to estimate equilibrium real exchange rates for the Czech Republic, Hungary, Poland, Slovakia and Slovenia. A theoretical model is developed that provides an explanation for the appreciation of the real exchange rate based on tradable prices in the acceding countries. Our model can be considered as a competing but also completing framework to the traditional Balassa-Samuelson model. With this as a background, alternative cointegration methods are applied to time series (Engle-Granger, DOLS, ARDL and Johansen) and to three small-size panels (pooled and fixed effect OLS, DOLS, PMGE and MGE), which leaves us with around 5,000 estimated regressions. This enables us to examine the uncertainty surrounding estimates of equilibrium real exchange rates and the size of the underlying real misalignments.

Estimating the determinants of foreign direct investment inflows: how important are sampling and omitted variable biases?

Yuko Kinoshita – Nauro F. Campos
10/2004

ISBN 951-686-962-9, print
ISBN 951-686-963-7, online

Key words: foreign direct investment; dynamic panel estimation; transition economies

This paper investigates the importance of factor endowment vis-à-vis institutions in explaining the

locational choice of foreign investors during the 1990s. Using dynamic panel estimation on data for transition economies, we find that low labour costs, bureaucratic efficiency ('institutions'), agglomeration economies and natural resource abundance are key factors explaining foreign investors' decisions. However, sampling proves fundamental as these overall determinants mask deep, and so far empirically unexplored, differences between groups of recipient countries. For example, for the former Soviet Union economies we estimate that labour costs are no longer crucial in foreign investors' decisions, but abundance of natural resources and (interestingly) lower levels of human capital are. For Eastern Europe, we find that external liberalisation (one aspect of economic reform) is crucial. The main message is that minimising sampling biases and accounting for previously omitted variables yields a different, much richer picture than previously available.

Monetary policy rules for Russia

Akram Esanov – Christian Merkl – Lúcio Vinhas de Souza
11/2004

ISBN 951-686-964-5, print
ISBN 951-686-965-3, online

Key words: monetary policy rules; exchange rate; central bank; Russia

This paper reviews the recent conduct of monetary policy and the central bank's rule-based behaviour in Russia. Using different policy rules, we test whether the central bank in Russia reacts to changes in inflation, output gap and the exchange rate in a consistent and predictable manner. Our results indicate that during the period 1993–2002 the Bank of Russia used monetary aggregates as a main policy instrument in conducting monetary policy.

The political economy of restructuring and subsidisation: an international perspective

Greetje M.M. Everaert

12/2004

ISBN 951-686-966-1, print

ISBN 951-686-967-X, online

Key words: soft budget constraints, restructuring, political economy, lobbying, trade policy, declining industries

In today's increasingly competitive business environment, many firms in declining industries have been confronted with the need to restructure. However, lobbies in these industries have often managed to attract government subsidies instead. This paper looks at the decision of a loss-making firm on whether to lobby for subsidies or whether to restructure in the context of a contributions game, as in Magee et al. (1989). We further analyse the role of tariffs in restricting uncompetitive practices such as granting state aid to unprofitable firms. Several results stand out. Firstly, there is a trade-off between spending resources on lobbying for subsidies and costly restructuring such that both restructuring and subsidisation take place in our model. Secondly, countervailing tariffs on subsidised exports shift the decision in favour of restructuring, thereby hardening budget constraints. Hence, the model illustrates that external constraints such as countervailing tariffs can help to establish internal financial discipline when first-best solutions are politically unfeasible. Thirdly, the social planner always prefers full restructuring, implying that political competition comes at a cost of lower economic welfare in our model.

The Lithuanian block of the ESCB multi-country model

Igor Vetlov

13/2004

ISBN 951-686-968-8, print

ISBN 951-686-969-6, online

Key words: macro model, Lithuania

This paper presents preliminary results of modelling the Lithuanian block of the ESCB Multi-Country Model, LT_MCM. The theoretical structure of the LT_MCM is in line with most current mainstream macro models, ie supply factors determine the long-run equilibrium, while output is demand-determined in the short run. Starting with a brief overview of the common features and main building blocks of a typical MCM country model block, we report the preliminary results of estimation of the Lithuanian MCM block. To illustrate the main characteristics of the estimated model, some standard shocks are introduced in the model and the responses studied. Compared to other MCM country blocks, we find that the Lithuanian macro model is characterised by relatively large and rapid response to shocks. Model simulation reveals that, compared to domestic prices, GDP is more responsive to shocks in the short run, while investment on average is more volatile than private consumption. The latter findings are similar to those reported for other EU country macro models.

