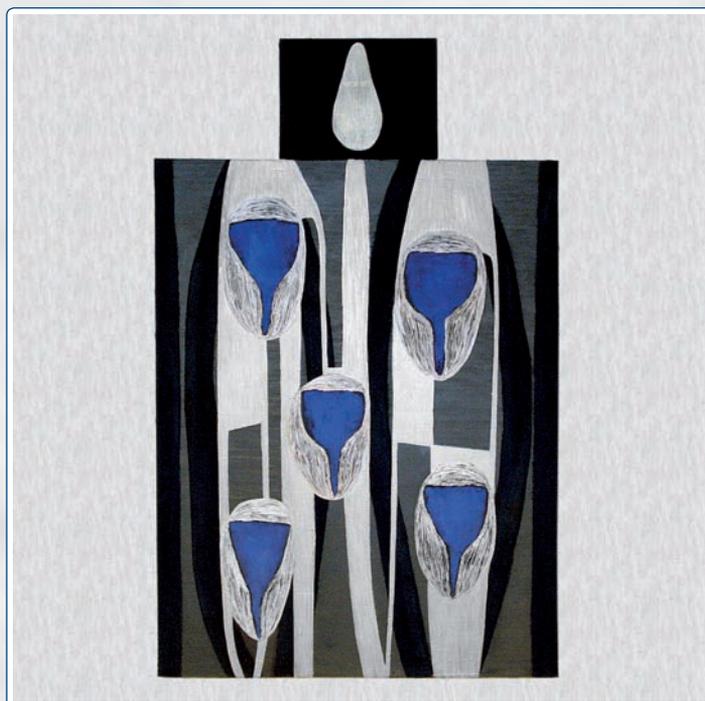


BANK OF FINLAND  
**BULLETIN**

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3 • 2007



Economic outlook



EUROJÄRJESTELMÄ  
EUROSYSTEMET

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The cover portrays the work of  
Marika Mäkelä 'Blue Bowls' (2000).

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# Preface

The world economy continued to perform strongly in the first half of 2007. Economic growth was rapid in the emerging economies and also remained fairly strong in the euro area and Japan. In the United States, however, growth has slowed, partly as a result of the cooling off in the US housing market. There has been a contraction in housing investment, and the rise in house prices has come to a halt. Housing loan payment defaults have increased, particularly in respect of subprime mortgages.

Some of the risks attaching to these loans have ended up being borne by investors around the world via bonds issued by US financial institutions. The rise in loan defaults has caused increased uncertainty on the international financial markets. After recently becoming very narrow, the risk premia between corporate and government bonds have now spread again. This repricing of risk and the uncertainty over who is actually bearing the risk has led to an unprecedented growth in interest rate spreads on the interbank market between secured and unsecured loans. This has in turn stimulated a rise in, for example, Euribor rates, as these are the rates applied to unsecured interbank loans. The increased uncertainty in the financial markets has meant a weakening in overall financing conditions, although this has so far been limited, with, for example, no major changes in share prices.

The outlook for the international economy remains bright. The recent weakening of financing conditions

combined with the slowdown in economic growth in the United States have, however, shifted the outlook in a somewhat less favourable direction. A considerable deterioration in the outlook could lie ahead if the uncertainty in the financial markets were to continue and gather momentum.

The annual pace of rise in euro area consumer prices has remained around 2%. The Governing Council of the European Central Bank continued to raise its policy rate during the first half of 2007, by  $\frac{1}{4}$  of a percentage point in both March and June, the latter rise bringing the rate up to 4%. According to statements by the Governing Council, the rate rises were based on the medium-term upside risks to price stability relating particularly to the possibility of stronger-than-expected wage development. At its meeting on 4 October 2007 the Governing Council held its key rate at 4%. The outlook for price stability over the medium term is still subject to upside risks, and the fundamentals of the euro area economy support a favourable medium-term outlook for economic activity. The recent volatility in the financial markets has, however, increased the downside risks to the outlook for growth in the euro area.

The Finnish economy has continued to grow briskly, but the pace of growth is forecast to slow somewhat over the next few years. In 2007, GDP will still grow 4½% from the previous year, but in 2009 only 2½%. Labour productivity growth is forecast to remain fast for a European economy, but the pace of growth in the number of employed will gradually ease back.

Consumer prices in Finland have risen more slowly in recent years than the average for the euro area. Rises have been limited by the relatively subdued rise in unit labour costs, growth in imports from Asia and increased competition in many sectors of the economy. Inflation has, however, been gathering pace in Finland since last year.

The mild increase in inflation, as measured by the harmonised index of consumer prices (HICP), is almost entirely explained by the reversal during the course of 2006 of the recent rapid drop in the price of telecom services. Inflation as measured by the national consumer price index (CPI) has accelerated to a more rapid pace than HICP inflation. This is due, above all, to a rapid rise in interest rates on housing loans and consumer credit and in house prices, as these are included in the national CPI, but not in the HICP.

The Bank of Finland monitors both CPI and HICP inflation in Finland. Both indexes contain valuable information on consumer prices, and there is no sense in attempting to place them in order of preference. Statistical experts are not entirely agreed on the best way to prepare consumer price indexes. They are used in different situations to provide answers to different types of question, and there is no such thing as the only correct index.

The Governing Council of the ECB has used the euro area HICP in its definition of price stability. This index is formed by combining the data from national HICPs, which do not include interest rates or house prices. The direct incorporation of interest rates in

consumer price indexes is somewhat problematical from a monetary policy perspective. In fact, the central banks of almost all major industrial countries set their monetary policy using a consumer price index that does not directly include data on interest rates.

According to the Bank of Finland forecast, inflation will accelerate in the immediate months ahead. In 2008, both national CPI and HICP inflation is forecast to be a good 2½%, thereafter slowing to around 2% in 2009. The difference in the pace of inflation between the two indexes is forecast to disappear during the course of 2008. The present forecast is based on the assumption that interest rates will develop in line with current market expectations. This means that interest rates on housing loans and consumer credit will remain roughly unchanged over the next few years. Moreover, the expected erosion of the difference between the two price indexes is partly due to an expected gradual deceleration in the pace of house price rises to close to the general pace of rise in consumer prices.

The forecast increase in HICP inflation in 2008 is based on a number of factors. The most significant long-term factor is a forecast acceleration in wages growth. In addition to this, higher indirect taxes on energy and alcoholic beverages will push up prices, as will more expensive world market prices for food raw materials, although the final effect of this on food prices for Finnish consumers will be more subdued. The estimated deceleration in the pace of inflation in 2009 is due mainly to the fact that the increase in indirect taxes

planned for the beginning of 2008 will then no longer be seen in the annual pace of inflation. As well as this, the government has announced a reduction in value-added tax on food in October 2009.

Wages are forecast to rise much more quickly over the next few years. This assessment is based largely on the pay agreements already agreed this year by individual unions. The pay increases negotiated are larger than in previous years. The cost implications of the agreements are front-weighted insofar as earnings are expected to rise faster in 2008 than 2009.

Under the above-mentioned agreements, wages and working hours will be agreed at local level more than in the past. If this happens in practice, it could boost productivity, reduce wage drift and foster a better match between labour supply and demand. Even so, the faster pace of growth in labour costs is forecast to also cause faster growth in unit labour costs, as labour productivity is expected to grow more slowly than labour costs.

The forecast of lower inflation in 2009 represents a favourable view of future developments. It is threatened by the possibility that price rises due to an acceleration in the pace of wage growth and otherwise largely temporary factors could lead to stronger inflation expectations. This could in turn lead companies to raise prices in an effort to sustain their earnings and encourage employees to make higher wage demands. This sort of upward spiral in costs in the domestic economy would erode the international cost-competitiveness of Finnish production and seriously undermine the

possibilities for future growth and improved employment. A worst-case scenario would be a decline in competitiveness at the same time as Finland becomes caught up in a general downswing in the international economy.

The general government surplus relative to GDP is forecast to increase to 4½% in 2007, and to remain above 4% in 2008. In 2009, however, the surplus will begin to contract in the face of rising general government wage costs and a slowing of revenue growth due to tax cuts and slower growth in the working-age population.

According to the government's budget proposal, central government finances will remain in surplus in 2008. This is justifiable, bearing in mind the need to prepare for future pressures caused by population ageing in the years ahead. With regard to controlling future expenditure, it is highly significant that the present government is continuing to apply the system of spending limits. It is vitally important that expenditure continue to remain within the spending limits in the years ahead. Increasing the transparency of the spending limits system would enhance its credibility and make it even more useful than at present. Taking into account future pressures on keeping the public finances in balance, the present government appears to be facing a major challenge in implementing measures to increase the labour supply.

5 October 2007





# Forecast summary

The Finnish economy has continued to perform strongly.<sup>1</sup> The Bank of Finland's latest forecast nevertheless estimates that the most rapid phase of growth is now over and the pace will slow somewhat over the next few years. There are many factors behind the forecast slowdown in growth: an expected slight weakening in the international economy, the rise in interest rates that has already taken place, the retirement of the babyboom generation and the weakening of Finnish producers' cost competitiveness as a result of more rapidly rising labour costs. The outlook for the international economy is still, on the whole, favourable. The possibility that the financial market uncertainty of recent months could continue and grow does, however, pose a threat to the favourable international outlook, and the realisation of this threat would also lead to a stronger-than-forecast deceleration in economic growth in Finland.

Finland's recent strong economic performance has included a brisk improvement in the employment situation. At present, the labour market appears to be tightening, leading to an acceleration in the pace of earnings growth. Partly for this reason, inflation is forecast to be faster in 2008 than the average for recent years. The rise in consumer prices is expected to slow again in 2009. The forecast acceleration in earnings growth raises the threat of an upward costs spiral in the domestic economy. If realised, this would subdue both employment and growth. Rising

costs would have particularly serious consequences if Finland were to simultaneously suffer from a downswing in the international economy.

## Fastest phase of growth is past

GDP volume in Finland has been growing quickly since 2004, and the trend was still fairly strong in the first half of 2007. There are several factors behind this level of growth. The world economy has grown exceptionally quickly, and this has boosted demand for Finnish exports. In addition, the international financing conditions have been relaxed – particularly prior to the recent uncertainty on the financial markets. Recent years have seen a rise in asset values, and interest rates have been low on average, including in the euro area.

The importance of export demand to Finland's recent growth is reflected in the faster pace of growth in value added, particularly in manufacturing. During the last couple of years, the strong performance of the world economy has been driven more than previously by investment, and this has also had an impact on the structure of exports and industrial production in Finland. Exports have grown strongly in mechanical engineering and metal products and manufacture of basic metals. The value of basic metals exports has grown particularly fast, as the growth in international demand has pushed up prices as well as boosting export volumes.

Finnish growth has also gained from stiffer domestic competition in a number of sectors. This is largely a

<sup>1</sup> This publication is based on the statistical data available on 18 September 2007.

consequence of continued integration with the international economy. Increased participation in working life by older people of working age has helped feed growth in employment and, as a consequence of this, in GDP. Part of the reason for this lies in the changes made to the pension system in respect of early retirement pension back in the 1990s. Partly as a result of the improved employment situation, Finnish households have confidence in the future, and this has been reflected in consumption and housing investment.

The recent speed of GDP volume growth does, however, give a somewhat exaggerated picture of the strength of the Finnish economy. The rise in import prices relative to export prices has in fact dampened growth in the purchasing power of Finnish households and companies. As a result of this terms of trade effect, real annual growth in gross national income in 2003–2006 averaged one percentage point less than real growth in GDP. In 2006, the difference was 1.5 percentage points due to the accelerating pace of import price rises, and in the first half of 2007 the annual rise in import prices continued to outstrip the rise in export prices. Although the rise in import prices is forecast to ease somewhat over the next few years, the terms of trade are expected to continue to deteriorate.

Looking ahead to the next few years, Finnish growth is forecast to slow somewhat compared with the recent past. This is based on an estimated slight weakening in the performance of the international economy. Growth will also be subdued by the rise in interest rates

that has already taken place. Moreover, Finland's growth prospects will already begin to be restricted by slower growth in the size of the working age population as the babyboom generation reaches retirement age.

As well as the improved employment picture, Finnish growth in recent years has also featured fairly rapid improvements in labour productivity. Of the EU's 'old' member states, Finland has been one of the fastest for labour productivity growth. According to the forecast, labour productivity growth over the next few years will be assisted by corporate fixed investment, which will grow faster than GDP. Labour productivity is in fact forecast to grow at pretty much the same pace as the average during the present decade so far, ie a good 2% per annum. The forecast deceleration in GDP growth from the level of recent years is not due to the trend in labour productivity, but to slower growth in the number of employed.

### **International economic trends favourable, but greater risk of slower growth**

The world economy has grown exceptionally quickly in recent years, and the available data suggests it continued to grow strongly during the first half of 2007. Growth is currently focused on the emerging and transition economies. The momentum of growth has also continued in Japan and the 'old' member states of the EU. In contrast, growth in the United States has been slowing since the middle of 2006 as housing investment and inventory demand, in particular, have faded. A

key contributor to the slower US growth has been the performance of the housing market. Strong growth in housing construction gave way to a contraction at the beginning of 2006, while the rapid rise in house prices simultaneously came to a halt.

The past couple of months have witnessed a certain amount of uncertainty on the financial markets as the risk premia on many investments have grown considerably since the early summer. This is largely due to the payment defaults on subprime housing loans in the United States. The developments of recent weeks are not entirely surprising given the fact that many risk premia had contracted to an historically low level prior to the events of August and September. This contraction can be at least partly explained by financial system innovations that have made it possible to spread risk to a greater degree than before. At the same time, however, it has become harder to gauge the sort of risks financial institutions and other investors are carrying – including how much they have invested in securitised US subprime housing loans.

The recent uncertainty on the financial markets in the developed economies has been unprecedented to the extent that interest rates on unsecured interbank loans – including Euribor rates – have risen by a considerable amount relative to secured loans, as investors have sought to move over to the most secure investments. This trend reflects the fact that banks do not have a clear idea of the extent of other banks' – and possibly even their own – risks relating, for example, to US housing finance.

Financial markets in the developed economies have no previous experience of this type of uncertainty, and this makes it harder to assess what sort of impact it will have on the wider economy. The Bank of Finland forecast assumes that financial intermediation within the banking system will return to normal over the next few months. If this is the case, the international economic outlook remains on the whole favourable. Even so, the recent weaker overall financial conditions and increased economic uncertainty is expected to subdue growth in a number of countries over the next quarters.

