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Economic outlook

SUOMEN PANKKI
FINLANDS BANK
EUROJÄRJESTELMÄ
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Contents

The cover portrays the work of
Herman Joutsen 'Ajomies'.

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Preface

The newly elected Parliament faces major challenges affecting the Finnish economy as the working-age population begins to contract in 2010. However, Finland has made better preparations for population ageing than many other European countries. The pension system has been reformed, and general government finances have been in surplus in recent years. This has enabled both a reduction in general government debt and increases in pension funds. Despite these achievements, future success is not guaranteed. The general government surplus of recent years is primarily the result of favourable economic developments, which in turn have been largely boosted by exceptionally robust world economic growth.

The impact of population ageing will be felt earlier in the Finnish economy than in the rest of the EU member states. Once begun, the pace of change will advance rapidly. In 2004–2006, the number of people of working age, ie those aged 15–64, increased by an annual average of 5,000. In 2010 the number of people of working age will contract by some 10,000 and thereafter by around 20,000 people annually. By 2020, the number of Finns of working age will have declined by approximately 200,000 from 2006.

Given the rapid economic growth of recent years, coupled with the general government surplus, pressure may emerge to increase public spending more than before. It should therefore be remembered that economic growth already began to peter out in the second half of 2006 and that within a few years the number of working-age people will begin to decline. If the general government surplus were to be reduced now, it would intensify the pressure to tighten taxation in a situation where population ageing is going to reduce the number of potential payers of taxes on earned income and increase pension and health care expenses. This would further undermine the potential for employment and economic growth.

Consequently, moderate growth in public spending is of the essence to safeguard general government finances. The framework of government spending limits should therefore be maintained. Sustainability can also be boosted by actions designed to improve labour productivity in public services. Given the contracting number of working-age people, GDP growth can only be achieved if labour productivity is enhanced.

Besides having a direct impact on our future economic conditions, general government finances play a key role in implementation of the single monetary policy. Credible monetary policy, ensuring price stability, is only feasible if general government finances are sustainable in all euro area countries. Our country is now in a position to set an example for other EMU countries, which face the economic impact of population ageing some years after Finland.

According to the Bank of Finland's forecast, the general government surplus relative to GDP will be close to 4% in 2007–2009. This forecast is based on the assumption that no major policy changes affecting general

government revenue and expenditure will be made in the next few years. Maintenance of the surplus is possible if the fairly robust overall economic performance continues.

Recent years have seen moderate increases in aggregate earnings. Contrary to the 1970s and 1980s, when nominal earnings rose rapidly, wage earners' purchasing power has now been supported by low inflation. In 1999–2006, the average annual growth rate in real earnings was 2.1%, the same as in 1970–1998.

Even though the nominal growth rate in earnings has been modest in historical terms during EMU, it has not been modest when viewed against average developments in the euro area. This becomes evident upon examination of labour compensation costs per employee, on which comparable international data is available. This data shows that compensation per employee increased by an annual average of 3.2% in Finland in 1999–2006, compared with an annual average of a mere 2.2% in the euro area overall.

However, this faster rate of increase in labour costs in Finland has not seriously affected the price competitiveness of Finnish production, because labour productivity in Finland has outpaced the euro area average. Indeed, growth in unit labour costs in Finland, calculated by subtracting the labour productivity growth rate from the rate of increase in labour costs, has been close to the euro area average.

It is also relevant to ask if wage earners have been able to benefit from the robust economic growth of recent years or whether globalisation has resulted in deterioration in the position of Finnish wage earners. Statistics show that the value-added share of labour income (ie labour compensation costs) in GDP has not changed much in recent years. In the 1990s, the proportion of labour income contracted due to structural changes in the economy and declining employment, but since 2000 it has, in fact, increased to a certain extent.

The current centralised incomes agreement comes to an end next autumn. On the basis of the comparisons presented above it is clear that future decisions should not depart from the moderate wage increase policy of recent years. Such decisions contribute to keeping consumer price inflation subdued, thus supporting growth in consumer purchasing power. It is important that the forthcoming wage agreements enable company- and employee-specific flexibility in wage increases. That would enhance adaptability to the impact of globalisation and population ageing and sustain productivity growth in the economy as a whole.

Consumer price inflation has been fairly low in Finland, even though some acceleration was seen in 2006. This was partly due to the higher world market price for crude oil and the increase in certain service prices in Finland. In the next few years, the annual rate of inflation is forecast to remain below 2% in Finland.

GDP growth in Finland was exceptionally high in 2006, up 5½% on

2005. Exports and domestic demand expanded strongly, and the employment situation continued to improve. However, GDP growth does not give an accurate picture of Finland's overall economic performance. The paper industry labour dispute in 2005 is reflected in the growth figure for 2006, increasing it by almost 1 percentage point. In addition, the terms of trade continued to weaken, dampening growth in GDP purchasing power (real domestic income). Weaker terms of trade indicate that export prices are being outpaced by import prices.

In recent years, import prices, especially the price of oil and other commodities, have increased in conjunction with weaker export prices. The deterioration of the terms of trade in 2004–2006 chipped an annual average of 1.4 percentage points from the annual rate of increase in GDP purchasing power. Indeed, this can be seen as one explanation as to why no major signs of overheating, such as an acceleration of imports or increases in wage drift, can be observed in the Finnish economy, despite the rapid growth in GDP. In 2007, the deterioration in the terms of trade is expected to come to a temporary halt, only to continue again in 2008–2009.

The moderation of Finland's GDP growth that began in the second half of 2006 is expected to continue, but GDP growth is still forecast to reach the fairly strong pace of 2½–3%. The decline in growth is due to the peak of world economic growth now having subsided, although it will remain fairly robust over the next few years. Economic growth will also be fettered by household demand as investment in housing and consumption grow more slowly than in recent years.

After a period of very sluggish growth for a number of years, euro area economic activity picked up substantially in 2006. Consumer prices were up 2.2% on 2005. The ECB Governing Council has raised its key policy rate by a total of 1.75 percentage points since December 2005. The policy rate is now 3.75%, and monetary policy continues to be on the accommodative side. The Governing Council will monitor very closely all developments so that risks to price stability over the medium term do not materialise. These risks remain on the upside, relating in particular to stronger-than-expected wage developments.

16 March 2007

Executive summary

Economic growth in Finland accelerated in 2006.[1] Measured by the change in real GDP, the growth rate was 5½%. While economic performance was clearly favourable, the growth figure is somewhat overdrawn. The rise in import prices relative to export prices reduced growth in the combined real income of households, companies and the public sector by about 1½ percentage points. This terms-of-trade effect was largely the result of a rise in import prices related to higher prices of raw materials. Moreover, the work stoppage in the paper industry in 2005 had reduced total output that year, and this inflated the growth figure for 2006 by almost a full percentage point.

The favourable course of the economy is expected to continue over the next few years, although GDP growth will slow down. The period of fastest growth was the first half of 2006. Since then, growth has slowed, and the slowdown is forecast to continue, so that GDP is set to increase by some 3% in 2007 and by just over 2½% in both 2008 and 2009. The strong performance of the Finnish economy in recent years has been abetted by a number of factors: the strength of the international economy, low interest rates, heightened competition in markets for many goods and services, Finnish households' confidence in the future, and greater participation in working life by older people. Despite a moderate easing of world economic growth and a slight rise in interest rates, the growth prospects for the Finnish economy remain quite good.

Growth last year was strengthened by increases in domestic demand and exports. Exports increased at an exceptionally fast rate in the first half of 2006, spurred by robust growth in the world economy. The major importers of Finnish products – Germany, Sweden and Russia – substantially increased their imports, and robust investment growth around the world boosted the demand for Finnish output of investment goods.

Exports increased notably last year, not only in terms of volume but also value, as export prices remained on the upward path that began in 2005. Growth in the volume of Finnish imports, by contrast, slowed substantially last year. But the rise in import prices stemming particularly from higher commodity prices did keep the value of imports on a fairly pronounced upward trajectory.

Thanks to the continuing relatively strong performance of the world economy exports are projected to increase fairly rapidly over the next few years, despite a slowdown in growth from the pace of the last three years. In the forecast, imports are projected to increase at a slightly faster rate than exports. The level of import prices in 2007 is not expected to change much from the previous year, largely because of the decline in crude oil prices in the second half of 2006. This will temporarily halt the weakening of the terms of trade, which is expected to continue in 2008, as import prices

[1] This publication is based on data releases up to 1 March 2007.

begin to rise again and export prices decline. The current account surplus, which began to grow last year, will begin to contract again.

Households' consumption and housing investments have been notably on the rise since 2003, as household income has developed favourably and confidence in the future is strong. Consumption has also been buoyed by increasing wealth due to the rising prices of housing and shares.

The improvement in the employment situation in 2005 and 2006 may have reduced households' perceived threat of unemployment. Even with higher employment, however, the growth in households' real income has slowed, partly because of the moderate pick-up in inflation. Consumption actually exceeded income in 2006, so that the household savings rate was negative.

Real household consumption spending increased 3% in 2006, ie by slightly less than in 2005. The forecast projects continued growth at roughly the same rate over the next few years. With continued improvement in the employment situation, household income should rise at a slightly faster pace, but the savings rate is expected to remain negative.

Last year, the value of households' investment in housing, relative to GDP, was at its highest since 1991. Real investment in housing rose by about 6% last year, roughly in line with 2005. In the course of the year, however, growth moderated, while at the same time there was a modest slowdown in the rise of housing prices and the stock of housing loans. The moderate cooling of the housing market was related to a slight upward drift in interest rates.

It is projected that over the next few years real investment in housing will post fairly good increases of a few per cent per annum against a background of fairly strong developments in household income and (per forecast assumption) a level of interest rates barely higher than at present. Housing construction will be constrained by a shortage of building land and labour. These factors, along with rising construction costs, will also keep housing prices on an upward trajectory in the years ahead. The pace of rise is however projected to decelerate from the high rates of recent years.

Private non-residential investment in productive capacity continued to post fairly strong growth last year, at around 6½%. Companies invested in structures, machinery and equipment, as their profits increased, demand prospects continued favourable, and financing costs remained moderate. With conditions remaining relatively good, private non-residential investment is projected to continue to rise over the next few years, albeit at a slower pace than in 2005 and 2006.

There has been a considerable improvement in the employment situation in Finland during the past two years. The rapid output growth achieved in various sectors has boosted demand for labour, and labour supply has increased partly because of a higher labour force participation rate among older people. This is largely due to a reduction in the proportion of the population receiving disability pension.

In contrast, the proportion of 60–64-year-olds receiving the ordinary retirement pension has hardly changed at all. Growth in the number of employed continues to be constrained by mismatch problems in the labour market: suitably trained or educated workers are not always available where they are needed. However, particularly in the construction sector, the situation has been alleviated somewhat by increased use of foreign workers.

The number of employed is expected to continue to increase in the years ahead, albeit at a slightly slower pace. The effects of demographic change will already be apparent in the Finnish labour market during the forecast period, as the number of working age persons will barely increase any more during 2008–2009 and will begin to decline thereafter. A slowing of employment growth will translate into a slowing of economic growth, since labour productivity is expected to continue to grow in the next few years in line with the average for 2000–2006, about 2% per annum.

Growth in nominal earnings slowed slightly last year, to 3%. The modest rise in the inflation rate slowed growth in real earnings. Earnings have in recent years increased faster in Finland than the average rate for the euro area. However, Finland's price competitiveness has been bolstered by productivity growth above the euro area average. The current wage agreement expires in autumn of this year and it is assumed that the level of earnings will thereafter accelerate moderately compared to 2007.

Because of the exceptionally strong economic performance of recent years

Table 1.

Forecast summary[1]

% change on previous year (unless otherwise indicated)

	2005	*2006*	*2007f*	*2008f*	*2009f*
Gross domestic product	*2.9*	*5.5*	*3.0*	*2.7*	*2.7*
Imports	*12.2*	*5.4*	*5.7*	*6.3*	*5.7*
Exports	*7.1*	*10.7*	*5.3*	*5.7*	*5.6*
Private consumption	*3.8*	*3.0*	*2.9*	*2.8*	*2.7*
Public consumption	*1.7*	*0.9*	*1.4*	*1.6*	*2.0*
Private investment	*6.4*	*5.6*	*4.6*	*3.2*	*2.7*
Public investment	*–10.7*	*1.8*	*1.3*	*10.2*	*0.4*
Harmonised index of consumer prices	*0.8*	*1.3*	*1.5*	*1.7*	*1.9*
Consumer price index	*0.6*	*1.6*	*1.9*	*1.8*	*1.9*
Wage and salary earnings	*3.9*	*3.0*	*2.8*	*3.8*	*3.5*
Number of employed	*1.5*	*1.8*	*1.8*	*0.6*	*0.2*
Employment rate, 15–64-year-olds, %	*68.0*	*68.9*	*69.7*	*70.0*	*70.1*
Unemployment rate, %	*8.4*	*7.7*	*6.8*	*6.7*	*6.6*
Current account, % of GDP	*4.9*	*6.0*	*6.3*	*5.4*	*5.0*
General government net lending, % of GDP	*2.5*	*3.8*	*4.1*	*3.8*	*4.0*
General government debt, % of GDP	*41.4*	*39.1*	*36.8*	*35.1*	*32.9*

f = forecast
[1] The forecast summary is presented in Table 10 and on the Bank of Finland website at www.bof.fi/en in the section headed 'Bank of Finland Bulletin'.
Sources: Statistics Finland and Bank of Finland.

the financial position of the public sector has improved. In 2006, the general government surplus rose to around 4% of GDP, the corresponding figure for central government being about 1%. Tax revenue and asset earnings increased substantially, while unemployment-related expenditure declined sharply. General government debt decreased and tax cuts led to a ½ percentage point drop in the overall tax ratio. Central government expenditure has continued to rise at a moderate rate, in line with the spending limits agreed in 2003.

The forecast projects public finances to remain strong over the next few years. Surpluses should continue to run in the range of 4% for general government and 1% for central government. The forecast for public spending is based on the assumption that the system of spending limits in the budgetary procedure will remain essentially intact following the recent parliamentary elections and that growth in central government spending will remain moderate. As regards taxation, it is assumed that central government income tax scales will be adjusted only for inflation in 2008 and 2009.

Inflation in Finland accelerated slightly last year. Consumer prices rose between 1.3% and 1.8%, depending on the method of measurement. Finnish inflation continued at a lower rate than average for the euro area. Service prices accelerated, in part because a change in competitive conditions caused a reversal in the previous downtrend in telecommunications prices. The rise in the world price of oil pushed up the prices of energy products until early autumn, after which they declined.

Inflation is projected to accelerate only slightly in 2007. Measured by the harmonised index of consumer prices, the inflation rate should be around 1.5%. Service prices are expected to rise, while energy price inflation will be considerably lower than in 2006. For 2008 and 2009, inflation is projected to further accelerate moderately but to stay under 2% per annum. The rise in prices of industrial products will be accelerated somewhat by pressures from international sources, while the moderate acceleration in domestic labour costs will push up inflation mainly in the service sector.

Financial markets

Recent developments in the financial markets have generally reflected strong confidence in solid corporate profits and sustained price stability without any significant tightening of monetary policy worldwide. These developments are in line with the view that world trade and the global economy growth will continue to grow at a fairly brisk pace, if slightly more slowly than at present. Higher interest rates have moderated the rise in house prices in Western industrial countries.

Interest rates

The Governing Council of the European Central Bank continued its policy rate hikes in the second half of 2006. The rate has risen a total of 1¾ percentage points since December 2005, and now stands at 3.75% (Chart 1). Euro area money market rates have also continued their moderate rise.

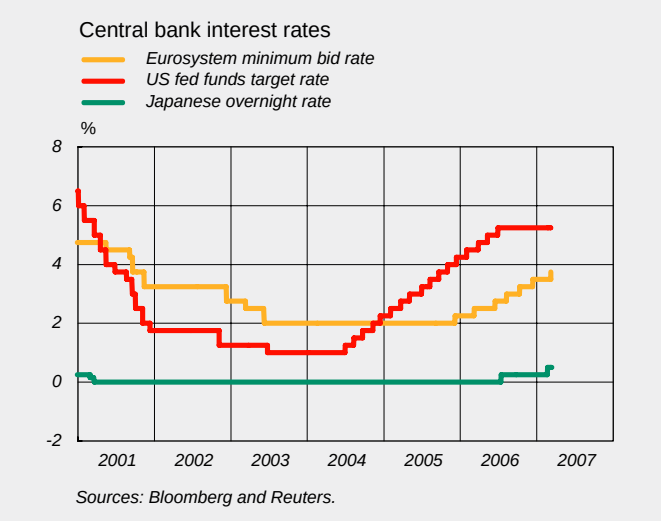
Policy rate hikes have been aimed at deterring risks to price stability. These risks have been increased by a rise in the utilisation rate of resources in the economy and the rising prices of oil and other commodities. Despite policy rate hikes, money market rates in the euro area continue to be relatively low. This applies to both nominal rates and real rates at different maturities. The rapid growth in monetary and credit aggregates also reflects an accomodative monetary policy. The financial markets are still expecting the ECB Council to further raise the policy rate slightly before the end of the year.

The Federal Reserve has kept its policy rate unchanged at 5.25% since summer 2006. It is now 4.25 percentage points higher than in May 2004. The financial markets are expecting it to remain at its current level throughout the first half of the year.

The Japanese central bank has increased its policy rate to 0.50%. In July 2006, after almost five years, it relinquished its zero interest rate policy. The financial markets are expecting the rate to rise further, albeit only slowly.

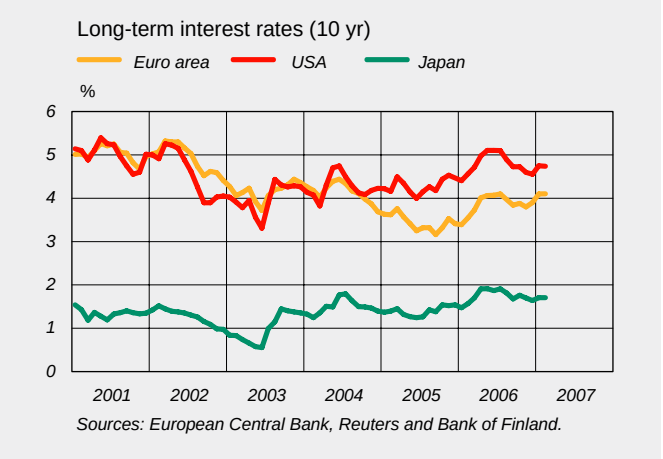
Long-term interest rates declined in the main economic areas in the second half of 2006 but resumed an upward trend at the end of the year (Chart 2).

Chart 1.



Sources: Bloomberg and Reuters.

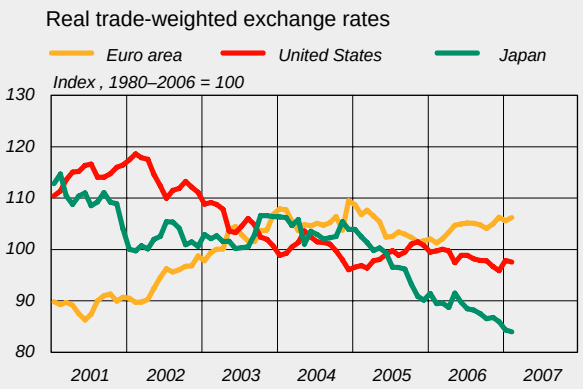
Chart 2.



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

On the basis of the prices of index-linked bonds, the recent increase in nominal interest rates can be interpreted, in the euro area, as a consequence of an increase in real interest rates, and, in the United States, largely as a consequence of a moderate increase in inflation expectations.

Chart 3.



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

Chart 4.

Source: Bloomberg.

Exchange rates

Measured by the trade-weighted exchange rate index, the euro appreciated in 2006 by about 5% in real terms. The appreciation seems to be mainly due to expectations of an increase in interest rates and improvement of economic prospects in the euro area, which have added to the attractiveness of euro-denominated investments. All in all, the effective external value of the euro has, however, remained more or less stable for almost four years (Chart 3).

The US dollar depreciated last year effectively by about 4%. The primary reason seems to have been a dampening of interest rate increase expectations since last summer with increased signs of an easing in economic growth. The US current account deficit has remained large, but so far there have been no problems in financing it. The Japanese yen depreciated last year effectively by about 6%. A significant reason for the weakness of the yen has been the low level of nominal interest rates in comparison with other currencies.

Appreciation of the Russian rouble has continued during the past 6 months in the wake of strong oil income (Chart 4). At the same time, the country's current account surplus and foreign reserves have reached record levels. The Russian central bank has allowed the currency to strengthen in an attempt to slow down inflation. Appreciation of the Chinese yuan continued in the latter half of 2006, while the country's foreign reserves swelled to become the largest in the world due to interventions by the central bank.

Stock markets

Stock prices continued to rise in the second half of 2006. Stock price developments were very similar across the major economic regions (Chart 5). On the basis of major stock market indices, stock prices rose by about 13% in the United States, 17% in the euro area and 12% in Japan in the second half of 2006. At the same time in Finland, stock prices rose by 19%, as measured by the OMX Helsinki CAP Index, which limits the weight of one company to a maximum of 10%. In January 2007, the value of this index exceeded its previous peak in March 2000.

A strong increase that had continued almost unbroken for over six months gave way to price fluctuation at the end of February 2007 and the beginning of March although no significant new information was received on global economic fundamentals. All in all, stock prices have been supported in the past six months by investors' confidence in strong corporate profit developments, particularly in the United States and the euro area.

Housing prices

As a consequence of rising interest rates, housing price developments dampened in the United States and in many euro area countries in 2006. In Finland, house prices were in 2006 on average 7.6% higher than a year earlier. However, the rate of growth in housing prices slowed down in Finland, too, during 2006. Rents rose by 3%, ie much less than the increase in the purchase price of housing.

The increase in housing prices in 2006 was slightly faster in the Helsinki metropolitan area than in the rest of Finland. The price increase was most rapid in apartments. In the past four years, on average, no large differences have been observed in price developments between different regions or types of housing (Chart 6). This suggests that the continued rise in

Chart 5.

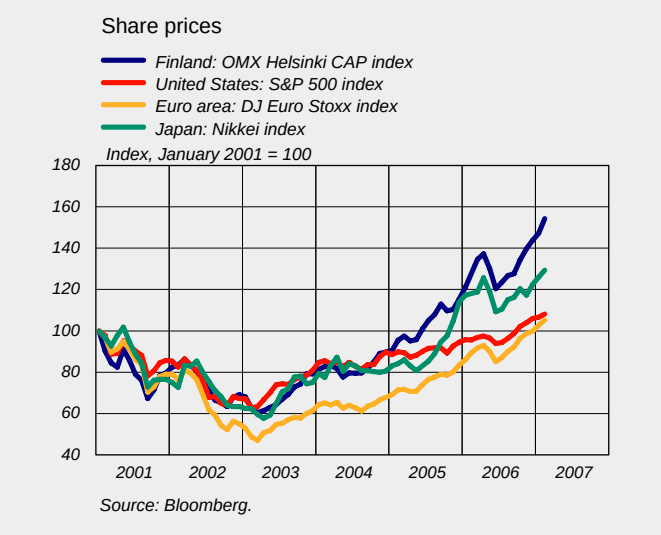
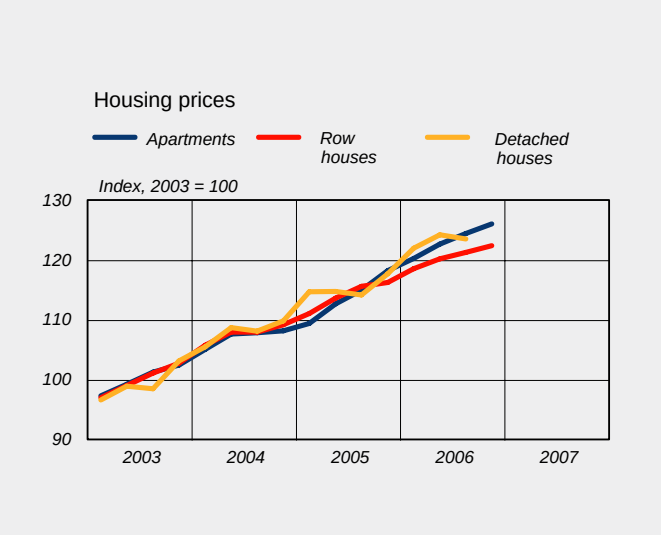


Chart 6.

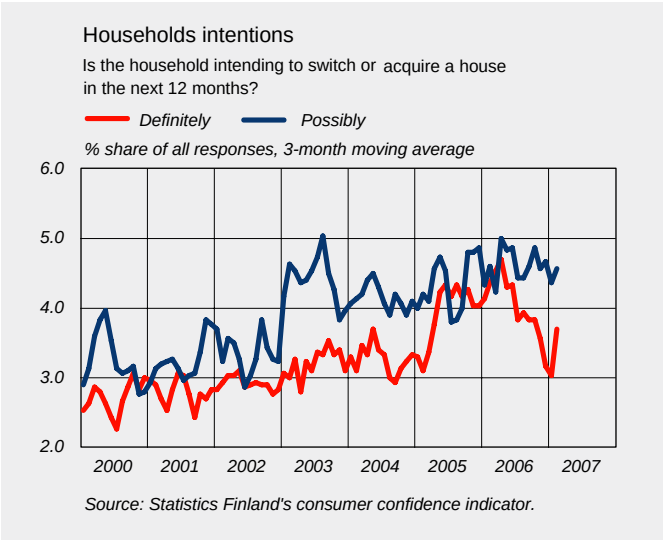


housing prices has been the result of general economic factors, such as the low level of interest rates and favourable developments in household income. During the last two years, the increase in the prices of construction materials has also accelerated, partly due to higher world market prices for commodities.

According to preliminary data, the number of housing transactions in 2006 declined from earlier peak levels, but nevertheless remained fairly high. Based on survey data, many households are still considering buying or switching houses in the next 12 months. However, the number of such households decreased somewhat in 2006 (Chart 7).

The increase in housing prices began to slow down in the third quarter of 2006. Moderate slowdown is expected to continue in the next few years. Above all, this is due to the rise in interest rates. This year, housing prices will increase by a little less than 6%. In 2008–2009, the price increase is expected to remain at 3–4%, which is less than households' disposable income growth. The availability of financing will no longer be significantly increased by extraordinary factors such as the lengthening of loan periods.

Chart 7.



Source: Statistics Finland's consumer confidence indicator.

Bank loans and deposits

Higher interest rates and strong economic growth had an impact on the development of Finnish deposit and loan markets in 2006. The rise in interest rates was reflected in eg an increasing popularity of fixed-term deposits and slowdown in the growth of the household loan stock. Meanwhile, investments in productive capacity are bolstering demand for corporate loans.

Deposits in Finnish financial institutions increased moderately in 2006 (3.9%).[1] Fixed-term deposits grew faster than other deposits, by 8.4%. The rapid growth of fixed-term deposits is due to the increase on the interest rates payable on such deposits and an increase in the differential between the interest rates on these deposits and other deposits. In December 2006, the interest rate on fixed-term deposits rose to 3.14% and the interest differential between fixed-term deposits and overnight deposits (transaction accounts) went up from 1.7 to 2.2 percentage points.

Loans granted by monetary financial institutions to households and corporations increased by 11.5% in 2006. Loans granted to households continued to grow rapidly, but their

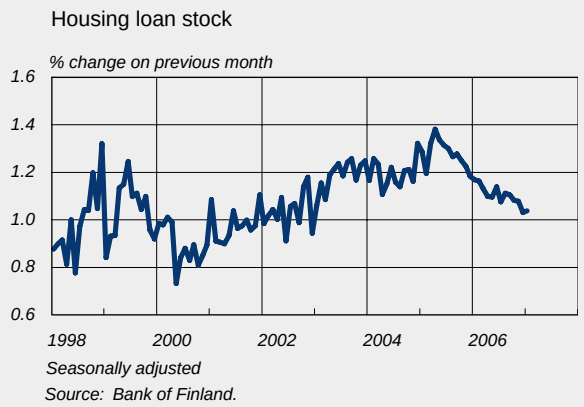
[1] Changes discussed in this chapter have been calculated from December 2005 to December 2006.

growth rate decelerated significantly during the year. Growth in the loan stock was slowed by the rise in interest rates and cooling down of the markets. Growth in the housing loan stock slowed to 14.1% (Chart 8), and growth in consumer credit and other household credit slowed to 10.1%. All in all, the household loan stock grew by about EUR 9 billion to EUR 78 billion.

In contrast, corporate loans growth accelerated slightly in 2006 despite the higher interest rates. According to the Survey on Business Finances, growth in demand for corporate loans was primarily due to investments and secondarily to the need for working capital.

Growth in households' demand for loans is expected to slow somewhat this year in line with the expected slight rise in the level of interest rates. In contrast, demand for corporate loans is expected to increase further on the back of investment demand. The forecast on the development of household and corporate lending is in line with the outlook indicated by major barometers, such as the consumer barometer of Statistics Finland, the banking barometer of the Finnish Bankers' Association and the Survey on Business Finances published by the Bank of Finland, the Confederation of Finnish Industries and the Ministry of Trade and Industry.

Chart 8.



Box 1.