Just how undervalued is the Chinese renminbi?

Michael Funke – Jörg Rahn

14/2004

ISBN 951-686-970-x, print

ISBN 951-686-971-8 , online

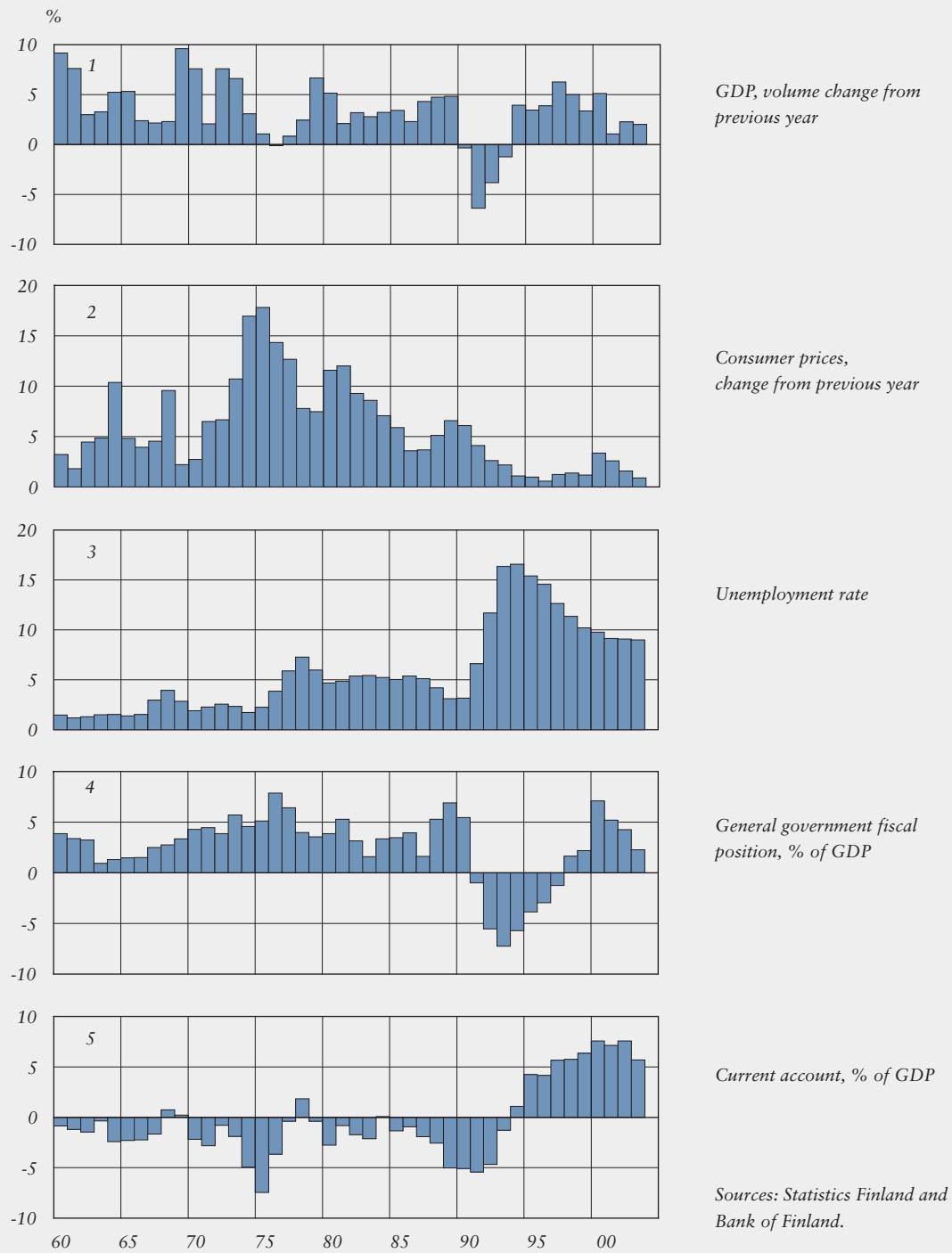
Key words: renminbi, yuan, China, exchange rate, equilibrium exchange rate

Given that the value of China's currency has been a hot topic recently, this paper explores the equilibrium levels of China's real and nominal exchange rates. Employing a Johansen cointegration framework, we focus on the behavioural equilibrium exchange rate (BEER) and permanent equilibrium exchange rate (PEER) models. Our results suggest that, while the renminbi is somewhat undervalued against the dollar, the misalignment is not nearly as exaggerated as many popular claims.