The general economic outlook is bolstered by the fact that, despite the uncertainty on the interbank markets, international share indices have fallen only slightly and the interest on, for example, loans issued to emerging economies has not risen significantly. The recent uncertainty impacts on the Finnish economy both indirectly via export demand and directly via the higher cost of finance, as the reference rates applied, for example, to many Finnish households' housing loans have risen.

The possibility that the financial market uncertainty could continue and gather momentum represents a threat to the present favourable trend in the international economy, and thus constitutes a significant forecast risk. Another risk to the forecast is if the recent deceleration in US growth were to continue more strongly than forecast. Forecasters have for many years considered the current account imbalances around the world to constitute the main threat to the international economy. The

attendant risks can now be seen to have partly materialised with the weakening of US domestic demand and the fall in the value of the dollar. Even so, the US current account deficit remains very large.

#### **Russia planning to increase export duties on roundwood**

The future development of the Finnish economy's international environment also faces another significant factor of uncertainty, namely Russia's plans to increase its export duties on roundwood. Of the planned increases, the forecast assumes there will still be a smallish increase implemented in April 2008. The larger increases planned for early 2009 and thereafter are not assumed to be implemented. If only the assumed increase is in fact implemented, the macroeconomic impact on Finland will be very small.

If, however, the larger increases that are planned for later are actually implemented, roundwood imports from Russia will decrease dramatically and will perhaps even cease altogether. At present, approximately 20% of the Finnish forest industry's roundwood requirements are met by imports from Russia. It is hard to assess how much of this the industry could, if necessary, replace by increases in domestic procurement and imports from elsewhere.

If we assume it would be possible to replace half the lost imports, forest industry output in Finland would be about 10% lower than the forecast baseline. Besides the forest industry, the effects would also be felt in related sectors such as the chemical industry

and transport, and a fair assessment would be that the full increase in duties would reduce Finnish GDP over the next few years by around ½% relative to the forecast baseline. The capital-intensive nature of the forest industry means the employment impact would be smaller in relative terms, although it would still amount to around 8,000 jobs across the economy as a whole. The effects would be seen fairly quickly, to a large degree already in 2009 and 2010.

#### **Slowing growth in consumption and housing investment**

Private consumption and housing investment have grown rapidly in recent years, with household confidence in the future remaining strong, low interest rates and rising share and house prices boosting the value of household wealth. Growth in real household income eased back in 2005–2006, despite support from the improved employment situation. Some of the factors slowing income growth were temporary, such as the change to the taxation of dividend income implemented in 2005, which stimulated the early payment of dividend income before the end of 2004. Growth in real household income has, however, also been subdued by an acceleration in the pace of inflation, which is forecast to restrict income development in 2007 and 2008 as well. The sluggishness of income growth relative to consumption growth meant the household savings ratio in 2006 was negative.

Household debt has continued to climb steeply, but relative to disposable

income it is still less than in Sweden or Denmark, for example. As long as the present favourable economic outlook and moderate interest rates continue, the growing indebtedness is not expected to pose the threat of considerably slower household demand. The present debt is, however, concentrated on a fairly small group of households with housing loans, and it will inevitably restrict their economic behaviour. Moreover, the average net wealth of Finnish households is weak in international comparison, as their financial assets are relatively moderate. Average household wealth in Finland remains small relative to other 'old' EU member states even when real wealth and the public funds accumulated towards future pensions are included in the equation.

According to quarterly accounts data, growth in private consumption and housing investment has slowed somewhat since the middle of 2006. Over the same period growth in the housing loan stock and the increase in housing prices have eased slightly. This is partly a consequence of the moderate rise in interest rates. Housing investment growth has also been increasingly restricted by supply-side factors such as labour shortages in the construction industry, growth in material and other costs plus a shortage of available building land.

Over the next few years, private consumption and particularly housing investment are forecast to grow more slowly than the average for recent years; this is due partly to the somewhat higher level of interest rates. Growth in the value of consumption will remain fairly robust,

although volume growth will be subdued somewhat by slightly faster growth in consumer prices. The household savings ratio will remain negative. Indicator data, such as the number of building permits issued, indicate continued sluggish growth in housing construction in the immediate months ahead, and the forecast for housing investment growth is that it will come virtually to a standstill in 2008–2009.

#### **Faster growth in fixed non-residential investment**

Corporate earnings development in Finland remains positive. Despite the strength of economic growth, however, 2006 saw hardly any increase from the previous year in corporate profitability, defined in terms of operating surplus relative to net capital stock or output, as recorded in national accounts statistics. One contributory factor is the rise in import prices, which has meant higher costs.

During the past two years, private non-residential investment – ie private fixed investment excluding housing investment – has grown faster than in 2002–2004, when it scarcely grew at all. Non-residential investment relative to GDP has also grown, and continued to do so in the first half of 2007. Even so, it still remains below the average figure for the last 25 years.

The outlook for growth in non-residential investment is fairly bright. The recent growth in manufacturing output has led to an increase in the capacity utilisation rate and demand for investment, as the outlook for future demand has also remained bright.

Survey data indicates that manufacturing companies are planning a considerable expansion in investment during the current year. In addition to purchasing new machinery and equipment, companies are also planning to invest in construction, and indicator data suggests accelerating growth in construction investment during the next few months. Finnish companies have in recent years strengthened their financial structures, and the rise in interest rates that has already taken place as well as the recent uncertainty on the financial markets is not expected to have much of an impact on corporate investment or other business activities.

Non-residential investment is forecast to grow at an annual rate of around 7–8% in 2007 and 2008, ie approximately as fast as in 2005 and 2006. The pace of growth is expected to ease in 2009, but still to remain faster than growth in GDP. In 2008 and 2009, investment will be boosted by the ongoing construction of the Olkiluoto nuclear plant and aircraft purchases by the air transport sector.

### **Strong export growth will ease slightly**

Finnish exports have been growing rapidly since 2004. Finland's export markets – ie average import growth in countries importing from Finland, weighted according to their share of Finnish exports – have in recent years grown faster than world trade, which itself has expanded strongly. As well as growth in the export markets, Finland's export performance has been boosted recently by strong investment demand

worldwide, which has particularly helped exports by the traditional metal and engineering industries.

Export growth in the immediate years ahead is forecast to slow somewhat in response to slightly more subdued growth in export markets. We expect the recent uncertainty on the financial markets and surrounding the future performance of the international economy to have some small impact on export demand during the course of the next year, although our assumption is that the situation on the financial markets will return to normal in the next few months.

Import volumes grew fairly rapidly in 2005 and 2006, but somewhat surprisingly fell back again in the first half of 2007, according to quarterly accounts data. This is partly explained by the sluggishness of car imports, with households presumably awaiting government decisions on motoring-related taxation. Import growth is forecast to take off again fairly soon, and in the next few years import volumes are expected to increase slightly faster than export volumes. The contribution of net exports to GDP growth is forecast to be very small in 2008 and 2009. The goods and current account surpluses are forecast to start contracting again over the next few years, a trend that will be reinforced by continued deterioration in the terms of trade.

### **General government surplus still growing this year**

Largely due to the strength of economic growth, the general government fiscal surplus grew in 2006 to approximately

3½% of GDP. The GDP ratio of the surplus is forecast to grow by around a further one percentage point in the current year, with the continued good performance of the economy stimulating growth in the central government fiscal surplus and helping wipe out local government deficits. Despite the proposed tax cuts, the aftermath of the economic upswing will carry through to 2008 and sustain the central government fiscal surplus at over 4% of GDP. At the same time, growth in employee compensation paid by general government will accelerate as public sector pay rises and the number of employees grows. In 2009, slower growth in tax bases, tax cuts and continued rapid growth in expenditure will cause a decline in the general government fiscal surplus. Gross general government debt is forecast to continue to contract, reaching 32½% of GDP in 2009, against the 2006 figure of 39.2%.

### Slower growth in number of employed

The employment situation has improved substantially since the beginning of 2005 and continued to do so in the first half of 2007, when the number of employed was a good 50,000 higher than a year earlier. Employment growth has been helped by the strength of demand for labour. It has also been facilitated by a higher rate of labour market participation by older people of working age, and this was still the case in the first half of 2007. In general, labour supply has recently responded surprisingly strongly

to increased demand, and the unemployment rate has fallen rapidly, while the participation rate has, for its part, risen rapidly. In the first half of 2007, employment growth was especially marked in construction, hotel and restaurant services and business services, the latter category including rented labour used by different sectors.

Strong labour demand combined with the problems of labour market mismatch have meant the shortage of skilled labour has continued. Business surveys indicate this is particularly severe in construction, but in the first half of 2007 the situation also deteriorated elsewhere, particularly in services and manufacturing. Some sectors have eased their labour shortage by recruiting more workers from abroad. The Confederation of Finnish Construction Industries' latest survey indicates that just under 10% of employees in the construction industry are foreigners.

Annual growth in the number of employed is forecast to be still around 2% this year, but to slow substantially in the immediate years ahead. The unemployment rate will continue to fall at a reasonable pace during the forecast period, reaching 6.2% in 2009. Growth in the number of employed will be limited by a gradual slowing in the rate of growth in working-age population plus the problems of mismatch that are still plaguing the labour market. Finland has both plenty of vacant jobs and lots of unemployed people, but geographical, educational and other factors mean they do not meet in an optimal way. The problems of mismatch are exacerbated by a lack of available

building land in growth centres, which restricts housing construction.

### **Faster earnings growth**

Wages in Finland have risen much faster than the euro area average during the present decade. On the other hand, labour productivity has also grown quickly in Finland, and this has sustained the international cost competitiveness of domestic production. The labour market has now tightened to such an extent that the pace of wage rises is beginning to accelerate. Individual unions are currently engaged in negotiations with employers at industry level. The agreements reached so far give cause to assume an acceleration in wage growth compared with recent years, when wage development was guided by comprehensive collective agreements.

Under the agreements that have already been made, terms of employment are to be agreed more locally than in the past, with regard to both pay and working hours. If implemented, flexible terms agreed locally could improve productivity and foster a better match between labour supply and demand. The pace of wage drift will slow slightly as local flexibilities become more integrated into negotiated wage rates. Accelerating growth in labour costs is nevertheless forecast to also lead to a faster rise in unit labour costs, as labour productivity is expected to grow more slowly than labour costs.

The most important agreements already concluded are long-term, and their cost effects will fall mainly in the

early period of the agreement. Based on this, the index of wage and salary earnings is forecast to rise much faster in 2008, thereafter slowing again in 2009. Growth in compensation per employee is also forecast to accelerate in 2008. In 2009, it is forecast to slow more than the rise in the index of wage and salary earnings, as employee compensation includes overtime pay and bonuses, whose growth is forecast to moderate in 2009 as the economic cycle turns down.

### **Temporary acceleration in inflation**

Finnish inflation has been running at a low level in recent years – well below the euro area average. The sustained moderate rate of consumer price rises has been helped by the relatively subdued trend in unit labour costs, the strengthening of the external value of the euro, growth in imports from Asia and increased competition, for example in retailing. Consumer prices have risen in recent years particularly because of higher fuel prices due to the increase in the world market price of oil.

During the past two years the pace of price rises has picked up slightly. The slight acceleration of the rise in the harmonised index of consumer prices (HICP) is largely due to the long-sustained fall in telecom service prices bottoming out and their prices beginning to climb again during the course of 2006. Moreover, the pace of rise in the HICP has fluctuated due to both energy prices and the prices of unprocessed foods. The rise in the national consumer price index (CPI) has accelerated much more than the rise

in the HICP. This is largely a consequence of the fact that, unlike the HICP, the national CPI includes house prices plus interest payments on housing loans and consumer credit, all of which have risen noticeably.

The slight acceleration in inflation that has occurred so far does not suggest a general overheating of the economy or a permanent strengthening of cost pressures. Even so, the forecast is for a slightly faster pace of inflation in the next few years largely due to the expected increase in the pace of wage rises. In addition, it is estimated that the increases in taxes on energy and alcoholic beverages proposed by the government will push up consumer prices at the beginning of 2008 by around 0.4%. Naturally, the inflationary impact of these tax decisions will be temporary. Moreover, the reduction in value-added tax on food planned for the end of 2009 will have a downward impact on consumer prices at that time of an estimated 0.6%. The rise in the price of food raw materials is not expected to have much effect on Finnish consumer prices. All in all, HICP inflation is forecast to accelerate from this year's 1.7% to approximately 2½% next year, and to slow thereafter to around 2% in 2009. The difference between national CPI inflation and HICP inflation that has emerged recently will more or less disappear during the course of 2008 if interest rates develop in line with current market expectations and the rise in house prices slows as forecast. The national CPI is thus forecast to rise a good 2½% in 2008 and around 2% in 2009.

The forecast paints a fairly bright picture of the coming trend in consumer prices – inflation, which is expected to accelerate slightly in the next few months, will, according to the forecast, slow again already in the second half of 2008. Nevertheless, there is a threat the actual trend could be worse than forecast, as there is now a risk of stronger inflation expectations. If this risk is actualised, expectations of accelerating inflation could be self-fulfilling via an accelerating pace of wage rises and other domestic cost developments.

Such an upward spiral in costs would begin to gradually undermine the cost-competitiveness of Finnish production, translating within a few years into a loss of export market share that could not be recovered without steps to control rising costs in the years ahead.

It is worth noting that, although inflation is likely to gather pace in the immediate months ahead, in the absence of faster wages growth the acceleration would be relatively moderate and for the most part short-lived. Besides an acceleration in the pace of wages growth there is no current sign of any other factors that could cause a significant and more sustained increase in the pace of inflation. The recent rise in interest rates will reduce inflationary pressures, as will the slight strengthening in the external value of the euro. The impact on consumer prices of the planned changes in indirect taxation will, on the whole, tend to lower prices by the end of the forecast period. Strongly fluctuating fuel prices could in the future cause a surprise in either direction.