Forecast assumptions

World trade

There was a clear acceleration in world economic growth in the first half of 2006, and annual growth is estimated to reach 4.8%. Although economic activity in the United States and Japan slowed in the course of 2006, the moderation is expected to be temporary. In contrast, growth continued at a brisk pace in eg Europe and non-Japan Asia. Global growth benefited from stronger fixed investment. Last year was characterised by rapid growth in world trade.

The fastest phase of growth in the world economy is, however, estimated to be over for the present. The focus of growth is shifting from the main industrialised countries to the emerging economies, which will experience strong growth throughout the forecast period. World economic growth is forecast to ease to a good 4% in 2007, and to sustain that level in 2008 and 2009 as well.

One factor that specifically contributed to increasing world trade growth in 2006 was a pick-up in trade in Asia and other emerging economies. Rapid growth in imports by oil-exporting countries also boosted exports, particularly from industrialised countries. World trade is forecast to continue growing buoyantly, albeit the pace of growth will begin to recede in 2007, decelerating gradually to around 7% by 2009.

Finland's export markets are expected to grow much faster than world trade.[1] This is mainly due to Russia's large share of Finnish foreign trade. Export market growth peaked in 2006, expanding at rates higher than 10%. The pace of growth is, however, forecast to ease slightly, to just over 8% by 2009, in response to slowing world trade growth.

Commodity prices

Commodity prices are also estimated to remain historically high over the next few years on the back of continued brisk global growth and, above all, rapidly increasing Asian demand for raw materials.

The forecast foresees a price of just over USD 60 per barrel for Brent crude in the next few years. Meanwhile, spare crude oil production capacity should remain relatively tight, although investment is expected to increase in an environment of high prices. Stronger consumption in Asia, and particularly China, combined with declining oil production growth in the CIS countries should constrain increases in spare production capacity. Price pressures will also be reinforced by OPEC's commitment to defend the price level through production cuts, if necessary.

The prices of industrial raw materials (excl. energy) rose substantially in the first half of 2006. Price increases have subsequently eased, however, and prices are expected to begin a slow decline during the forecast period. The elevated price level is gradually starting to boost raw material production. On the other hand, the robust pace of world economic growth and demand from Asia should

[1] *Pace of growth in Finland's export markets means the weighted average pace of import growth in the countries to which Finland exports, the weightings corresponding to each country's share of Finnish exports.*

Table 2.
Forecast assumptions

	2005	*2006*	*2007f*	*2008f*	*2009f*
Import volume in Finnish export markets, % change	*8.5*	*10.4*	*8.9*	*8.5*	*8.1*
Finnish import prices, % change	*4.5*	*5.9*	*0.8*	*2.1*	*0.7*
Oil price, USD per barrel	*54.4*	*65.4*	*62.7*	*67.1*	*65.4*
Euro export prices of Finland's trading partners, % change	*2.7*	*2.9*	*1.5*	*1.3*	*0.9*
3-month Euribor, %	*2.2*	*3.1*	*4.0*	*4.0*	*4.0*
Yield on Finnish 10-year government bonds, %	*3.4*	*3.8*	*3.9*	*3.9*	*3.9*
Finland's nominal competitiveness indicator [1]	*101.6*	*101.9*	*100.5*	*100.2*	*100.3*
US dollar value of one euro	*1.24*	*1.26*	*1.31*	*1.33*	*1.34*

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

slow the decline in prices over the next few years.

Foreign trade prices

Stronger demand for investment and consumer goods as a result of buoyant global growth and markedly higher commodity prices have been reflected in international export prices, and the export prices of Finland's competitor countries picked up substantially over the course of 2006. The strongest price hikes are however estimated to be over for the present, and the pick-up in prices is expected to ease during the forecast period. A reversal of the recent commodity price increases and tightening international competition will subdue the rise in international export prices over the next few years. The export prices of Finland's competitor countries rose around 3% in 2006. The rate of increase should decelerate to close to 1.5% in 2007, declining further still to around 1% in 2008 and 2009.

Developments in international export prices will be reflected in the prices of goods and services imported to Finland. The rise in these import prices is projected to slow in the forecast period 2007–2009 to around 1–2%.

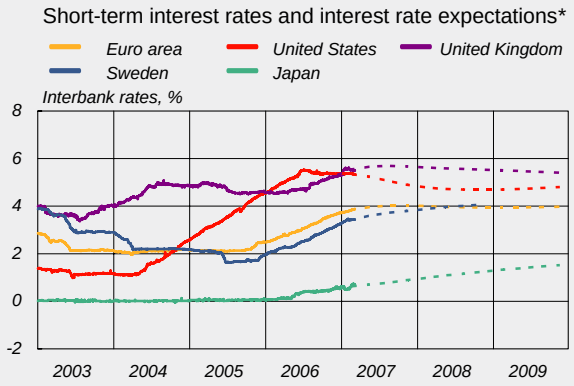
Interest rates and exchange rates

Market rate changes in the forecast period are assumed to be marginal in general. Euro area short-term rates are expected to rise somewhat from their current levels in 2007, but to stabilise thereafter. In contrast, US short-term rates should fall slightly (Chart 9).

The euro is predicted to continue its gradual appreciation vis-à-vis the dollar, in line with interest rate differentials and the uncovered interest rate parity. Accordingly, Finland's competitiveness, as reflected in the nominal trade-weighted exchange rate index, will weaken to some extent in 2007–2009 (Chart 10).

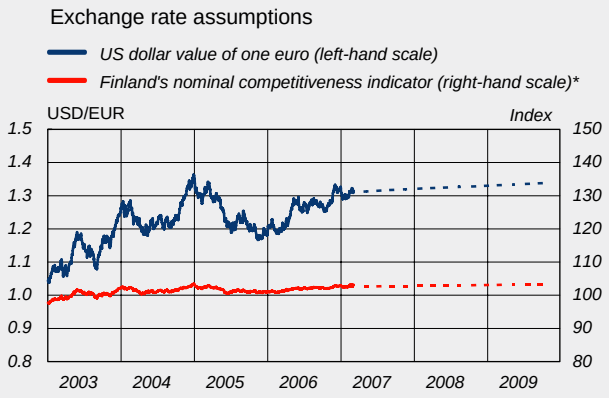
The interest and exchange rate assumptions in the forecast are derived from market expectations as at 1 March 2007. The underlying assumption is purely technical and does not anticipate the interest rate policy of the ECB Governing Council nor include an estimate of equilibrium exchange rates. The Governing Council's decision on 8 March to raise the key policy rate was expected and hence does not affect the forecast.

Chart 9.



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

Chart 10.



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

Box 2.

Households' financial position

The consumption expenditure of private households (and of non-profit institutions serving them) grew by 5% in 2006, but growth in household net disposable income remained at 3.6%. Consequently, the household saving ratio declined, with the net saving ratio contracting to –0.8% (Chart 11). The value of household gross investment, consisting mainly of investment in residential housing, increased by 8.7% and thus grew to 12.4% of disposable income. As a consequence, household indebtedness increased sharply by an amount equal to more than 6% of disposable income.

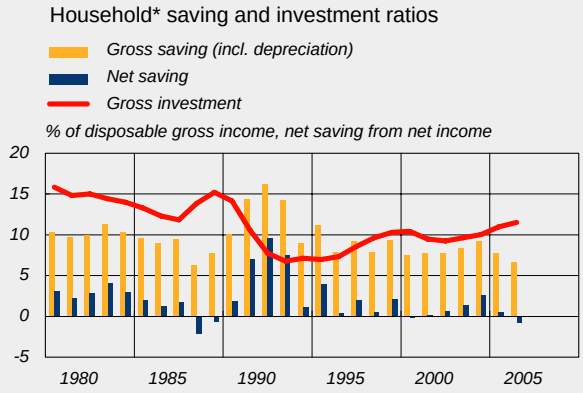
Developments in 2006 clearly illustrate certain special long-term features in the development of Finnish households' financial position. The propensity to saving is modest among Finnish households, and their assets – especially financial assets – are few. Indebtedness in the Finnish household sector is nevertheless still rather moderate, despite the strong increase in loans in recent years.

Finnish households continue to spend almost all their earnings, resulting in the household net saving ratio hovering close to zero. Without discounting depreciation for the decrease in the value of housing assets and other assets due to wear, Finnish households have generally saved 7–10% of their disposable income in recent years.

With the net saving ratio hovering around zero, households' assets do not increase through saving. In so far as assets do increase, any rise is likely to stem from the increase in the value of current assets. The value of housing assets has been growing rapidly for a long time. Besides the increased investment in housing in recent years, the principal reason for this is that housing prices have grown by more than a third from the level at the turn of the millennium.

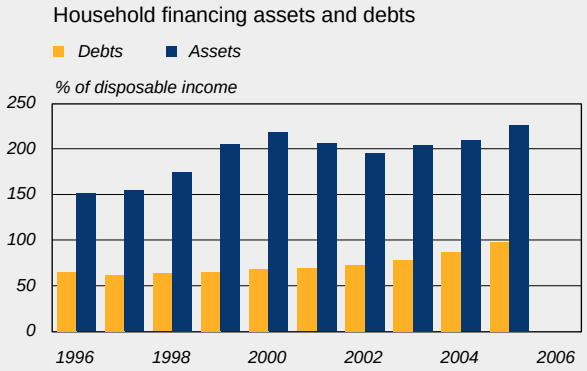
The value of investment in housing by households and of

Chart 11.



* Households and non-profit institutions serving households.
Source: Statistics Finland.

Chart 12.



Source: Statistics Finland.

productive investment by entrepreneurial households has increased since the recession of the early 1990s, although the household investment ratio is still below the level seen prior to the recession. Household saving has not been adequate to finance investment, which is why the value of debt has outgrown the value of financial assets. Monetary financial institutions are the primary source of finance for 90% of Finnish households. Although growth in MFI loans slowed somewhat in 2006, the stock of loans still increased by 13%. In terms on stocks of assets, however, households' financial assets still amount to more than double the amount of debt (chart 12). Of financial assets, slightly less than 40% are held in deposits, some 20% in listed shares, more than 10% in units in mutual funds and 25% in assets in private pension funds.

From an international perspective, Finnish households' assets are relatively small. It must be noted, though, that accurate and comparable statistics are difficult to produce, and different calculations produce different results. It is evident, nevertheless, that because prosperity has grown in Finland only in the last few decades, households have not had the opportunity to accumulate wealth in the same manner as households in countries with a longer history of wealth accumulation. The financial market regulation that extended well into the 1980s is probably still partly reflected in the scantiness of domestic financial assets and debts.

There are certain problems associated with the patterns of financing among Finnish households. In recent years, the concentration of large mortgages has become particularly pronounced among a rather small proportion of households and there has been substantial growth in very high-interest consumer credit. Meagre savings and large debts naturally expose individual households to risks.

Looking at the national economy as a whole, however, the low saving ratio among Finnish households is not a major problem, because the national saving ratio is relatively high compared with other Western economies. In fact, Finland differs from many other developed economies in that our public sector (the employment pension system included) saves substantially, and so do corporations by retaining undistributed assets on their balance sheets. Conversely, in many countries the corporate sector has been running large current funding deficits. As an overall consequence, internationally the Finnish economy thus has a funding surplus, which is reflected in a large current account surplus of approximately 6% relative to GDP.

For the overall performance of the financial market it would probably be beneficial, however, if households' propensity to save were to become more pronounced. Households' relatively modest financial assets – particularly the scarcity of equity holdings – is partly the reason why Finnish companies have largely been transferred into foreign ownership.

The large income in the public sector also partly explains why Finnish households' share of the economy's total disposable income is – in an international comparison – relatively small. The share has varied a great deal, closely following labour costs relative to GDP (Box 10).

Supply

Output

GDP volume growth at market prices accelerated to 5.5% last year. Approximately one percentage point of this growth rate, which is to date the strongest witnessed since the turn of the millennium, is related to the labour dispute in the forest industry in 2005. However, output growth does not fully reflect the increase in purchasing power in a situation where deteriorating terms of trade make increasing export volumes necessary to pay for imports. As shown by the calculation in Box 3, the real purchasing power of GDP at market prices only increased by just over 4% last year.

Output growth increased most sharply in manufacturing, where the annual growth rate of value added at basic prices clearly exceeded 10% (Chart 13). The surge in manufacturing was particularly strong in the first half of the year, when annually adjusted growth was over 16% compared with the latter half of 2005. Growth was also brisk in the retail and construction sectors, exceeding 5%. Slower-than-average growth was recorded in transport, warehousing and telecommunications, in other service sectors and in agriculture and forestry. With the exception of agriculture and forestry, the sectors with slower-than-average growth have also posted robust growth in historical terms. Thus, growth in 2006 was very broadly based.

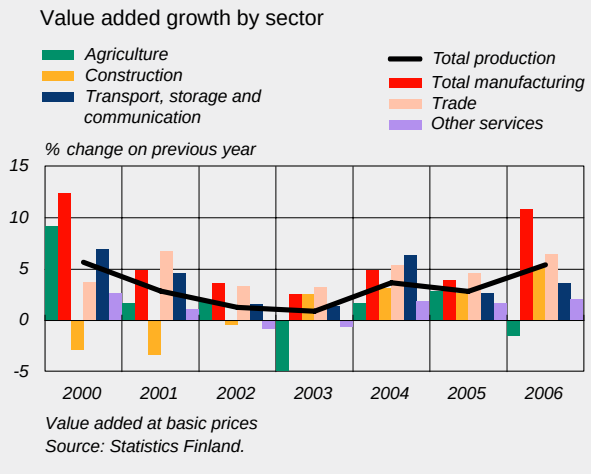
The confidence indicators for manufacturing, construction and services have remained strong in January–February. Strong growth is expected to continue over the next few months, albeit at a rate slower than the exceptionally strong growth registered last year. GDP volume growth at market prices will slow to 3% in the current year and below 3% towards the end of the forecast period.

The slower increase in output growth is due particularly to the fact that, after the cyclical upturn witnessed last year, total factor productivity growth is expected to become normalised at around 1.5%. Output growth will gain from capital input growth remaining at the level of the past few years. Labour input growth will, in contrast, ease back towards the end of the current year after three years of brisk growth. This will subdue output growth towards the end of the forecast period.

Employment and labour supply

In recent years, the employment situation has developed favourably in response to the strong demand for labour and the higher labour force

Chart 13.



participation rate of older employees contributing to the supply of labour. The favourable trend continued in 2006. The number of employed was on average 43,000 higher than the year before, with the employment rate standing at 68.9%. The increase in the number of jobs resulted in a more pronounced decline in the number of unemployed in 2006 compared with the year before. In the latter half of the year, the unemployment rate fell to 6.8%, which is the lowest figure since the economic recession of the early 1990s. In 2006, the average unemployment rate was 7.7%.

However, a major part of employment growth continued to come from outside the labour force, which is, as such, normal in an improving employment situation. The increase in employment and labour force participation by older people was especially high (Table 3). The labour force participation rate for age group 56–74 rose by more than 5 percentage points to 35% over the years 2004–2006.

Particularly notable has been the decline in the proportion of disability pensioners in age group 56–74. In age group 60–64, for example, the proportion of disability pensioners fell from 28% to 19% between 2000 and 2006. No similar change was recorded in the younger age groups, where the proportion of disability pensioners has remained more or less the same throughout the 2000s, although it has been much lower than in the early 1990s.

Part of the increase in the labour force participation rate for those aged 56–74 is, however, of a technical nature, in that the average age within age group 56–74 has fallen now the baby-boomers have passed the age of 55. This change in the age structure was responsible for around a third of the increase in the labour force participation and employment rates for those aged 56–74 over the years 2004–2006. Accordingly, around 3 percentage points of the increase in the labour force participation rate for this age group was related to a lower propensity to retire and other factors.[1]

[1] The risk scenario in the summary chapter discusses the macroeconomic effects of the increase in the supply of labour among employees of retirement age.

Table 3.

Population aged 15–74, labour force participation rate and unemployment 2004–2009

	2004	*2005*	*2006*	*2007f*	*2008f*	*2009f*
Population aged 15–74						
1,000 persons	*3 935*	*3 948*	*3 963*	*3 978*	*3 993*	*4 006*
of which aged 56–74, %	*26.4*	*27.1*	*27.7*	*28.3*	*28.9*	*29.5*
Labour force participation rate, %	*65.9*	*66.4*	*66.8*	*67.1*	*67.1*	*67.0*
of which aged 56–74, %	*31.3*	*33.1*	*35.1*			
Employment rate, aged 15–64, %	*67.2*	*68.0*	*68.9*	*69.7*	*70.0*	*70.1*
Unemployment rate, aged 15–74, %	*8.8*	*8.4*	*7.7*	*6.8*	*6.7*	*6.6*

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

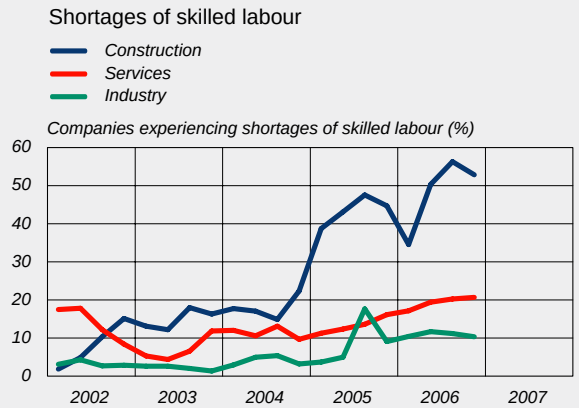
In 2006, the proportion of part-time employees in the labour force remained on average at the level of 2005, at around 16%. According to the Labour Force Survey of Statistics Finland, employees on fixed-term contracts accounted for a little less than 17% of those employed. The proportion of all employment contracts accounted for by fixed-term contracts has remained at around 16% since the early 2000s.

Viewed sector by sector, the most striking improvements in the employment situation in the latter half of 2006 occurred in the retail and transport sectors and in technical and business services. One of the reasons behind the improvement in the last mentioned group is the use of subcontracted agency labour drawn from the domestic labour market. In the Labour Force Survey, all the employees of agencies providing subcontracted labour are classified in this group, regardless of the sector hiring them. The increase in the use of agency labour has also been reflected in payroll developments in the sector.

Rapid export growth, together with the recovery in the metal industry and the buoyant construction sector have strengthened the employment situation in the transport sector. Employment growth in the sector has been exceptionally strong in terms of both number of employed and working hours. Rapid employment growth also continued in 2006 in the retail sector. The number of jobs in manufacturing also increased slightly, but remains around 30,000 lower than in the early 2000s.

According to the Confederation of Finnish Industries, there is still a pronounced shortage of labour particularly in the construction and service sectors (Chart 14). The proportion of manufacturing companies reporting problems with labour availability remained at around 10% in the latter half of 2006. Nearly half of the companies in the construction sector are suffering a shortage of labour, as are a fifth of companies in services. In many sectors, the shortage of labour has been alleviated by an increase in the number of foreign employees. Foreign employees from EU countries, which are not part of the Finnish labour force, are not included in the statistics of the Labour Force Survey and information on their numbers is therefore not available. Foreign labour and the rapidly increasing use of agency labour have, at any rate, eased the labour shortages in many sectors and hence contributed to the flexibility of the labour market.

Chart 14.



Seasonally adjusted figures.
Source: Confederation of Finnish Industries.

In 2007, the number of employed is forecast to increase at the same rate as last year, ie 1.8% (Chart 15). Towards the end of the year, employment growth is, however, expected to ease notably in response to slower economic growth and to remain sluggish at the end of the forecast horizon. In 2008–2009, the annual growth rate of the number of employed will slow to close to ½%. New employment will be hampered by poor availability of labour, as the growth in the size of the working-age population will practically come to a halt by the end of the forecast period.

The employment rate is expected to rise to over 70% in 2008. The unemployment rate will fall to 6.8% in 2007 and will decline further thereafter. The number of unemployed will contract during the forecast period by 27,000 persons, standing at around 177,000 persons at the end of the period. This equals an unemployment rate of 6.6%.

Chart 15.

Sources: Statistics Finland and Bank of Finland.

As with output growth, employment growth in the forecast period will focus on the construction and service sectors. In manufacturing, the increase in the number of employed will remain weak. Labour market conditions will tighten particularly in social and health services, where the need for services is growing as the population ages at the same time as a considerable part of the labour force is due to retire. In many municipalities, the situation is exacerbated by the mismatch of labour supply and demand geographically as well as in terms of education and skills.

Productivity and capital

If there is no growth in the supply of labour, economic growth may in the long run be dependent solely on an increase in labour output per employee, ie labour productivity growth. In growth accounting, changes in labour productivity have traditionally been divided into growth in capital intensity and changes in total factor productivity. Capital intensity describes the amount of fixed capital (machinery, equipment, buildings, computer programs etc.) in the economy per employee. Total factor productivity cannot be directly observed and is calculated as a residual.[2] Thus defined, total factor productivity captures a number of factors that are difficult to measure, such as advances in technology, the quality of labour, how production is organised and the capacity of the market to allocate resources efficiently.

[2] In other words, the change in total factor productivity is the share of labour productivity growth that cannot be explained by capital deepening.

In 2001–2005, labour productivity in the national economy (GDP per person employed) grew by an average of 2.0% annually. Of this, the contribution of capital deepening can be assessed at 0.4 percentage points, with the contribution of total factor productivity thus being 1.6 percentage points. In 2006, output grew by 5.5% and the number of employed by 1.8%. Labour productivity growth was stronger than in previous years: of the overall figure of 3.7% capital deepening accounted for roughly 0.2 percentage points and total factor productivity for 3.5 percentage points.

In interpreting the figures for 2006, two caveats should be borne in mind. Firstly, the labour dispute in the forest industry reduced the realised output for 2005 by approximately 1%. As the labour dispute lowered the comparison figures for 2005, the productivity growth measured for 2006 is stronger than if there had been no dispute. Without the labour dispute, labour productivity growth would have amounted to 2.7% in Finland in 2006, which is only slightly above the average for the 2000s so far. Secondly, while trend growth in productivity is the most important issue for long-term wellbeing, in the short term there may be major cyclical fluctuations in labour productivity, reflecting changes in the capacity utilisation rate. Such cyclical factors explain a portion of the strong performance of the Finnish economy during the past few years.

In the forecast period, productivity is expected to grow at approximately the same pace as the average over the years 2000–2006 (Table 4). In other words, labour productivity is expected to grow by an average of about 2% annually over the years 2007–2009. In the forecast period, labour productivity growth will rely on capital deepening slightly more than has been common in the past few years. In this respect, the outlook for 2008–2009 is similar to the developments witnessed in the early years of the 2000s. Correspondingly, growth in total factor productivity will stabilise at the modest rate of 1½% in the forecast period.

Ever since the economic recession of the early 1990s, productivity growth has rested mainly on total factor productivity. The contribution of capital deepening has been fairly small, at times even negative. The electrical

Table 4.

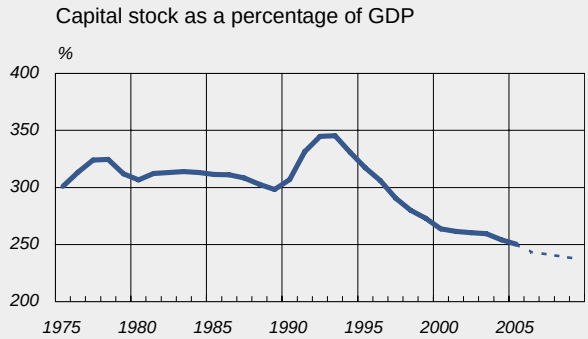
Labour productivity in the Finnish economy

% change on previous year

	2004	*2005*	*2006*	*2007f*	*2008f*	*2009f*
Labour productivity	*3.7*	*1.4*	*3.6*	*1.2*	*2.1*	*2.4*
Capital deepening	*0.7*	*0.0*	*0.2*	*0.3*	*0.6*	*0.7*
Total factor productivity	*3.0*	*1.4*	*3.4*	*0.9*	*1.6*	*1.7*

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

Chart 16.



Capital stock of Finnish economy as a percentage of annual GDP at market prices.
Sources: Statistics Finland and Bank of Finland.

and electronics industries, which are key industries in terms of the recent economic expansion, are much less capital intensive than the more traditional core areas of Finnish industry, ie the forest and metal industries. The capital stock of the economy as a percentage of GDP has accordingly declined (Chart 16).

In the market sector, labour productivity growth has been stronger than in the public sector, where estimated labour productivity growth has, at times, even been slightly negative. It should, however, be borne in mind that the productivity of the public sector is difficult to measure. Viewing productivity by industry, we can make the interesting observation that in part of the private service sector labour productivity has been growing at the same rate as in manufacturing industry. Particularly telecommunications, postal and courier services and finance have shown strong productivity performance.

Box 3.

Growth in purchasing power of GDP moderate in recent years

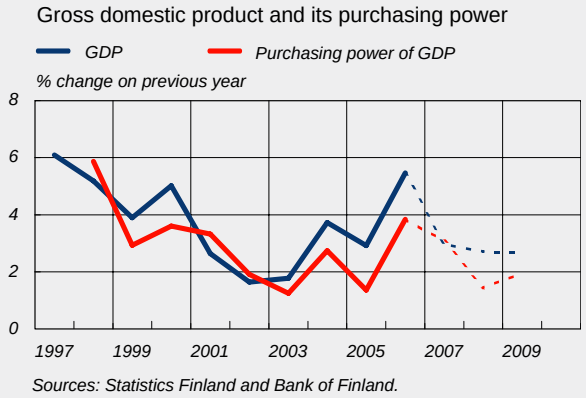
In recent years the growth of real GDP has not been a good indicator of real income formation in Finland. The decline in the terms of trade, ie the rise in import prices relative to export prices, has slowed growth in domestic purchasing power. Developments in the real purchasing power of GDP can be measured by the application of terms-of-trade adjustment.[1] In 2003–2005 the decline in the terms of trade cut annual growth in the real purchasing power of GDP by over 1 percentage point on average. In 2006 the terms-of-trade effect was slightly over 1.5 percentage points, ie more than a quarter of GDP growth (Chart 17). It is therefore very important to take the terms-of-trade effect into account when assessing recent developments in the Finnish economy from the point of view of income formation.

Statistical revisions changed the picture of past years

The recent major methodological reform in national accounting has changed the picture of recent developments in the terms of trade. The new national accounts data indicate that the weakening in the terms of trade is a more recent phenomenon than previously thought and that it should also be interpreted in a slightly different way.

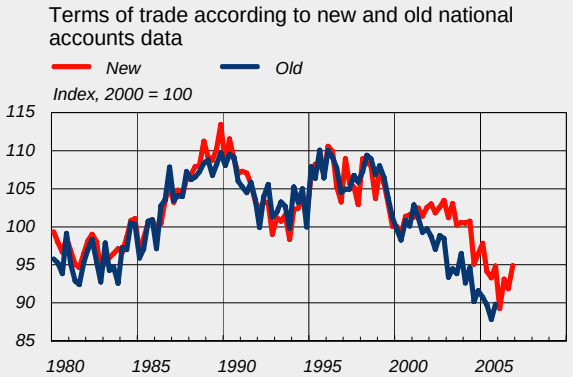
According to both the old and new national accounts data the terms of trade weakened fairly substantially at the turn of the millennium as the world market price of crude oil rose and certain export product prices fell. However, the picture of the early years of the present decade has changed. The new national accounts data show that the terms of trade remained almost unchanged for a couple of years, whereas the old data pointed to a clear deterioration (Chart 18). The more favourable picture of the terms of trade is due to the upward revision of export prices in the new

Chart 17.



Sources: Statistics Finland and Bank of Finland.

Chart 18.



Sources: Statistics Finland and Bank of Finland calculations.

[1] *The real purchasing power of GDP refers to real gross domestic income calculated by deducting the terms-of-trade gain or loss from constant-price GDP. The subject has been discussed earlier in the Bank of Finland Bulletin 1/2005, p. 28–29.*

statistics. The introduction of chain indices has increased the weight of basic metals production and other economic sectors that have experienced rapid price increases in recent years. At the same time, the weight of the forest industries, suffering from weak price development, has decreased.

The new statistics reveal that the strong deterioration in the terms of trade has occurred in the past couple of years. Export prices were not the main cause of this weakening. In fact, export prices have recently risen on average in response to strong increases in the world market prices of metals and oil products. Rather, the decline in the terms of trade reflects to a significant degree a rise in import prices: higher prices of crude oil, oil products and metals have led to an increase of about 10% in import prices since 2004 (Chart 19). It is true that the terms of trade have also been undermined to a certain extent by stagnating or even declining export prices in electrical engineering, chemical wood processing and the manufacture of machinery and equipment. However, these sectors have recently not been as significant for the weakening of the terms of trade as other factors.

Quality adjustment, terms of trade and purchasing power of GDP

The trend decline in electrical engineering export prices is largely the result of quality improvements in mobile phones, since the export price deflator takes account of changes in product quality. Quality improvements can thus depress the prices included in the export price deflator even if the unit prices of exported products are rising. In so doing, quality adjustments also weaken the measured terms of trade.