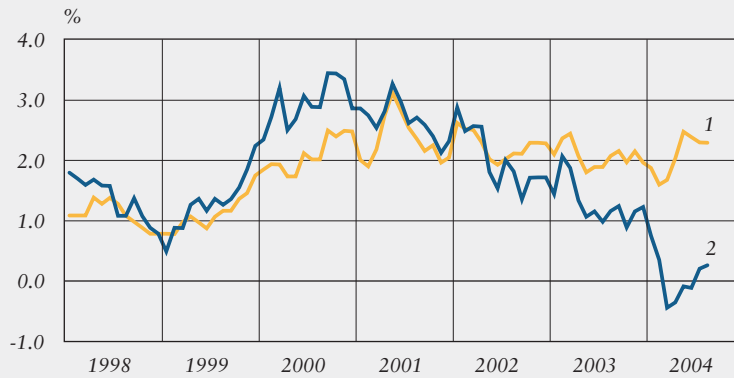
Charts

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1. Finland: key economic indicators



2. Price stability in the euro area and Finland



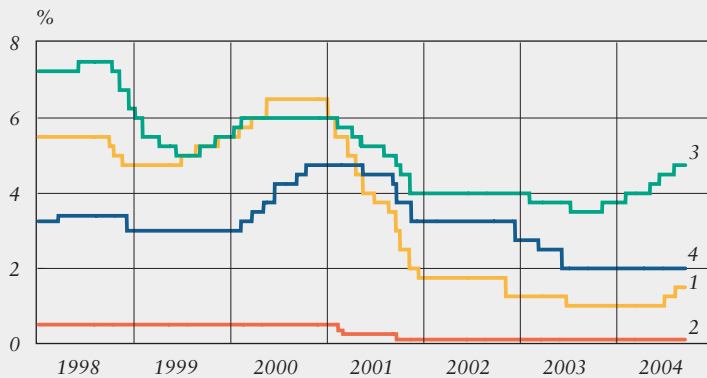
Harmonised index of consumer prices, 12-month change, %

1. Euro area

2. Finland

Sources: Eurostat and Statistics Finland.

3. Official interest rates



1. USA: fed funds target rate

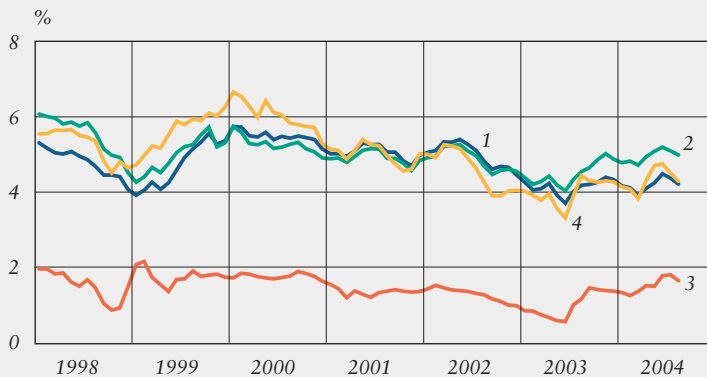
2. Japan: discount rate

3. United Kingdom: repo rate

4. Eurosystem: main refinancing rate/minimum bid rate (Bank of Finland tender rate)

Source: Bloomberg.