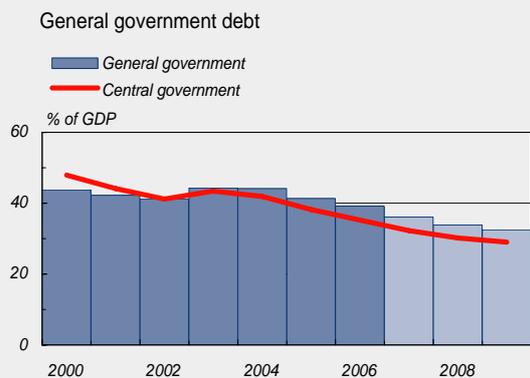
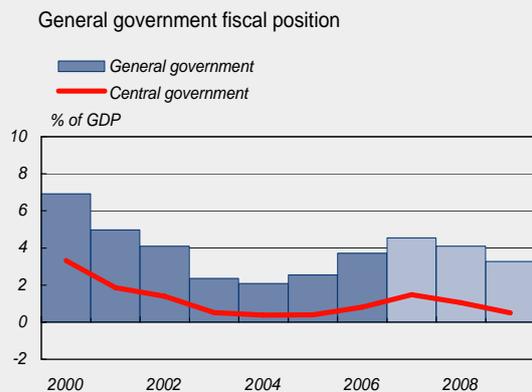
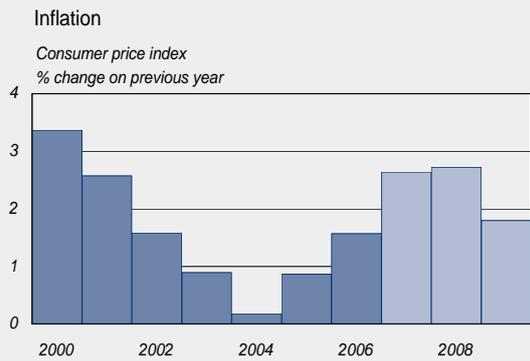
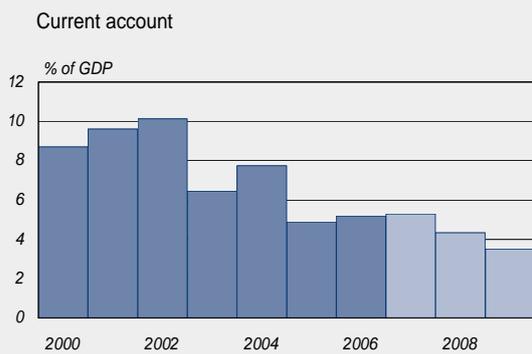
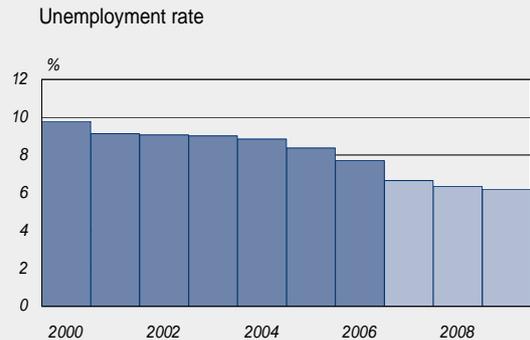
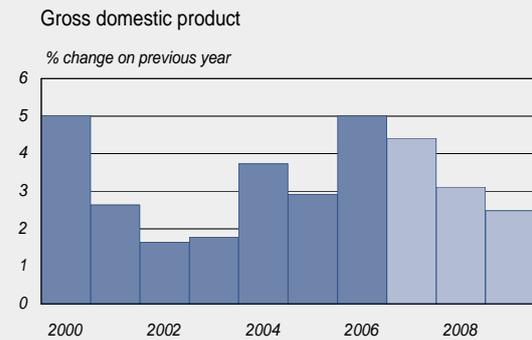
Table 1.

<b>Forecast summary</b>					
<i>Supply and demand</i>					
	2005	2006	2007 <sup>f</sup>	2008 <sup>f</sup>	2009 <sup>f</sup>
<i>Volume, % change on previous year</i>					
Gross domestic product	2.9	5.0	4.4	3.1	2.5
Imports	12.2	8.3	3.6	6.2	5.6
Exports	7.1	10.4	7.0	5.8	5.5
Private consumption	3.8	4.3	2.9	2.5	2.5
Public consumption	1.7	1.0	1.3	2.3	2.0
Private fixed investment	6.4	5.6	5.7	5.4	2.8
Public investment	-10.7	-5.3	2.8	6.1	2.3
<i>Key economic indicators</i>					
	2005	2006	2007 <sup>f</sup>	2008 <sup>f</sup>	2009 <sup>f</sup>
<i>% change on previous year</i>					
Harmonised index of consumer prices	0.8	1.3	1.7	2.6	2.0
Consumer price index	0.9	1.6	2.6	2.7	1.8
Wage and salary earnings	3.9	3.0	3.3	5.0	4.2
Labour compensation per employee	3.8	2.8	3.5	4.7	3.9
Productivity per person employed	1.4	3.2	2.5	2.2	2.1
Unit labour costs	2.4	-0.4	1.1	2.4	1.7
Number of employed	1.5	1.8	1.9	0.9	0.4
Employment rate, 15–64 year-olds, %	68.0	68.9	69.8	70.3	70.4
Unemployment rate, %	8.4	7.7	6.6	6.4	6.2
Export prices of goods and services	0.9	2.5	1.0	0.2	-0.4
Terms of trade (goods and services)	-3.5	-3.7	-2.9	-2.1	-1.9
<i>% of GDP, National Accounts</i>					
Tax ratio	43.9	43.3	43.5	43.5	43.2
General government net lending	2.5	3.7	4.5	4.1	3.3
General government debt	41.4	39.2	36.1	33.8	32.5
Balance on goods and services	5.6	5.2	5.5	4.5	3.7
Current account balance	4.9	5.2	5.3	4.3	3.5

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

Chart 1.

Key economic indicators



Sources: Statistics Finland and Bank of Finland.



# Financial markets

Uncertainty on the international financial markets triggered by problems in the US housing market gained strength in summer 2007 and was also reflected on financial markets in the euro area. Short-term Euribor rates rose as risk premia on non-collateralised interbank loans increased. However, financial market uncertainty in the euro area remained in check, and financing conditions for companies and households did not weaken to any significant degree. These developments have been supported by the continued strong growth of the world economy.

## Interest rates

The Governing Council of the European Central bank continued to raise its policy rate in the first half of 2007, by  $\frac{1}{4}$  of a percentage point in both March and June, the latter rise bringing the rate up to 4% (Chart 2). In its statements given in connection with the rate hike decisions, the Governing Council stated that the decisions were based on upside risks to price stability over the medium term, and that these risks were related particularly to the possibility of stronger-than-expected wage developments.

The financial market uncertainty that began in the United States and spread globally worsened at the beginning of August when risk premia paid by banks on non-collateralised loans increased in a number of countries. As a consequence, Euribor rates rose as well. In August, the 3-month Euribor rose by about  $\frac{1}{2}$  of a percentage point while the 6-month and 12-month rates rose less than this. This means the reference rates of many Finnish banks

rose substantially without any tightening of monetary policy.

However, interest rate developments were not consistent even within national markets. The interest rates on government bonds, particularly US bonds, decreased generally as risk-averse investment flows concentrated on these safer investments. Interest rates on collateralised interbank loans did not rise in Europe either, even decreasing in part – in contrast to interest rates on non-collateralised loans, such as the Euribor rates.

Chart 2.

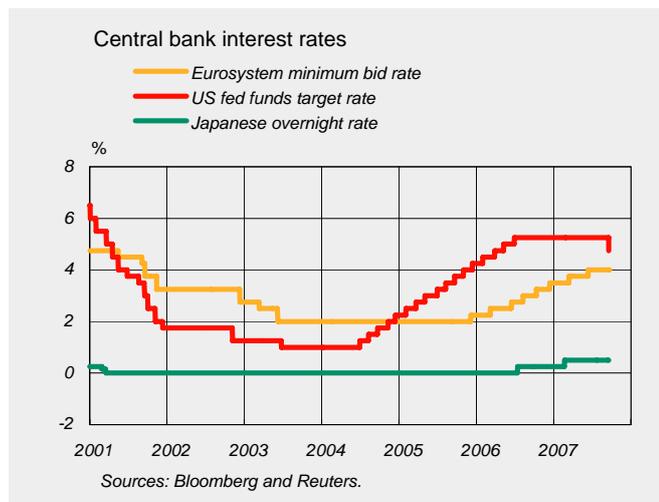
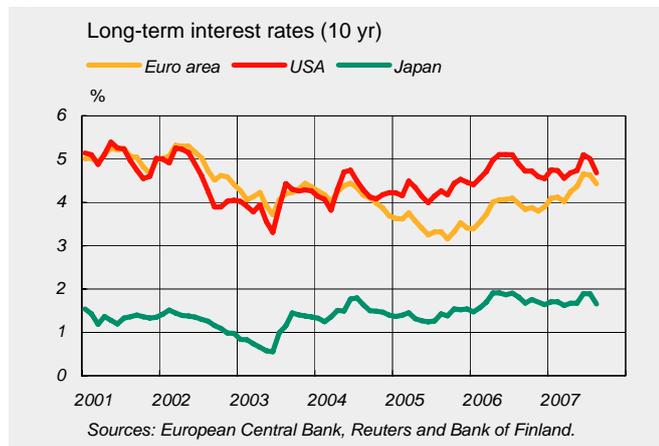


Chart 3.



In the United States, the financial market problems also depressed expectations over money market rates, and in September the Federal Reserve cut its policy rate by ½ of a percentage point to 4.75%. However, solid economic growth and inflationary pressures have recently caused many central banks to increase their interest rates. In September, the Riksbank raised the policy rate in Sweden to 3.75% and the Norwegian central bank raised its policy rate to 5%.

Chart 4.

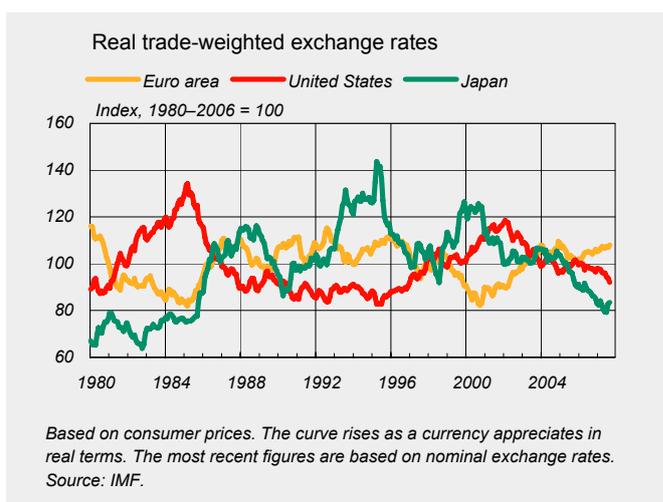
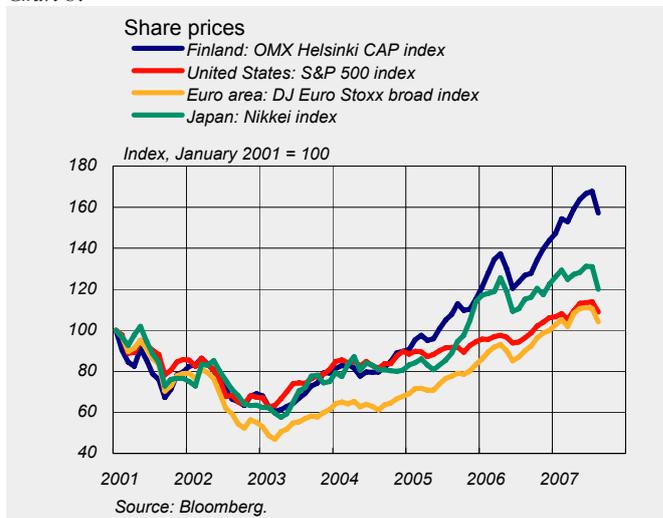


Chart 5.



## Exchange rates

Despite the financial market uncertainty, there were no substantial changes in major exchange rates during 2007. Measured by the trade-weighted real exchange rate index, the external value of the euro in August 2007 was, depending on the index used, 1–2% stronger than in January 2007 (Chart 4). During the last four years, the effective exchange rate of the euro has remained almost unchanged in both nominal and real terms.

Between January and August 2007 the euro appreciated against the dollar. Relative to the Japanese yen, the euro made gains in the early part of the year but fell back over the summer in relation to both the yen and some European currencies, such as the Norwegian krona, which has been on an upward path by the high oil price and the strength of the Norwegian economy.

The US dollar has faced cross-pressures. Problems on the financial markets and weakening economic prospects have put downward pressures on the currency, while, in contrast, risk-averse finance has, as usual, been channelled strongly into US government paper. The external value of the dollar fluctuated in August, and in mid-September it was somewhat weaker than at the beginning of the summer as measured by the trade-weighted exchange rate index.

## Stock markets

Prices on the international stock markets continued to rise in the first half of 2007, but between July and

September share prices in the developed economies declined amid financial market uncertainty; the decline was generally in the order of about 10%. Although the uncertainty emanated from the United States, US share prices declined less than in Europe and Japan.

The share price decline was focused on financial institutions. Declines were limited in other sectors, reflecting the generally strong growth of the world economy. Even after the recent declines, the major stock indices are still much higher than a year ago.

In Finland, too, share prices turned downwards in July–August, but not steeply. Banking shares had already declined somewhat in the first half of the year, but the international uncertainty did not have any material impact on them. In contrast, forest and some metal industry shares declined due to weakened economic prospects in the United States.

### Housing prices

Housing prices in Finland have risen fairly steadily since 2002, at an annual rate of a good 6–7% (Chart 6). The rate of increase has slowed somewhat since the beginning of 2006, although in the second quarter of this year prices were still 6.1% up on the same period last year.

According to Statistics Finland, household perceptions of whether it is a good time to borrow have weakened in step with the rise in short-term market rates. Growth in the housing loan stock has in fact slowed somewhat (Chart 7). Even so, in August 2007, the loan stock was still 13% up on the previous year.

Housing prices generally react fairly sensitively to fluctuations in interest rates. The recent uncertainty on the international financial markets has increased the Euribor rates on non-collateralised interbank loans in the euro area. This affects the interest rates on the housing loans of Finnish households, since the Euribor rates are quite commonly used as their reference rates. According to the forecast assumptions based on market expectations, short-term interest rates will in

Chart 6.