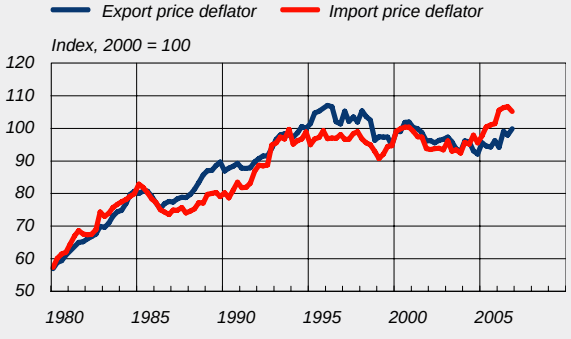
However, quality adjustments have almost no impact on the measure of real purchasing power of GDP. As Statistics Finland divides growth in the value of exports into price changes and volume changes, price-decreasing quality adjustments simultaneously boost export volumes, and hence also real GDP. Thus, quality changes that affect the export price deflator increase real GDP at the same time as they affect the terms-of-trade adjustment of GDP by weakening the terms of trade. These effects more or less balance each other.

The weakening of the terms of trade will stop this year but only temporarily

In 2007, Finland's terms of trade are forecast to remain close to the level of the previous year. However, from 2008 onwards the terms of trade are expected to deteriorate again. Demand for crude oil is expected to remain brisk, keeping the world market price at a high level. At the same time, the price trend in the forest industries and electronics looks set to remain unchanged. As a result, the weakening terms of trade will continue to cut the real purchasing power of GDP in Finland in 2008–2009.

Chart 19 .

Export and import prices



Source: Statistics Finland, national accounts.

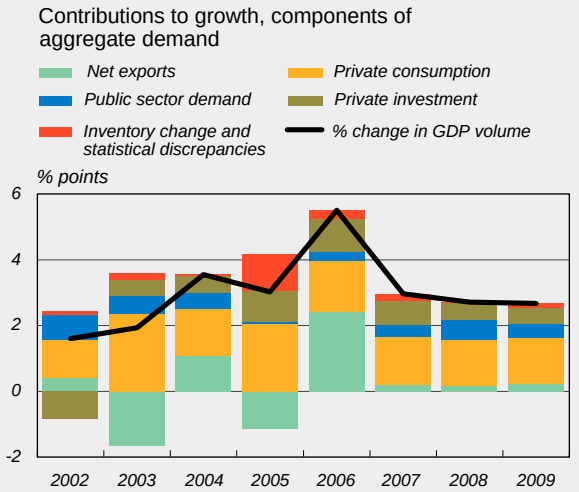
Demand

Economic growth is expected to be robust and broadly based in the forecast period, with no essential change in the structure of demand compared with recent years (Chart 20). The picture of the contribution of net exports (difference between exports and imports) to GDP growth in 2006 is overstated because of a base effect from weak exports in 2005 owing to the paper industry labour dispute. Adjusted for the impact of the labour dispute, the contribution made by net exports was still large – larger than it will be in the forecast years, when imports are expected to grow slightly faster than exports. In the next few years, the main contributor to GDP growth will still be private consumption, which is likely to continue its buoyant growth. Private investment growth was strong in 2006 and is also expected to continue at a moderate pace in 2007 but to slacken towards the end of the forecast period. Growth in public-sector demand is projected to remain moderate.

Private consumption

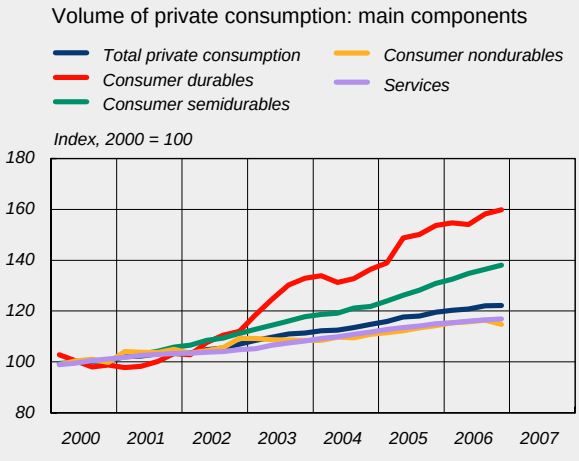
Private consumption has been increasing at an annual rate of around 4% in recent years. In 2006 growth slowed to 3%, as consumption remained subdued in the fourth quarter. One reason for the last-quarter sluggishness could be the exceptionally warm weather in early winter, resulting temporarily in very low consumption levels for district heating, for example. District heating is included in non-durable consumer goods, and according to quarterly national accounts data their seasonally adjusted consumption volume declined in the fourth quarter (Chart 21). On the other hand, retail sales figures were not particularly weak for the latter part of the year, and indicators point to continued brisk growth in private consumption in early 2007 despite temporary factors. Demand for consumer durables increased in the

Chart 20.



This chart is merely indicative. The GDP growth contribution of each demand item has been calculated on the basis of its volume growth and its value share in the previous year. The figures for 2007–2009 are forecasts. Sources: Statistics Finland and Bank of Finland.

Chart 21.



Source: Statistics Finland.

second half of the year in particular, although growth in motor vehicle sales declined slightly.

The willingness to consume has been sustained, above all, by households' confidence in the economic outlook for Finland and their own income development. Large corporate redundancies, widely reported in public, have occasionally weakened confidence in labour market developments, but consumers' confidence in their own finances has remained strong – in other words, consumers do not believe unemployment is going to hit them personally (Chart 22).

One important reason for this confidence has been continued employment growth since 2004 and the consequent positive income development. Aggregate wages in the economy as a whole grew in 2006 at the average rate for recent years, ie 4.5%. Households' disposable income increased by 3.6%, ie more than in the previous year (Chart 23). A mild acceleration of inflation from the previous year, however, acted as a constraint on real income development. The savings ratio turned negative in 2006, and it is estimated it will remain slightly in negative throughout the forecast period (see Box 2 for more on household savings and investment).

Higher asset valuations, such as housing and stock prices, have contributed to the willingness to consume. In the forecast period, housing prices are expected to continue to pick up mildly and interest rates to see only minor increases. Household income will evolve favourably, as employment continues to improve, albeit at a slowing pace. However, growth in aggregate wages will decelerate only marginally, as the rate of wage rises is expected to accelerate slightly at the same time. The forecast does not anticipate the incoming government's tax decisions; it simply assumes that only inflation adjustments will be made to government tax schedules in 2008–2009.

Overall, households' income developments are expected to moderate to an

Chart 22.

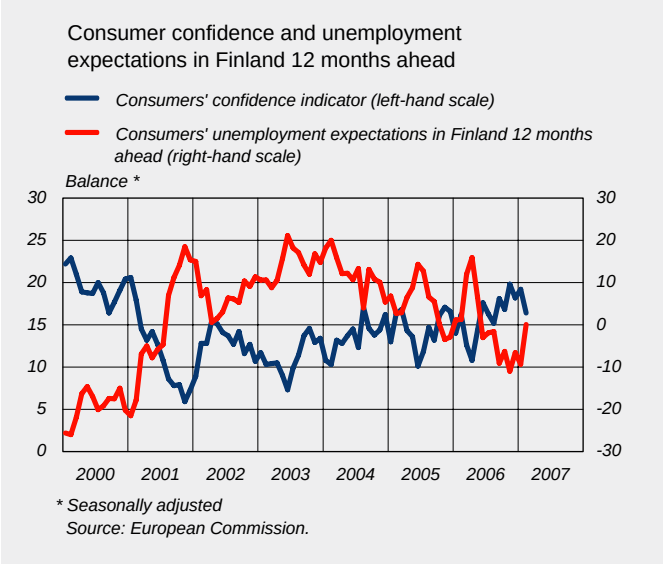
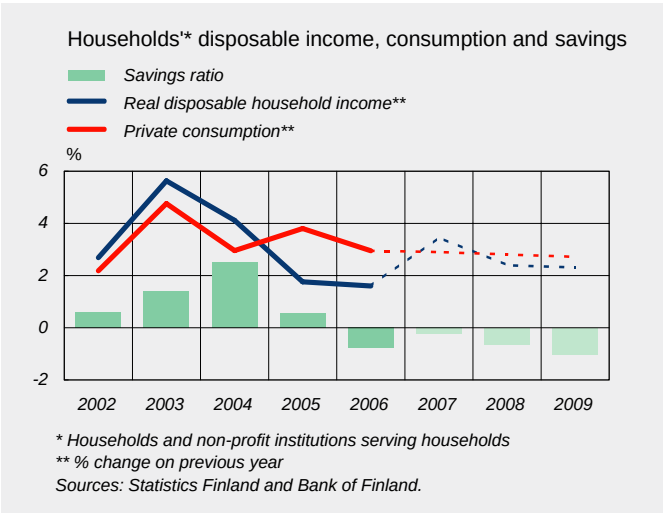


Chart 23.



extent during the forecast period. Private consumption is estimated to continue growing at a brisk pace in 2007 – as in previous years. Consumption is subsequently projected to slow a little, to 2.8% in 2008 and 2.7% in 2009.

General government

Buoyed by exceptionally strong economic growth, the financial position of general government strengthened significantly in 2006. The general government surplus grew by almost 1½ percentage points to close to 4% of GDP. Both central and local government and the social security funds improved their financial positions. The favourable economic situation was reflected in general government finances especially through brisk growth in tax revenues and property income, but also through a sharp reduction in unemployment-related expenditure. As growth in compensation paid to employees by general government also decelerated and interest expenditure fell, expenditure growth remained muted. General government debt contracted despite part of the central government surplus and privatisation income being channelled to the State Pension Fund instead of being used for debt repayment. Tax cuts led to a ½ percentage point reduction in the total tax ratio in 2006 (Table 5).

The general government fiscal surplus is expected to remain at 4% until the end of the forecast period. Owing to stable growth in the tax base and tax revenue and a large amount of property income in 2007, central government finances should remain well in surplus. In contrast, local government finances are forecast to return to deficit and the surplus in the social security funds is expected to contract as pension expenditure growth starts to gradually accelerate. Underpinned by its financial surplus, central government should be able to increase its pension fund assets and reduce its debt. General government gross debt should therefore fall to about 33% and

Table 5.

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

	2003	*2004*	*2005*	*2006*	*2007f*	*2008f*	*2009f*
General government revenue	*52.4*	*52.3*	*53.0*	*52.3*	*51.8*	*52.1*	*52.5*
General government expenditure	*50.0*	*50.2*	*50.5*	*48.6*	*47.7*	*48.3*	*48.5*
General government primary expenditure	*48.2*	*48.4*	*48.8*	*47.0*	*46.3*	*46.9*	*47.2*
General government interest expenditure	*1.9*	*1.8*	*1.7*	*1.5*	*1.5*	*1.4*	*1.3*
General government net lending	***2.3***	***2.1***	***2.5***	***3.8***	***4.1***	***3.8***	***4.0***
Central government	*0.5*	*0.4*	*0.4*	*0.9*	*1.1*	*1.0*	*1.4*
Local government	*–0.6*	*–0.8*	*-0.6*	*-0.3*	*0.0*	*–0.1*	*–0.1*
Social security funds	*2.5*	*2.5*	*2.8*	*3.1*	*3.1*	*2.9*	*2.7*
General government primary balance	*4.2*	*3.8*	*4.2*	*5.3*	*5.6*	*5.2*	*5.4*
General government debt	***44.3***	***44.1***	***41.4***	***39.1***	***36.8***	***35.1***	***32.9***
Central government debt	*43.4*	*41.9*	*38.2*	*35.1*	*33.0*	*31.3*	*29.1*
Tax ratio	*43.8*	*43.4*	*43.9*	*43.3*	*42.9*	*43.3*	*43.7*

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

central government employment pension fund assets should increase to some 7% of GDP in the forecast period. Meanwhile, other employment pension fund assets are projected to increase to almost 63% of GDP, in line with accumulated surpluses.

At the beginning of 2007, the outgoing government cut income tax rates in accordance with a commitment made in connection with the general incomes policy settlement, thereby reducing the tax burden on households. Indirect taxes were also cut slightly at the same time. The new government to be formed following the general election will not decide its tax policy until later in the spring. The forecast therefore foresees only inflation adjustments to government income tax schedules in 2008 and 2009. The average local government tax rate is expected to rise slightly this year, with no further rises in 2008 and 2009. It is further assumed that employment pension contributions will be raised in order to cover pension funding requirements, while unemployment insurance contributions will be lowered in proportion as the number of unemployed decreases in the forecast period. The total tax ratio should fall by about ½ percentage point owing to tax cuts carried out this year. Ongoing stable growth in the tax bases is expected to boost tax revenue, despite lower increases in GDP value in the forecast period. If the new government only makes adjustments to central government tax schedules by as much as inflation warrants, the total tax ratio will rise gradually towards the end of the forecast period.

General government expenditure is estimated to increase, on average, by a good 4% annually in the forecast period. Central government expenditure growth will be steered by the programme of the new government formed after the general election and by the concrete decisions it will make on spending limits. The forecast assumption is that the spending limits procedure will remain essentially unchanged and there will be ongoing stable and moderate growth in central government expenditure in the forecast period.[1] By contrast, growth in expenditure in local government and social security funds is expected to pick up towards the end of the forecast period, as age-related expenditure growth starts to accelerate. General government expenditure relative to GDP is predicted to come down in 2007, but to start rising gradually thereafter.

General government interest expenditure is expected to continue its downward trend in the forecast period. However, the effective interest rate on the debt is assumed to rise and eat away part of the savings generated through lower debt. Increases in expenditure other than interest expenditure will be constrained by lower unemployment-related expenditure, as the number of unemployed decreases. In contrast, expenditure growth will be supported particularly by higher pension expenditure. The number of persons reaching retirement age will continue to grow at a rapid pace in the forecast period, as all the baby-boomers reach the statutory retirement age. Although employment rates for persons over 60 years of age have risen appreciably and

[1] Box 4 analyses in more detail how spending limits have been applied in practice during the term of office of the departing government.

are expected to rise further still in the forecast period, the number of those retiring will still increase rapidly. This will cause a marked acceleration in pension expenditure growth at the end of the forecast period. Large-scale traffic infrastructure projects are expected to increase especially central government investment expenditure, so that general government investment expenditure relative to GDP will also grow in the forecast period.

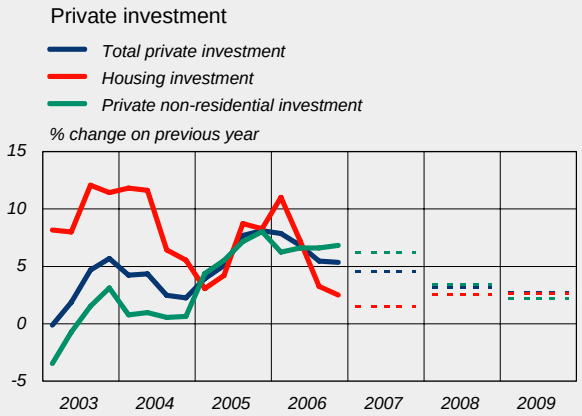
Investment

2006 was a good year for investment. Private investment grew in all by almost 6%, and growth was very evenly distributed between investment in housing and investment in productive capacity (Chart 24). The volume of investment in machinery and equipment has already been growing for a number of years, although their value has remained almost unchanged. Last year, the value of these investments also began to rise in an environment of higher prices. Boosted by strong performance, the ratio of investment in productive capacity to GDP also rose slightly, although it is still well below the level observed in the first years of the millennium (Chart 25).

The main reason for high investment was the favourable economic trend both at home and at global level. This increased product demand, thereby prompting companies to devote more resources to their production capacity. Growth in the world economy and world trade was also record high. The favourable trend is predicted to continue through the forecast period, although recent years' growth rates cannot quite be reached any more.

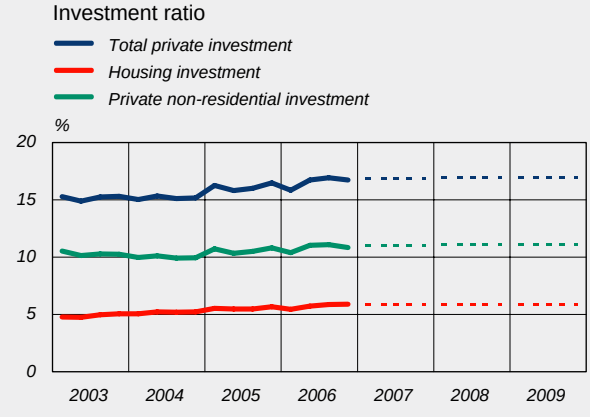
Investment was also driven by low financing costs. Despite increases, interest rates remained conducive to investment, with markets anticipating no further significant rate rises in the forecast period. Companies' earning capacity has also remained very strong. For example, gross operating surplus for Finnish-based activities – ie value added less employee compensation –

Chart 24.



Sources: Statistics Finland and Bank of Finland.

Chart 25.



Investment ratios have been calculated on the basis of nominal figures.
Sources: Statistics Finland and Bank of Finland.

has been increasing at an average rate of about 5% throughout the 2000s.

Investment activity is forecast to continue favourably in the next few years, too, albeit the rate of investment growth will fall close to the GDP growth rate in 2008 and 2009. The higher growth rates for 2007 are partly explained by a carry-over effect from 2006. Investment in productive capacity will continue to be supported, besides external factors, by business construction – for which foreign real estate investors have provided further stimulus – and by ongoing nuclear power plant construction. By contrast, growth in housing investment is expected to slacken noticeably during the forecast period.

According to the investment survey of the Confederation of Finnish Industries, the near-term prospects for industry are even more positive than last year, despite continuing growth in industrial investment and employment abroad. This survey points to growth of just under 5% in the value of domestic manufacturing investment in the current year. The Confederation foresees most of industrial investment taking place in technology and forest industries. For the forest industry, in particular, this means investment aimed at enhancing productivity rather than increasing capacity.

Business construction, such as offices and other business premises, is forecast to remain brisk, despite unused empty space. Keener competition in the retail trade, for instance, will sustain investment in new premises. Empty premises are often located in the wrong place or may be outdated. New housing construction is expected to slow towards the end of the forecast period, providing capacity for renovation.

The investment ratio, measured as the ratio of private investment to GDP at market prices, has risen by about 1½ percentage points to 16½% in recent years (Chart 25). The almost exclusive contributor to this increase has been housing construction, which has been exceptionally robust. Although the rate of increase in housing construction is predicted to decline in the next few years in response to higher interest rates, it is likely to remain positive regardless of the current year's dip. The investment ratio is estimated to remain at around 17% in the forecast period.

The world economy and external demand

World economic growth accelerated in 2006, as activity in Europe and Asia (excl. Japan) proved more robust than forecast. This upswing was related to ongoing vigorous growth in world trade. However, economic activity in the United States slackened, dampened by housing investment. Deceleration of growth in the United States is forecast to have already come to a halt. Commodity prices are assumed to remain at a high level, despite recent declines. The fastest phase of growth in the world economy is predicted to be over, and the growth rates observed last year will not be reached in the forecast period as a whole.

Global economic growth accelerated in 2006 owing to strong performance in the first part of the year. Although economic expansion in the United States remained weaker than

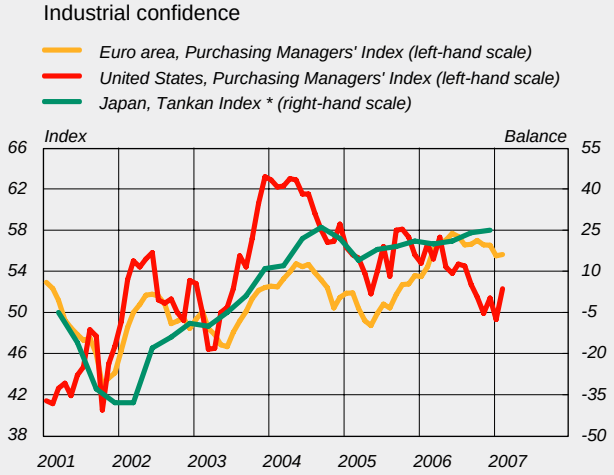
forecast, stronger-than-expected growth in Europe and Asia has led to an upward revision to the estimate for world economic growth in 2006, bringing it to 4.8%. However, the fastest phase of growth in the global economy is already over, and the focus of growth is shifting. Activity slowed in a number of the main industrial countries, notably the United States, in the course of last year. The economies of the 'old EU countries' (EU15) are forecast to expand this year more rapidly than those of the other main industrial countries. While euro area and Japanese growth rates are not expected to pick up, the US economy's return to its potential growth rate means a moderate increase in growth in the final years of the forecast period.

Even so, the period of slightly slower growth is seen as remaining fairly short-lived in the context of the ongoing rapid expansion in international trade. Accordingly, upward revisions to world trade growth projections for the coming years have been larger than those to world GDP growth estimates.

The world economy has proved resilient to very sharp fluctuations in crude oil and other commodity prices. This reflects, on one hand, the 'recycling' of oil-exporting countries' oil revenues to purchase capital and consumer goods, and, on the other hand, the current strong growth dynamics in non-Japan Asia. As the ongoing brisk euro area growth is simultaneously reflected in neighbouring areas, the world economy can be expected to continue its broadly based growth (Charts 26 and 27).

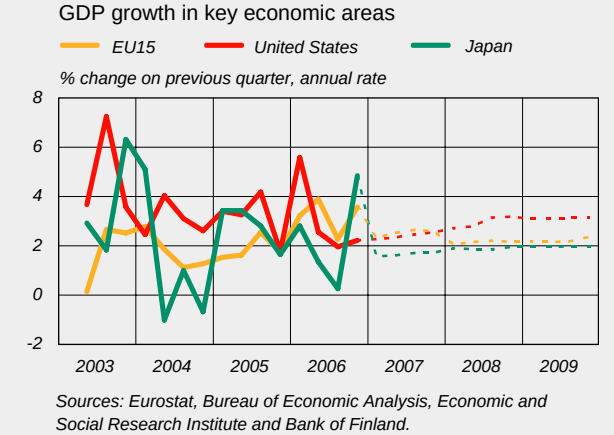
Growth in the EU15 area in 2006 was up to 2.7%, despite a temporary decline in the growth rate in the third quarter. Robust growth was supported by both domestic demand and favourable foreign trade developments. The Bank of Finland's forecast foresees deceleration of EU15 GDP growth to 2.6% in 2007. In 2008 and 2009

Chart 26.



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

Chart 27.



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

growth is forecast to slow slightly further still (Table 6).

According to the forecast, the importance of foreign trade for EU15 growth will weaken in 2007 and the contribution of net exports to GDP growth will turn negative in 2008. The area's growth is thus expected to depend in the future on domestic demand, underpinned by higher employment[2] and corporate investment activity. Domestic demand growth is predicted to slacken temporarily in the first half of 2007 following the German VAT reform. The downward impact of the reform on GDP growth in the EU15 is, however, estimated to remain relatively limited.

US economic growth eased in 2006 from the rapid pace of the previous year. Growth was mainly sustained by private consumption. In contrast, housing investment contracted sharply, cutting growth by about 1 percentage point. Housing market sluggishness has not spilled over to other parts of the US economy. Good employment and wages development, rising share valuations and energy prices falling since last summer have offset housing market weakness.

[2] See Box 6 for the euro area's increased employment in recent years.

Table 6.

GDP and import growth rates

% change on previous year

GDP	*2006*	*2007f*	*2008f*	*2009f*
United States	*3.3*	*2.3*	*2.7*	*3.1*
EU15	*2.8*	*2.8*	*2.3*	*2.2*
Japan	*2.2*	*2.0*	*1.8*	*1.9*
World	*4.8*	*4.4*	*4.2*	*4.1*
World trade	*8.6*	*7.4*	*7.5*	*7.3*
Finland's export markets	*10.4*	*8.9*	*8.5*	*8.2*

f = forecast
Source: Bank of Finland.

The forecast is for ongoing US GDP growth of 2.3% in 2007, which is considerably lower than the average of the last few years. Growth will be driven mainly by private consumption and corporate investment in information technology and in production outlets and office premises. The tentative recovery in housing investment is not expected to increase growth until the latter half of the current year. GDP growth is forecast to pick up slightly in the second half of 2007 and in 2008, and to normalise thereafter.

Recent economic activity in Japan has been strikingly uneven. Robust export and corporate-sector performance has not been reflected in full in household income and demand, which is forecast to constrain economic expansion. Japanese recovery is estimated to continue in the forecast period, albeit held in check by the weak household sector.

Chinese investment-led economic growth accelerated to almost 11% in 2006 and is expected to maintain its strong momentum in the next few years. Investment and exports are predicted to continue to expand fairly rapidly and private consumption growth to remain stable. Chinese foreign trade and exchange rate developments are discussed in Box 5.

Growth in Asia outside Japan and China is projected to ease slightly in the forecast period. A possible decline in growth in exports to the United States, the euro area and Japan is likely to be compensated by internal Asian trade, notably with China.

The economic outlook for Russia has improved as a result of stronger consumption and investment growth.

Oil continues to be important for the economy, and if the oil price develops as assumed in the forecast, Russia will benefit from the high price of oil throughout the forecast period. Rapid economic expansion and the rouble's brisk appreciation will maintain robust import growth in the next few years. Russian economic growth is forecast to continue buoyant, but to recede from its pace of over 6% in 2006 to slightly under 6% in 2008–2009.

Export markets and export prices

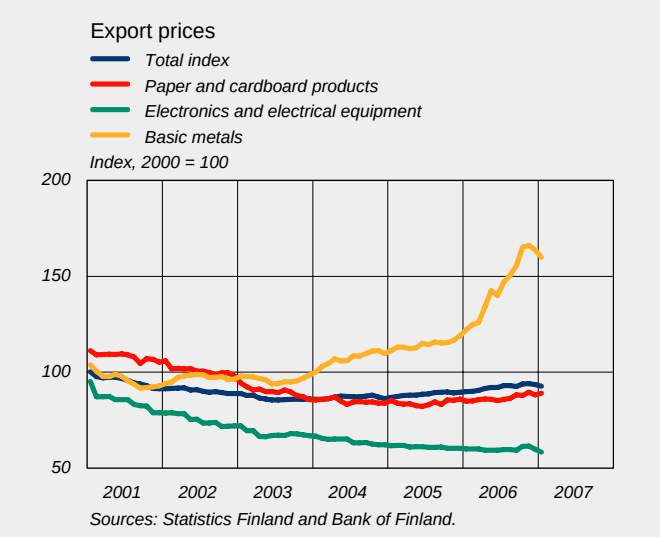
Stronger world economic growth and changes in the commodity and regional structures of demand since 2004 have been diversely reflected in Finland's export markets and world market prices for export goods (Table 1 in Box 1).[3] Focusing of domestic demand on investment in both emerging and some developed economies has elevated the prices of raw materials used for such investment, primarily metal prices. The sustained period of growth in the world economy has also lifted the price of oil, which – combined with rising metal prices – has increased investment in metal production. Rapid growth in machinery and equipment investment, in turn, is also boosting growth rates in world trade relative to GDP, as capital goods production is specialised and focused, thereby increasing international exchange. Hence, last year in particular, saw very brisk world trade growth after a slightly more subdued performance in 2005.

[3] The rate of growth in Finland's export markets refers to the weighted average of growth rates for imports of countries to which Finland exports. The weights correspond to the countries' shares of Finnish exports.

Growth in Finland's export markets in 2006, as in 2005, was stronger than world trade growth, mainly because Russian imports have been increasing by about 20% in annual terms, driven by higher oil prices. Of Finland's key export markets, imports have also expanded rapidly in Sweden and Germany, which both experienced a boost in exports and related investment towards the end of last year. Although Finland's export markets grew last year by more than 10% on the previous year, export market growth adjusted for the commodity structure of Finnish production can be assumed to have been more modest. One focus of Russian imports has been consumer goods, which are produced relatively little in Finland. On the other hand, robust construction growth in the St. Petersburg region provides opportunities for Finnish suppliers.

Export price developments by sector were highly heterogeneous last year (Chart 28). Benefiting most from the global investment boom has been

Chart 28.



metal refining, where export prices were last year 22% higher than in the previous year. European investment recovery, in turn, started to raise the prices of sawn timber, especially at the end of last year. These, however, continue to be at a lower level than in mid-1990s. In contrast, export prices in the engineering industry rose last year, although the upturn in raw material prices could perhaps have passed through even more strongly into the sector's product prices. The pace of decline in export prices in the electronics sector eased last year.[4]

Export prices in the paper industry increased slightly in 2006. The market situation for the sector remained rather difficult despite a pick-up in growth in the EU countries. It would seem that the EU countries' partly export-led growth has not increased paper demand to the same extent as growth more strongly based on household demand would have done. It is possible that the foreseeable increase in household demand in Europe will gradually be reflected in paper prices.

Growth in export markets is expected to continue at a relatively rapid pace in the forecast period (Table 6). The assumed mild moderation in the growth rate of Russian imports will also be reflected in Finland, and export market growth in 2009 is not expected to reach more than about 8%. But even this rate of growth exceeds that of world trade. Over the period 2007–2009 as a whole, broadly the same factors as in 2006 are assumed to underpin export market growth. Owing to a growing need for raw materials in the emerging economies, investment in raw material production should continue to be buoyant. Ongoing investment in machinery and equipment in Europe is also expected to persist, supported by the low level of interest rates and export growth.

Export price developments in Finland are projected to follow world market prices in the forecast period, which means falling metal product prices. Export product prices in the electronics sector are also expected to decline in the future at broadly the same rate as last year. In contrast, export prices in other sectors are predicted to remain relatively stable until the end of the forecast period. However, paper product prices, among others, are expected to rise, albeit at a very slow pace. Aggregate export prices of goods and services are expected to rise slightly in 2007, while remaining roughly unchanged in 2008 and 2009.