4. International long-term interest rates



Yields on ten-year government bonds

1. Finland

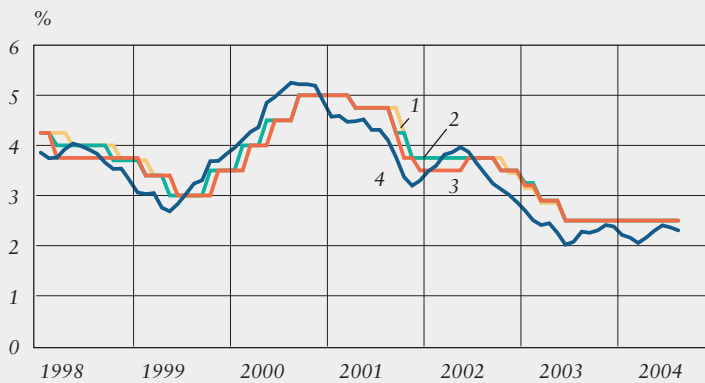
2. United Kingdom

3. Japan

4. United States

Source: Reuters.

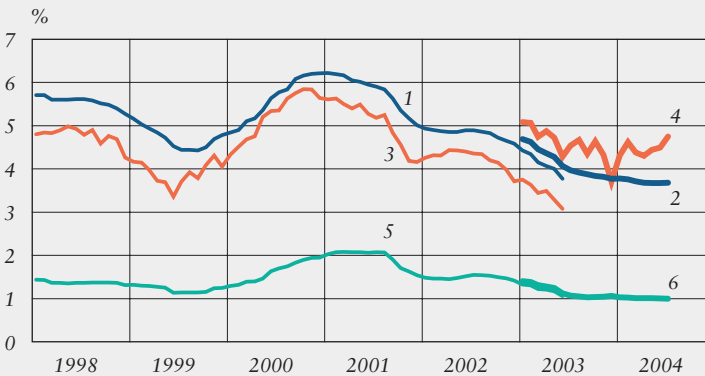
5. Bank reference rates in Finland and 12-month Euribor



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 (Helibor until end-1998)

Sources: Banks and ECB.

6. Average lending and deposit rates

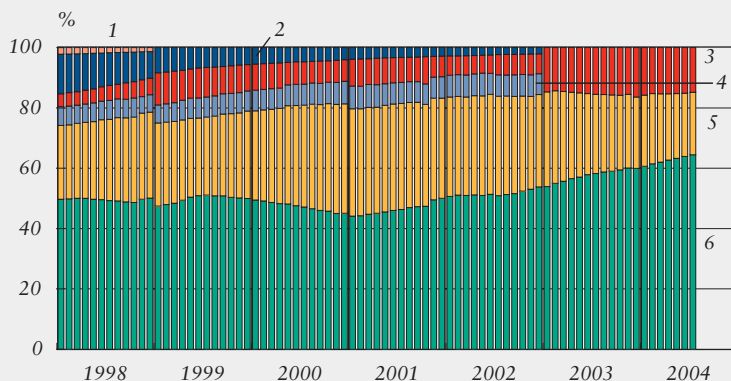


1. Banks' stock of loans
2. MFIs' stock of loans
3. Banks' new loans
4. MFIs' new loans
5. Banks' stock of deposits
6. MFIs' stock of deposits

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

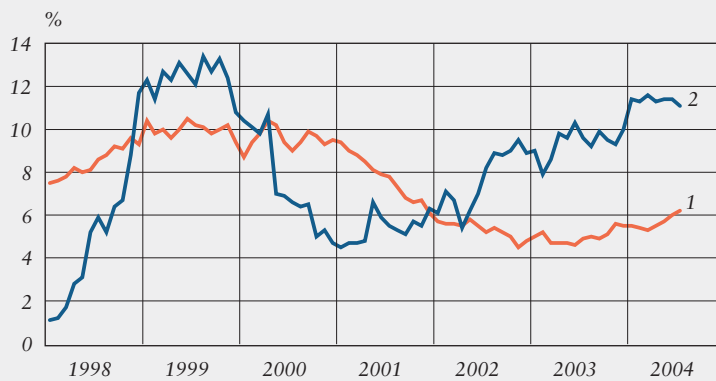


1. Linked to 3 and 5-year reference rates
2. Linked to base rate
3. Linked to other rates (as of 2003 includes loans linked to base rate and fixed-rate loans)
4. Fixed-rate
5. Linked to reference rates of individual banks (prime rates, etc)
6. Linked to Euribor (Helibor until end-1998)

Source: Bank of Finland.

Data collection changed as of 1 January 2003.