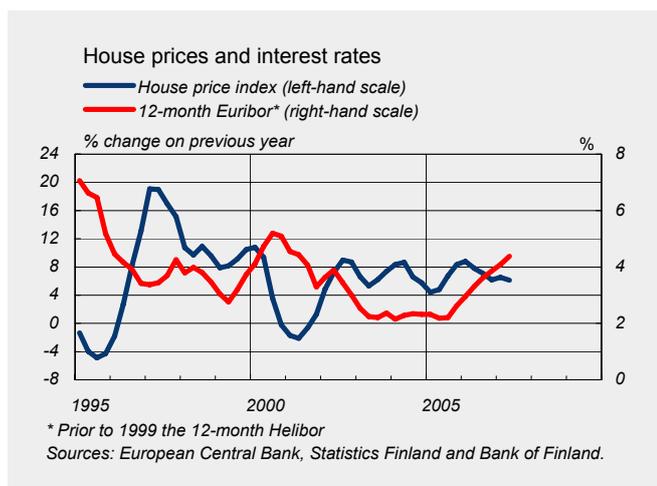
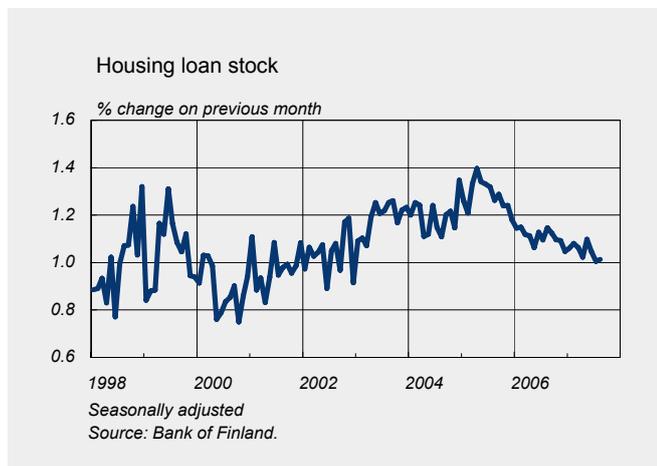


Chart 7.



the next few years be higher than in recent years on average, and the growth rate of housing prices is forecast to slow further, from about 6% this year to around 2–3% in 2008–2009. A further rise in house prices is nevertheless suggested by continued favourable development of household income and employment.

### Financial position of households and companies

#### Monetary financial institutions

In Finland, banking operations have expanded rapidly during the present decade, and banks' share in the provision of finance to households and companies has increased. In recent years, loan growth has maintained a rapid growth rate of about 11–13%. Household loan growth has been quicker than average, and even the most recent figures are still in the neighbourhood of 12–13%. Drawdowns of corporate loans have increased in recent years.

Loan growth has moderated somewhat, but not much considering the rise in interest rates. Whereas the interest rate on new housing loans in 2005 averaged 3%, in summer 2007 it was already in the vicinity of 4¾%. Even so, even this is low from a historical perspective. The interest rate on new collateralised consumer credit stood at 5½%, and the rate on new corporate loans was approaching 5¼%.

Deposits from the public grew last year about 5%, ie significantly more slowly than loans. Fixed-term deposits increased more than average due to the

rising interest rates. Investments in money market funds, counted as MFIs in the statistics, increased by over a third. The rapid growth in mutual fund investments has continued this year. Interest rates on deposits have been extremely low for an extended period, on average barely even equalling the increase in consumer prices. The average interest rate on deposits has doubled over the last couple of years and now stands at a good 2%.

MFIs finance some of their lending with debt instruments issued in the markets or with their own equity. These items have grown rapidly in recent years, with equity gaining from MFIs' good profitability. Finnish banks are mainly in foreign ownership, which is presumably why their foreign assets and liabilities vary greatly, depending on their financing needs. Banks operating in Finland are in good shape, and the uncertainty prevailing on the international markets does not have a material impact on their lending capacity.

#### Corporate finance

Corporate earnings development in Finland, as elsewhere, has continued to be fairly positive. Even after generous dividend payments, non-distributed profits as a proportion of gross national income increased in 2006 by a good percentage point to 17.5%. This year, the solid profitability looks set to continue.

Real corporate investment has picked up somewhat in recent years, although the investment rate is low in comparison with before the recession. A

good three quarters of companies' internal financing was used last year to finance real investment in Finland, and the remainder to enhance corporate financial structures. Similar developments have continued this year. The strengthening of financial structures has been reflected in a slowdown in debt growth and an increase in financial investment. In particular, drawdowns of foreign loans have been limited recently, while the use of credit from domestic pension insurance institutions has also been modest. Growth in corporate loans granted by MFIs nevertheless continued at a rate of 9% in 2006. The increased financial investments were allocated extensively to different vehicles. Liquidity in the form of bank deposits increased last year by 9%.

Companies' long-term financial surpluses have formed a solid foundation for corporate growth. Financial factors are not limiting operations to any significant degree. According to the financing survey of industrial and service companies, for example, the availability of external corporate finance has been excellent for several years.

### Household finance

While the corporate share of national income rose, households' share correspondingly contracted by a percentage point in 2006. While the value of gross national income increased by 6.5%, growth in households' gross disposable income was only a good 3%.<sup>1</sup> Households received only a little over half of gross national income, while the public

<sup>1</sup> See also Box 7: 'Recent years' growth in real household income'.

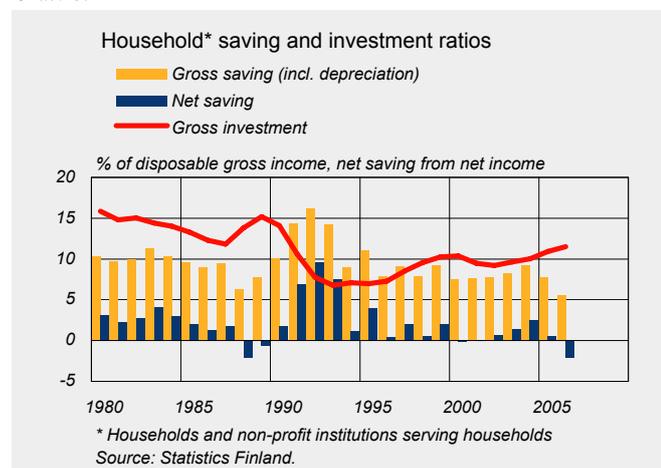
sector (incl. savings in employment pension funds) and corporate sector shares of GNI are relatively high in Finland in international comparison.

In order to achieve a 5.6% increase in the value of consumption last year, households were forced to considerably reduce their saving ratio. The gross saving ratio came down a couple of percentage points to just under 6% (Chart 8).

Households' net saving ratio actually moved a couple of percentage points onto the negative side, meaning that some consumption and capital depreciation was covered by an increase in net borrowing. This reduced net household wealth, but this loss was amply compensated by increases in the value of housing and securities assets. The saving ratio has not yet recovered to any notable degree this year.

Over half of household investment last year was financed by net borrowing. Households' deposits were only slightly up, but this year deposits have picked up. The increase in mutual

Chart 8.



fund investment has continued to be rapid. The value of investments was increased by a rapid rise in the price of securities. Despite the rapid growth in household debt in recent years, Finnish households are not yet particularly heavily indebted in international comparison, although recent developments do include some risks. Debt is largely concentrated in a limited group

of households with outstanding housing loans. Consumer credit is expanding. Finnish households' net financial position is weak in that, viewed internationally, they have relatively few financial assets, such as stock investments. In Finland, financial investment is mainly undertaken by employment pension institutions and corporations.

Box 1.

### Forecast assumptions

#### World trade and Finland's export markets

The world economy continued to grow robustly in the first half of 2007. In the next few years, growth is expected to ease slightly from the rapid pace of recent years. The focus of growth will be in Asia, Russia and the new EU member states. In contrast, growth in the United States is projected to decelerate.

The financial market uncertainty that began in summer 2007, and the related

re-pricing of risks and confidence gap in the banking system, will have a bearing on world economic expansion, but is not forecast to lead to any marked slowdown in growth. However, if the uncertainty were to continue for a long period, its dampening effect on growth would be larger than foreseen in the present forecast.

World trade has already been growing strongly for an exceptionally long period. In the first half of 2007, expansion

continued at a brisk pace, driven by ongoing buoyant growth in imports by Asian countries, the new EU member states and Russia. Imports by OPEC countries should also increase strongly on the back of growing oil revenues. US import growth has slackened off, but this has been offset by investment-related demand from emerging economies. World trade growth is projected to ease from last year's pace of almost 9%, and to continue thereafter at an annual

Table 2.

#### Forecast assumptions

	2005	2006	2007 <sup>f</sup>	2008 <sup>f</sup>	2009 <sup>f</sup>
Finland's export markets <sup>1</sup> , % change	8.7	10.6	8.7	8.4	8.0
Finnish import prices, % change	4.5	6.5	4.0	2.4	1.5
Oil price, USD/barrel	54.4	65.4	69.5	74.9	72.7
Euro export prices of Finland's trading partners, % change	2.7	2.8	1.7	1.7	2.1
3-month Euribor, %	2.2	3.1	4.2	4.2	4.2
Yield on Finnish 10-year government bonds, %	3.4	3.8	4.1	4.0	4.0
Finland's nominal competitiveness indicator <sup>2</sup>	101.6	101.9	103.6	104.5	104.6
US dollar value of one euro	1.24	1.26	1.35	1.39	1.39

<sup>1</sup> Growth in Finland's export markets equals growth in imports by countries to which Finland exports, on average, weighted by their respective shares of Finnish exports.

<sup>2</sup> Narrow plus euro area, 1999 Q1 = 100

<sup>f</sup> = forecast

Sources: Statistics Finland, Bloomberg and Bank of Finland.

rate of about 7% in the next few years.

In recent years, Finland's export markets have grown faster than world trade, a trend which is forecast to continue in the next few years, due mainly to rapidly increasing imports by Russia and the new EU member states (Table 2). Growth in Finland's export markets is, however, predicted to decline slightly.

#### Commodity prices

Strong world economic growth has increased demand for energy and other raw materials in recent years, leading to substantial rises in their prices. Rapidly growing investment in China, in particular, and other emerging economies has boosted demand for raw materials. Commodity prices are also expected to remain high, by historical standards, in the next few years.

The price of crude oil has rebounded appreciably since its fall at the end of 2006. The forecast assumption is for the barrel price of crude to decline in the next few years in line with futures prices from the current level of about USD 80 to close to USD 72 at the end of 2009.

The prices of industrial raw materials (excl. energy) continued their strong rise in the first half of 2007, consistent with the trend of recent years, but have been showing a slight downward trend since late spring. Production growth is,

however, projected to gain momentum in the next few years. The forecast foresees a slight decline in commodity prices from their current level towards the end of 2009, while still remaining at historically high levels.

#### Foreign trade prices

The euro-denominated export prices of Finland's competitor countries have been rising more rapidly since 2005. They have partly been pushed up by a pass-through effect from the strong rise in commodity prices, while the recent strength in demand for capital and consumer goods, given buoyant world economic growth, has also contributed to higher prices in international trade.

The rise in euro-denominated export prices of Finland's competitors accelerated to 2.8% in 2006. It is projected to ease to 2.1% in 2007, although the rise in dollar-denominated prices is expected to accelerate substantially due to the euro's strong appreciation against the dollar this year. A reversal of the increase in energy and other commodity prices should also reduce upward pressures on export prices in the next few years. Euro-denominated export prices are expected to rise at an average pace of just over 2% in 2008–2009.

The elevation of prices in international trade has also raised the prices of goods and

services imported to Finland. However, the rise in import prices eased in the first half of 2007, largely as a result of the stronger euro. In the next few years, import prices are expected to go up more slowly than the average in 2005 and 2006.

#### Interest rates and exchange rates

In the first half of 2007, euro area short-term market rates rose across the board in response to actual and expected changes in the policy rate (Chart 9). In the period of financial market uncertainty since early August the rates for short-term unsecured credit in the interbank market – including Euribor rates – have risen appreciably.<sup>1</sup> This has largely been due to a loss in confidence between banks, and the rates for secured credit have experienced no such increases. Accordingly, interest rates offered to different borrowers and paid on different financial instruments have partly shown divergent development.

Excluding the United States, the policy rates of the main industrial countries have not changed much since early summer, and policy rate expectations have been revised downward in a number of countries, reflecting an expected rate cut or lower expectations of a rate hike. In the euro area, expectations of policy rate rises

<sup>1</sup> The financial market uncertainty is discussed in more detail in Box 2.

Chart 9.

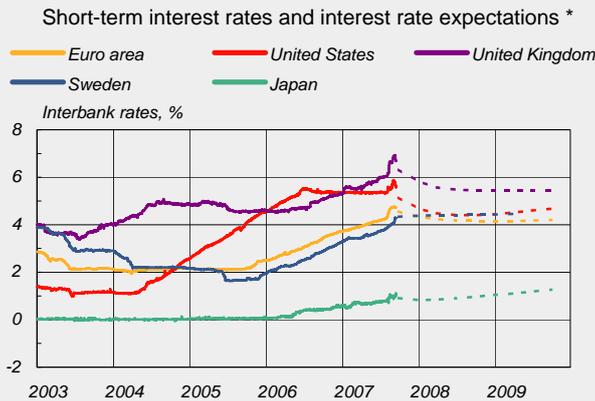
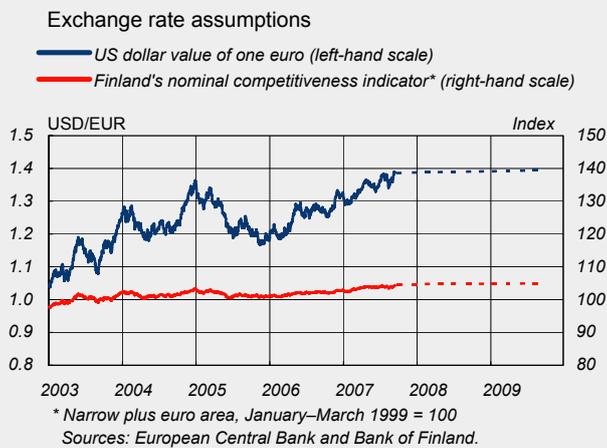


Chart 10.



in the next few months have almost entirely dissipated. Owing to the above-mentioned confidence gap between banks, Euribor rates in the last few weeks have been substantially higher than the current level of the euro area policy rate and the

level market participants expect to see in the next few months.