Foreign trade

Finnish foreign trade increased significantly in 2006. Particularly in the first half of the year, export deliveries were abundant, although the pace eased towards the end of the year. A contraction in Finnish re-exports to Russia is reflected in the foreign trade statistics for the latter part of the year as a weakness in both imports and exports.[5]

[4] Taking qualitative changes into account in measuring price developments leads to a trend decline in product prices in the electronics sector.

[5] In addition to re-exports, VAT frauds have caused problems in the compilation of foreign trade statistics in certain EU countries. See Box 8 for more detail.

The volume of total exports of goods and services increased by about 10% in 2006 and that of total imports by only about 5%. According to preliminary data, however, the volume of services exports remained at almost the same level as 2005. Import prices rose much faster than export prices in 2006, mainly due to the higher world market price for oil.

Investment demand in the corporate sector was strong worldwide in 2006, which caused the value of Finnish goods exports to increase by as much as 17% on the previous year. Exports of basic metals grew by about a third and those of machinery and transport equipment by 26%. Deliveries of ships were particularly abundant last year. The value of oil product exports also grew clearly from the previous year. Export activity in the electronics industry remained generally subdued, and exports of telecommunications equipment were down slightly on the previous year. However, a fall in re-exports of mobile phones to Russia partly explains such a sluggish trend.

Finnish exports increased in tandem with export market growth in 2006, but the comparison is distorted by a base effect owing to production losses in connection with the paper industry labour dispute in 2005. About 2 percentage points of export growth in 2006 is explained by the base effect related to export losses because of the dispute. If this impact is excluded, Finnish export growth would have remained a couple of percentage points lower than export market growth. Last year, export growth relative to export market growth was partly constrained by the fact that the focus of growth in Russian imports has recently been on consumer goods. On top of this, a number of large export companies were operating at close to full capacity.

The value of goods imports also increased strongly last year, as the prices of raw materials and energy products rose appreciably from the previous year. By contrast, developments in the volume of imports of goods and services remained fairly muted, compared with vigorous growth in both domestic and export demand.

The forecast foresees continued, relatively robust growth in exports in the next few years, despite last year's sluggishness. Underlying this is strong demand from export markets. Investment demand in Germany and Sweden will particularly fuel Finnish exports. In addition, strong growth in Russian domestic demand is predicted to increase exports of building materials and services (Chart 29).

Chart 29.

3-month moving average
Source: National Board of Customs.

The increase in the value of exports of telecommunications equipment is estimated to remain rather modest, whereas the forecast assumes relatively rapid growth in exports of related services.

The export prospects for the paper industry are expected to improve slightly in the forecast period. The rise in paper prices is, however, predicted to be modest, as in 2006, with export volumes also growing slowly.

Russia has announced a substantial increase in export duties on raw wood. The increase – if materialised – would cut Finnish forest industry exports substantially as early as the end of the forecast period. However, the forecast assumes imports of raw wood to remain at normal levels.

Other exports are expected to grow at a reasonably brisk pace in the forecast period. The export outlook for producers of basic metals and machinery and equipment continues to be very good owing to global investment demand. Order books in the shipbuilding industry are high, and large ship deliveries fall evenly on each year in the forecast period.

Finnish export growth is, however, forecast to remain slower than growth in the export markets. Faster-than-forecast export growth would require a larger investment in additional capacity than is in prospect.

Imports are expected to increase at the same pace as exports in the forecast period. Imports will be boosted by both relatively strong domestic demand and export growth.

Current account

The current account surplus has melted rapidly in recent years. The underlying reason has been a contraction in the goods surplus due to the modest development of export volumes and a steady deterioration in the terms of trade. In 2006, however, the current account surplus began to grow despite a considerable weakening in the terms of trade. According to preliminary data, the surplus amounted to about EUR 10 billion, ie just under 6% of GDP (Chart 30). The main reason for the improvement in the current account in 2006 was a base effect from the paper industry labour dispute in 2005, which impaired that year's current account figures by about 1% of GDP. However, the current account surplus would have increased slightly in 2006 even without the effect of the labour dispute. This improvement was due to the impact of strong global investment demand on Finnish exports and the fact that import growth was very moderate relative to growth in domestic demand and exports. The factors underlying developments in the goods balance are analysed in more detail in Box 7.

The services balance has been in clear surplus in recent years, as exports of business services from Finland more than compensate corresponding imports from abroad. These services include internal services provided reciprocally by units with cross-border operations within multinational corporations, such as head office services.

The current account surplus is expected to expand further still in 2007. Exports and imports of goods and

services are predicted to increase in volume terms at almost the same pace, with the terms of trade exceptionally improving because of sluggish developments in the import prices of eg commodities.

The current account surplus will begin to contract again after 2007, when the terms of trade return to their weakening trend (Chart 31). Accordingly, in the next few years there is not much chance to replicate the very large current account surpluses seen in the first years of the new millennium. Owing to the goods and services surplus, however, the current account is expected to continue to show a fairly strong surplus, about 5% of GDP, in 2009. The other current account items have been smaller in net terms and broadly stable relative to GDP, and these are therefore unlikely to change the picture painted by the goods surplus. During the forecast years, current transfers paid abroad are also expected to remain slightly in deficit in net terms and income received from abroad to stay in surplus.

Chart 30.

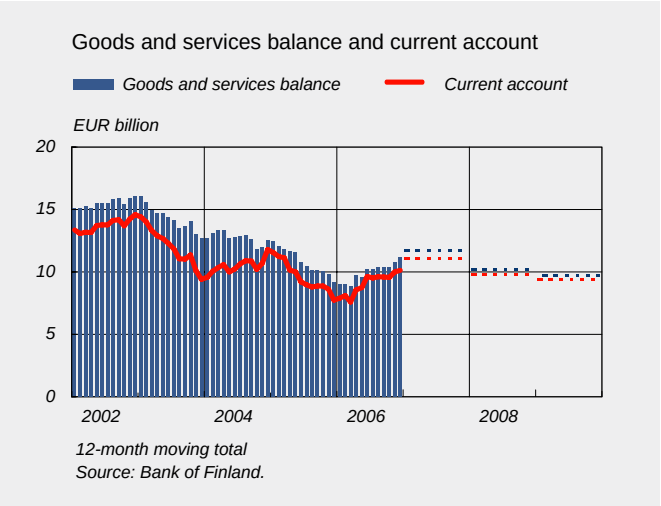
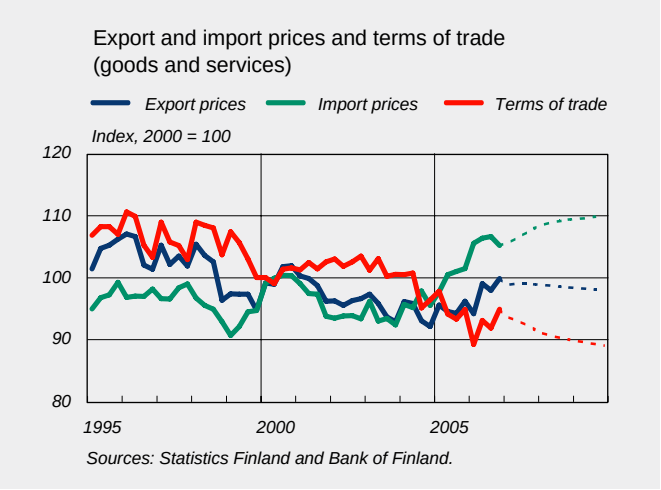


Chart 31.



Box 4.

Government expenditure growth held within spending limits

During the electoral period currently drawing to a close, government expenditure growth has been moderate, remaining within the very strict limits set in the government programme. Commitment by the government and parliament alike to the spending limit procedure and real expenditure ceilings for appropriations set at the start of the government's term of office has been a key determinant of this favourable development.[1]

Expenditure rules based on the spending limits impose a ceiling on most central government expenditure, ie all expenditure that comes under the spending rules; this ceiling can be altered only for technical reasons due to changes in budget structures or cost levels. The budget formulation of the outgoing government is guided by the real expenditure ceilings agreed in May 2003 and updated each March preceding the budget year to correspond to the structures of the Budget under preparation and the estimated cost levels for the budget year. In addition, the spending limits for current and subsequent budget years have often been supplemented during budget formulation and by supplementary budgets.

According to the guidelines for appropriations excluded from the government spending limits, such appropriations cover expenditure that it is expedient to allow to fluctuate according to the economic cycle or revenues closely related to expenditure, or which it otherwise makes no sense to define in advance for the entire electoral period.

A number of structural changes have been made to the spending limits during the electoral period now coming to a close (Table 7). Their implications have typically been neutral for the financial base of the budget, ie increases in appropriations have been offset by corresponding revenue increases. Structural changes include a changeover from net budgeting to gross budgeting. This led to a moderate relaxation of spending limits for all the years under review. In 2006, there was substantial growth in the spending limits because of reforms to the financing of labour market subsidies and the transfer of certain items from off-budget to on-budget expenditure. All in all, the various structural changes increased the spending limits by around EUR 550 million in 2004–2007.

The spending limits have also been revised upwards by around EUR 1,320 million in 2004–2007 to accommodate

[1] *Helvi Kinnunen studied the rationale for setting spending limits in the Finnish government budget process and the need for further development in this area in her article 'Spending rules bring stability to fiscal policy in Finland', Bank of Finland Bulletin 3/2006.*

Table 7.
Structural and cost-level adjustments to appropriations coming under the spending limits, 2004–2007, EUR million

	2004	2005	2006	2007
Capped appropriations 05/2003, at 2004 prices	*28,049*	*28,311*	*28,534*	*28,647*
Growth in capped appropriations at constant prices, %		*0.9*	*0.8*	*0.4*
2004 structural and cost-level adjustments	*40*	*40*	*40*	*40*
2005 structural and cost-level adjustments		*502*	*502*	*502*
2006 structural and cost-level adjustments			*771*	*771*
2007 structural and cost-level adjustments				*557*
Capped appropriations at current prices	*28,089*	*28,853*	*29,847*	*30,517*
Growth in capped appropriations at current prices, %		*2.7*	*3.4*	*2.2*

Sources: Government decisions on spending limits and proposals for regular and supplementary budgets.

adjustments made on the basis of projected cost-level increases. Such cost-level adjustments have been about 1½% annually in 2005–2007. Annual increases are well in line with the actual increase in the overall price index for central government expenditure. They are, however, just under one percentage point larger than the estimated annual increase in the GDP price component. Even so, there does not appear to have been any attempt to seek more leeway for the real expenditure ceilings through overly large cost-level adjustments.

Table 8 compares appropriations allocated in regular and supplementary budgets with the actual use of appropriations in 2004 and 2005, as shown in government financial statements, and with spending limits at current prices in 2006 and 2007. Unused appropriations point to the government being able so far to keep expenditure growth within the agreed spending limits. Although appropriations not allocated within regular budgets were distributed by the government in its supplementary budgets in 2004 and 2005, actual government expenditure in the end remained far smaller than would have been permitted by the spending limits and estimated appropriations excluded from the limits. On one hand, ministries did not employ all the appropriations allocated to their respective administrative branches; on the other, expenditure excluded from the spending limits proved lower than anticipated.

Of expenditure reserved for 2006, EUR 9 million remained unallocated after supplementary budgets. A minor exception was, however, made to the tight expenditure rules in 2006 when the cost of EUR 124 million from subsidising seamen's income and low-paid full-time work was included in the Budget through increases in appropriations excluded from the spending limits instead of increasing the limits. Major upward revisions to estimates of appropriations excluded from the spending limits also stemmed from financing rearrangements concerning funds administered by the Social Insurance Institution, a neutral measure for the financial base of the budget. The 2007 Budget and the first supplementary budget have left a sum of EUR 5 million unallocated from appropriations coming under the spending limits. There are currently no plans to use this extra room for manoeuvre to cover other supplementary budgets. These will be determined by the new government formed after the election, within the framework of its programme and concrete decisions on spending limits.

Table 8.
Expenditure based on budgets and financial statements, 2004–2007, EUR million

	2004	*2005*	*2006*	*2007*
Capped appropriations	*28,089*	*28,853*	*29,847*	*30,517*
Capped appropriations allocated in (regular and supplementary) budgets	*28,005*	*28,828*	*29,838*	*30,327*
Appropriations excluded from spending limits	*8,985*	*9,127*	*10,088*	*10,242*
Appropriations according to financial statements	*36,320*	*37,468*	–	–
Unused appropriations[1]	*670*	*487*	*9*	*190*[2]

[1] *Figures for 2006–2007 refer to capped appropriations left unallocated after supplementary budgets.*
[2] *Bringing forward of revisions to expenditure allocation between central and local government is expected to reduce unallocated appropriations by EUR 185 million in 2007, leaving EUR 5 million as disposable unallocated appropriations.*
Sources: Government financial statements and government proposals for regular and supplementary budgets.

Box 5.

Exchange rate developments and Chinese foreign trade

Chinese foreign trade has grown extremely rapidly for a number of years, but it was not until 2005 that a significant trade imbalance was observed. In 2006, the trade surplus expanded to nearly USD 180 billion, ie nearly 7% of GDP (Chart 1). However, debate about the possible undervaluation of the Chinese currency had already heated up in summer 2003, when countries with significant deficits in their trade with China began to demand that China allow its currency to appreciate.

The nominal exchange rate of the Chinese yuan followed closely the performance of the US dollar for a decade up until July 2005, when the yuan was revalued by around 2% against the dollar. Since then, a gradual appreciation of the yuan-dollar exchange rate has been allowed to take place. The trade-weighted real exchange rate of the yuan appreciated perceptibly in the mid-1990s as a result of accelerating inflation, but since then changes in the real exchange rate have been relatively minor.

Although political debate has often drawn a distinct connection between the exchange rate of the yuan and foreign trade, surprisingly little researched information is available. The special characteristics of the Chinese economy, such as the large size of the state-controlled sector and the restrictions set on price increases, may be reflected in the response of foreign trade to changes in exchange rates.

In their new study, Alicia Garcia-Herrero and Tuuli Koivu shed light on the impact of exchange rate developments on China's foreign trade.[1] They have estimated export and import equations for China. To identify the impact of the trade-weighted real exchange rate, the equations control the impact of other factors on exports and imports. These factors include China's industrial output, developments in world trade, tax incentives on exports and restrictions on imports set by China as well as foreign direct investment in China.

Research results show that changes in the exchange rate are reflected in Chinese exports and imports. As expected, appreciation of the yuan reduces Chinese exports. The resulting net impact on the trade balance is nevertheless partly offset by declining imports to China owing to the stronger currency.

The results on imports of the study by Garcia-Herrero and Koivu differ from the outcome of similar studies on many other countries. To identify the reasons for this, Garcia-Herrero and Koivu estimated bilateral trade equations for China and its major trading partners. The results concerning exports remained unequivocal: exports from China to all major exporting countries decline if the currency appreciates.

Chart 32.

Sources: IFS and Chinese customs authorities.

[1] *Alicia Garcia-Herrero and Tuuli Koivu (2007) Can the Chinese Trade Surplus Be Reduced through Exchange Rate Policy? BOFIT Discussion Paper 6/2007. Bank of Finland.*

With regard to imports, results by country vary considerably. When the Chinese yuan appreciates, imports subside from those Asian countries that export to China mainly parts and components for the large reprocessing sector. This finding is explained by the fall in exports due to the stronger currency, which in turn reduces China's own import demand. In contrast, imports from Germany are largely accounted for by products intended for China's home market, and these increase with the appreciating currency. The same applies to imports from other euro area countries. Turning to the USA and Japan, their exports to China consist of components and machinery intended for the reprocessing sector and other high-tech products for which substitute production in China does not exist. Changes in exchange rates are not reflected in exports to China from these countries.

All in all, China's trade surplus subsides as the currency appreciates, which was expected. However, in view of the considerable size of China's trade surplus, exchange rate policy alone is insufficient to eliminate the imbalance, because China's role as part of an international production chain reduces imports that serve the export sector if the yuan appreciates. Because of the structure of trade, the strengthening of the Chinese yuan is reflected in highly different ways in different countries' trade balances.

Unfortunately it is not known for certain how China's export and import prices are affected by foreign currency fluctuations. This also means it is harder to make precise evaluations of the impact changes in exchange rates have on the balance of trade.

Box 6.

Improvements in euro area employment

Euro area labour markets have developed favourably in recent years. In the seven-year period up to the end of 2006, the unemployment rate fell from 9.7% to 7.3%, with the employment rate rising from 59.8% to 64.5% (Chart 33). Recent benign labour market developments have partly been of a cyclical nature, while also indicating a change towards more diversified and flexible labour markets.

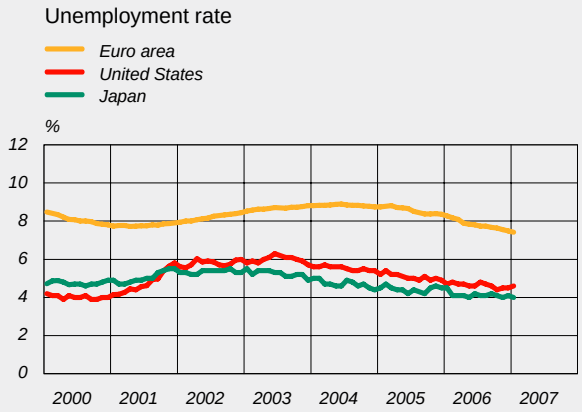
The labour force participation rate, which describes the combined share of the employed and unemployed in the working-age population, rose in the euro area from 67% to 70.4% in the period from the beginning of 1999 to the second quarter of 2006. There may, however, be unused labour reserves in the euro area, as the labour force participation rate still remains more than 5 percentage points below the US figure. The most prominent trends observed in the last ten years are the rising labour force participation rates for women and older people.

The euro area employment rate, at 64.5% in the second quarter of 2006, has already been sustaining a good momentum for more than ten years. In recent years, female employment has increased rapidly compared with male employment (Chart 34). This trend can be expected to continue, as the female employment rate (56.5%) is still well below the male rate (72.6%).

The falling unemployment rate has already for a number of years been linked with lower long-term unemployment. However, the euro area long-term unemployment rate, 44.5% of unemployed (in 2005), continues to be very high compared, for instance, with the corresponding figures for the United States (11.8%) or Sweden (15.5%).

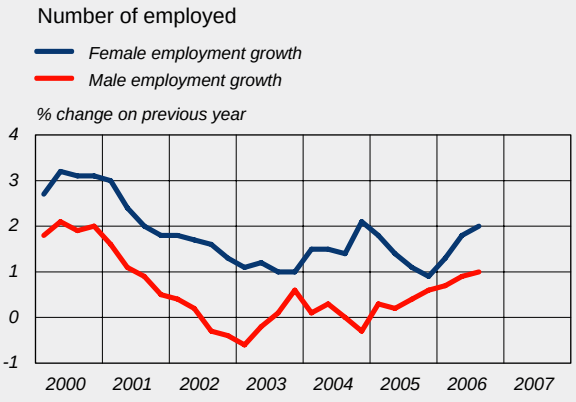
Part-time employment in the euro area increased from 17.5% in 1999 to 19.7% in the second quarter of 2006. In the same period, the share of fixed-

Chart 33.



Sources: Eurostat, OECD and Statistics Bureau of Japan.

Chart 34.



Source: Eurostat.

term contracts grew from 14% to 16.6%. Accordingly, about 44% of employment growth is accounted for by increased part-time employment. Hours worked for full-time employed in the period 1999–2006 decreased by an average of 1.1 hours per week and those for all employed by an average of 1.8 hours per week.

Euro area labour market developments reflect both labour market reforms and favourable cyclical conditions.[1] Even so, there is scope for improving employment and reducing unemployment. At the current pace and in the absence of sufficiently clear signposts to follow, there is still a long way to go to achieve a lower than 5% unemployment rate and the 70% employment rate envisaged in the Lisbon objectives.

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[1] *1 In Spain there are signs that the very strong fall in female long-term unemployment may also stem from the diminishing role of the grey economy.*

Box 7.

Decline in trade surplus has come to a halt

The sizable surplus on the trade balance around the turn of the millennium entered a trendlike decline until 2005 (Chart 35). In 2006, the trade balance improved on the previous year, mainly due to the impact of the paper industry labour dispute in 2005. Without this, the goods account would have shrunk in both 2005 and 2006. However, even then, the speed of decline would have slowed in 2006.

The trendlike weakening of the trade balance, which began in 2001, continued until the end of 2003 due to sluggish export growth in all major industrial sectors. An additional cause of the decline in the surplus was the weakening of the terms of trade, partly due to decreasing prices for mobile communication devices. In addition, export prices in the paper industry decreased until 2005 and have thereafter remained unchanged.

The market situation in export production of investment goods remained difficult for extended periods due to the recession in Europe and growing production in China. Partly for these reasons, exports as a whole were relatively weak for years (Chart 36). On the other hand, the current account was supported by losses in income from goods exports being compensated by other current account items such as service exports and investment income, as Finnish companies have moved their production abroad. At the same time, an increase in domestic demand boosted goods imports, which grew faster than GDP. When the paper industry labour dispute in spring 2005 is factored in, the weakening of the trade balance until then is essentially accounted for.

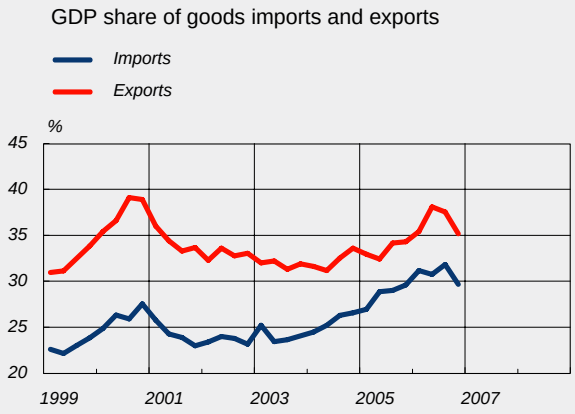
The market situation for exports began to improve with the exception of the paper industry gradually from the end of 2004, and in 2006 the cyclical situation strengthened rapidly due to improving global investment demand.

In assessing export prices, we can see that the price increases in metals and chemicals products in the past couple of

Chart 35.

Seasonally adjusted
Sources: Statistics Finland and National Board of Customs.

Chart 36.



Source: Statistics Finland.

years have concealed the weak development of paper prices. However, the terms of trade and hence the trade balance were negatively impacted by an increase in oil prices up to autumn 2006. When assessing developments in the trade balance, the impact of oil on the weakening of the balance is quickly compensated by the increased exports in the metals and machinery industry. The trade surplus peaked in the second quarter of 2006 amid extraordinarily large ship deliveries. Towards the end of the year, the surplus declined slightly.

Demand for investment goods is expected to continue growing, particularly in emerging economies, and this will both sustain high global metal prices and swell the order books of the Finnish machinery industry at the beginning of the current year. Both of these factors will have a positive impact on the Finnish trade balance. In contrast, demand continues to be sluggish in the paper markets, and paper exports have as yet failed to increase in line with expectations. Recent developments in the trade balance have also been influenced by the relatively moderate increase in imports since mid-2005 despite brisk growth in exports and domestic demand.

All in all, in addition to the effects of the paper industry labour dispute, it appears that some part of the recent rise in the trade surplus is due to temporary factors. The exceptionally strong performance of the global economy has boosted export demand for many Finnish products and increased the export prices of some. In addition, import growth in 2006 remained exceptionally slow relative to the general economic trends. Due to the temporary nature of the recent improvement in the trade balance, the Finnish current account surplus is expected to begin to shrink again in 2008.

Box 8.

VAT frauds do not seem to have distorted Finnish foreign trade statistics

Since 2003, the United Kingdom has published a version of its foreign trade statistics with goods export and import figures adjusted for the proportion of VAT frauds. The adjustments are in part very large, and in the first quarter of 2006, for example, the frauds are estimated to have accounted for 8% of all goods imports.

VAT fraud that affects the compilation of intra-EU trade statistics entails a company importing goods from another EU country free of VAT and reselling them to another company at a price including VAT. The fraud is usually carried out by the importing company failing to pass the VAT on to the government, eg through bankruptcy or other disappearance. Although these frauds do not have a direct connection to trade statistics (eg with regard to some benefit derived), such import items are usually also excluded from import statistics. Frauds come in two main forms: acquisition fraud and carousel fraud.[1]

The UK's VAT-fraud-adjusted figures are mainly based on detected cases. The impact of non-detected frauds is also estimated on the basis of these figures.[2] Adjustments only concern carousel trade and a few product categories (eg mobile phones). Therefore, it is likely that, despite the adjustments, the statistics continue to be biased. In addition, the UK statistics authority ONS admits that the estimation as a whole is a very challenging task.

The ONS compiles two types of VAT-fraud-adjusted statistics: overall statistics adjusted for bias resulting from fraud, including estimated trade flows related to fraud, and statistics concerning only real economic exports and imports. In both cases, the resulting trade balance recorded is equal in size and smaller than the non-adjusted statistics. In the former case, goods imports are adjusted upwards to reflect the estimated imports left outside the statistics. In the latter case, goods imports are not adjusted at all, but exports are adjusted downwards to reflect the estimated amount of frauds. As an example, the Bank of England's view and forecast on foreign trade in its inflation report is based on statistics adjusted by the latter method.

Impact on Finnish foreign trade statistics apparently marginal

In Finland, relatively few VAT frauds connected to foreign trade have been detected, and at the moment it seems that such frauds do not result in a significant bias in Finnish foreign trade statistics. Nevertheless, Finnish statistics are also likely to include some bias particularly with respect to imports.

According to Finnish authorities, VAT fraud in trade with the rest of the EU is not very significant; most fraud relates to extra-EU trade, ie imports from outside the EU (particularly from Russia).[3] With intra-EU trade, failure to pass on VAT has been mainly detected in connection with used car sales. Within exports, frauds have been detected in the context of exports going outside the EU and losses in Finnish bonded warehouses.

According to a working group memorandum completed in autumn 2005, the scale of VAT frauds has been surprisingly small.[4] The total sum of detected VAT fraud related to foreign trade in 2002–2004 amounted

[1] *For a more detailed discussion of the phenomenon, see Inflation Report, Bank of England, August 2006, p. 22–23.*

[2] *In addition, the figures are based on asymmetries in intra-EU trade statistics (ie that the same item has been recorded differently in country A's exports to country B and country B's imports from country A) and national accounts input-output statistics.*

[3] *Trade between Finland and Russia and related problems have been discussed in more detail in eg Ollus, S E and Simola, H (2006) Russia in the Finnish Economy, Sitra Reports.*

[4] *Vigren, T, Tervo, O, Sinisalo, S, Sahavirta, R, Nieminen, J, Niemelä, M and Salomaa, M (2005) Arvonlisävero-petosten torjunta ('Prevention of VAT fraud').*

to only EUR 1.4 million. Hence, in light of the 22% VAT rate used in the assessments, the total revenue of criminal activities would have only been about EUR 6.3 million. The figure is strikingly small, and, according to the report, the cases were mainly small-scale tax irregularities.

In the context of pre-owned car imports, however, VAT frauds are thought to have been much larger in recent years, and related imports last year were estimated at EUR 80 million.[5] Nevertheless, their impact on foreign trade statistics would have been marginal, since the sum only corresponds to a good 0.1% of the total imports in 2006 (EUR 54.9 billion).

[5] *Huttunen, A, Kuusala, J, Ollikainen, E and Turja, K (2007) Käytetyt autot ja veropetokset ('Pre-owned cars and tax fraud').*

Costs and prices

Labour costs

The annual rate of change in the index of wage and salary earnings fell to 3.0% in 2006, from almost 4% in previous years. This was mainly due to the fact that the majority of increases in negotiated wages took place in the latter part of the year, which slowed their annual rate of growth to less than 2%. Wage drift, defined as the difference between the rate of growth of the index of wage and salary earnings and negotiated wages remained at the same level as in previous years, ie at just over 1% (Chart 37).

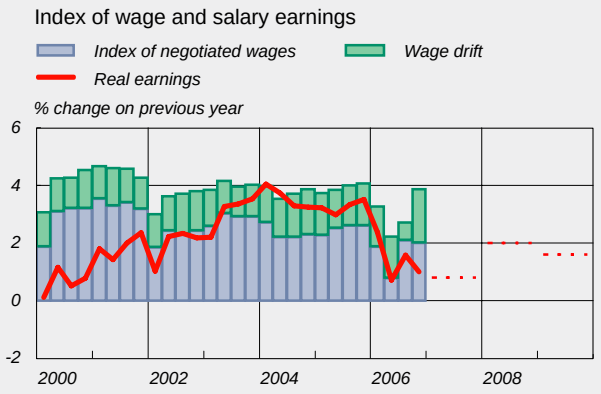
Despite the slight slowing of growth in the index of wage and salary earnings, growth in wages and salaries per employee remained in 2006 virtually unchanged compared with previous years, at 3.3%. As well as earnings during standard working hours, 'wages and salaries' also includes overtime pay and bonuses, which makes it a more sensitive indicator of wage developments than the index of wage and salary earnings. In Finland, average growth in wages and salaries has in recent years exceeded the euro area average (see Box 9).

The continued rapid rate of growth in wages reflects the robust growth of the economy. There was an acceleration in economic growth in 2006, due partly to cyclical factors, and an increase in labour demand. Even so, the recent developments in wages and employment do not yet suggest the existence of extensive labour bottlenecks.