8. MFI loans to private sector



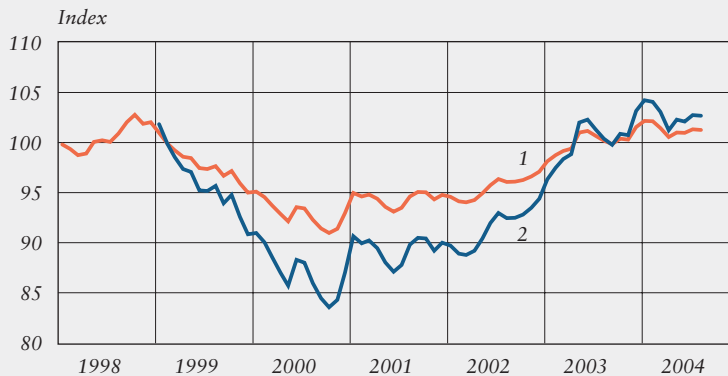
12-month change, %

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.

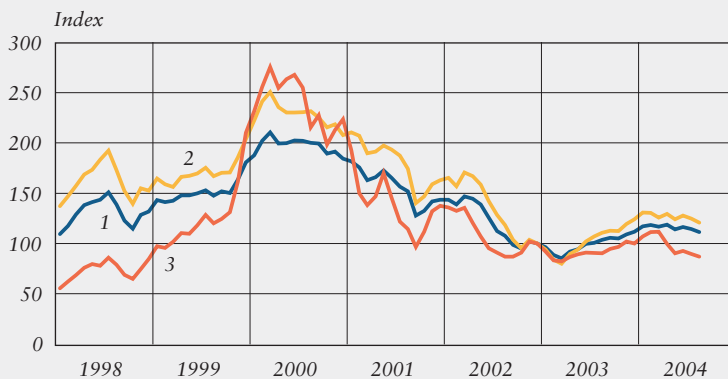
An upward movement of the index represents a weakening in Finnish competitiveness.

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 2002 = 100

1. Total euro area:

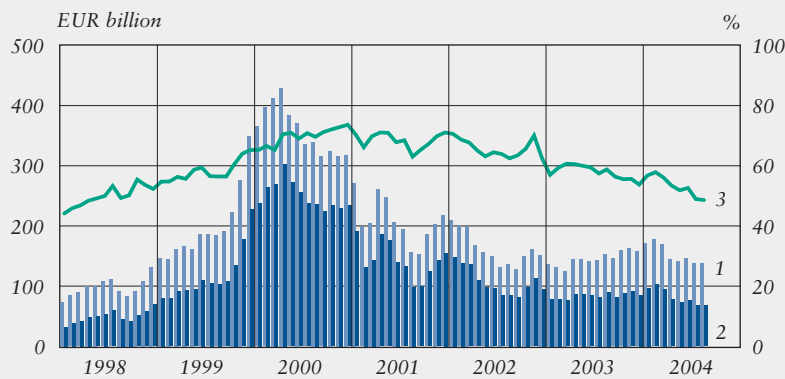
Dow Jones Euro Stoxx index

2. Germany: DAX index

3. Finland: HEX all-share index

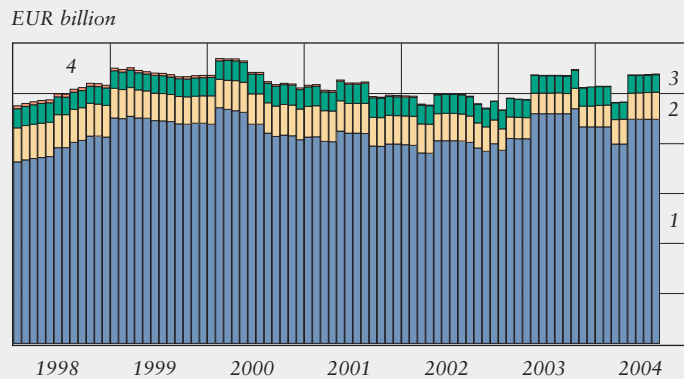
Sources: Bloomberg and HEX Helsinki Exchanges.