The interest rate assumption in the forecast is based on Euribor rates and related market expectations. It does not therefore give a correct indication of, for instance, the

interest rates at which financially solid large corporations may obtain credit at short maturities. But the assumptions do provide a fairly accurate picture of changes in the interest rates charged to Finnish households on new business, ie new agreements and renegotiated loans. This is due to banks' granting a large part of their loans to households at rates which are a combination of the Euribor rate and a customer-specific margin, with no significant short-term variation in the average margin.

The external value of the euro, as measured in terms of the trade-weighted exchange rate index, has strengthened slightly over the course of 2007. The appreciation against the US dollar has been much more substantial. The assumptions for future exchange rate developments used in the forecast are based on market expectations of prices for foreign exchange forward transactions (Chart 10).

The interest and exchange rate assumptions in the forecast are derived from market expectations as at 18 September 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 interest rates.

Box 2.

### The recent uncertainty on the financial markets and the economic outlook

Uncertainty on the international financial markets increased considerably in the third quarter of the year. As attitudes towards risks became more averse, previously narrowed risk premia grew, and volatility increased on the equity and foreign exchange markets (Chart 11). Although the situation on the financial markets has stabilised in recent weeks, uncertainty remains at a high level. The negative impacts of the prevailing uncertainty pose a risk of slower-than-forecast growth worldwide. On the other hand, if it is essentially a question of the correction of risk premia to a more realistic level, in the longer term it will be a positive development from the perspective of sustainable economic growth.

The financial market uncertainty is due to larger-than-expected problems in the US housing loan market. In recent years, adjustable-rate housing loans have been granted increasingly to households with a low

capacity to bear credit (subprime loans). As long as interest rates were low and house prices kept rising, households were able to service their loans as usual. Once interest rates rose and the rise in house prices petered out, there was a significant increase in defaults, which has resulted in credit losses, decreasing share prices for credit institutions and bankruptcies.

However, US housing lenders carry only a part of the risks attached to the loans they have granted. A significant proportion of housing loans granted in the United States are securitised into bonds, so that the cash flows generated by the mortgages (in practice, the debt servicing expenses) function as collateral on the bonds. These mortgage-backed bonds are also sold in significant volumes to investors operating outside the United States.

The prices of mortgage-backed bonds are determined by

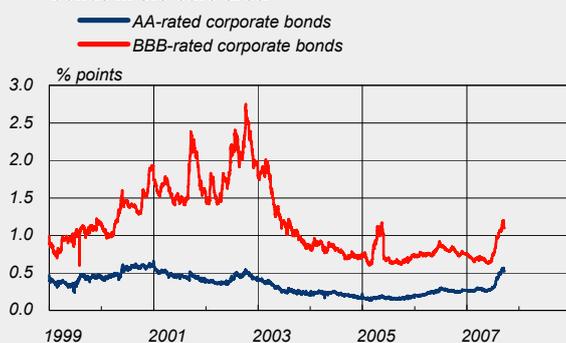
the market and correspond to the present value of the expected cash flows (ie debt-servicing expenses) from the housing loans. Hence, the prices are partly based on expectations of the extent of defaults. As actual defaults have recently turned out larger than previously expected, the bond prices have dropped or in some cases even lost their value altogether. Therefore, investors around the world have borne a major share of the losses attached to housing loans in the United States.

Risk premia had not shrunk only on the US housing loan market, but generally on the international financial markets. Unexpected losses in one sector of the financial markets led to a generally more conservative pricing of risks, the drying up of liquidity available for riskier investments and a transfer to investments considered safe and simple. These developments have been reflected in a general weakening in the availability of finance.

Increased risk-awareness has particularly hit those funds and corporations that had invested in securitised US housing loans and used them as collateral when financing their investments with short-term commercial paper (ABCP). As the value of the investments dropped, liquidity from this source dried up and expenses increased rapidly (Chart 12). There was a sudden need for alternative sources of finance.

Chart 11.

Yield spreads between corporate and government bonds in the euro area



Sources: Bloomberg and JP Morgan.

Credit lines arranged in advance with credit limits were activated, which increased the balance sheets of financial institutions and transferred part of the demand for liquidity onto the interbank markets and also into other currencies in addition to the dollar.

The lack of dollar finance was rapidly reflected in interbank interest rates in the euro area as well. A particularly sharp rise was seen in the short-term Euribor rates, which are the interest rates on non-collateralised loans in the interbank markets. Yield spread between collateralised and non-collateralised loans grew rapidly to unprecedented levels (Chart 13). To prevent and limit the rise of short-term interest rates, the ECB made a timely response to the situation by injecting additional liquidity into the banking system.<sup>1</sup>

The yield spread between non-collateralised and collateralised interest rates reflects a lack of trust between banks, which has been fuelled by uncertainty over the distribution of credit and investment losses, and a weakened ability to expand banks' balance sheets with riskier loans. The rise in Euribor rates caused by the lack of trust between banks is transmitted more broadly in the Finnish economy, too, since they are generally used as reference rates for loans.

We have little experience of financial market shocks such as the

recent one and their potential impacts on the real economy. Assessment of the impacts is also hindered by the fact that macroeconomic forecast models are partly deficient regarding the impact channels of shocks to the financial sector. It is clear they will have a dampening impact on growth, but the size of the impact is, as yet, hard to estimate. The financial markets play an important role in the world economy. Market-oriented pricing and close

international links between different financial market sectors and instruments guarantee the rapid spread of shocks.

The world economy, however, is in a strong state to face financial market shocks. Growth has been rapid for an exceptionally long period, and the balance sheets of both companies and financial institutions are on average solid due to good profit performance. In addition, the engine of international growth lies

Chart 12.

Stock and yield of USD-denominated asset-backed commercial papers (ABCP)

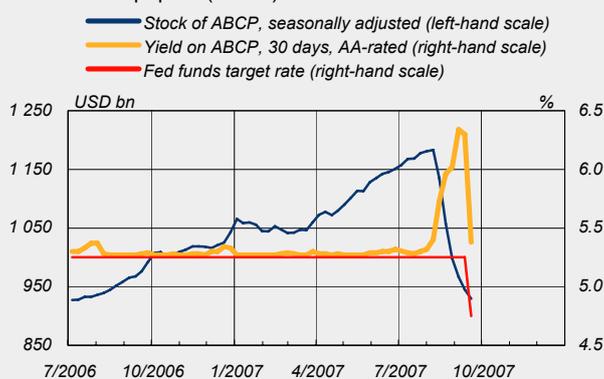
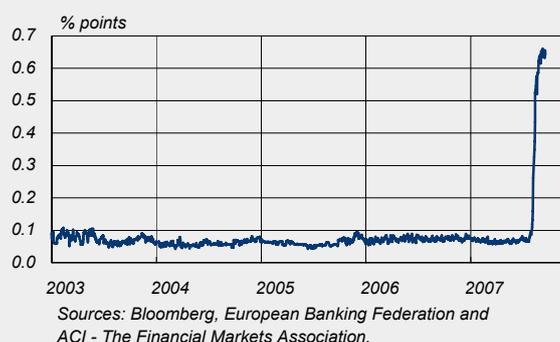


Chart 13.

Yield spread between non-collateralised (Euribor) and collateralised (Eurepo) credit on the interbank market in 3-month maturity



<sup>1</sup> The central banks of the other major industrial economies have also increased the amount of additional liquidity in their banking systems during the period of uncertainty on the financial markets.

in the emerging Asian economies, ie far from the core of the financial market turbulence.

In addition to the above, the development of share prices amid the financial market uncertainty gives grounds for optimism. The share indices of major economies are well above the levels at the beginning of the year, which indicates the financial markets are expecting that the negative impacts of the uncertainty will be limited mainly to the financial sector (Chart 14). The fall in the share prices of banks hit by the risks could lead to some restructuring. Regarding the general resilience of the equity markets, however, we should note that current developments are partly based on market expectations of more moderate interest rate policies on the part of the central banks.

The uncertainty of recent months means weakening financial conditions and friction in financial intermediation. The supply of finance is limited by

increased risk-awareness and tighter credit standards. On the other hand, demand is curbed by higher risk premia, which have increased the price of finance. Some investment plans are no longer attractive with higher financing costs. Indeed, the weakened financing conditions are undermining corporate investment as well as inventory and intermediate goods demand in a number of countries. However, it is worth bearing in mind that companies' order books are in general very solid in the major industrial economies, which should dampen and postpone any potential negative impacts on investment. The recent financial market uncertainty impacts on Finland not only via export demand, by also directly due to the increased cost of financing, since housing loan reference rates have risen for many Finnish households.

The forecast presented here takes into account the above-mentioned impacts, but

considers they will be of limited effect. This is because the forecast is based on the assumption that the situation in the interbank market will normalise over the next few months and that the exceptional nervousness on the financial markets will subside. The negative impacts will, however, be stronger than forecast if the uncertainty leads equity and house prices into a broadly based decline. In this case, the negative wealth effects could possibly also be reflected in private consumption in a number of countries. The situation is in this sense particularly fragile in the United States, where oversupply of housing is leading to a general decline in house prices. The Federal Reserve did in fact point to the weak condition of the housing market and downside risks to economic growth when cutting its policy rate by 0.50 percentage points to 4.75% in September 2007.

As regards the risks to the economy in general, perhaps the most significant factor will be the impacts of the financial market shocks on the confidence and sentiment of business and households. The most recent statistics on confidence indicators also point to weakening confidence in the euro area. It is as yet too early to say how large and durable these impacts will be.

Chart 14.

Share prices in the euro area



Sources: Bloomberg and Dow Jones.

Box 3.

### Profits of Finnish companies in different sectors

The operating environment of Finnish companies has changed considerably over the last 10 years. One major change is a closer integration of company operations with the world economy. This change is reflected in the use of the capital stock, which has become radically more efficient in comparison to previous decades.

This box discusses corporate profits across main industries using the national accounts data produced by Statistics Finland. Profitability is measured as the ratio of operating surplus to net capital stock using the concepts applied in the national accounts (Table 3). Net operating surplus is the sum of value added minus compensation of employees, taxes on production and imports (less subsidies) and consumption of fixed capital. It corresponds to

the income received by companies for the use of their own production assets.

Net operating surplus corresponds roughly to a company's operating profit, and its ratio to net capital in a way indicates the return on the capital of the company. Among company-level indicators, the closest key figure is operating profit relative to book value. Another, comparative indicator is the operating surplus relative to output, which, besides value added, also includes the use of intermediate goods (Table 4). This indicator is close to a key figure commonly used by companies themselves in which operating profit is expressed as a ratio of net sales. The third indicator included in the discussion is operating surplus relative to value added. This can be interpreted best as an

indicator of income distribution through which the distribution of national income is seen from the viewpoint of the company (Table 5).

In interpreting the figures, we should note that the profits of listed companies also include foreign profits, while operating surplus measures the profitability of domestic transactions. In addition, we should bear in mind that the electronics industry involves an exceptionally high degree of R&D activities, investments in which are not shown in the capital stock, which makes comparison more difficult. The operating surplus of the electronics industry is about a quarter of the total operating surplus of manufacturing as a whole, while its proportion of the net capital stock is as little as slightly under 8%. The financial sector also has

Table 3.  
Operating surplus relative to net capital stock, %

	1981–1990	1991–1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Private sector</i>	7.0	7.3	11.2	11.1	11.9	12.0	12.5	12.0	12.3	11.1	11.8
<i>Private sector excl. electronics</i>	6.8	6.9	10.1	9.9	10.3	10.9	11.1	10.6	11.2	10.1	10.6
<i>Manufacturing</i>	12.0	11.8	22.2	22.6	28.1	28.2	29.2	28.6	28.6	26.2	30.6
<i>Electronics</i>	34.4	51.1	129.0	137.4	166.7	120.2	151.3	159.4	132.6	125.2	143.3
<i>Manufacturing excl. electronics</i>	11.2	10.0	15.9	14.9	17.7	20.7	19.1	18.0	20.1	18.0	21.3
<i>Electricity, gas and water supply</i>	4.4	3.6	5.5	4.5	2.9	4.1	6.5	8.2	8.9	6.7	8.4
<i>Construction</i>	49.1	33.0	63.3	75.7	68.7	74.5	62.1	61.6	66.5	74.4	79.5
<i>Trade</i>	13.7	10.8	23.4	24.0	23.4	28.3	31.8	33.8	37.2	36.1	37.8
<i>Hotels and restaurants</i>	10.6	5.6	12.2	8.3	6.7	14.5	12.5	12.4	17.2	15.9	17.7
<i>Transport, storage and communications</i>	3.3	5.6	8.6	9.7	10.6	11.9	12.6	12.6	12.0	10.4	10.6
<i>Telecommunications</i>	5.3	5.2	15.9	21.9	26.7	31.7	35.7	34.7	31.4	21.5	21.8
<i>Financial intermediation and insurance</i>	8.0	41.4	85.0	76.0	145.5	116.1	110.1	29.6	68.2	42.2	67.1
<i>Real estate and business activities</i>	1.9	3.1	4.2	4.1	3.6	3.6	3.9	4.1	4.3	3.9	3.7

Source: Statistics Finland.

little capital stock relative to operating surplus. The key figures for financial and business services are difficult to interpret in other respects as well.

#### Solid profitability in the private sector

The profitability of companies in the private sector has improved by almost 5 percentage points

since the 1980s, but has varied surprisingly little since 1998 (Table 3). This is particularly striking when electronics is excluded from the list. The dramatic growth in the electronics sector's operating surplus is seen in the data from the late 1990s onwards.