In addition to wages and salaries, the statistical category 'compensation per employee' also includes employer's social security contributions, which are based on wages and salaries. Since there was no significant change in the level of employer's social security contribution rates in 2004–2006, the annual rate of growth of compensation per employee was broadly same as that of wages and salaries per employee, ie 3.5% on average.

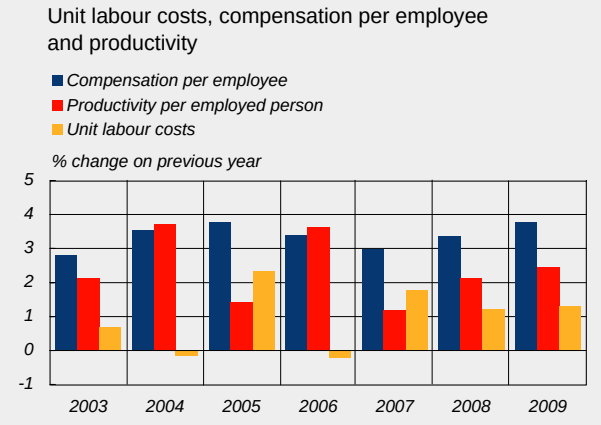
Finnish unit labour costs have developed moderately in recent years,

Chart 37.



Sources: Statistics Finland and Bank of Finland.

Chart 38.



Sources: Statistics Finland and Bank of Finland.

and in 2006 unit labour costs fell compared with the previous year (Chart 38). Cost developments have been subdued particularly in industry, where costs have grown at a more muted pace than the euro area average. These favourable developments in relative unit labour costs are mainly due to the electronics industry, however, where rapid productivity growth does not enable similarly rapid rates of growth in wages and other costs, as the increased productivity mainly benefits foreign consumers, through declining product prices.

In the next few years, compensation per employee will grow by 3 to 3½% annually – as in previous years – and the index of wage and salary earnings will grow at a broadly similar rate. Tightening labour market conditions will be reflected in a slight acceleration in wage growth over the forecast period, despite slightly slower economic growth. As a result, labour's share of the income distributed to production factors will remain broadly unchanged (see Box 10).

For unit labour costs to develop moderately, productivity will have to grow at a fairly rapid pace during the forecast period (Chart 38). It seems clear that the competitiveness of domestic output will remain fairly good only if productivity growth continues to compensate for the higher rate of growth in compensation per employee compared with our trading partners.

The forecast on wages does not comment on the form and content of future incomes settlements. During the current incomes settlement period (February 2005 to September 2007), the Finnish economy has grown more strongly than expected in 2004, the labour market has proven to be more flexible than expected, as indicated by favourable developments in employment, and consumers' inflation expectations have remained moderate. In the future, globalisation and population ageing will pose increased challenges for collective bargaining. If the labour market is unable to adjust to these challenges, the increased mismatch between labour supply and demand may significantly hamper economic and employment growth already during the forecast period.

Commodity prices

The world market price of oil has fluctuated considerably in recent years (Chart 39). The upturn in prices that began in 2003 was driven, among other things, by the strong expansion of the world economy, which sustained demand for oil. Supply factors, such as the pricing policy of oil-producing countries and political instability in oil-producing regions, also contributed to the higher prices. Oil prices peaked in autumn 2006, since when there has been a marked decline in world market prices. This has been explained mainly by subdued demand.

Demand for crude oil is expected to increase only moderately this year and in the next few years, despite strong growth in the world economy. Concerns about the environment and global warming will speed up the development and introduction of fuels to replace fossil fuels. This trend is, however, not

expected to be strong enough to cause a downturn in the demand for oil in the next few years. In addition to demand, the oil price will in the short term also depend on supply factors, such as the production capacity of non-OPEC countries and OPEC's output restrictions.

Oil prices are expected to increase slightly in 2007 (see Box 1, Forecast assumptions). According to the forecast, the price of crude oil (Brent) will remain at slightly over USD 60/ barrel in the next few years. In addition to world economic growth and increasing oil production capacity, the oil market continues to be affected by a number of factors that are difficult to project, and oil prices may continue to fluctuate heavily.

The rise in prices of industrial raw materials (excl. energy) since 2002 began to ease significantly in the second half of 2006, slowing further in early 2007 (Chart 40). Some metal prices have actually fallen.

Declining inventories of industrial raw materials (excl. energy) will sustain the high level of prices in the short term. High metals prices are, however, expected to gradually boost the production of metals as investments in metal-producing countries increase. Supply growth is expected to cause a downward trend in the prices of industrial raw materials in the next few years.

Import prices

Import prices continued to rise at a robust pace, particularly in early 2006, due to rising world commodity prices (Chart 41). The increase in commodity prices levelled off towards the end of

Chart 39.

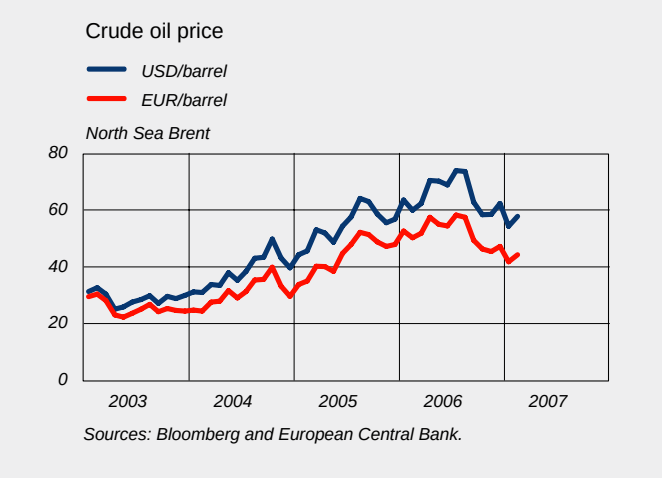


Chart 40.

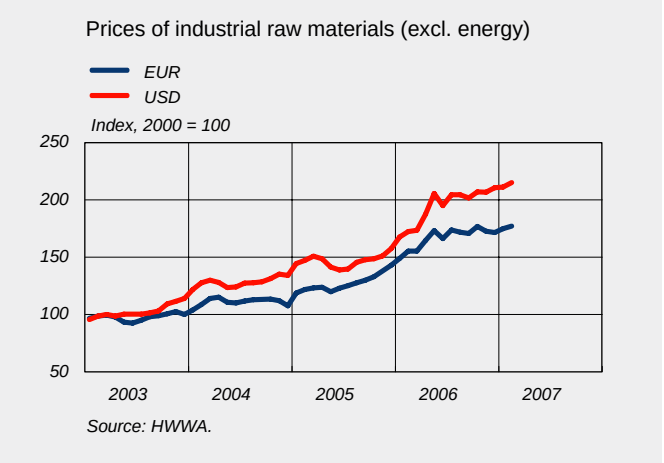
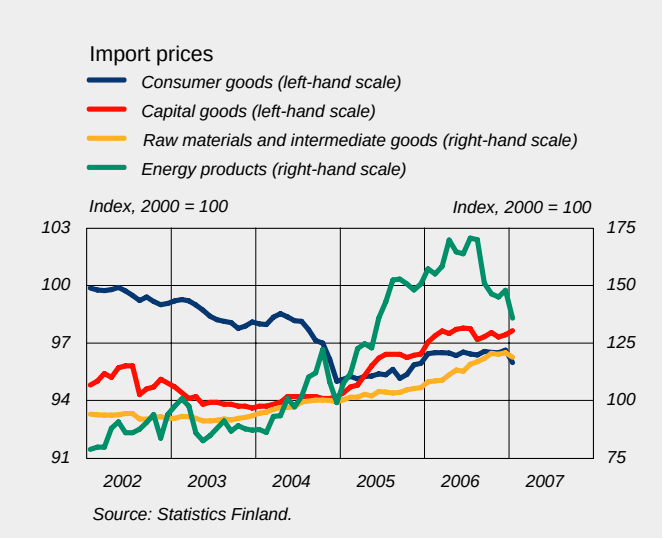


Chart 41.



the year, accompanied by a significant decline in import prices. Even so, import prices were over 5% higher in the fourth quarter than a year earlier.[1] Import prices of energy fell markedly in the fourth quarter following a decline in crude oil prices. Moreover, the increase in import prices of other commodities and intermediate goods, which was pronounced in the first half of the year, moderated at the end of the year.

The upward pressure on import prices of capital and consumer goods has been dampened for several years now by globalisation, a strong increase in imports from Asia and stiffer international competition. Consequently, import prices of consumer goods remained broadly unchanged in 2006. At the same time, import prices of capital goods rose slightly. Increasing international demand and growing raw material costs have led to a slight increase in import prices of capital goods in the past couple of years. Overall, import prices in 2006 were up by almost 8% on average on the previous year.

The import deflator used in the national accounts has in recent years risen slightly more moderately than the Import Price Index (Chart 42). This is partly due to the fact that the import deflator is a more extensive measure of goods import prices than the Import Price Index and the weighting of raw materials in the deflator is lower than in the Import Price Index. Moreover, the import deflator also includes services, the import prices of which have in recent years risen at a much slower pace than those of goods.

[1] The Import Price Index 2000=100 published by Statistics Finland comprises import prices of the following commodity groups: (classified according to main industrial groupings): energy, raw materials and intermediate goods, capital goods, durable consumer goods, and non-durable consumer goods.

Chart 42.

Import price rises remain moderate

Fluctuations in raw material prices will continue to have a substantial impact on the development of import prices in the forecast period. The pronounced decline in crude oil prices in late 2006 will significantly slow the rise in import prices in 2007. Increases in industrial raw material prices are also expected to level off in 2007. Thereafter, the rise in import prices will, however, accelerate, due to the unwinding of the effect of declining crude oil prices. Import price inflation will also be accelerated by rises in international export prices fuelled by high raw material costs. The fastest phase of increase in international export prices is, however, estimated to be over for the time being. Overall, there will be no significant upward pressure on import prices over the next

few years. Import price inflation is expected to moderate to comfortably below 2% in the forecast period.

Domestic output prices

The rise in domestic output prices has already been slow for several years now. The rise in the private sector producer price deflator in the national accounts has been around zero for quite some time. The rise in the deflator of value added in output has, however, been accelerating slightly since early 2005. The annual rate of increase in the private sector producer price deflator was on average well below ½% in the first half of 2005; in the third and fourth quarter of 2006 it had accelerated to close to 1½%.

The rise in output prices has been boosted particularly by the slowing pace of decline in industrial output prices (Chart 43). Industrial output prices have fallen continuously since 1999, due to the fact that companies have been able to use productivity growth to compensate for the upward impact on prices of strong raw material price increases. Productivity growth has been rapid particularly in the electronics industry. The recent slight easing of the pace of decline in prices reflects the moderate increase in international inflationary pressures. Demand for capital goods has grown and prices have risen in the wake of strong world economic growth. At the same time, raw material costs have continued to rise.

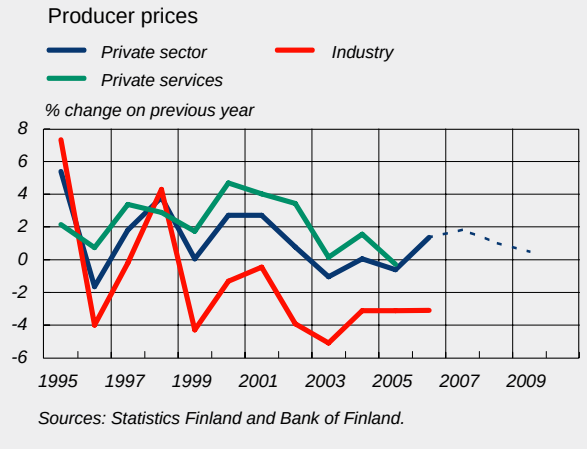
In the services sector, output price increases have been more rapid than in industry. In services, productivity growth has been fairly slow, with the exception of certain specific industries, eg telecommunications. Rising costs in the services sector are usually reflected in a faster rate of increase in the consumer prices of services.

Companies' cost pressures have increased

Companies' production costs have risen in several sectors in recent years, both in industry and in services. The rise in costs has been particularly rapid in construction. Higher costs are mainly due to the marked increase in raw material prices, which has been reflected particularly in the production costs of industry and to some extent also construction. In the construction sector, costs have also been driven by the long-standing upward trend in the sector and the rising cost of building land. In services, costs have been driven by rising wages.

In several sectors other than industry, slow productivity growth

Chart 43.



Sources: Statistics Finland and Bank of Finland.

combined with rising costs will eventually be reflected in output prices. This has clearly already happened, given the considerable increase in construction and services prices. Particularly in services, and to some extent also in construction, where international competition has at least so far been fairly limited, it is easier than in other sectors to pass costs on to prices. In contrast, several companies in the industrial sector operate in an international environment where it is more difficult to pass costs on to consumer prices without increasing the risk of losses in market share. In industry, companies have been able to compensate higher costs by raising productivity.

Output price rises will continue moderate over the next few years

Private sector output prices are forecast to rise less than 2% per annum over the next few years, too, as the levelling off of raw material price increases starts to gradually affect domestic output prices. In addition, slower rises in international export prices will dampen the rate of increase in industrial output prices, in particular, over the forecast period. The pace of increase in private sector output prices will be fastest in 2007, followed by a marked deceleration to below 1% towards the end of the forecast period.

Box 9.

Wages in Finland risen faster than euro area average

The introduction of Economic and Monetary Union (EMU) has involved a major structural change for the countries in the euro area. Integration has served as a channel of convergence for member states' nominal price, wage and productivity levels. Recent years have seen nominal wage convergence outpace convergence of productivity levels. In order to safeguard intra-euro area competitiveness in a single currency environment, the long-term increase in unit labour costs – growth of labour compensation exceeding productivity growth – in a single member state must not exceed cost developments in other member states.

In reviewing developments in Finland's average wages against corresponding data on the entire euro area using comparable national accounts data, it becomes evident that annual euro area compensation per employee has increased by more than 2%, compared with more than 3% in Finland.[1] Furthermore, data on the last few years shows that the difference has not subsided – on the contrary, it has grown. Compensation of employees includes wages and salaries (incl. overtime compensation and bonuses) as well as employers' salary-related social security contributions. However, employers' social security contributions do not explain the difference between Finland and the euro area; the increase in wages and salaries in Finland has itself outpaced the euro area average.

Examination of compensation per employee during the EMU period, broken down by country, reveals a fairly wide dispersion in average nominal wage developments across the euro area. Finland is distinguished as a country with rapid wage development. In fact, wage development in Finland and the Netherlands over the entire period can be characterised as exceptionally brisk in contrast with Austria and especially Germany, where wages have developed modestly.

Looking at developments in key euro area countries in recent years, Finland continues to emerge as a country with rapid wage development (Chart 44). In contrast, Germany and the Netherlands are characterised by exceptionally modest wage development. Both market developments and economic policy have adapted the labour market in these countries to both intra-euro area and global competition. In Spain, despite brisk wage development, the rate of increase in wages has declined somewhat since the early years of the decade due to increased

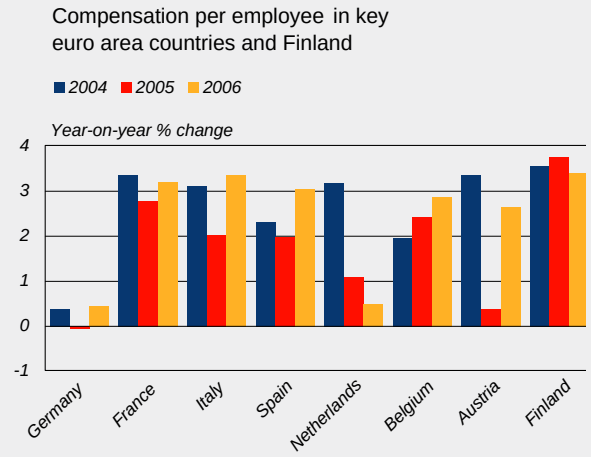
[1] *Euro area statistics contain data on all euro area countries excluding Slovenia. Apart from Finland, all data for 2006 in Table 9 and Charts 44 and 45 refer to year-on-year changes in the first three quarters relative to the corresponding period in 2005. For Finland, the data covers the whole of 2006.*

Table 9.
Wage developments in Finland and the euro area

	1999–2006 on average	*2004*	*2005*	*2006*
Year-on-year % change				
Finland				
compensation per employee	*3.2*	*3.6*	*3.8*	*3.4*
of which wages and salaries per employee	*3.4*	*3.5*	*3.5*	*3.3*
Euro area				
compensation per employee	*2.2*	*2.1*	*1.5*	*2.2*
of which wages and salaries per employee	*2.3*	*2.1*	*1.7*	*2.3*

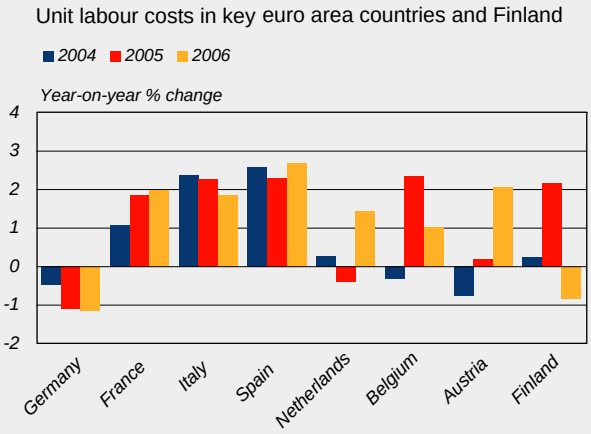
Sources: Eurostat and Statistics Finland.

Chart 44.



Sources: Eurostat and Statistics Finland.

Chart 45.



Sources: Eurostat and Statistics Finland.

Minor deviation between the rates of change of unit labour costs in this chart and chart 38 arise from the fact that international comparisons use the national statistical concept of those employed, rather than the domestic concept.

immigration. In recent years, relatively rapid increases have also been observed in wages and unit labour costs in both France and Italy.

All in all, compared with the euro area average, Finland has been characterised by speedier wage increases during the EMU period as a whole and still in the last few years. This is, however, not reflected in an exceptionally high rate of growth in unit labour costs, as the rise in unit labour costs has been contained by strong productivity growth (Chart 45). In fact, productivity development by country and industry shows greater divergence than developments in wages. As a consequence, international comparisons where the impact on productivity figures of the electronics industry (DL industry) – which is of particular importance to Finland – is not accounted for may give too favourable a picture of Finland's cost developments and competitiveness. The rapidly strengthening competitiveness of the DL industry benefits primarily foreign consumers by way of lower prices and therefore does not entirely serve to boost Finnish companies' wage-paying capacity (see also Box 10).

Box 10.

Developments in functional income distribution

The proportion of labour costs in the total value added of the economy (the labour share) decreased significantly in the 1990s. In the 1970s and '80s, the proportion was typically a good 60%. During the recession of the early 1990s, this rose temporarily to 66% as companies first reduced output and only later their workforce. After contraction later in the 1990s, the labour share has shown signs of stabilising in the present decade. In recent years, it has varied around 56% (Chart 46). It is forecast to grow again slightly in the next few years.

Among EU countries, in addition to Finland, there has been a clear decline in the labour share in the 1990s and the present decade in Spain, Ireland, Italy and Germany. In France and the United Kingdom, functional income distribution changed for the benefit of capital in the 1970s and '80s, but the labour share has remained relatively stable in the last 15 years. In Sweden, the share of labour in value added has increased since the beginning of the 1990s.

In this box we examine the change in the labour share in 1985–2005 in the light of sectoral data.[1] In calculating the labour share, labour costs include wages, fees and employers' social security contributions. The measure of output is the gross value added at basic prices.

The change in the labour share is, on the one hand, due to changes in income distribution within sectors, and on the other hand, due to shifts of resources across sectors.[2] Most of the change in the proportion of labour from the level of 1985 is explained by intra-sectoral changes (Chart 47). For example, in 2005 the labour share was 5.1 percentage points lower than in 1985. Of this total, 4.1 percentage points was due to intra-sectoral changes and 1.0 percentage point to changes in sectoral weighting.

Among individual sectors, the biggest contributor to the decrease in the labour share was

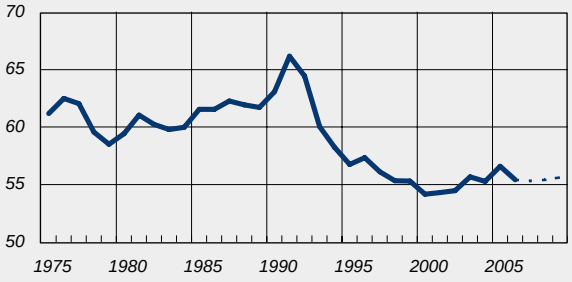
[1] *Sector-level data on 2006 will be available in summer 2007.*

[2] *The calculations presented in this box on the impacts of these two factors on the labour share in the economy as a whole are based on the use of rolling sectoral weightings.*

Chart 46.

Labour share in total economy

Labour costs/value added, gross at basic prices, %



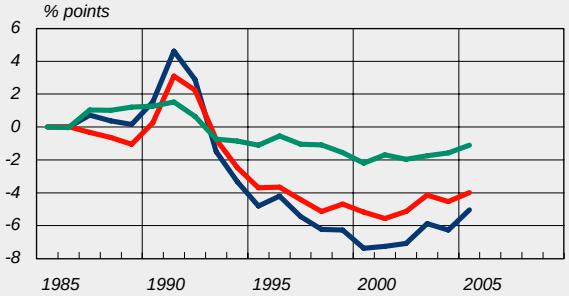
Sources: Statistics Finland and Bank of Finland.

Chart 47.

Change in labour share since 1985

Total change *Within sectors* *Between sectors*

% points



Sources: Statistics Finland and Bank of Finland calculations.

the electronics industry. In the 1980s, the proportion of labour costs in electronics was on a level with the average for the economy as a whole. By the latter half of the 1990s, the labour share had decreased to about 40%. At the same time, the industry's share of the total value added in the economy doubled. The change in functional income distribution within the electronics industry explains 0.7 percentage points of the decrease in the labour share in the economy as a whole in 1985–2005. The financial sector made almost as large a contribution, at 0.6 percentage points. After the banking crisis of the 1990s, the financial sector workforce fell by a half and the labour share decreased radically. The developments in these two sectors explain almost a third of the aggregate impact of intra-sectoral changes to the decrease in the labour share in the economy as a whole.

In addition to electronics and finance, other sectors with a major impact on developments in the previous two decades are postal and courier operations (contribution to decrease in labour share 0.30 percentage points), telecommunications (0.29), wholesale (0.30) and pulp and papermaking (0.25). When these six sectors are added together, they explain about 3/5 of the combined impact of intra-sectoral changes. In 2005, the proportion of these sectors was 18% of value added in the economy as a whole, and 22% of value added in the private sector.

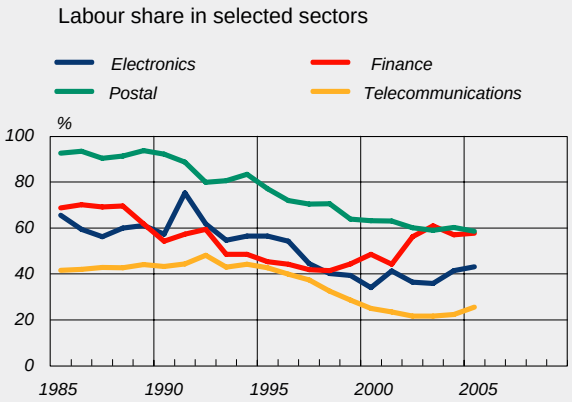
Although certain key sectors explain a significant proportion of the decrease in the share of labour in income distribution, a more extensive assessment of developments is warranted. In 1985–2005, the labour share decreased by at least 5 percentage points in 27 out of 62 sectors. Of these sectors, 25 belong to the private sector and 2 (very small) to the public sector. In 2005, these sectors accounted for 46% of total value added in the economy as a whole, and 56% of value added in the private sector.

The labour share increased by at least 2 percentage points in ten industries within the private sector whose proportion of total value added was 8% in 2005. These industries include agriculture, fishery, the food industry, engineering, vehicle manufacturing and private health care.

In predominantly public sectors (education, healthcare, social services, public administration), the labour share was largely unchanged during the review period. At the same time, public services' share of value added in the economy as a whole remained around 20%.

Although most of the changes in functional income distribution are explained by intra-sectoral changes in various sectors, this does not necessarily imply any large changes in the labour share in every individual company or unit. According to a

Chart 48.



Sources: Statistics Finland and Bank of Finland.

study by Kyyrä and Maliranta (2006), the reallocation of resources between companies and units explains a large part of the decline in the labour share in the economy as a whole observed in the 1990s.[3] At the level of company and unit, the impact of the changes was much smaller.

Labour share risen in recent years

In recent years, the labour share of total value added in the economy has stopped declining, and in 2000–2005 it actually increased by 2.3 percentage points (Chart 48). In the electronics industry, the labour share increased almost 10 percentage points. Average wages in the industry have increased significantly in recent years, while the nominal value added in the sector has been practically unchanged. The contribution of the electronics industry to the increase in the labour share in the present decade is 0.6 percentage points.

Another sector where the labour share of value added has increased significantly since the turn of the millennium is finance and insurance. However, it appears that this reflects more problems in statistical methodologies than actual developments. Practices relating to the recording of expenses in life assurance and restructurings in the internationalised financial sector would appear to have resulted in extraneous statistical fluctuations. If the finance and insurance sector is excluded from the review of income distribution in the present decade, labour share growth in the economy as a whole is 1.3 percentage points.

[3] *Kyyrä, Tomi and Maliranta, Mika (2006) The micro-level dynamics of declining labour share: Lessons from the Finnish great leap. VATT discussion papers 406. Government Institute for Economic Research (VATT).*

Forecast summary and risk assessment

International economy

Prospects for the world economy in the near term are better than could have been anticipated half a year ago. Globalisation seems to have dampened the inflationary pressures usually associated with fluctuations in demand in the various countries and regions.

Stable conditions in the world economy have helped by the calming of the oil markets. This, of course, does not remove the possibility of another substantial rise in the price of oil should the supply be reduced for political reasons.

The forecast risk for growth in the world economy is downward biased, most importantly due to possible hikes in risk premia in the financial markets, greater-than-expected cooling of the US housing market, uncontrolled unleashing of global imbalances and growing protectionism. On the other hand, outcomes for investment and especially private consumption in the euro area could be stronger than forecast.

The most acute threat in the western industrial countries is of greater-than-forecast price increases due to the abundance of world liquidity and wage developments in the United States and Europe. Another factor is a possible weakening of globalisation's downward pressure on the prices of industrial goods.

In 2006, financial market risk premia declined to historically low levels. One possible reason for this is an increased use of new instruments for controlling credit risk and hence better spreading of risks. A further explanation may be that a persistently low level of interest rates and abundant liquidity have raised investors' propensity to invest in higher risk instruments. A sudden increase in risk premia in some markets could quickly spread and pose a threat to the real economy.[1]

The rapid growth of the world economy is based largely on expanded international trade, which in turn signifies a more efficient division of labour and allocation of resources across the globe. Should protectionism spread, we would see a slowing of growth in international trade, which could stunt the world economy.

The forecast includes a cooling of the US housing market – estimated to slow the economy's growth rate by about 1 percentage point in 2007. The effects on the rest of the world are expected to be modest. If the correction in the US housing market sends housing prices onto sharp decline, we will probably see a jump in the household savings ratio and a decline in consumption. If risk premia on investments in the United States were then to increase and substantially weaken the dollar, and long-term interest rates were to rise, the US economy could slide into serious recession. This would considerably darken the outlook for the world economy.

Should the rise in labour costs in the United States accelerate, price

[1] The VIX index, which measures uncertainty in stock markets, rose at the end of February as share prices declined. A similar rise occurred in spring 2006. However, by historical standards, the VIX is at a low level. In the United States the risk premium on subprime credit (securitised housing mortgage loans with above-normal risk) has increased rapidly in recent weeks, but has not affected other credit markets.

stability would soon come under threat. The cooling of the labour market has remained modest. If increasing labour costs lead to a rise in interest rates, households will loose their appetite for borrowing, which will stem the growth in household demand for consumption.

The growth of imports by emerging economies has boosted economic growth in euro area countries and Japan. A dampening of this development (eg due to a financial disturbance) could quickly weaken households' income expectations and domestic demand in industrial countries. On the other hand, the investment demand that is buoying the growth of the world economy and international trade may be longer-lived than forecast.

Disturbances to international trade could also occur for other reasons. For instance, trade policy issues could quickly escalate into policy actions. Climate issues could also lead to action that could curtail international trade. Growth risks can also derive from the increasing degree of specialisation and hence greater mutual dependencies. Consequently, the same factors that have facilitated growth and stability in the world economy could also reinforce and accelerate the spread of a disturbance from region to region.

For Finland's export markets, one essential issue, besides world economic growth, is the scale and direction of Russian import demand. Key factors here are future developments in the price of crude oil and the question of whether economic reforms in Russia are implemented on a scale that will have a notable impact on growth.

Inflation

Consumer prices rose moderately in 2006. Different indicators tell, however, somewhat different stories of the rise in prices. According to the harmonised index of consumer prices[2] (HICP), the inflation rate was 1.3%, while the rise in the national CPI was 1.6%. The core inflation rate was only 0.8%, largely because core inflation excludes the highly volatile prices of energy and unprocessed foods. CPI inflation was boosted by higher capital costs of housing and higher interest rates on consumer credit. Interest rates on housing loans rose notably in 2006, and housing prices have been on a steep upward trajectory for several years. These developments do not affect the HICP.