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



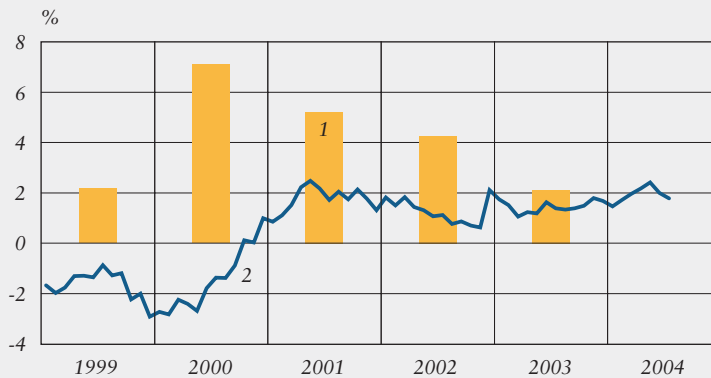
- 1. Market capitalisation of all listed shares (left-hand scale)
 - 2. Market capitalisation of non-residents' holdings (left-hand scale)
 - 3. Market capitalisation of non-residents' holdings as a percentage of total market capitalisation (right-hand scale)
- Sources: HEX Helsinki Exchanges and Finnish Central Securities Depository (APK).

12. Bonds issued in Finland



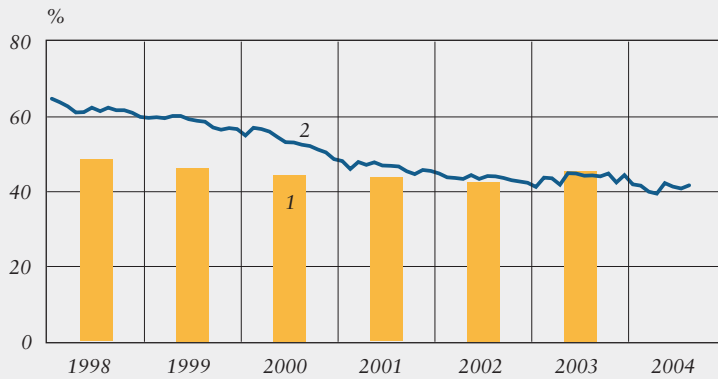
- End-month stock
- 1. Central government
 - 2. Financial institutions
 - 3. Companies
 - 4. Other
- Source: Statistics Finland.

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



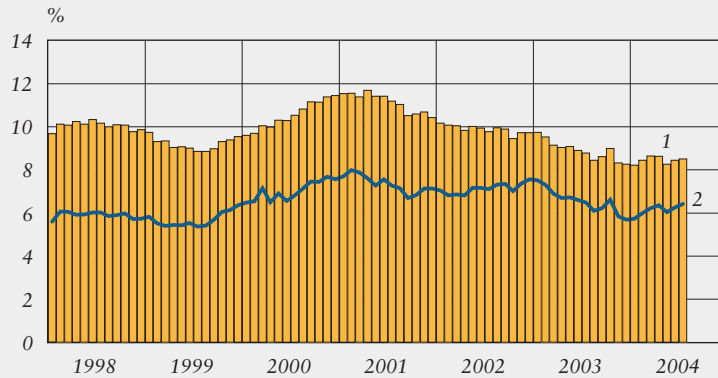
% of GDP

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



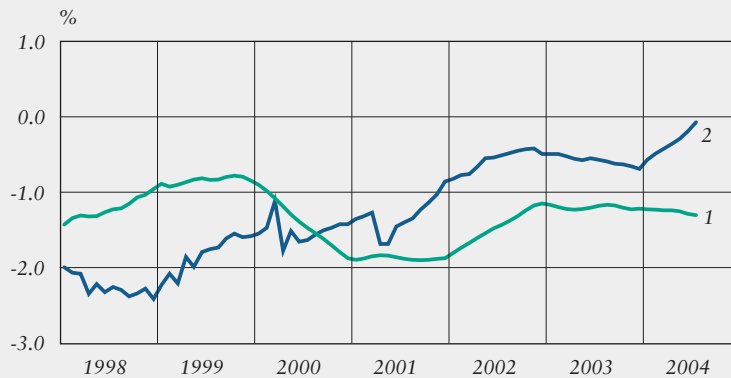
12-month moving totals, % of GDP

1. Goods account, fob

2. Current account

Source: Bank of Finland.