The picture of stable profits remains unchanged even if the

ratio of operating surplus to output is used as the indicator. If anything, this indicator shows a slight decrease in profitability after 1998. This is particularly clear in manufacturing, where output has grown more rapidly than operating surplus, while the net capital stock of the previous indicator has grown more slowly. This may be interpreted

Table 4.  
Operating surplus relative to output, %

	1981–1990	1991–1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Private sector</i>	11.3	11.9	15.3	15.4	15.4	16.1	16.4	15.7	15.7	14.3	14.6
<i>Private sector excl. electronics</i>	11.2	11.9	15.1	15.0	14.9	15.9	15.8	14.9	15.4	14.1	14.3
<i>Manufacturing</i>	7.5	7.3	10.9	10.7	11.4	11.7	11.9	11.4	10.8	9.7	10.1
<i>Electronics</i>	13.8	11.4	18.5	18.6	19.8	17.4	22.0	24.5	19.2	16.7	17.4
<i>Manufacturing excl. electronics</i>	7.1	6.8	9.1	8.4	8.7	10.1	9.1	8.2	8.7	7.8	8.2
<i>Electricity, gas and water supply</i>	17.6	15.2	19.7	16.8	11.2	15.0	20.7	23.6	26.3	21.9	25.2
<i>Construction</i>	8.8	6.7	9.7	11.3	9.9	10.8	9.2	9.2	9.9	11.0	11.7
<i>Trade</i>	12.2	8.9	14.6	14.5	13.9	16.1	16.6	16.5	17.3	16.5	16.5
<i>Hotels and restaurants</i>	4.7	2.6	5.0	3.4	2.7	5.5	4.6	4.3	5.8	5.4	6.0
<i>Transport, storage and communications</i>	9.6	14.9	19.6	21.9	22.8	25.1	26.0	25.6	24.8	22.4	22.6
<i>Telecommunications</i>	15.6	12.1	25.5	31.9	33.9	38.2	40.5	39.4	38.7	30.8	30.7
<i>Financial intermediation and insurance</i>	7.2	20.9	30.7	26.7	38.5	31.8	29.3	8.8	16.9	10.9	16.1
<i>Real estate and business activities</i>	14.1	18.6	22.1	21.8	19.0	19.0	19.4	19.8	20.1	18.6	17.8

Source: Statistics Finland.

Table 5.  
Operating surplus relative to value added, %

	1981–1990	1991–1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Private sector</i>	25.1	26.4	34.3	34.2	35.7	35.6	35.9	34.7	35.1	33.0	34.5
<i>Private sector excl. electronics</i>	25.0	26.1	32.9	32.6	33.4	34.3	34.1	32.8	33.9	31.7	33.1
<i>Manufacturing</i>	23.2	23.0	33.6	33.3	37.3	36.2	36.3	35.1	34.7	32.8	35.9
<i>Electronics</i>	29.0	33.3	54.7	55.5	61.2	52.7	58.0	58.4	52.0	50.0	52.6
<i>Manufacturing excl. electronics</i>	22.6	21.5	28.4	26.7	29.2	31.5	29.2	27.2	29.4	27.4	30.5
<i>Electricity, gas and water supply</i>	30.7	26.8	36.5	31.5	23.7	30.4	40.6	46.5	48.8	41.8	47.7
<i>Construction</i>	21.7	17.0	24.6	28.3	26.6	28.3	24.6	24.3	26.0	28.6	30.1
<i>Trade</i>	20.2	16.1	27.6	27.5	26.5	29.7	30.5	31.0	32.5	31.5	31.9
<i>Hotels and restaurants</i>	11.9	7.3	13.3	9.1	7.4	13.9	11.7	11.3	14.7	13.8	15.2
<i>Transport, storage and communications</i>	16.1	24.5	32.5	35.3	37.5	40.2	41.4	41.4	40.4	37.5	38.1
<i>Telecommunications</i>	20.9	18.7	41.3	49.2	54.8	58.3	61.1	60.5	59.5	50.2	51.2
<i>Financial intermediation and insurance</i>	10.9	31.8	45.1	40.9	56.0	48.4	47.4	18.0	31.6	21.6	30.2
<i>Real estate and business activities</i>	24.5	31.5	36.8	36.0	32.0	31.2	32.2	33.0	33.4	31.2	30.2

Source: Statistics Finland.

as indicating that some of the increase in the price of import inputs has been transferred into export prices, which is why the price of output has risen. The labour dispute in the paper industry in 2005 is reflected clearly in the profits of the entire private sector.

Developments in 2006 were interesting in light of both the key figures above. At the time, corporate profitability in Finland was only average for the present decade, although GDP was showing exceptional growth. Strong increases in the prices of imported raw materials have been reflected in corporate profits. More generally, the increase in import prices relative to export prices partly explains the profitability development of the entire corporate sector, as the exceptionally rapid growth in the world economy has not led to an increase in average profitability.

Manufacturing excluding electronics has been able to increase its operating surplus faster than the net capital stock primarily by improving efficiency in the utilisation of old

machinery. The investment rate has, indeed, shown a trend-like decline. In addition, the head office operations of multinational companies based in Finland have generated additional income for the manufacturing sector.

The recovery in domestic demand is shown in the tangible improvement in the key figures for construction and trade. The profitability of telecommunications fell considerably in 2005 amid tight competition. Recent increases in consumer prices in the sector did not come in time to significantly affect average profit development in 2006.

From a corporate perspective, income distribution has remained relatively stable since 1998 (Table 5). When, in addition to wages, depreciations, too, are subtracted from value added in the private sector, the remaining operating surplus has stayed almost unchanged relative to value added except in 2005, when the labour dispute in the paper industry weakened profits. Measured with this key figure, Finnish companies have

increased their share of income in domestic market sectors, ie construction, trade, hotels and restaurants. For companies in these sectors, the entire 1990s was a difficult period, from which they have gradually recovered.

All in all, the statistics suggest that profits in the corporate sector have been very stable during the last 10 years. Unlike previously, export companies' cycles have not been reflected significantly in the domestic market.

# Supply

## Output

In the Finnish economy, 2006 was a year of strong growth, with GDP up by 5.0%. Admittedly, in lowering the comparison level for 2005, the industrial dispute in the labour industry witnessed two years ago contributed to the statistically recorded growth figure by almost one percentage point. It is also worth noting that the increase in import prices relative to export prices has continued to dampen growth in real income relative to GDP volume growth. Thus, in 2006 the purchasing power of GDP grew by only 3.5% on the previous year.<sup>1</sup> The economy continued its robust performance in the first half of 2007. According to the quarterly accounts data released by Statistics Finland, GDP for the first half of the year was around 5% higher than in the corresponding period a year earlier.

The Bank of Finland estimates that GDP will grow by 4.4% in 2007. The growth figure has been revised upwards from the spring forecast.<sup>2</sup> The revision is related not only to the stronger-than-expected performance in the first half of the year, but also to the revision of the national accounts data by Statistics Finland, which somewhat changed the picture of developments in 2006. In addition, the indicator material available suggests the robust economic growth will be sustained over the next few months: manufacturers have full order books, and the confidence indicators for manufacturing, construction and services remain strong.

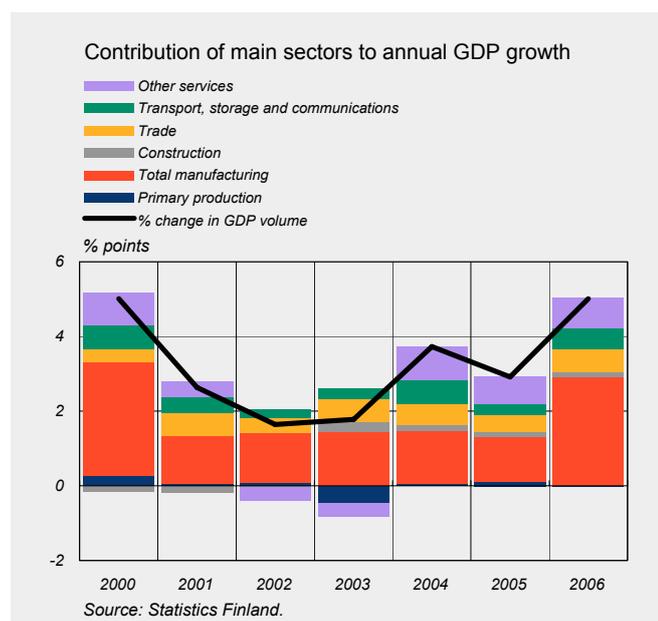
<sup>1</sup> The impact of the terms of trade on Finns' real income is discussed in issue 1/2007 of the Bank of Finland Bulletin, p. 24–25.

<sup>2</sup> The Bank of Finland's spring forecast was released in March; see Bank of Finland Bulletin 1/2007.

Towards the end of the forecast period, economic growth is projected to moderate slightly. GDP growth is forecast to rise to 3.1% in 2008, falling back to 2.4% in 2009. The rate of labour productivity growth is projected to remain around the average for the past few years, while declining output growth is mainly related to deceleration in labour input growth as a result of a slower increase in the size of the working-age population.

A striking feature of the recent performance of the Finnish economy is the key role played by manufacturing as a source of growth (Chart 15). There are two reasons for this. First of all, the contribution of manufacturing to the value added in the economy is much bigger in Finland than in countries of equivalent income level, on average. Secondly, industrial production has been increasing rapidly ever since the

Chart 15.



1990s, driven by the electronics industry, with the basic metal and engineering industries also having recorded strong value-added growth in recent years. In 2006, a year of strong performance, growth was not confined to manufacturing alone, as it was also a feature of quite a large proportion of the rest of the economy as well. In the service sector, trade, transport, storage and communications all posted strong growth. Continuous expansion of business service functions, in turn, reflects outsourcing of operations and more widespread sub-contracting of labour.

### Employment and labour supply

Labour demand has remained strong. At 1.8%, the ratio of job vacancies to the labour force, ie the job vacancy rate, stood at a historically high level on average in the first half of 2007. The strong demand for labour has contributed to the decline in the unemployment rate. Also the labour force participation rate has risen as a result of both supply and demand factors, in

particular the steadily increasing labour force participation rate of older employees.

In the first half of 2007, the number of employed was 50,000 – or just over 2% – higher than in the corresponding period a year before (Chart 16).<sup>3</sup> The employment rate for age group 15–64 rose to 69.5%, while the unemployment rate stood at 7.7%. At the same time, the number of unemployed shrank by 26,000. Thus, as in previous years, a considerable proportion of new employment did not come from the ranks of the unemployed, but from outside the labour force. The number of hours worked did not increase as much as the number of employed, but the proportion of total employment accounted for by part-time employment remained almost unchanged, at around 14%.

The higher labour force participation of older employees was still apparent in the first half of 2007. The employed population in age group 55–74 grew by an average of 24,000 year on year, with the labour force participation rate for this age group standing at 38.6%. However, the number of unemployed in the group declined by only 3,000 over the same period. In other words, while the employment of older employees has increased strongly, unemployment among this age group has been slow to decline. Hence, the lower unemployment rate for the economy as a whole is mainly attributable to the reduction in the number of unemployed in age group 25–54.

<sup>3</sup> This data is based on seasonally unadjusted time series released by Statistics Finland.

Chart 16.



During the first half of 2007, gains in employment were particularly pronounced in construction, hotel and restaurant services and business services. As the last category includes subcontracted agency labour, which is a strong growth sector, it is difficult to draw any precise conclusions about the development of the category overall. The strong growth in manufacturing output has not been reflected in employment development in the sector.

The shortage of skilled labour has continued to grow in many companies (Chart 17). In the first half of 2007, nearly one in five manufacturing companies responding to a survey by the Confederation of Finnish Industries reported that they were suffering a shortage of labour. Companies in the mechanical engineering and metal products industry in particular experienced difficulties in finding skilled labour.

Nearly half of all companies in the construction industry are suffering a shortage of labour, as are a tenth of companies in services. In many sectors, the shortage of labour has been alleviated by an increase in the number of foreign employees. According to the most recent survey by the Confederation of Finnish Construction Industries, foreigners account for just under 10% of employees in the construction industry.

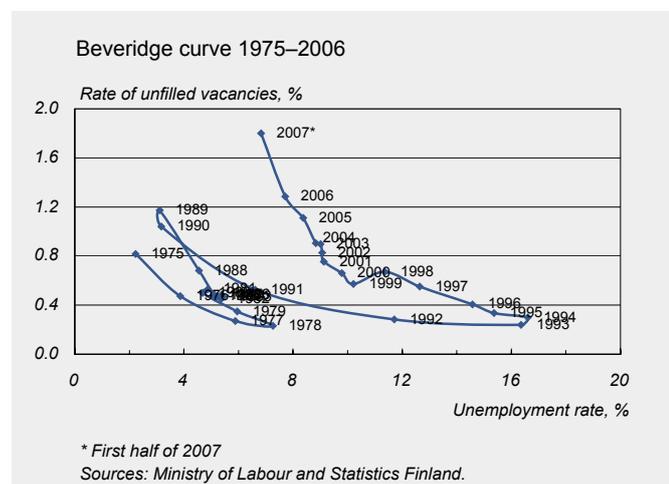
The above-mentioned recruitment problems are related to the increasingly widespread mismatch between labour supply and demand. Labour market mismatch refers to the connection between job vacancies and unemployed jobseekers, indicating how

easily they can find each other. In Finland, there are both plenty of unfilled vacancies and plenty of unemployed, but the desired match between vacancies and unemployed jobseekers is not achieved for geographical, occupational or other reasons. Mismatch problems can be analysed using the Beveridge curve, which illustrates the relationship between job vacancies and unemployed jobseekers (Chart 18). The closer to the lower left

Chart 17.



Chart 18.



corner of the chart the curve runs, the more favourable the match. The job vacancy ratio for Finland is presently at a record high, but the unemployment rate remains much higher than the average for the 1980s. Statistics show that filling vacant posts has become more difficult and takes on average longer than before.

In 2007, growth in the number of employed is projected to average 1.9%. Employment growth was very strong in the second quarter, but the growth rate is expected to moderate towards the end of the year. Over the next few years, employment growth is forecast to remain positive but at a slower pace, considering that the increase in the size of the working-age population will slow and the peak of the boom has already passed. The employed population is projected to grow by 0.9% in 2008 and 0.4% in 2009. Over the next few years, employment growth will focus on the private sector, and especially services.

The employment rate for age group 15–64 is expected to rise slowly throughout the forecast period and exceed 70% as early as 2008. The unemployment rate will fall to 6.6% this year, declining further to 6.4% next year. The number of unemployed will already drop below 180,000 in 2007 and decline further throughout the forecast period.

### Productivity and capital

Labour productivity increased by 3.2% in 2006, measured as GDP per person employed. This figure is influenced by the paper industry labour dispute of two years ago, which lowered the

comparison level for 2005 and contributes just under one percentage point to the output growth recorded for 2006. Were the figures for last year adjusted for the effect of the labour dispute, this would produce productivity growth of just over 2%, which is in line with the average for Finland since the turn of the millennium.

In recent years, labour productivity has improved faster in Finland than in the 'old' member states of the EU on average. Growth figures of the same order have been recorded only in Sweden and Ireland, as well as in Greece, where the income level is lower. The favourable development in productivity is partly explained by the production structure: the contribution of manufacturing, which shows strong productivity growth, to value added in the economy is higher in Finland than on average in high income countries. However, labour productivity has also increased rapidly in parts of the service sector: for example in trade, productivity growth has accelerated in recent years in response to the more skilled utilisation of new information and communication technology (ICT).