In 2006, HICP inflation in Finland was the lowest in the euro area and nearly a full percentage point below the average for the euro area. Finland's core inflation has also been substantially lower for a long time.

In Finland, HICP inflation was boosted mainly by a notable rise in service and energy prices. The key dampener was a decline in non-energy industrial prices.

The rise in service prices accelerated considerably in 2006, in fact much faster than in the euro area on average (Chart 49). For example, in January 2007 service prices in Finland climbed 2.7% compared with 2.3% for the euro area as a whole. The sharp

[2] The HICP basket comprises five main categories, each of which influences the overall index according to its assigned weight: services (weight 41%), non-energy industrial goods (31%), processed foods (15%), energy (7%) and unprocessed foods (6%).

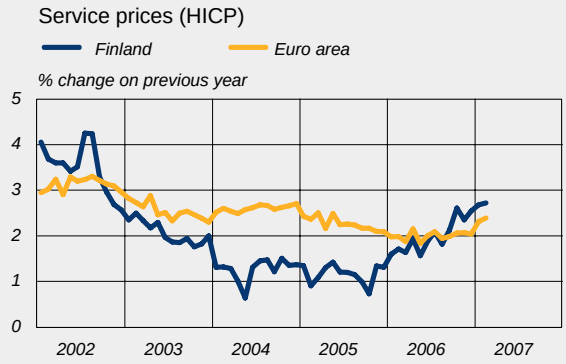
acceleration in service prices was affected greatly by prices in the telecommunications sector, which commenced on a clear upward trend in the summer of 2006. This followed a steady decline that began in 2002. Actual rentals for housing and café prices have been rising at a fairly rapid rate for a considerable period of time.

The decline in Finnish prices of non-energy industrial goods continued in 2006. On average, these prices fell by 1% in Finland, which contrasts with a 0.6% rise in the euro area as a whole. Prices of entertainment electronics, used cars and clothing continued their decline in Finland. Prices of prescribed medicines also decreased notably.

The decline in industrial goods prices has in recent years been fuelled by the strong growth in imports from China and other low-wage countries (Chart 50). Moreover, a stiffening of competition, especially in domestic retail markets, as well as government measures, such as a reduction in indirect taxes, have all served to dampen the overall price rise in consumer goods in recent years. Energy prices fluctuated widely in 2006. The price of crude oil rose sharply in the first half of the year and then fell by about an equal amount – leading to corresponding movements in the prices of transport fuels and heating oils. The price of electricity, by contrast, rose considerably in the course of 2006. Energy prices as a whole rose substantially on the previous year's average, by nearly 6%.

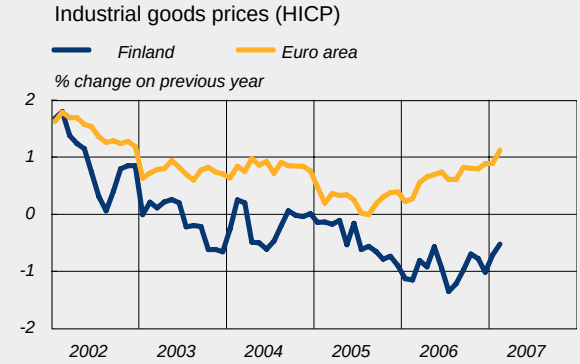
The rise in food prices accelerated towards the end of 2006, in connection with an exceptional drought that boosted prices of unprocessed foods in the latter part of the year, in Finland and elsewhere in Europe. Prices of processed foods, by contrast, rose modestly, by just over 1% in 2006. In fact, they have been rising moderately for a considerable period of time, partly reflecting increased competition between retail food outlets.

Chart 49.



Sources: Statistics Finland and Eurostat.

Chart 50.



** excl. energy*
Sources: Statistics Finland and Eurostat.

Inflation pressures will remain moderate in the coming years

The inflation forecast is for a very modest acceleration in 2007. As measured by the harmonised index of consumer prices, inflation should increase to 1.5% (Chart 51).[3] Whole-year inflation is affected especially by the already-realised rise in service prices. The realised rise in world prices of unprocessed foods is also exerting upward pressure on inflation, while annual energy prices will have a restraining effect on consumer prices. Prices of non-energy industrial goods should rise only slightly.

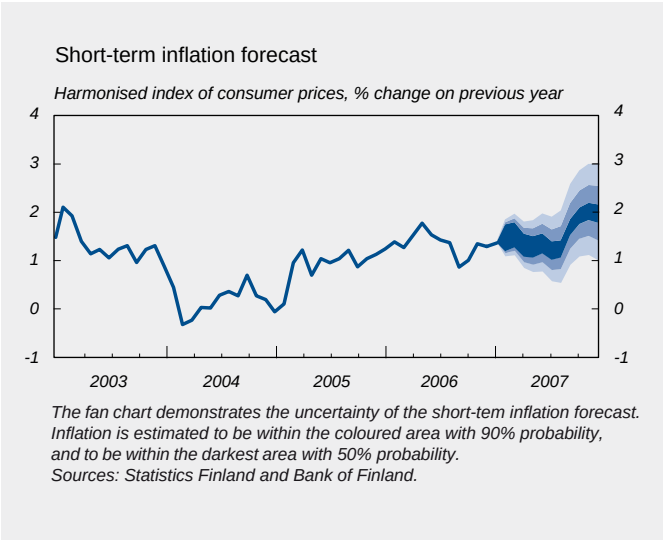
Service prices are expected to accelerate considerably in 2007 compared with last year's rise of about 2%. Besides the realised rise in telecommunications prices, service prices will be boosted by strong demand growth. The demand-based upward pressure on service prices is not offset by international competition to the same extent as in the prices of industrial goods. On the other hand, cost pressures will remain relatively subdued, as incomes are expected to increase more slowly in 2007 than in recent years.

Energy prices are expected to rise somewhat in 2007 from current levels and to boost inflation slightly. An assumed moderate rise in the price of crude oil would show up quickly in prices of transport fuels and heating oils. Along with rising prices of oil products we would expect some increases in other energy prices as well.

Inflation should remain moderate over the next few years (Chart 52). HICP inflation is projected to climb to 1.7% in 2008 and 1.9% in 2009. One can already detect some upward movement in international export prices of industrial products. Other inflationary forces include accelerating wages and continued robust growth of aggregate demand. The rise in wage

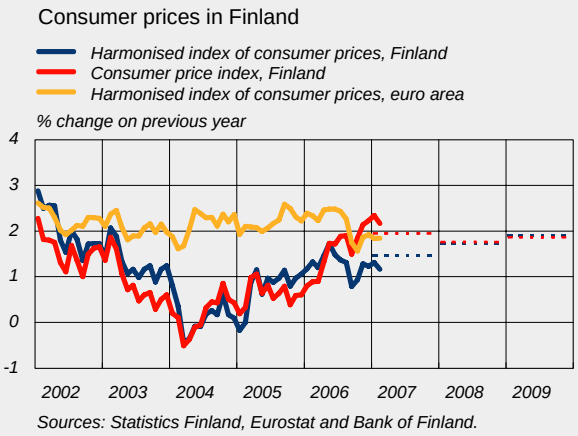
[3] Chart 51 displays the short-run inflation forecast at monthly intervals and the forecast-risk fan chart. Short-term inflation forecasts are compiled for the HICP and for its five component parts.

Chart 51.



The fan chart demonstrates the uncertainty of the short-tem inflation forecast. Inflation is estimated to be within the coloured area with 90% probability, and to be within the darkest area with 50% probability.
Sources: Statistics Finland and Bank of Finland.

Chart 52.



Sources: Statistics Finland, Eurostat and Bank of Finland.

costs will be reflected in prices of final products, especially in the service sector, where wage costs are moving ahead of productivity and strong demand will enable price hikes. To sum, Finnish inflation is expected to accelerate during the forecast period and to approach the average for the euro area.

Risks to the inflation forecast

There is of course much uncertainty attached to the inflation forecast. The most important external cause of forecast risk in the short term is the price of crude oil. For example, increasing political tensions in the major oil producing regions could notably boost the price of crude oil, which would speed up the rise in energy prices also in Finland. On the other hand, a reduction in the uncertainty related to crude oil supply would lead to a faster-than-expected decline in energy prices. A marked slowing of world economic growth would reduce the demand for crude oil and thus could bring the price down significantly.

The primary risk factor for domestic inflation is the state of competition between companies. Major changes in competitive conditions would have a noticeable impact on inflation, in both the short and longer term. Another key risk factor is indirect taxation. Changes in indirect taxes have temporary effects on inflation.

Over the long term, the key determinants of inflation are developments in the level of wages and productivity growth. A particularly acute risk is that a tightening of conditions in the market for service workers could raise the sector's relative wage level and further accelerate its inflation rate. A rapid rise in domestic wages, combined with sluggish productivity growth, could unleash a round of domestic-source inflation that would be difficult to control.

Finnish economy's growth prospects

The growth rate for real GDP reached 5.5% in 2006 – the fastest since the end of the 1990s. The most robust growth was posted by the industrial sector, particularly in the first half of the year. The commerce and construction sectors also grew rapidly, both by over 5%. Posting slower-than-average growth were transport and storage, 'other services', and agriculture and forestry.

The GDP growth rate overstates economic activity for two reasons. First, the annual change in output is overblown because a work stoppage in 2005 reduced that year's output to an exceptionally low level. The impact of the work stoppage on real GDP growth in 2006 amounted to about 1 percentage point. Secondly, based on the output growth figure alone, one cannot get a grip on what happened to purchasing power, since the terms of trade continued to deteriorate. That deterioration reduced the income-generating effect of output growth by about 1½ percentage points. Corrected for timing-of-output and terms-of-trade effects, GDP growth was in the range of 3%.

Growth in aggregate output slowed already in the second half of 2006 and is expected to decline during the forecast period to the level of

potential growth – some 2½% annually. Economic growth is increasingly dependent on domestic demand. Growth in the service sector is buoyed by households' strong demand for consumption and the growing need for social and health services as the population ages. Growth in industrial output is constrained by lagging export growth. Finland's share of the export market could shrink substantially in the course of the forecast period.

The rapid improvement in the employment situation that began at the end of 2006 is set to continue during 2007, after which the number of employed is expected to increase only moderately from year to year. Under tight labour markets, growing numbers of companies are citing recruiting difficulties. Although it is not assumed that a pronounced overheating of the labour markets will occur during the forecast period, the problems in recruiting labour are already dampening the outlook for economic growth. This is the case despite the fact that still-higher labour force participation is projected for those approaching retirement age. Pressures in the labour markets are being further alleviated by higher numbers of foreigners joining the labour force, which has already eased the labour shortage, especially in construction and engineering.

Albeit the number of persons employed is increasing, the key to output growth is productivity advancement. Labour productivity is set to grow at an average rate of 2% annually in 2008 and 2009, ie at roughly the average rate for the present decade.

The fundamental trend in the structure of demand has long been the expanding share of exports. This is also characteristic of other industrial countries: integration of the world economy has generated an upward trend in foreign trade relative to output. In Finland the trend is reinforced by the rapid growth in re-exporting, which has spurred both exports and imports. During the forecast period growth in the volume of exports should slow down as the effects of re-exporting disappear, but the outlook for exports should remain fairly bright throughout the period.

Growing global demand for investment will enable many sectors to increase their exports. But the focus of market growth is on Asia, where many large exporting companies are building capacity. For some companies, capacity limits do not allow for export growth. For this reason, export growth will lag behind market growth throughout the forecast period. The forecast assumes that the Finnish forestry companies will continue to be able to import timber from Russia in the usual manner. Russia has tentatively decided to raise its export tariffs on timber to such a high level that, if the decision is confirmed, the trade will come to a standstill. This measure was not accounted for in the forecast because a final decision has not yet been made. But the possibility of realisation of the tariff arrangement poses a considerable risk that Finland's economic growth and employment outcomes will turn out considerably weaker than forecast.

The investment ratio has stabilised in recent years at about 20%.

Investment is expected to continue to provide modest stimulation to GDP growth during the forecast period. Real growth is therefore not expected to match last year's performance during the forecast period, even though companies' financial results should remain favourable and their balance sheets are exceptionally strong. The investment outlook for the industrial sector in 2007 is, however, highly favourable, according to an investment survey by the Confederation of Finnish Industries. Investments in productive capacity continue to be buoyed not only by external factors: for example, office construction has been spurred by foreign real estate investors, and nuclear power plants continue to attract investment money. On the other hand, investment in the housing sector is projected to decelerate substantially during the forecast period.

Private consumption has been increasing for some time at an annual rate of 4%. The lower 3% growth posted in 2006 is still robust. The key driver of consumption is a favourable trend in employment. This has spurred the growth of aggregate wages and boosted confidence, which is reflected eg in an exceptionally low savings rate. In the coming years the employment situation should continue to support the propensity and ability to consume, and household savings will remain at a historically low level.

General government continues to achieve sizeable budget surpluses. The assumed delays in retirement among baby-boomers would enable the employment pension funds to have a surplus of nearly 3% even at the end of the forecast period. Central government finances also remain strong, with a surplus amounting to just over 1% of GDP. By the end of the forecast period, central government will have posted surpluses for ten years running, ie since 2000. The local government sector is expected to remain in a more or less balanced budget position throughout the forecast period.

It is anticipated that general government finances will face tougher challenges in the years following the forecast period. Over the next few years, the anticipated increase in the baby-boomers' employment rate should alleviate the financial impact of population ageing. Consequently, the financial base of general government is expected to remain firm during the forecast period and the rise in pension costs should be moderate. Looking ahead to the next decade, demographic conditions will constrain labour input and thus lower the growth rate of the financial base by about 1/3 percentage point a year at the same time as the increase in pensioners accelerates to 2% per annum. The rise in costs due to ageing has been anticipated in recent years by reducing central government debt and expanding the pension funds. It is projected that by the end of 2009 central government debt will be down to less than 30% of GDP and surpluses in the employment pension funds will have expanded the pension funds to 70% of GDP.

Table 10.

Forecast summary

Supply and demand

	2005	2006	2007e	2008e	2009e
Volume, % change on previous year					
Gross domestic product	*2.9*	*5.5*	*3.0*	*2.7*	*2.7*
Imports	*12.2*	*5.4*	*5.7*	*6.3*	*5.7*
Exports	*7.1*	*10.7*	*5.3*	*5.7*	*5.6*
Private consumption	*3.8*	*3.0*	*2.9*	*2.8*	*2.7*
Public consumption	*1.7*	*0.9*	*1.4*	*1.6*	*2.0*
Private fixed investment	*6.4*	*5.6*	*4.6*	*3.2*	*2.7*
Public investment	*–10.7*	*1.8*	*1.3*	*10.2*	*0.4*

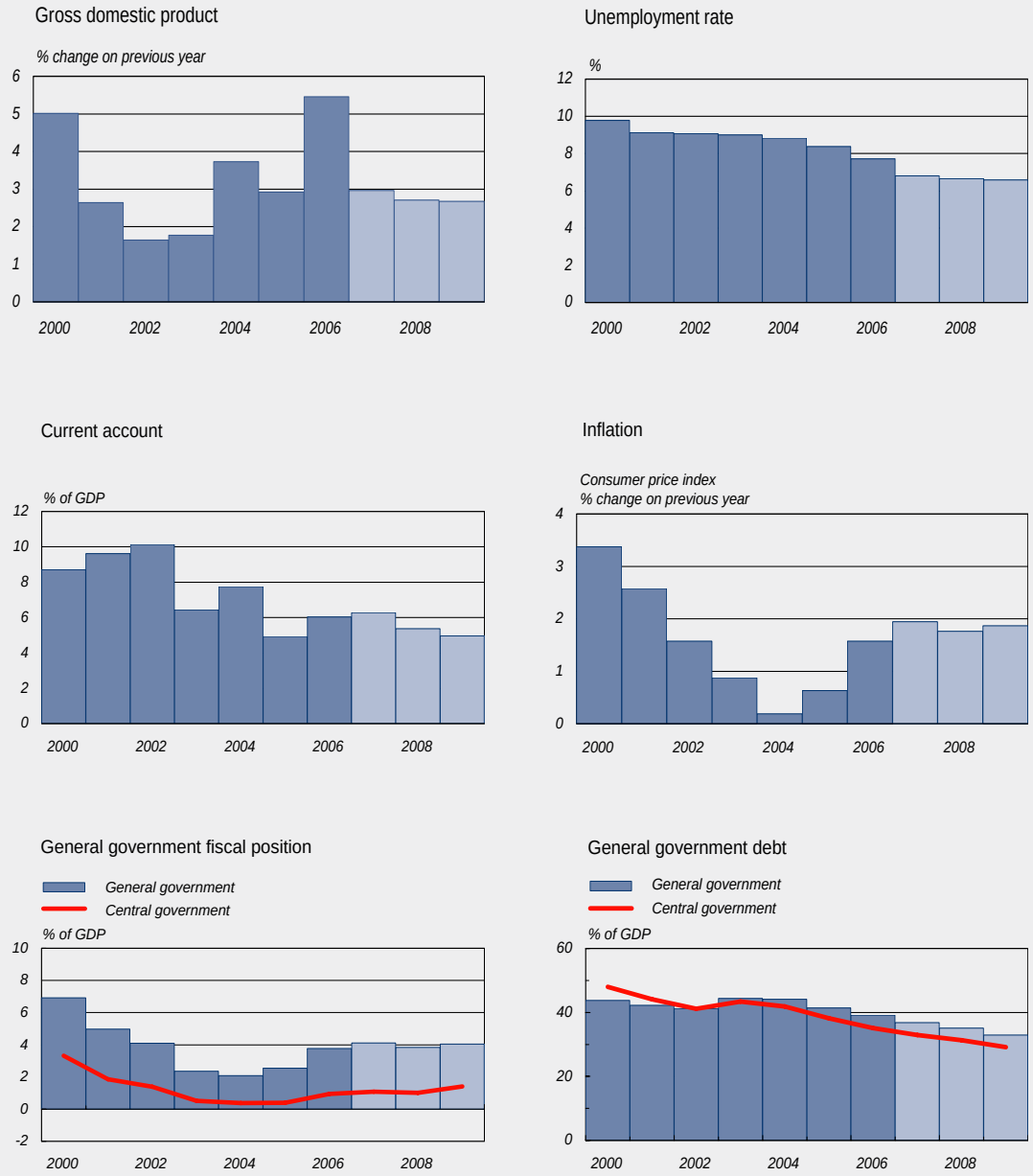
Key economic indicators

	2005	2006	2007e	2008e	2009e
% change on previous year					
Harmonised index of consumer prices	*0.8*	*1.3*	*1.5*	*1.7*	*1.9*
Consumer price index	*0.6*	*1.6*	*1.9*	*1.8*	*1.9*
Wage and salary earnings	*3.9*	*3.0*	*2.8*	*3.8*	*3.5*
Labour compensation per worker	*3.8*	*3.4*	*3.0*	*3.4*	*3.8*
Productivity per worker	*1.4*	*3.6*	*1.2*	*2.1*	*2.4*
Unit labour costs	*2.3*	*-0.2*	*1.8*	*1.2*	*1.3*
Number of employed	*1.5*	*1.8*	*1.8*	*0.6*	*0.2*
Employment rate, 15–64-year-olds, %	*68.0*	*68.9*	*69.7*	*70.0*	*70.1*
Unemployment rate, %	*8.4*	*7.7*	*6.8*	*6.7*	*6.6*
Export prices of goods and services	*0.9*	*2.4*	*1.3*	*–0.4*	*–0.5*
Terms of trade (goods and services)	*–3.5*	*–3.3*	*0.4*	*–2.4*	*–1.2*
% of GDP, national accounts					
Tax ratio	*43.9*	*43.3*	*42.9*	*43.3*	*43.7*
General government net lending	*2.5*	*3.8*	*4.1*	*3.8*	*4.0*
General government debt	*41.4*	*39.1*	*36.8*	*35.1*	*32.9*
Balance on goods and services	*5.6*	*6.5*	*6.6*	*5.5*	*5.1*
Current account balance	*4.9*	*6.0*	*6.3*	*5.4*	*5.0*

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

Chart 53.

Key economic indicators



Sources: Statistics Finland and Bank of Finland.

Alternative scenario concerning increased supply of labour among the over-60s

The employment rate for persons over 60 years of age has increased considerably in recent years. In 2006 more than a third of those aged 60–64 and about a fifth of those aged 65–69 were employed, compared with a quarter and an eighth in 2000. Persons over 60 accounted for 7% of all employed persons in 2006. The forecast projects a 3 percentage point rise in the employment rate of 60–64-year-olds and about a 1 percentage point rise for 65–69-year-olds over the course of the forecast period.

In an alternative scenario, the employment rate for the ageing workforce increases faster than in the forecast.[4] It is assumed that the labour supply from those over 60 increases so that the overall employment rate rises to 72% by 2011, instead of the forecast figure of just over 70%. The rise in the employment rate is graduated so that just over 1 percentage point of it is realised during the forecast period. This scenario analyses the effects of the increase in the labour supply of the over-60s.

The key results of the scenario are reported in Table 11 as deviations from baseline (forecast) figures. Greater participation by the over-60s results in an improved employment picture for the economy as a whole. The number of persons employed rises (from baseline) by 10,000 in the first year and then by 25,000 and 40,000 in the next two years.

The assumed increase in the labour supply of the over-60s – whether realised via those of retirement or working age – changes the labour market equilibrium so as to slow the rise in real wages compared with the baseline scenario. Because this reduces the incentive of younger persons to take a job, the increase in employment of those over 60 is greater than the increase in overall employment to an even greater extent than it is in the baseline scenario. For those over 60, the employment rate rises by 10 percentage points relative to the baseline.

The slower rise in real wages (versus baseline) spurs the growth in demand for labour. Company profits and share prices rise relative to the baseline. Prices of goods produced in Finland rise more slowly than in the baseline scenario, thus improving their price competitiveness. This in turn spurs the growth of domestic output and stimulates faster-than-baseline growth in investment.

The public sector fiscal balance is improved by higher revenues from indirect taxes and corporate taxes.[5] On the other hand, the permanent slowing of growth in aggregate wages (versus

[4] Lengthening of working life is encouraged not only by incentives built into the pension system but also by the rise in the general living standard and the fact that, because of improved health care, people approaching retirement age are healthier than their predecessors and better able to work. Moreover, the amount of heavy physical effort required in the workplace has steadily declined.

[5] The scenario assumes that the lengthening of working life does not notably affect the financial position of the employment pension funds. The savings due to the smaller number of pensioners are offset by a higher average pension. Because the net effect is probably positive at first, the scenario reported here is cautious as regards the fiscal balance for the pension system as a whole.

baseline) weakens the situation regarding income-tax revenue. The net effect, however, is to strengthen general government finances, which enables a cautious lowering of income taxes.

While households' real wages increase more slowly than in the baseline scenario, this is partly offset by the improvement in employment (Table 11). Consumption opportunities are strengthened by the rise in share prices and the reduction in income taxes. The combined impact is to boost consumption growth relative to the baseline scenario. Those of retirement age in particular consume more because of the rapid increase in their employment rate.

The alternative scenario indicates that, even relying on cautious estimations, one can infer that economic policies that encourage extended participation in the labour market generate results that are favourable in many respects. It is clear that some of developments in the economy already witnessed in recent years are realisations of what we see in the alternative scenario: increased labour supply among persons of retirement age has facilitated robust employment growth and reduced the risk of overheating in the labour markets.

Table 11.

Deviations from forecast

	2007	*2008*	*2009*
Annual deviation, % points			
Gross domestic product	*0.44*	*0.23*	*0.23*
Imports	*0.43*	*0.11*	*–0.13*
Exports	*0.00*	*0.10*	*0.30*
Private consumption	*0.84*	*0.24*	*0.08*
Private sector investment	*1.07*	*0.64*	*0.40*
Total demand	*0.44*	*0.20*	*0.11*
Labour compensation	*0.27*	*–0.39*	*–0.56*
Consumer price index	*0.00*	*–0.10*	*–0.31*
Wage and salary earnings	*–0.18*	*–0.94*	*–1.16*
Deviation			
Employment rate, 15–64-year-olds, % points	*0.30*	*0.70*	*1.14*
Unemployment rate, % points	*–0.03*	*–0.07*	*–0.10*
Employed persons	*10,670*	*24,919*	*40,892*

Source: Bank of Finland calculations.

A new indicator for the volume of industrial output

Samu Kurri, Economist, Monetary Pollicy and Research

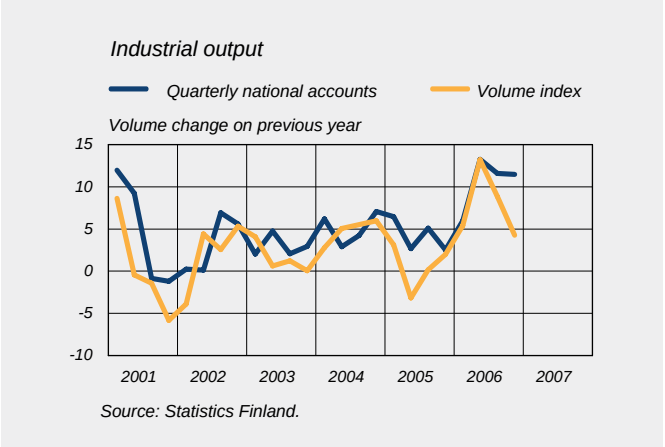
Particularly since last year's reform of national accounts, it has been very difficult to estimate changes in the volume of industrial output. The present article introduces an alternative monthly indicator of industrial output calculated on the basis of publicly available material. The quarter-on-quarter changes derived with this indicator correspond on average more closely to the developments recorded in the national accounts than the volume index of industrial output calculated by Statistics Finland. The new indicator is available on the Bank of Finland website.

In 2006, Statistics Finland reformed the methodology for calculating the national accounts. As a consequence, the picture of the Finnish economy has changed in several respects from the picture considered valid only a year ago.[1] One of the items that has changed most in terms of both calculation methods and data sources is value-added industrial production, which reflects industry's share of GDP.

Previously in the quarterly national accounts, industrial value added was largely calculated on the basis of the monthly volume index of industrial output, even though this actually measures gross output. In the new quarterly national accounts, industrial value added is calculated more accurately by deducting intermediate consumption from gross output. The statistical sources for gross output and intermediate consumption are now also different from before: industrial output is measured on the basis of turn-over, which can, from time to time, differ from actual production during the same period. As a result, the volume index of industrial output calculated monthly by Statistics Finland can differ considerably from the figures for industrial value added published in the national accounts (Chart 1).

There are two possible explanations for the differing paces of growth in the national accounts and the volume index of industrial output: 1) differing statistical bases for gross output and 2) the effect of intermediate consumption. This article discusses option 1 by calculating, on the basis of indices of turnover and producer prices in industry, a new monthly indicator for gross industrial output at prices of the reference year 2000. As well as the value added series of the national accounts, the index is also compared with the volume index of industrial output. At a sectoral level, we also seek to assess to what extent the differences in the statistics are caused by differences in

Chart 1.



[1] See Bank of Finland Bulletin 3/2006, p. 32–33.

sector-specific turnover and the number of items produced.

Measurement of gross industrial output

In the national accounts, industrial value added is primarily estimated on the basis of the monthly indices of turnover in industry and the producer price indices of the corresponding items. These are used to derive the industrial value added at prices of the reference year 2000. Data on turnover indices is mainly published 75 days from the end of the respective month. For the first month of each quarter, the time lag is even longer. The time lag for publishing producer price indices is much shorter, only about 17 days.

The time lag with which the turnover index is available is long for the compilation of a fast monthly indicator. For example, Eurostat's flash estimate for quarterly GDP growth must be available within 45 days of the end of the respective quarter. The advantage of the traditional volume index of industrial output is its speed, since it is available with a time lag of only about 30 days.

The new monthly indicator for the volume of output in manufacturing industry (Statistics Finland's standard industrial classification, economic activity sector D, manufacturing) presented in this article is calculated, as far as possible, in accordance with the methodology of the national accounts. In practice, the greatest differences arise from the fact that the sectoral breakdown is not as detailed in the new indicator as in the national accounts. This has a direct impact on the calculation of price indices in particular. In other respects (for example the chain index used in the calculation of figures at reference-year prices) the methodology is the same. The stages in calculating the new indicator are outlined in Table 1. In practice, the new indicator denotes gross output in manufacturing (economic activity sector D) at prices of the reference year 2000, calculated with turnover and producer price indices that are changed into euro by using annual national accounts data. The method for chaining is the 'annual overlap' method used by Statistics Finland. In this case this means that the monthly index points for volume are derived by using the previous year – ie the average of monthly observations in the previous calendar year – as the base year. The resulting one-year index series are chained in relation to the changes in the aggregated yearly volumes (for example, output at 2004 prices in 2005 as a whole in relation to output at year 2004 prices in 2004 as a whole).

Turnover indices in industry are published in a very detailed sectoral

Table 1.

Calculation of the indicator

1) *Collection of sector-specific turnover indices, 2000 = 100.*
2) *Change of index points to euro with help of annual national accounts data.*
3) *Normalisation of output in euro to year 2000 prices using producer prices.*
4) *Aggregation and chaining (annual overlap).*
5) *Seasonal adjustment (Tramo/Seats).*

Source: Bank of Finland.