16. Finland: services account and income account



12-month moving totals,
% of GDP

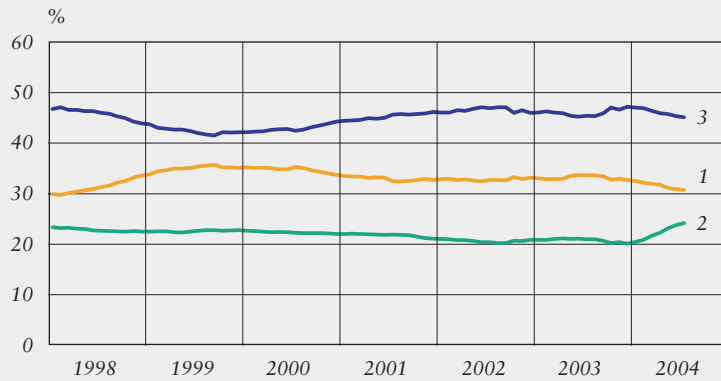
1. Services account

(trade in goods, fob)

2. Income account

Source: Bank of Finland.

17. Regional distribution of Finnish exports

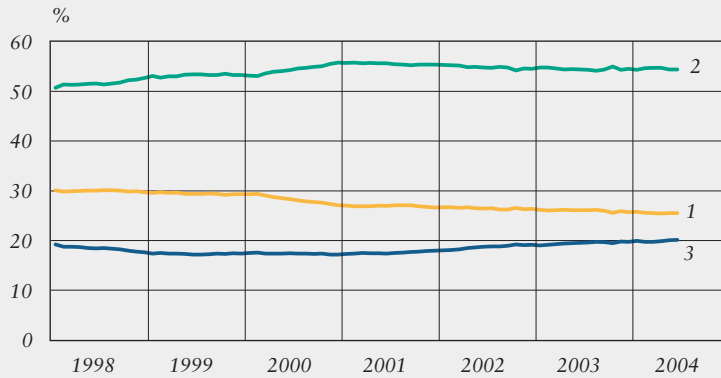


12-month moving totals,
percentage of total exports

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

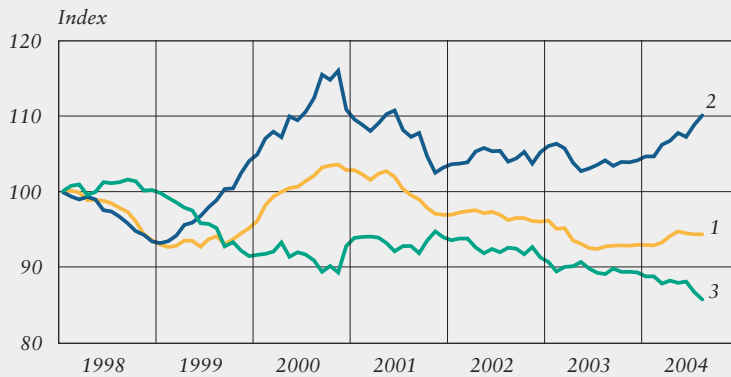


12-month moving totals,
percentage of total exports

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

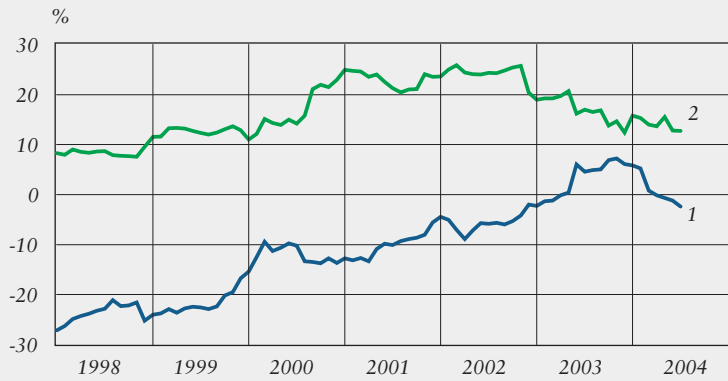


1995 = 100

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

Source: Statistics Finland.