In the growth accounting approach, changes in labour productivity have traditionally been divided into capital deepening and changes in total factor productivity. The contribution of capital deepening has been fairly small in recent years – at times even negative – and labour productivity growth has been based mainly on growth in total factor productivity (Table 6). Total factor productivity captures a number of factors, such as

Table 6.

Labour productivity in the Finnish economy							
<i>% change on previous year</i>							
	1995–1999	2000–2004	2005	2006	2007 <sup>f</sup>	2008 <sup>f</sup>	2009 <sup>f</sup>
<i>Labour productivity</i>	2.3	2.3	1.4	3.2	2.5	2.2	2.1
<i>Capital deepening</i>	-0.7	0.4	-0.1	-0.1	0.1	0.4	0.6
<i>Total factor productivity</i>	3.0	1.9	1.4	3.3	2.3	1.7	1.5

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

advances in technology, how production is organised, the quality of labour and the capacity of the market to allocate resources efficiently. The impact of labour quality on productivity in Finland is discussed in more detail in Box 5.

Over the forecast horizon, labour productivity is expected to grow at roughly the same pace as the average for 2000–2006, ie at an annual rate of just over 2%. Labour productivity

growth will depend slightly more on capital deepening than has been common in recent years, as the ratio of productive investments to GDP is forecast to rise. In this respect, the outlook is similar to the developments witnessed in the early years of the present decade. Correspondingly, the increase in total factor productivity will slow somewhat, partly because of an expected slower improvement in the quality of labour.

Box 4.

### Technology industry has supported economic growth

The technology industry is Finland's largest industrial sector, with its share of goods exports amounting to 60% and its employment contribution totalling 9% of the employed labour force. The sector encompasses manufacture of basic metals, the mechanical engineering and metal products industry, and electronics.

The world economy has grown at a robust pace of approximately 5% in recent years. This brisk growth has been supported by a strong current of investment both in machinery and equipment and in construction. The impact of this has been felt in the technology industry, which has benefited from increased exports. Exports of Finnish investment goods primarily comprise technology industry products, with their share rising by an average 15% per annum in 2005–2006. Particularly strong growth was witnessed in exports of investment goods to China and Russia in 2002–2006. Moreover, services account for an increasingly larger share of net technology sales, and this is reflected in an increase in the export volume of services.

In 2004–2006, Finnish goods exports grew by more than 10% a year on average. Of this growth, the technology industry accounts for more than

7 percentage points. In the same period, the export volume of the technology industry grew by approximately 13% per annum. Broken down by industry, growth has been particularly strong in manufacture of basic metals and mechanical engineering and metal products (Chart 19). Growth in the export value of the electronics industry has slowed since the beginning of 2006. At the end of 2006, the largest importers of technology exports were Russia, Sweden, Germany and the Netherlands. In recent years, export growth in the industry has been dominated by emerging economies such as the new EU member states of Central and Eastern Europe.

The technology industry has made a similarly significant contribution to domestic output growth in recent years. In terms of the value of value added, this contribution has amounted to approximately one percentage point. In terms of the volume of value added, the contribution has been even greater, at some 1.8 percentage points. The difference is due mainly to the trend decline in producer prices in electronics. This, in turn, is due to a number of factors, including the fact that calculation of producer prices makes an adjustment for quality. In manufacture of basic metals, producer prices have risen

substantially – by more than 20% in the last year and a half – mainly as a reflection of stronger demand for raw materials on the world market. This partly explains the significant contribution of the technology industry to recent growth in the value of Finnish exports. In mechanical engineering and metal products, the annual change in producer prices has been modest, remaining at 1–2% since the beginning of the decade, but over the past year producer prices have risen at an average pace of more than 3%. Export prices in the technology industry have been more or less consistent with producer prices.

In 2006, the technology industry employed a total of 217,400 people in Finland. To this, manufacture of basic metals contributed 8%, mechanical engineering and metal products 62% and electronics 30%. The indirect employment impact via other industries was also significant. After the turn of the millennium, the number of employed declined for a few years but has been increasing again in the last couple of years. The long-standing internationalisation of technology companies is reflected in employment in the sector, as the number employed in foreign subsidiaries is constantly increasing. At the end

Chart 19.

Technology industry contributions to growth in the value of goods exports

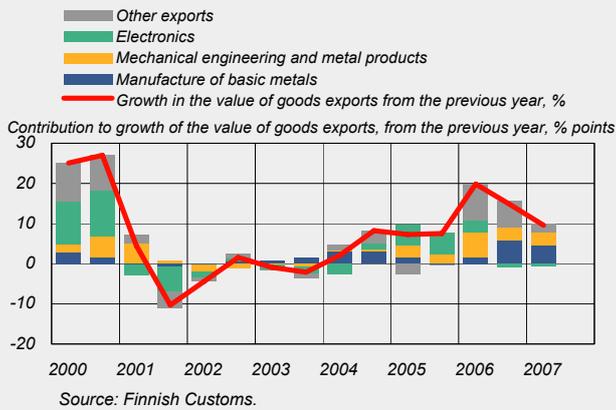
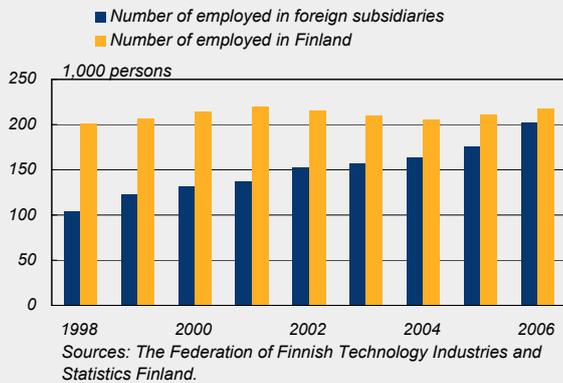


Chart 20.

Number of employed in technology industry



of 2006, foreign subsidiaries employed a total of 203,000 employees, compared with 105,000 at the end of 1998. Personnel growth in the subsidiaries has been heavily dominated by the emerging economies, as opposed to a declining trend observed in employment numbers in industrial countries over the last couple of years. Electronics companies in particular have been active in relocating their operations in emerging economies.

Looking at both new and outstanding orders, the short-term outlook for the technology industry is good. In first half of the year, 10% more new orders have been received than a year ago, and the order books are standing at a record high. The positive developments in the industry are also expected to be reflected in a higher number of employed.

### Labour quality improving more slowly

Finland's population is ageing rapidly. There are already almost as many people over 55 years of age among wage and salary earners as young people under 30. As less-educated age cohorts have begun to retire, the average educational level of the labour force has risen. While at the end of the 1990s the number of wage and salary earners with only basic education (up to the end of compulsory education) was still over twice that of those with higher education (a master's degree or equivalent), the highly educated portion of the labour force is now almost equal to that of those with just a basic education.

This box discusses how the change in the age and educational structure of the labour force affected labour productivity in Finland in 1996–2006.<sup>1</sup> It also includes an estimate of future changes in age and educational structure and the implications these hold for labour productivity growth.

The exercise utilises structure of earnings statistics compiled by Statistics Finland, in which data on wage and salary earners aged 15–69 is broken down into 60 groups according to age and educational level.<sup>2</sup> The estimates presented are

<sup>1</sup> At the time the calculations were performed, data on educational and wage structures in 2006 was not yet available. They have therefore been estimated on the basis of the figures for 2005. Only labour force age structure data is based on actual 2006 figures.

<sup>2</sup> There are 10 age groups and 6 educational categories.

based on growth accounting. In accordance with the general practice of growth accounting, the quality of each individual group's labour input is measured by the group's average wages.<sup>3</sup>

Calculations on future developments are based on the simplified assumption that the relative productivity of age and educational groups remains unchanged, enabling the use of wage data from 2005 as a measure of relative productivity. Changes in the age structure of the labour force in 2007–2020 are estimated on the basis of Statistics Finland's population projection. It is assumed the labour market participation rates of individual age groups will in future remain at 2006 levels. It is also assumed that the number of hours worked per person in the labour force will remain constant.

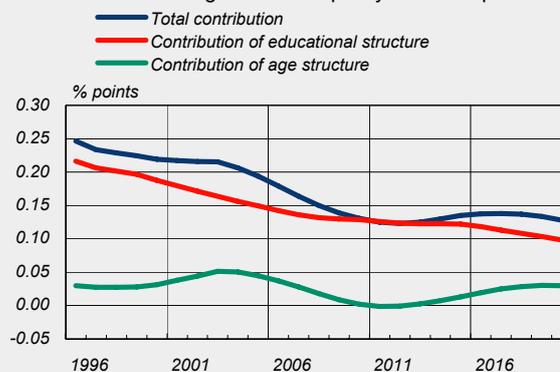
<sup>3</sup> The underlying assumption is that labour markets are perfectly competitive, and hence pay is equal to the marginal productivity of labour.

When estimating changes in the educational structure, it is assumed the educational level of the younger age groups will not rise further: ie the future educational structure of persons aged 15–34 corresponds to the situation prevailing in 2005. It is also assumed that workers attain their final educational level by the age of 34, and beyond that age no longer seek further education. Following these assumptions, the general educational level of the labour force only rises as older, less-educated age groups leave the labour force.

In 1996–2006, the annual contribution to labour productivity growth of change in the quality of labour averaged 0.2 percentage points (Chart 21). In other words, improvement in labour quality explains about a tenth of labour productivity growth, which has recently averaged just over 2% per annum. The chart also shows that labour

Chart 21.

Contribution of change in labour quality to labour productivity



Series smoothed with Hodrick-Prescott filter

Sources: Statistics Finland and Bank of Finland calculations.

quality improved almost entirely due to a rise in educational level. The contribution of change in the age structure has been minimal.

According to our calculations, the impact of labour quality on labour productivity looks likely to decrease in the future. Above all, this is due to the fact that, under the presented assumptions, the rise in general educational level will slow.

On the basis of the estimate, the babyboomers' retirement will weaken labour productivity: because a large group of experienced workers will leave the labour force, the contribution of age structure change will be close to zero or even slightly negative for a few years. On the other hand, because the younger age cohorts entering the labour markets will be smaller, the share of inexperienced and low-productivity workers will also decrease. Even though the age structure of the labour force will change fairly considerably in the near future, the overall productivity effects would seem in the end to be fairly small.

All in all, the calculations based on developments in 1996–2006 and estimates of what will happen in the future give the impression that changes in age and educational structure will make little difference to labour productivity. This view is largely consistent with other estimates based on growth accounting. For example, Pohjola (2007) argues that the contribution of labour quality change to labour productivity has

decreased in Finland since the 1980s.<sup>4</sup> Results from the EU KLEMS project running under the auspices of the European Commission show a similar picture in other EU countries. According to Pohjola, this development trend reflects the fact that, in countries with high earning levels such as Finland, the general educational level is reaching a certain saturation point: productivity can no longer be improved by further education as before. If anything, there may be a risk of a dearth of skilled workers for practical trades.

When interpreting these results, however, we should take account of at least the following caveats:

Firstly, the labour quality measure used in this box does not depict general developments in the contents and level of education. If the quality of education improves across all educational levels while the relative shares of various educational groups remain unchanged, labour quality does not change, according to this measure. Therefore, in growth accounting, improvement in the general level of education is reflected as growth in total factor productivity. Furthermore, education may have externalities that improve productivity but are not reflected in the relative wages of individual educational groups. Thus interpreted,

<sup>4</sup> Pohjola, M (2007) *Työn tuottavuuden kehitys ja siihen vaikuttavat tekijät* ('Development of labour productivity and contributing factors'). *The Finnish Economic Journal*, 103 (2).

the contribution of change in educational structure as presented in Chart 21 is a conservative lower limit. In other words, the calculations reveal the minimum impact of education on productivity.

Secondly, it is worth noting that even though wages in Finland typically rise with age until retirement, it is not self-evident that a worker's productivity improves as his work experience increases. If the operational environment changes abruptly, a worker's professional skills can become obsolete and his know-how deteriorate. Because people often stay a long time in the same job, their wages may be lower than their marginal productivity at the beginning of their career, and above their marginal productivity at the end.<sup>5</sup> A similar view is supported by the recent study by Ilmakunnas and Maliranta (2007), which discusses, based on micro data, the impact of changes in labour force age structure on productivity in industrial and private service sector firms in Finland in the second half of the 1990s and the early 2000s.<sup>6</sup> These findings also suggest that the calculations presented in this box may paint too pessimistic a picture of the productivity effects resulting from the retirement of the babyboom generation.

<sup>5</sup> *Seniority-based pay structures can be part of an incentive system that ties workers to the firm and motivates those at lower levels to work harder.*

<sup>6</sup> Ilmakunnas, P and Maliranta, M (2007) *Aging, labor turnover and firm performance*. ETLA Discussion paper No. 1092. Research Institute of the Finnish Economy (ETLA).

## Social welfare and health care have been big employers in recent years

It is a widely held view that the role of social welfare and health care services will become more crucial as the population ages. Developments in recent years have supported this view: the increase in employment and hours worked in social welfare and health care has been stronger than the average for the economy as a whole (Chart 22). For example, the number of employees in homes for the elderly and assisted living facilities that participated in a follow-up survey by the National Research Centre for Welfare and Health (STAKES) increased slightly in the early years of the present decade even in relation to the number of residents.<sup>1</sup> Health care accounted for 7%, and social welfare for 8%, of total employees in the economy in 2006.

Developments in 2006 diverged somewhat from the general trend witnessed in previous years, in that employment growth in social welfare and health care slowed, with developments in the sector

being more sluggish than in the rest of the economy, whether measured by value added, number of employed or hours worked. This slowdown is, however, expected to be only temporary.

According to national accounts data, labour productivity in the social welfare and health care sector has declined since the turn of the millennium at an average annual rate of close to 2%. According to the statistics, the increase in recruitment has not translated into a corresponding increase in value added. Studies on trends in the sector convey a similar general picture.<sup>2</sup> The statistically

<sup>2</sup> See eg Aaltonen, J and Kangasharju, A (2007): *Kansainvälisiä ja kansallisia tuloksia tuottavuustutkimuksista* ('International and national findings of productivity studies'), Chapter 2 in Kangasharju, A (ed.): *Hyvinvointipalveluiden tuottavuus: Tuloksia opintien varrelta*. ('Productivity of welfare services: results of a learning experience'). Publications of the Government Institute for Economic Research (VATT), No. 46.

recorded weak productivity growth of social welfare and health care services, combined with strong employment growth, is limiting labour productivity growth throughout the economy.