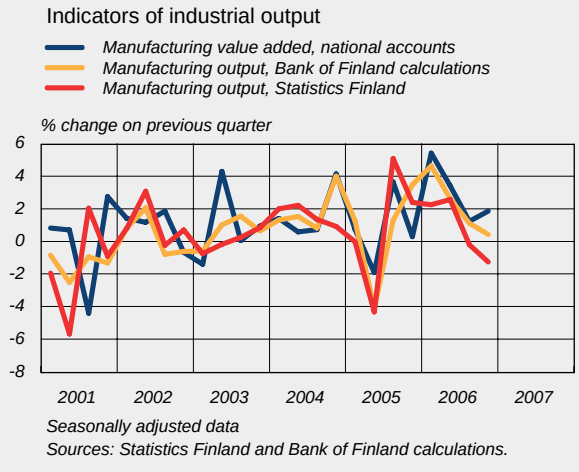
breakdown: manufacture of food products (SIC sector DA); manufacture of textiles, clothing, leather and footwear (DB, DC); manufacture of wood and paper (DD, DE21); publishing (DE22); chemicals (DF, DG, DH); manufacture of non-metallic mineral products (DI); manufacture of basic metals (DJ27); manufacture of fabricated metal products (DJ28); manufacture of machinery and equipment (DK); manufacture of electrical and electronic products (DL); manufacture of transport equipment (DM); manufacturing not classified elsewhere (DN). With regard to the calculation of the new indicator presented in this article, the most significant shortcomings in the sectoral breakdown of turnover indices relate to the lack of sub-sectors for the chemical and forest industries.

In addition, the sectoral breakdown of turnover indices differs to some extent from that published for producer price indices. For this reason, price indices are calculated for the manufacture of wood and paper as well as the chemical industry on the basis of producer price indices' sub-sectors and levels recorded in the annual national accounts. In addition, historical price developments (2000–2005) in the electronics industry have been forced to add up to the respective levels in the annual national accounts. In practice this means that the electronics industry prices used for calculating the gross output indicator presented in this article do not fall as sharply as they would according to the producer price index. Moreover, for the manufacture of transport equipment, calculations are based on the volume index of industrial output rather than the turnover index, because the turnover index for the transport equipment industry only includes the manufacture of motor vehicles, trailers and semi-trailers.

Developments as shown by the new indicator

Chart 2 compares developments according to the new indicator, the volume index of industrial output and the value added series in the national accounts. The data is presented as quarterly changes of seasonally adjusted series. The new indicator follows quarterly national accounts series more closely than the index of industrial output produced by Statistics Finland. The correlation coefficient between the new indicator and the quarterly national accounts series is 0.61 for the whole period for which data is

Chart 2.



Seasonally adjusted data
Sources: Statistics Finland and Bank of Finland calculations.

available, ie from the second quarter of 2000 to the third quarter of 2006. The correlation coefficient between Statistics Finland's industrial output volume index and the quarterly national accounts series is much smaller, at 0.38.

It is interesting to note that the new indicator paints a very similar picture specifically of the first quarter of 2006 as the value added series does and that it differs clearly from the volume index of industrial output. At least in retrospect it would have been possible to make a much more precise estimation of developments in industrial output in line with the national accounts using the new indicator than using the industrial output volume index.

The new indicator has been constructed for the analysis of current economic developments, ie developments relating to the past few months. The indicator's long-term trend is therefore not significant. However, when longer-term trends are considered, industrial output growth as recorded with the new indicator is noticeably slower than in the quarterly national accounts series. The difference in the long-term trend is at least partly due to intermediate consumption, which the new indicator ignores, since it calculates the volume of gross output.

In which sectors do the indicators diverge?

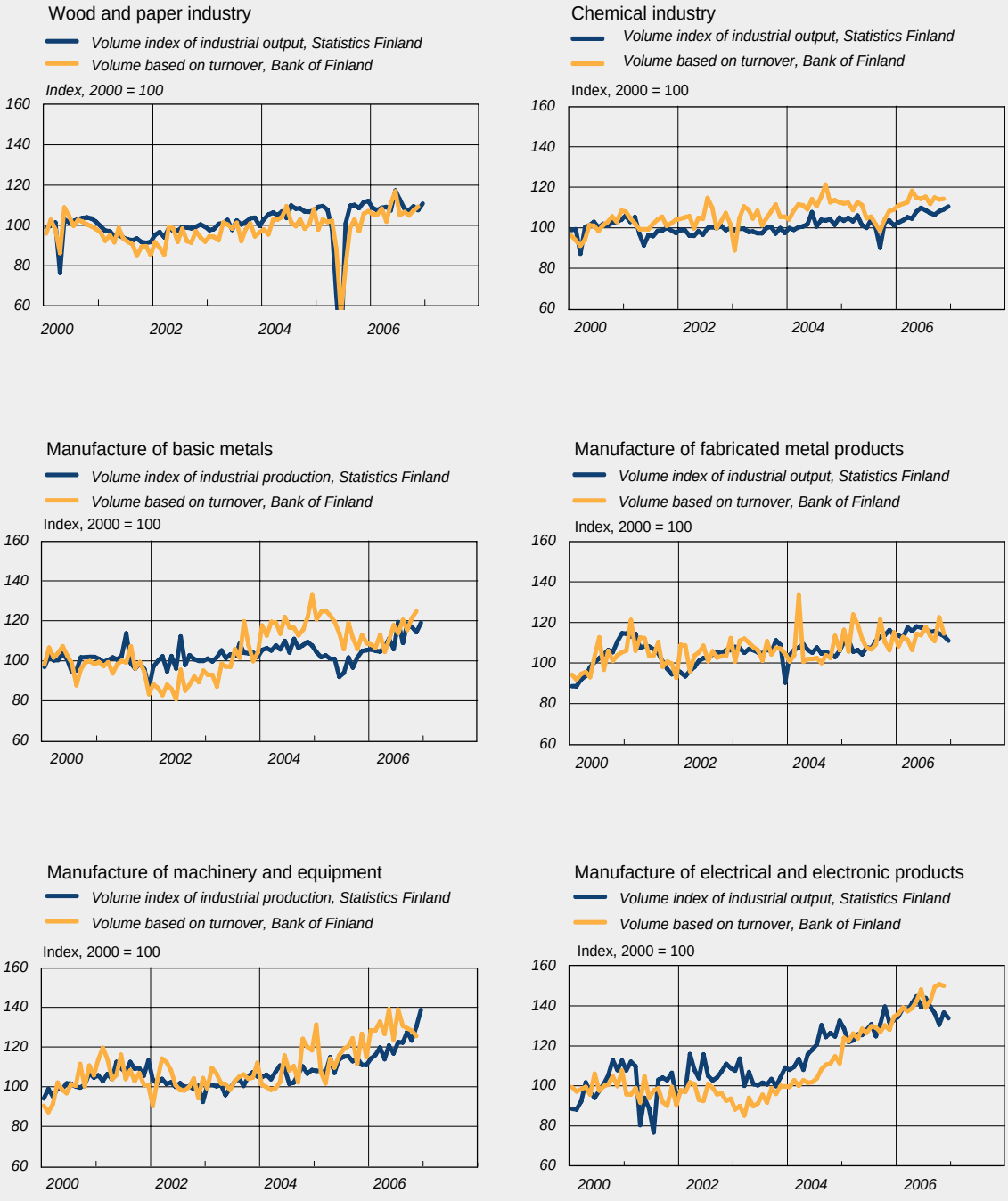
Particularly as regards observations for 2006, sector-specific developments in industry appear very different depending on whether they are examined by volume or turnover indices. Chart 3 compares changes in production in major manufacturing sectors according to the two different indicators.

Of the industrial sectors presented in Chart 3, the levels of the two indicators have developed fairly similarly in the 2000s in forest industry and the manufacture of fabricated metal products as well as machinery and equipment. In contrast, clear differences can be observed in the manufacture of basic metals and electronics industry. The greatest difference between the indicators relates to the electronics industry for which it is very difficult to divide output into volume, ie volume adjusted for quality changes, and price. Interpreting developments in the manufacture of basic metals is more difficult, since quality changes in this sector are not as significant a factor hampering the compilation of statistics as in the electronics industry.

Data on electronics industry show considerable divergences in the past few months: at the end of 2006 output as recorded with the volume index has developed weaker than that as observed with the turnover index. This could be attributable to the fact that the industrial output volume index only shows industrial products (goods) manufactured in Finland whereas the turnover index can also comprise services and other activities. Particularly the subdued growth in the electronics industry at the end of 2006 as observed with the output volume index is in line with developments in goods exports in this sector. Hence, this difference could be seen in the national accounts in data on services exports.

Chart 3.

Sectoral trends in industry based on selected measures



Sources: Statistics Finland and Bank of Finland calculations.

An even better indicator could be constructed

The new indicator for industrial production presented in this article seems to create a more up-to-date indicator for estimating value added in industry than the volume index of industrial output published by Statistics Finland. However, it is probable that the new indicator would have made a better estimate of value added in industry prior to the methodological reform of national accounts. Since value added is also deflated separately in the new national accounts (double deflation), the accuracy of the new indicator is not always the best possible even when analysing changes. The calculation of monthly value added would also require that intermediate consumption was also taken into consideration, which is too demanding a task for a body other than Statistics Finland; the estimation of value added requires data of sector-specific input and, for these, similar calculation procedures than required for the calculation of gross output.

The timely estimation of GDP is regrettably uncertain with the indicators currently available. This could, at worst, lead to mistakes in economic policy planning. The new indicator for industrial production presented in this article attempts to alleviate these problems. An even more significant improvement in the timely estimation of GDP would be that Statistics Finland started to publish, instead of the current volume index of industrial output (and also the monthly indicator of GDP), improved monthly indicators that measure value added and for which the statistical base would correspond to that used in the calculation of national accounts.

Revenue neutral shifts in the tax structure: experiments with a dynamic general equilibrium model

Juha Kilponen, Research Supervisor and Jouko Vilmunen, Head of Research, Monetary Policy and Research

This article presents some estimations of how a shift in the base of taxation from labour to consumption would affect the performance of the Finnish economy. The basic tool of analysis is the dynamic general equilibrium model (Aino) developed at the Bank of Finland. The calculations within the model framework take account of the effects of changing the tax base on the behaviour of economic agents. Households here choose their consumption expenditures and labour supplies, and firms set the demand for labour and prices so as to maximise profits. Households are aware of the public-sector inter-temporal budget constraint, eg the impact of a deficit on general government debt and hence on government's future room to manoeuvre. In the model, changes in taxes impact on the economy via relative prices. Changes in relative prices are transmitted to the labour and commodity markets when they influence the decisions of households and firms.

Our calculations show that the macroeconomic effects of an assumed tightening of consumption taxation depend on the other compensations made in general government finances. If the additional revenue generated by the hike in consumption taxes is used to ease households' labour taxation, consumption, output, and employment all increase in the long run. The primary reason for this (perhaps somewhat surprising) result is that the supply effect of lower taxes on labour will clearly outweigh the negative consumption effect of higher consumption taxes. Reducing labour taxes is an effective means of raising employment. It is noteworthy that a hike in consumption taxes actually leads to a net increase in consumption if the additional revenue is used to reduce the tax on labour. Employment and consumption will be boosted even more if the increase in consumption taxes is compensated by a reduction in indirect labour costs, stimulating demand for labour.

Our results are quite similar to those derived from the European Central Bank's NAWM (New Area Wide Model). For example, one such study (Coenen, McAdam and Straub 2006) also found that using an increase in consumption taxes to finance a reduction in indirect labour costs would raise employment, output and consumption. The similarity in results is hardly surprising, as both models are based on the neoclassical modelling legacy. The differences are due to differences in assumptions as to economic agents' preferences, heterogeneity and the structure of production technology. Differences in the modelling of nominal and real rigidities also account for some of the variation in results.

In this article we examine the general effects of a change in consumption taxation. We thus do not attempt to answer directly questions raised in recent discussions on a possible reduction in value-added tax (VAT) on food. It would nonetheless seem reasonable to apply the analysis of this study regarding the general effects of a change in the tax base also in comparing the impacts of reducing food VAT versus labour taxes. Questions

about income-redistributive effects that have been raised in discussions on food VAT are not addressed in this article, as the Aino model is not designed to answer such questions.

General equilibrium effects of taxation

To better understand the effects of consumption taxes and labour taxes, it is useful to examine the dynamic equilibrium between households' consumption and labour supply, which can shed light on dynamic decision-making regarding consumption and labour supply (or leisure). Such decision-making can be analysed in terms of marginal conditions derived from households' inter-temporal maximisation of utility. The household's consumption and leisure at a point in time, as well as the time-path of consumption, are determined once we assume knowledge of the current prices of leisure and consumption at the moment of decision and of the mechanism by which households form expectations of future prices. In other words, these marginal conditions determine the *intra*-temporal structure of households' consumption and leisure and the *inter*-temporal structure of consumption. Households use their available time for leisure and work, so that working time is simply the residual after allotting time for leisure.

In the labour-supply equilibrium, households' intra-temporal marginal rate of substitution between consumption and leisure is equal to the after-tax real wage rate. The rate of substitution between consumption and leisure indicates the willingness of households, given their level of income or wealth, to trade off consumption for leisure time while remaining at a given level of utility. Likewise, in dynamic consumption equilibrium, the inter-temporal rate of substitution between today's and tomorrow's consumption must equal the inter-temporal price of consumption, ie the real interest rate. This famous Euler consumption condition also determines households' savings, because the inter-temporal rate of consumption reflects households' willingness to give up some consumption today in favour of more tomorrow. In other words, the inter-temporal rate of substitution indicates households' propensity to save a part of their wealth to spend on future consumption.

Thus, households will alter their leisure-time behaviour, and hence their consumption spending, if the after-tax real wage rate changes. Such changes can occur, for instance, because of changes in labour or consumption taxes. An increase in labour taxes reduces workers' absolute disposable income and an increase in consumption taxes raises the relative price of consumption. On the other hand, households will consume later or sooner, depending on whether real interest rates rise or fall. The real interest rate is to a first order approximation, the difference between the nominal interest rate and the expected inflation rate.

The above explanation of household consumption and labour supply equilibrium is in essence dynamic because it derives from the household's dynamic optimisation

problem. The equalities of intra- and inter-temporal marginal rates of substitution and relative prices relating to the equilibrium situation are set out below mathematically.

Intra-temporal condition for labour-supply equilibrium

$$\frac{u_L(C_t, 1-L_t)}{u_c(C_t, 1-L_t)} = \frac{(1-\tau_t^{w,l}-\tau_t^{w,sc})W_t}{(1+\tau_t^c)P_t}$$

Here, C_t denotes consumption, $1-L_t$ leisure time (L_t is the quantity of labour supplied), $\tau_t^{w,l}$ the labour tax rate, $\tau_t^{w,sc}$ the worker's rate of social security contributions from wages, τ_t^c the consumption tax rate, W_t the nominal wage rate, and P_t the price level. The LHS of the equation is the marginal rate of substitution between leisure and consumption, and the RHS is the effective after-tax real wage rate. u_L and u_c denote the marginal utilities of leisure time and consumption, ie the partial derivatives of the household's utility function with respect to leisure and consumption. The RHS can be seen to represent the household's effective purchasing power from wages, also referred to as the 'consumption wage'.

Inter-temporal Euler condition: dynamics of consumption

$$E_t\left[\frac{\beta u_c(C_{t+1}, 1-L_{t+1})}{u_c(C_t, 1-L_t)} \frac{(1+\tau_t^c)P_t}{(1+\tau_{t+1}^c)P_{t+1}}\right] = \frac{1}{R_t}$$

The LHS is the expected ratio of marginal utilities of tomorrow's to today's consumption. The symbol E is the mathematical expectation operator, and β denotes the discount factor, reflecting household impatience regarding consumption. R on the RHS is the nominal gross interest rate between period t and t+1. This means that $R-1$ is the nominal interest rate for time t to time t+1 and is equal to the nominal yield on a one-euro investment in the money market. Multiplying the reciprocal of the nominal gross interest rate by the ratio of tomorrow's and today's price levels yields the relative price of tomorrow's consumpiton, ie the price of tomorrow's consumption in terms of today's consumption. The product

$$\left(\frac{1+\tau_t^c}{1+\tau_t^c+1}\right)\left(\frac{R_t}{P_{t+1}/P_t}\right)$$

could justifiably be labelled the effective real interest rate.

The labour-supply equilibrium indicates how taxation the factor

$$\frac{1-\tau_t^{w,l}-\tau_t^{w,sc}}{1+\tau_t^c}$$

distorts the relative price of consumption versus leisure time. A higher tax rate on consumption τ_t^c or labour

$$(\tau_t^{w,l}+\tau_t^{w,sc})$$

will lower the relative price of leisure time. Because leisure becomes more attractive when the tax rate increases, households reduce the quantity of labour supplied. The magnitude of the labour-supply effect of a tax hike depends on the elasticity of the labour supply. In the Aino model, the Frisch-elasticity (elasticity of labour supply with respect to the real wage rate at a given level of the marginal utility of wealth) is about 0.30.

According to the Euler condition, a change in consumption taxes will have an impact on the effective real interest rate and thus on the consumption dynamics. It is worth emphasising that expected changes in consumption taxes in particular will affect the dynamics of private consumption. The term

$$\left(\frac{1+\tau_t^c}{1+\tau_{t+1}^c} \right)$$

reveals the effect of a possible change in future consumption taxes on households' perception of the relative price of tomorrow's versus today's consumption. It also shows that even a random fluctuation in consumption taxes will affect households' consumption decisions.

The firm's key decisions in the model are realised via the marginal conditions for labour demand and pricing. With the economy in equilibrium, firms will demand labour to the point where the marginal product of labour equals the real rental cost of labour. In a competitive equilibrium, commodity prices are determined by marginal costs of production. In an economy in which firms have pricing power, prices will exceed marginal costs. The greater the pricing power, the higher the economy's aggregate price level, at given marginal costs. Marginal costs are affected by both real wages and the rental cost of capital. Firms' rental costs of labour typically include, along with wages, indirect costs such as social security contributions. Thus a reduction in social security payments will reduce the marginal cost of labour and stimulate demand for labour. At its simplest, the relationship between demand for labour and the real wage rate can be written as

$$Y_L = (1+\tau^f) W_t / P_t$$

where the LHS is the marginal product of labour and the RHS the real rental cost of labour. τ^f denotes what firms deduct from wages to make tax and other similar payments. The above marginal conditions relate the changes in relative prices to the quantitative changes that occur. The strength of the relative price effects (and hence of changes in taxation) on supply and demand decisions of households and firms depends primarily on household preferences and assumptions regarding the structure of output. The assumptions of the Aino model are described eg by Kilponen and Ripatti (2006a, b).

Tax wedge

Besides affecting relative prices, taxes also affect the tax wedge, which expresses the difference between firms' effective (real) labour costs and what they pay to households in real after-tax wages. The size of the tax wedge can be written as

$$\nabla \equiv 1 - \frac{(1-\tau_t^{w,l}-\tau_t^{w,sc})}{(1+\tau_t^c)(1+\tau^f)} \cong \tau_t^{w,l}+\tau_t^{w,sc}+\tau_t^c+\tau_t^f$$

The tax wedge in Finland is quite large by European standards, as can be seen from Table 1. In Finland in 2004 the wedge was nearly 66%, ie the fourth highest in the euro area.

The tax wedge is the sum of the distorting effects of taxes on labour supply and demand. Oversimplifying slightly, one can say that a narrowing of the tax wedge, eg in the context of tax

reform, bodes well for economic performance. The result is a reduction in the combined distorting effects on labour supply and demand. For example a revenue-neutral tax reform in which the consumption tax (τ_t^c) is increased may either expand or contract the tax wedge depending on how much the indirect costs of labour (τ^f) and/or income taxes (τ^w) are lowered. The degree to which the tax rate on labour can be lowered without changing tax revenue depends primarily on what happens to consumption, labour supply, wages and prices. These in turn depend on the above-mentioned assumptions on household preferences and technology.

Macroeconomic effects of taxation

The main transmission channels of taxation in the general equilibrium model were set out above in a fairly simplified manner. Taxation can also affect investment and domestic-foreign relative prices. The actual adjustment of the economy to a new equilibrium is a slow process due to the presence of nominal and real rigidities. Changes in taxes affect the balance between labour supply and demand via changes in real wages. In the short-run, real wages react to tax changes in a manner that depends on the assumptions regarding rigidities in nominal wages and prices. Nor can investment react immediately to changes in relative prices. Consumption and labour demand also require time to adjust, as consumer preferences change slowly and both recruitment and layoffs entail adjustment costs for firms.

Examination of such complex transmission mechanisms requires the

Table 1.

Estimated tax wedges in selected countries, 2004

	Consumption tax	*Income tax*	*Social security contributions*		*Tax wedge*
			Employees	*Employers*	
Euro area					
Austria	*20.0*	*8.4*	*14.0*	*22.5*	*64.9*
Belgium	*21.0*	*20.5*	*10.7*	*23.0*	*75.2*
Finland	*22.0*	*19.5*	*4.9*	*19.4*	*65.8*
France	*19.6*	*9.4*	*9.8*	*28.2*	*67.0*
Germany	*16.0*	*16.2*	*17.3*	*17.3*	*66.8*
Greece	*18.0*	*0.5*	*12.5*	*21.9*	*52.9*
Ireland	*21.0*	*9.6*	*4.5*	*9.7*	*44.8*
Italy	*20.0*	*14.0*	*6.9*	*24.9*	*65.8*
Luxembourg	*15.0*	*7.9*	*12.1*	*11.9*	*46.9*
Netherlands	*19.0*	*7.3*	*22.2*	*14.0*	*62.5*
Portugal	*19.0*	*5.1*	*21.1*	*17.0*	*62.2*
Spain	*16.0*	*9.7*	*4.9*	*23.4*	*54.0*
Average	*18.3*	*12.2*	*11.8*	*21.9*	*64.1*
United States	*7.7*	*15.4*	*7.1*	*7.1*	*37.3*

Tax wedges in the table have been calculated from tax rates using the formula described above.
Source: Coenen, McAdam and Straub 2006.

use of a dynamic general equilibrium model. The Bank of Finland's Aino model, which is based on Real Business Cycle theory, has been enriched by incorporating nominal and real rigidities. The model also accounts for heterogeneity among households so that structural changes in the tax system affect different households in different ways (see eg Kilponen and Ripatti 2006b).

Long-term effects

Table 2 presents estimated long-term effects that a percentage point increase in the consumption tax will have on the key variables in the Aino model. A rise in the consumption tax means an increase in tax revenue, so that revenue neutrality requires an assumption as to the use of the extra revenue. Our calculations include three options for use of the extra revenue: a reduction in the tax on earned income; a reduction in indirect labour costs; or lump-sum transfers to households. The third option will indicate the magnitude of impact on the equilibrium position of the economy that will result from distortions in relative prices caused solely by the consumption tax. As regards the first two options, the distortion in relative prices derives from the assumed combination of measures taken.

In examining all three options, it is assumed that the debt-to-GDP ratio of the public sector remains unchanged. It is further assumed for the first two options that public consumption expenditure is fixed. The economy is assumed to be initially in a long-term equilibrium position, and the model is calibrated so that long-term equilibrium values of key variables accord with conditions in the Finnish economy in 1995–2005.

In analysing long-term effects it is useful to begin with the case in which the increase in consumption tax is matched by extra transfers to households (Table 2, column 3). A percentage point increase in consumption tax leads to roughly 0.5% decreases in both consumption and output. Behind the decline in consumption is a nearly 0.2 percentage point decrease in the real wage rate and a rise in the price of consumption relative to leisure time. The increased attractiveness of leisure is reflected in the supply of labour, and employment rate declines by about 0.25 percentage point. Since employment pension contributions are endogenously determined in the model by the pension funds' budget constraint, the decline in employment requires an increase in pension contribution of almost 0.1 percentage point. This expands the tax wedge by more than a percentage point. The consequences for exports, imports and investment are also substantial. Imports decline slightly because of the softening of consumption demand. Exports also decline as the relative price of export goods increases.

Nonetheless, shifting the base of the tax system to consumption is not necessarily a bad thing for the economy. The crux of the matter is how the tax reform is realised. The first two columns of Table 2 clearly show that if the increase in the consumption tax is used to finance a reduction in taxes on labour, the combined effect is an increase in both output and employment. If a

permanent increase in the tax on consumption is used to finance a reduction in taxes on earned income, the economy moves to an equilibrium in which consumption and output are just over 0.5% higher than in the initial situation. These results are broadly the opposite of those of the above calculation (option 3). The primary reason for the reversal is that the positive supply effects of reducing labour taxation clearly exceed the negative effects of the rise in consumption tax. This is reflected in the fact that one result of the tax reform is a shrinking of the tax wedge by nearly a full percentage point.

The effects are particularly pronounced if the hike in the consumption tax is used to finance a reduction in indirect labour costs. A percentage point rise in consumption tax enables a notable reduction in indirect labour costs – just over 3 percentage points – as well as a narrowing of the tax wedge by 3 percentage points.

Dynamic effects of changing the tax structure

We have so far examined the long-term effects of shifting the base of the tax system to consumption. But typically the adjustment of the economy to tax

Table 2.

Long-term effects of an increase in consumption tax

	Revenue-neutral compensation		
	Reduction in income tax	*Reduction in indirect labour costs*	*Increase in income transfers*
Output	*0.53*	*0.70*	*–0.52*
Consumption	*0.63*	*1.05*	*–0.51*
People of working age	*0.75*	*1.00*	*–0.34*
Older people	*0.37*	*1.17*	*–0.89*
Investment	*0.48*	*0.68*	*–0.48*
Exports	*0.20*	*0.11*	*–0.27*
Imports	*0.20*	*0.45*	*–0.13*
Employment rate, % points.	*0.25*	*0.32*	*–0.24*
People of working age, % points	*0.16*	*0.28*	*–0.19*
Older people, % points	*0.09*	*0.04*	*–0.06*
Real wages, % points	*–0.31*	*0.30*	*–0.25*
Real wages after tax, % points	*0.16*	*0.07*	*–0.17*
Labour costs, % points	*–0.02*	*–0.01*	*0.02*
Tax wedge, % points.	*–0.95*	*–2.98*	*1.07*
Consumption tax	*1.00*	*1.00*	*1.00*
Income tax	*–1.88*	*0.00*	*0.00*
Employees' pension contributions	*–0.06*	*–0.67*	*0.07*
Employers' soc. security payments	*0.00*	*–3.31*	*0.00*
Employers' pension contributions	*0.00*	*0.00*	*0.00*

Effects are presented as percentage-point or percentage deviations from the long-term steady state.
The calculations assume a permanent one percentage point rise in consumption tax from the baseline. In the case where income transfers are increased, they are paid to the working-age population.
Source: Bank of Finland calculations.

restructuring is a slow process. The speed of adjustment is affected by price and wage flexibility and the way the real economy reacts to possible 'real rigidities'. The adjustment of the economy to the new equilibrium also depends heavily on how the tax reform is implemented over time. For example, an increase in consumption tax could be simultaneously matched by an easing of taxes on earned income. As an alternative, one could assume that taxation of earned income is changed slowly, with the extra revenue used (in the initial stage) to accumulate general government surpluses. If households behave in a non-Ricardian manner (as in the Aino model), the timing of compensation for the income tax affects the economy's path of adjustment to the new equilibrium.

Table 3 depicts the changes in values of key macroeconomic variables in the first five years after a percentage point increase in the consumption tax. The extra revenue is used to finance a phased reduction in taxes on earned income. Of the dynamic effects, we see first that the consequences of the tax-system change and resulting changes in relative prices for real economic variables are realised in a gradual process even though the hike in the consumption tax immediately raises the relative price of consumption. Consumption in particular reacts moderately at first, and the same is true of the after-tax real wage. Both of these reactions are reflections of the stickiness of nominal wages and the assumption that income tax is lowered slowly. The way consumption reacts is also affected

Table 3.

Dynamic effects of an increase in consumption tax

	Years from a permanent increase in consumption tax			
	1	*2*	*3*	*5*
Output	*0.05*	*0.18*	*0.29*	*0.39*
Consumption	*0.02*	*0.11*	*0.17*	*0.21*
Investment	*0.20*	*0.37*	*0.50*	*0.59*
Exports	*0.00*	*0.04*	*0.10*	*0.22*
Imports	*0.03*	*0.01*	*–0.03*	*–0.02*
Employment rate. % points	*0.03*	*0.13*	*0.19*	*0.24*
Real wages after tax. % points	*–0.03*	*0.07*	*0.10*	*0.11*
Labour costs. % points	*–0.01*	*–0.05*	*–0.07*	*–0.08*
Relative price of consumption	*1.30*	*1.33*	*1.35*	*1.36*
Real exchange rate	*0.02*	*0.11*	*0.21*	*0.27*
Tax wedge. % points	*0.16*	*–0.46*	*–0.67*	*–0.77*
Consumption tax	*1.00*	*1.00*	*1.00*	*1.00*
Income tax	*–0.84*	*–1.46*	*–1.67*	*–1.76*
Employees' pension contributions	*0.00*	*0.00*	*0.00*	*–0.01*

Effects are presented as percentage-point or percentage deviations from the long-term steady state.
The calculations assume a permanent one percentage point rise in consumption tax from the baseline. Households are compensated for the increase in consumption tax with a gradual reduction in income tax.
Source: Bank of Finland calculations.

by consumers' inter-temporal behaviour. Despite the increase in consumer prices, the consumption response is already moderately positive in the first year. This is a reflection of two factors. First, the rise in consumer prices initially accelerates consumer price inflation, thus lowering the real interest rate. In accord with the inter-temporal condition, consumers shift some of tomorrow's consumption to today. Secondly, as consumers look beyond the inter-temporal budget constraint they react to expected changes in the after-tax wage rate, so that the positive initial consumption response is partly due to households' anticipations of lower income taxes. Firms in turn anticipate an increase in demand, which spurs investment. These forward-looking effects cause both output and employment to react at once in a positive manner, despite the initial moderate widening of the tax wedge.