20. Finland's net international investment position



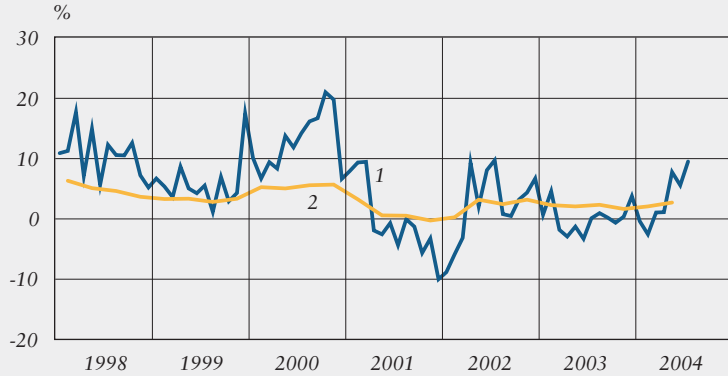
% of GDP

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



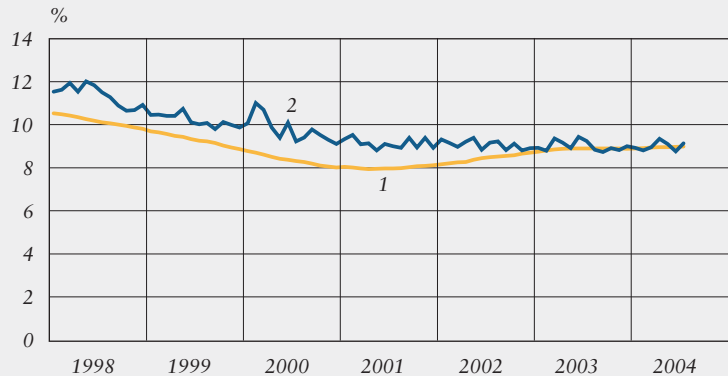
Percentage change from previous year

1. Industrial production

2. Gross domestic product

Source: Statistics Finland.

22. Unemployment rate in the euro area and Finland



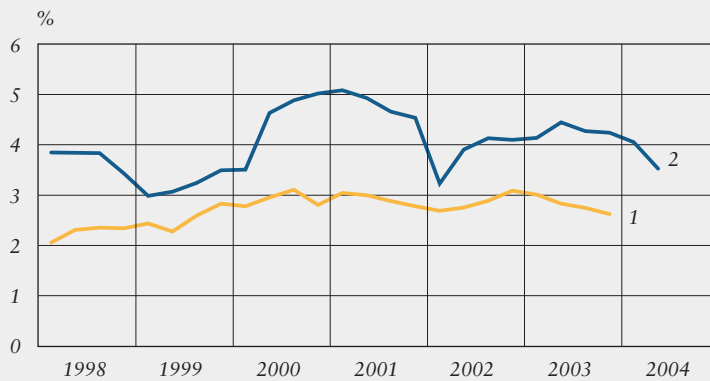
1. Euro area

2. Finland

Sources: Eurostat, Statistics Finland and Bank of Finland.

Data seasonally adjusted.

23. Industrial earnings in the euro area and Finland



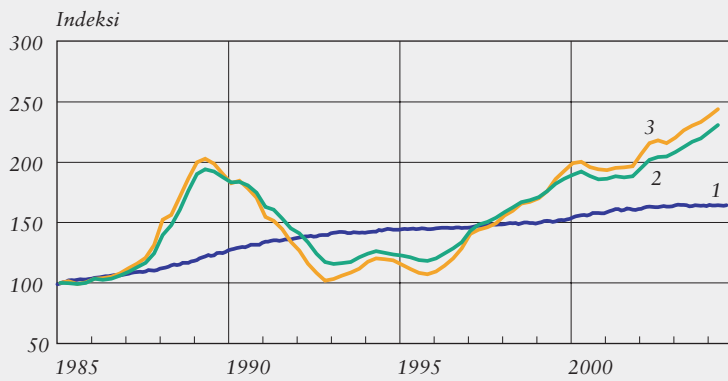
Percentage change from previous year

1. Euro area

2. Finland

Sources: Eurostat and Statistics Finland.

24. Selected asset prices in Finland



January 1990 = 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

12 July 2004

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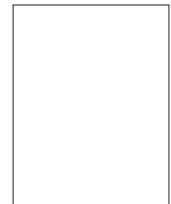
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