Besides the positive effects on consumption, investment and employment, there are changes in foreign-domestic relative prices. This is a reflection of the change in the real exchange rate, as firms' marginal costs (and labour costs) decline moderately. The decline in marginal costs can be seen in the lower level of producer prices, which shows up as a weakening of the real exchange rate. Exports react very slowly to the change in the real exchange rate, due to the assumed sluggish adjustment of the export sector to the new price equilibrium.

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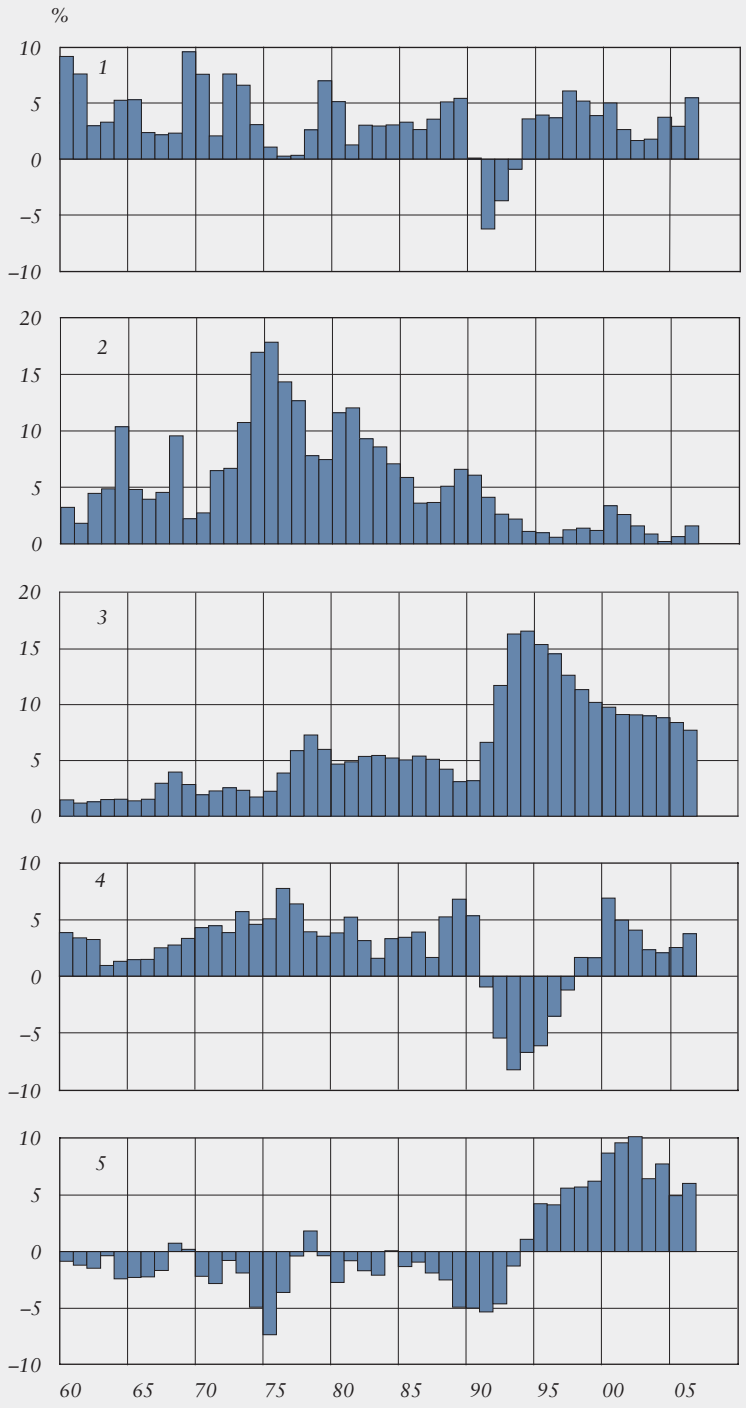
Charts

1. Finland: key economic indicators



GDP, volume change from previous year

Consumer prices, change from previous year

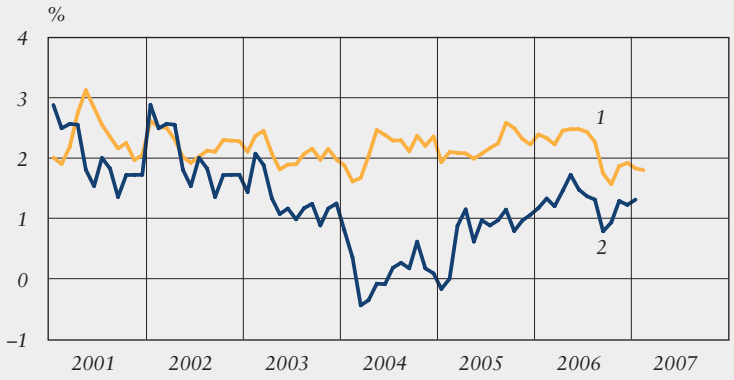
Unemployment rate

General government fiscal position, % of GDP

Current account, % of GDP

Sources: Statistics Finland and Bank of Finland.

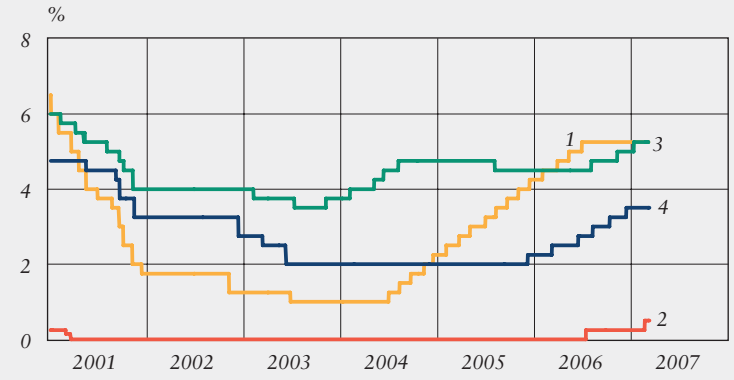
2. Price stability in the euro area and Finland



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

Sources: Eurostat and Statistics Finland.

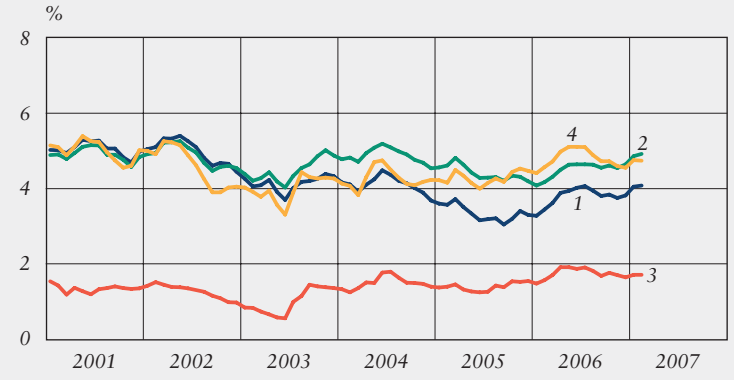
3. Official interest rates



1. *USA: fed funds target rate*
2. *Japan: overnight call rate*
3. *United Kingdom: repo rate*
4. *Eurosystem: minimum bid rate*

Source: Bloomberg.

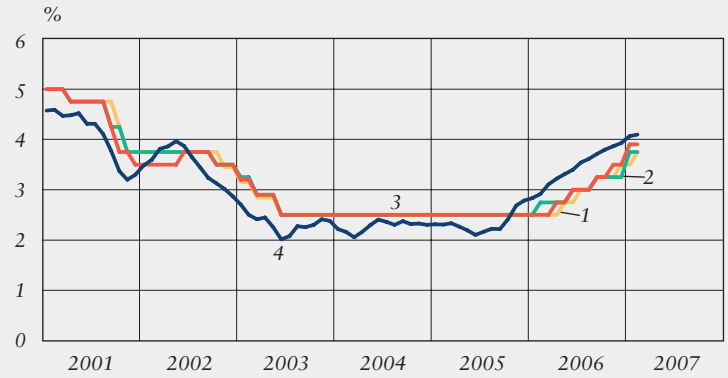
4. International long-term interest rates



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

Source: Reuters.

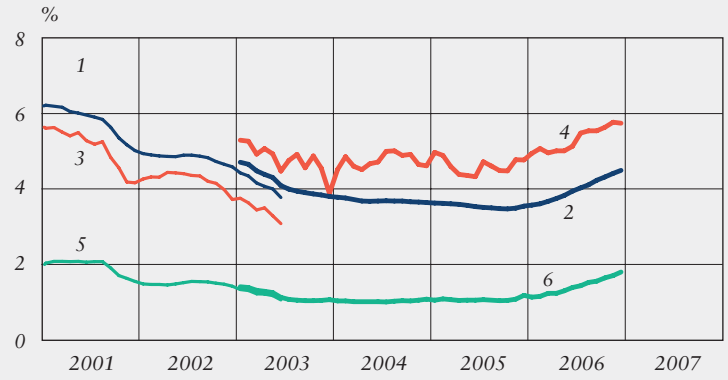
5. Bank reference rates in Finland and 12-month Euribor



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

Sources: Banks and ECB.

6. Average lending and deposit rates

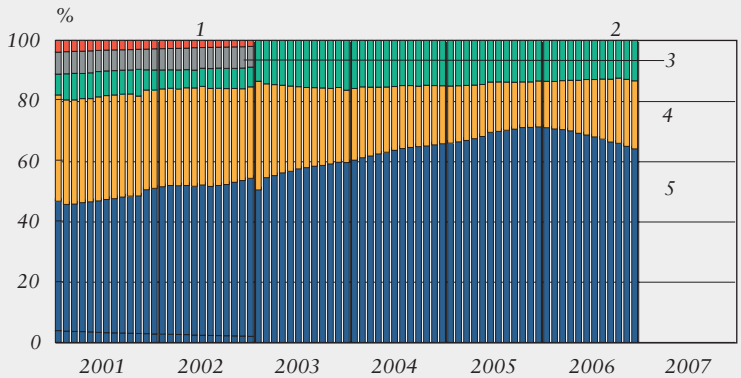


1. *Banks' stock of loans*
2. *MFIs' stock of loans*
3. *Banks' new loans*
4. *MFIs' new loans*
5. *Banks' stock of deposits*
6. *MFIs' stock of deposits*

Source: Bank of Finland.

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

7. Stock of bank lending by interest rate linkage

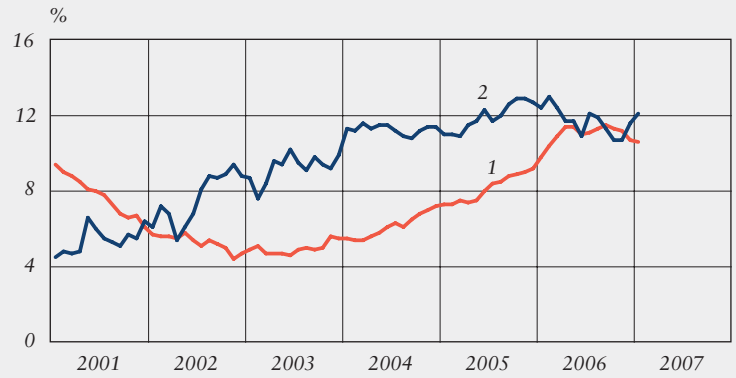


1. *Linked to base rate*
2. *Linked to other rates (as of 2003 includes loans linked to base rate and fixed-rate loans)*
3. *Fixed-rate*
4. *Linked to reference rates of individual banks (prime rates, etc)*
5. *Linked to Euribor*

Source: Bank of Finland.

Data collection changed as of 1 January 2003.

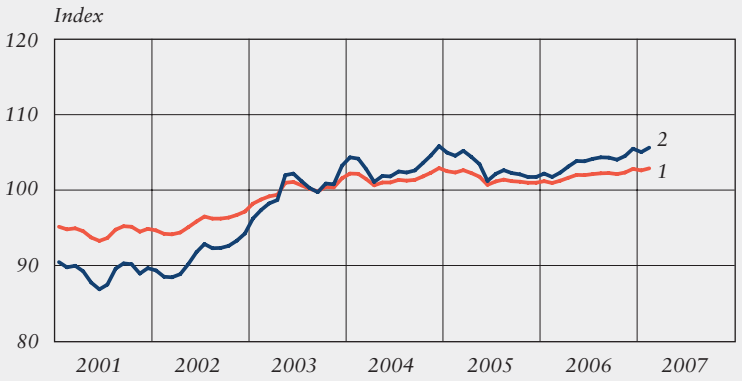
8. MFI loans to private sector



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

Sources: European Central Bank and Bank of Finland.

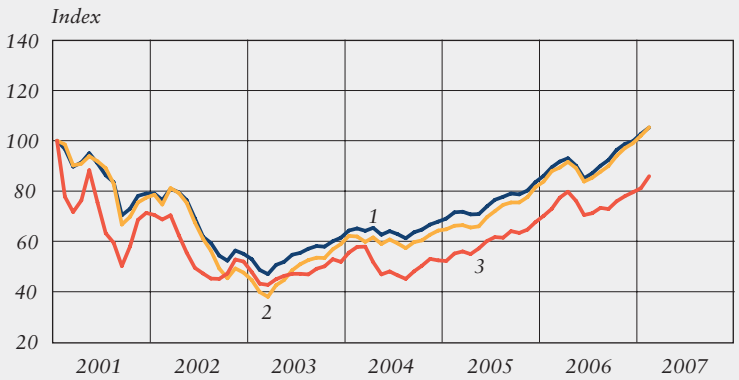
9. Competitiveness indicators for Finland



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

Source: Bank of Finland.

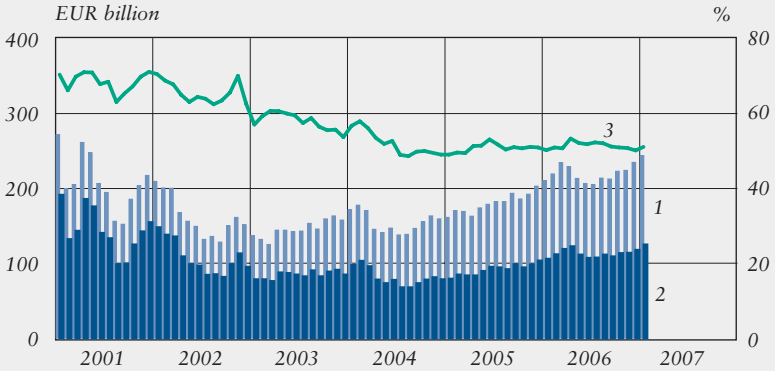
10. Selected stock price indices in the euro area



January 2001 = 100
1. *Total euro area: Dow Jones Euro Stoxx index*
2. *Germany: DAX index*
3. *Finland: OMX Helsinki All-Share Index*

Sources: Bloomberg and Helsinki Stock Exchange.

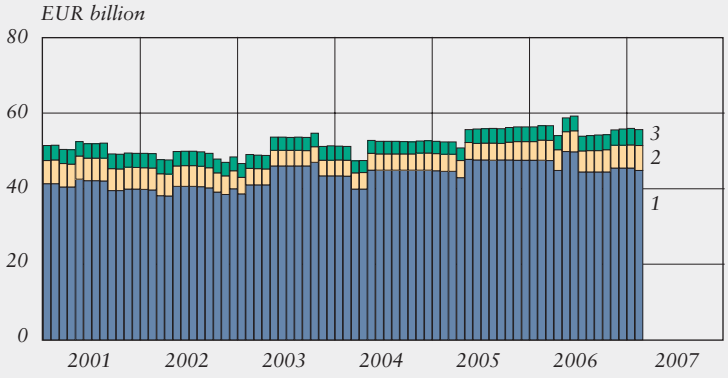
11. Listed shares in Finland: total market capitalisation and non-residents' holdings



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: Helsinki Stock Exchange and Finnish Central Securities Depository (APK).

12. Bonds issued in Finland

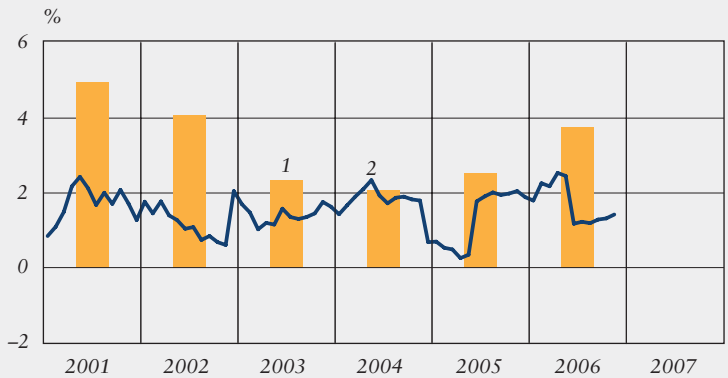


End-month stock

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

Source: Statistics Finland.

13. Public sector balances in Finland

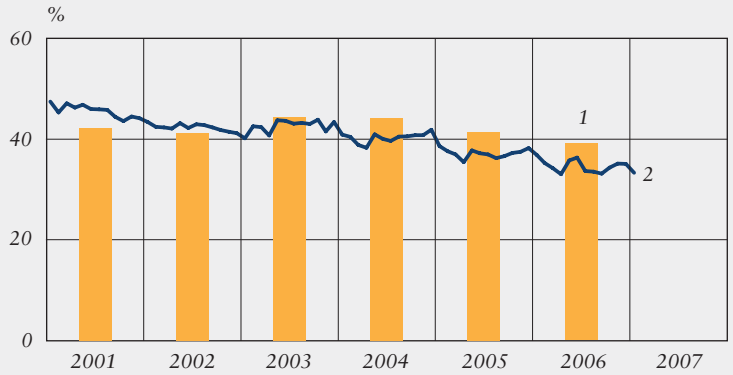


% of GDP

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

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

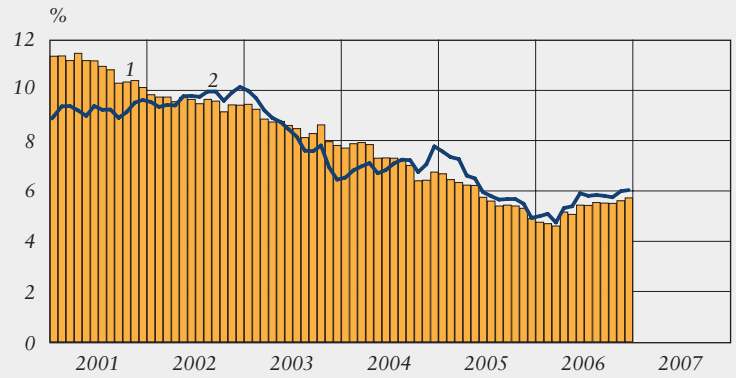
14. Public debt in Finland



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

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

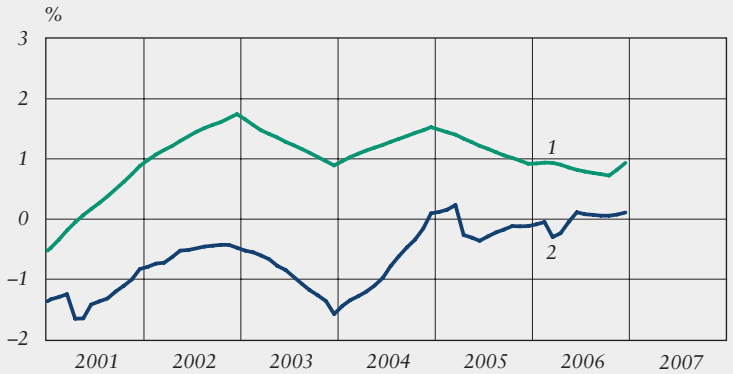
15. Finland: goods account and current account



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

Source: Bank of Finland.

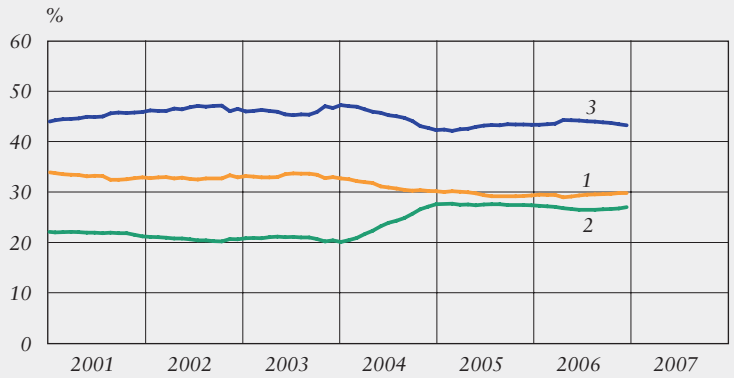
16. Finland: services account and income account



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

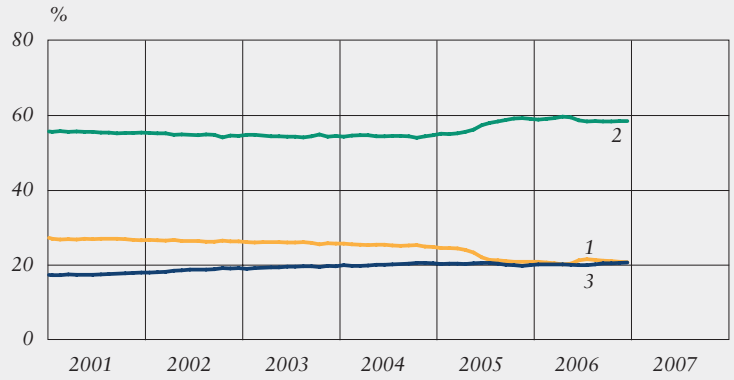
Source: Bank of Finland.

17. Regional distribution of Finnish exports



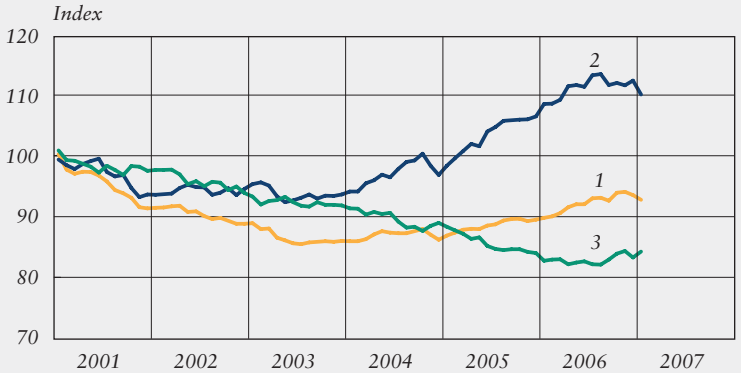
12-month moving totals, percentage of total exports
1. Euro area
2. Other EU member states
3. Rest of world
Sources: National Board of Customs and Statistics Finland.

18. Finnish exports by industry



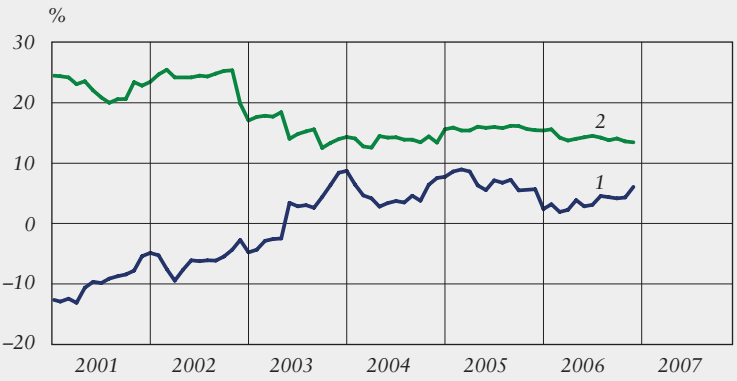
12-month moving totals, percentage of total exports
1. Forest industries
2. Metal and engineering industries (incl. electronics)
3. Other industry
Source: National Board of Customs.

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



2000 = 100
1. Export prices
2. Import prices
3. Terms of trade
Source: Statistics Finland.

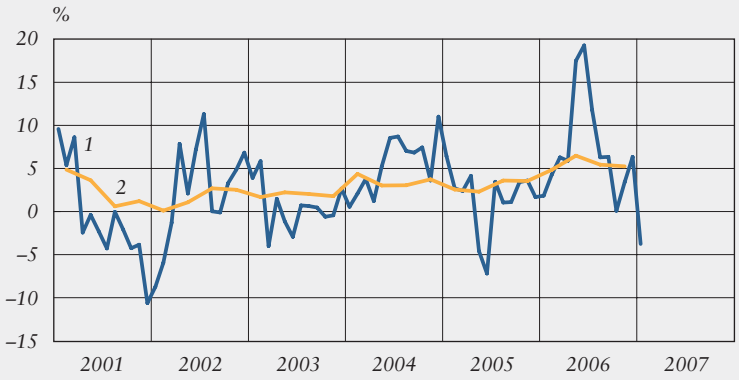
20. Finland's net international investment position



% of GDP
1. *Net international investment position excluding equity items*
2. *Net outward direct investment*

Sources: Bank of Finland and Statistics Finland.

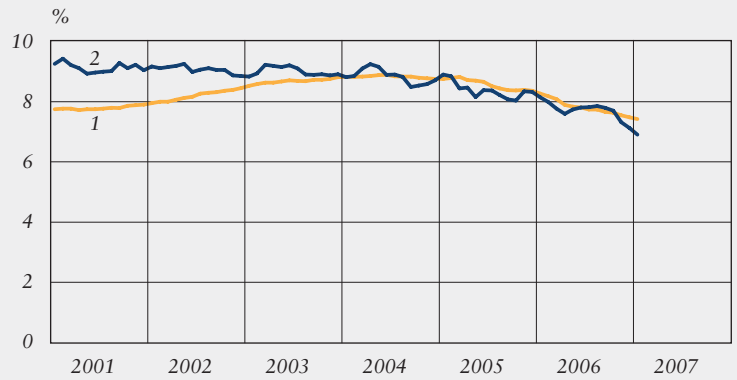
21. Finland: GDP and industrial production



Percentage change from previous year
1. *Industrial production*
2. *Gross domestic product*

Source: Statistics Finland.

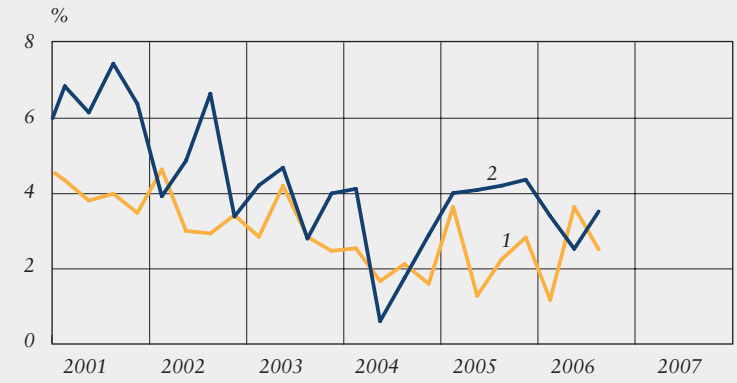
22. Unemployment rate in the euro area and Finland



1. *Euro area*
2. *Finland*

Sources: Eurostat, Statistics Finland and Bank of Finland.
Data seasonally adjusted.

23. Hourly labour costs in the euro area and Finland

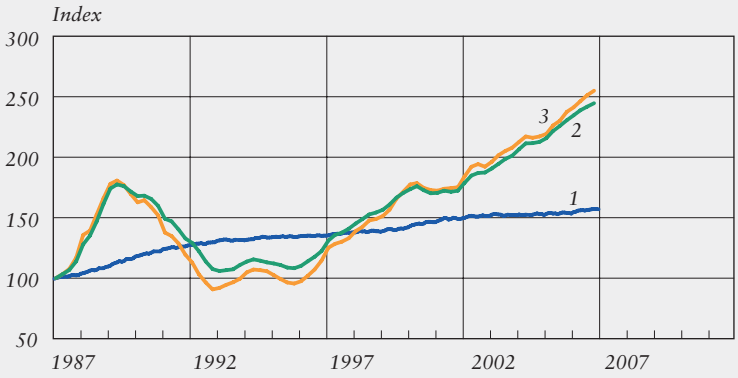


Whole economy excl. agriculture, public administration, education, health and unclassified services.

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

Sources: Eurostat and Statistics Finland.

24. Selected asset prices in Finland



1987 Q1 = 100
1. *Consumer prices*
2. *Housing prices*
3. *Two-room apartments (secondary market; debt-free price per m²)*

Source: Statistics Finland.

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1 February 2007

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