Despite the deterioration in labour productivity indicated by the statistics, Finnish health care performs very well in international comparisons. For example, a recent Nordic study found that hospitals are run more efficiently in Finland than in the other Nordic countries.<sup>3</sup>

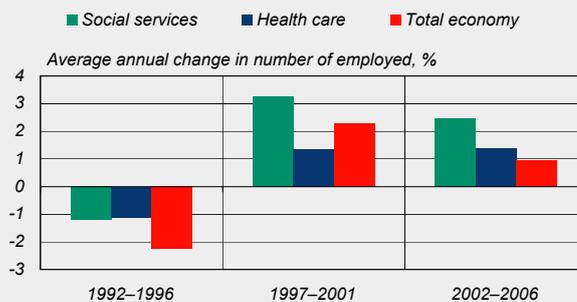
In interpreting the above observations of productivity development it should, therefore, be borne in mind that measurement of the output, and hence the productivity, of social welfare and health care services is somewhat

<sup>3</sup> Häkkinen, U and Linna, M (2007): *Suomessa pohjoismaiden tehokkaimmat sairaalat* ('Finland has the most efficient hospitals in the Nordic countries'). *Chess Online* 2/2007. <http://groups.stakes.fi/CHESSE/FI/chessonline/index.htm>.

<sup>1</sup> This data refers to the homes for the elderly and assisted living facilities that participated in the STAKES RAI (Resident Assessment Instrument) benchmarking project for home care and is based on staffing figures for 2000–2003. See Laine, J (2005): *Henkilöstö ja työvoiman käyttö pitkäaikaishoidossa* ('Staff and labour use in institutional long-term care'), In Noro, A, Finne-Soveri, H, Björkgren, M and Vähäkangas, P (eds.): *Ikääntyneiden laitoshoidon laatu ja tuottavuus* ('Quality and productivity of institutional care of the elderly'). National Research Centre for Welfare and Health (STAKES), Helsinki, Finland, 2005.

Chart 22.

### Employment changes



Source: Statistics Finland.

problematic.<sup>4</sup> For example, in health care the number of hospital days and work input such as operations has barely increased in recent years, but many indicators point to an improvement in treatment results. Moreover, the ageing population may require more sophisticated health care and more elaborate social welfare services. Research and analysis methods allowing for full consideration of treatment effectiveness and requirement levels are only in the early stages of development. Statistics Finland seeks to divide output into subcategories that are as internally homogeneous as possible. The indicator it employs captures structural changes in the social welfare and health care sector. Hence, when the proportion of output grows for one subcategory, thus shrinking for another, this is also reflected in the sum total of output measured. In contrast, changes in requirement and quality levels within subcategories are not measurable.<sup>5</sup>

<sup>4</sup> *The main reason is that most of the social welfare and health care services are produced or financed by the public sector, which means that the services do not have a genuine market value.*

<sup>5</sup> *See eg Hautakangas, S, Heikkinen, J, Laine, S and Seppänen, O (2007): Julkisten palveluiden tuottavuuden mittaaminen Tilastokeskuksessa ('Measurement of the productivity of public services at Statistics Finland'), Chapter 7 in Kangasharju, A (ed.): Hyvinvointipalveluiden tuottavuus: Tuloksia opintien varrelta. ('Productivity of welfare services: results of a learning experience'). Publications of the Government Institute for Economic Research (VATT), No. 46.*

Ever since the 1990s, local authorities have increasingly purchased social welfare and health care services from providers outside the public sector, and the private sector has gained in importance particularly as a provider of the former. While towards the end of the 1990s the private sector accounted for just under 30% of employees and hours worked in the social welfare sector, by 2006 this proportion had risen to around 40%. Developments have been more moderate in health care, where the proportion of employees and hours worked accounted for by private services has increased by two to three percentage points compared with the levels recorded at the end of the 1990s; the figure stood at roughly a fifth in 2006. The structure of private service provision differs considerably between health care and social welfare services. Most of the private health care services are produced by the corporate sector, whereas the majority of private social welfare services are provided by non-profit organisations.<sup>6</sup>

In health care, the statistics indicate little difference between productivity development in public and private services. In social welfare, the private sector

<sup>6</sup> *The category 'non-profit organisation' mainly comprises organisations such as Folkhälsan Research Centre and the Finnish Red Cross.*

has posted higher productivity growth in recent years, but national accounts data still indicate that labour productivity remains much lower in the private sector than in the public sector. Especially in the case of social welfare services, the interpretation of these observations is impaired by the differences in the service composition between the private and public sectors.



# Demand

Statistics Finland's revision to quarterly accounts data in autumn 2007 has allowed a more precise picture of the composition of growth in 2006. An upward revision to import data lowered the contribution of net exports to the 5.0% GDP growth in 2006. The contribution from private consumption, in turn, was revised upward from the earlier estimate.

Private consumption is also forecast to preserve its large contribution to GDP growth in 2007–2009, although an equally large contribution is expected from net exports in 2007 (Chart 23). Private investment will also contribute significantly to GDP growth, particularly in 2007 and 2008. In 2008 and 2009 the growth contribution of net exports will be very small. At the same time, public sector demand will begin to support economic activity more than it has in recent years.

## Private consumption

Private consumption has grown fairly rapidly in recent years, buttressed by good employment, low interest rates, moderate inflation and consumers' strong confidence in their own finances. In 2005 and 2006 private consumption grew on average by around 4% annually – more than double the increase in real disposable household income (Chart 24). The household saving ratio was actually negative in 2006, meaning an excess of household consumption over income.<sup>1</sup>

Private consumption growth has eased slightly since summer 2006, and in

the first half of 2007 the volume of consumption increased by only around 3% from a year earlier. One reason for the slowdown has been the rise in interest rates. Also, there were no wage increases in the first half of 2007 based on the general incomes policy settlement, while higher inflation has slowed growth in households' real disposable income.

Chart 23.

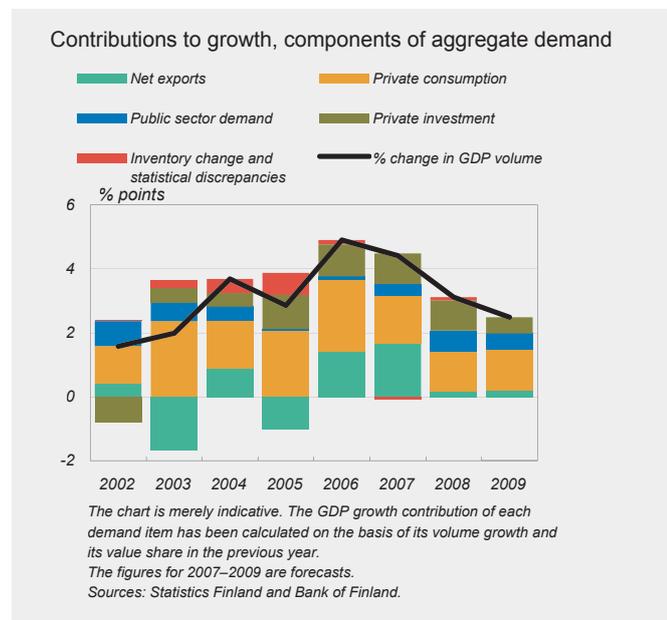
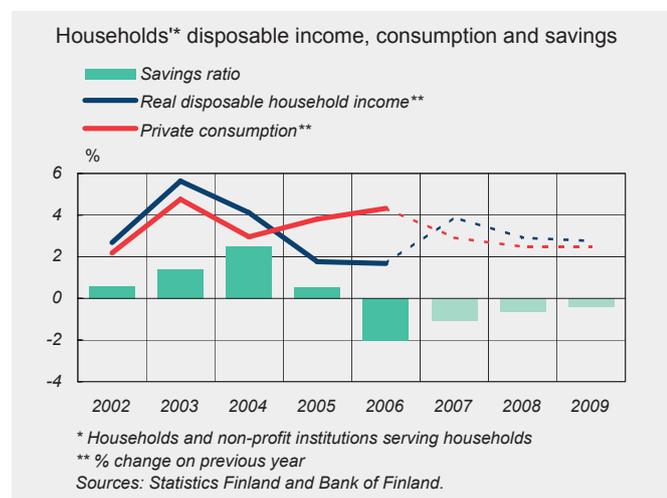


Chart 24.



<sup>1</sup> Household income development in recent years is reviewed in Box 7.

According to survey data, consumer confidence in their own finances has remained positive. On the other hand, in the last two years, consumers have revised downwards their assessment of the attractiveness of borrowing but revised upwards their assessment of the attractiveness of saving; this may be largely due to the higher interest rates. Private consumption growth has been constrained in part by lower sales of new cars, as potential buyers appear to be waiting for pending decisions on car taxes.

Private consumption is predicted to grow at a rate of 2.9% in 2007, slowing thereafter to 2.5%. The forecast for consumption volume in 2008 and 2009 has been revised slightly downwards from last spring, mainly due to the acceleration in consumer price increases from the previous estimate – the euro-denominated growth forecast for consumption is even stronger than the spring forecast. The household saving ratio is likely to remain negative, rising only moderately from 2006.

Private consumption growth will be constrained by rising household debt and

higher interest rates than in recent years. In contrast, the positive employment situation and income development should support consumption growth in the forecast period. Growth in aggregate wages will be robust throughout the forecast period, albeit slowing towards the end of the period on account of weaker employment and a slight moderation in wage increases after 2008.

### General government

The general government fiscal surplus continued to grow in 2006. Central government and employment pension institutions accumulated record-high property income at the same time as unemployment-related expenditure declined significantly and tax revenues continued to grow. Owing to tax cuts and exceptionally brisk growth in the value of GDP, the total tax ratio decreased by ½ of a percentage point. Robust economic growth lowered the general government debt-to-GDP ratio by around one percentage point (Table 7).

Continued buoyant economic growth will further strengthen general

Table 7.

General government revenue, expenditure, financial balance and debt, % of GDP							
	2003	2004	2005	2006	2007 <sup>f</sup>	2008 <sup>f</sup>	2009 <sup>f</sup>
General government revenue	52.4	52.3	53.0	52.5	52.6	52.6	52.3
General government expenditure	50.0	50.2	50.5	48.8	48.1	48.5	49.0
General government primary expenditure	48.2	48.4	48.8	47.3	46.6	47.0	47.6
General government interest expenditure	1.9	1.8	1.7	1.6	1.5	1.5	1.4
<b>General government net lending</b>	<b>2.3</b>	<b>2.1</b>	<b>2.5</b>	<b>3.7</b>	<b>4.5</b>	<b>4.1</b>	<b>3.3</b>
Central government	0.5	0.4	0.4	0.8	1.5	1.0	0.5
Local government	-0.6	-0.8	-0.6	-0.2	-0.1	0.1	0.0
Social security funds	2.5	2.5	2.8	3.1	3.1	3.0	2.8
General government primary balance	4.2	3.8	4.2	5.3	6.1	5.6	4.7
<b>General government debt</b>	<b>44.3</b>	<b>44.1</b>	<b>41.4</b>	<b>39.2</b>	<b>36.1</b>	<b>33.8</b>	<b>32.5</b>
Central government debt	43.4	41.9	38.2	35.3	32.3	30.2	29.0
Tax ratio	43.8	43.4	43.9	43.3	43.5	43.5	43.2

<sup>f</sup> = forecast  
Sources: Statistics Finland and Bank of Finland.

government finances this year, causing the general government fiscal surplus to rise by around one percentage point to an estimated 4½% of GDP. The economic upswing will increase the central government fiscal surplus in particular, helping local authorities cover their fiscal deficits, while financial surpluses in social security funds will remain close to 3% relative to GDP. Despite the proposed tax cuts, the effects of the economic upswing will last until 2008, sustaining the general government fiscal surplus at over 4% of GDP. Meanwhile, growth in general government expenditure on compensation for employees will accelerate, as public sector wages rise and the number of employees increases. In 2009, lower growth in tax bases, tax cuts and continued rapid growth in expenditure will cut the central government surplus in particular, leading to a contraction of around one percentage point in the general government fiscal surplus, to a good 3% of GDP.

The fiscal surpluses will enable repayment of central government debt in the forecast period. With a simultaneous stabilisation in the financial positions of local authorities, general government gross debt is estimated to contract to 32½% of GDP by the end of the forecast period. At the same time, investment assets held by the central government employment pension fund and by other employment pension funds are predicted to increase to 69½% of GDP. Employment pension fund investment assets are expected to grow in the forecast period in line with accumulated surpluses. In addition, investment assets in the central government employment pension

fund increased markedly in 2006, and this trend is continuing in 2007, as the government decided not to record the fund's financial surpluses in the Budget to cover central government pension payments.

Discretionary tax cuts will continue in the forecast period. Income tax on wage earners and indirect taxes were lowered at the beginning of the current year. This was accompanied by a simultaneous slight increase in the average local tax rate. The Budget includes a proposal for a revision to central government income tax schedules in 2008 so as to avoid a tightening of taxation on wage earners as a consequence of higher consumer prices and rising real incomes. The budget proposal also envisages a reduction of tax on pensions and inheritance tax, but higher taxes on non-renewable energy and alcohol. In contrast, implementation of the lowering of VAT on food, laid down in the Government programme, is not scheduled until October 2009. On top of the measures listed in the budget proposal, the forecast assumption is that the government will also revise the central government income tax schedules in 2009 in order to prevent a tightening of income tax on wage earners as a result of higher consumer prices and growing real incomes; nor does the forecast foresee any increase in the average local income tax rate in 2008 or 2009. Employment pension contributions will be raised and unemployment insurance contributions reduced in 2008. Changes in contributions are also assumed to be in the same direction in 2009.

In spite of discretionary tax cuts, the total tax ratio will decrease only slightly in the forecast period. Exceptionally robust growth in tax bases and tax revenues will push up the tax ratio this year. According to the forecast, the total tax ratio will not decline until 2009, when, in addition to tax cuts, the growth in tax bases is expected to slow.

General government expenditure will increase by an average of just under 5% annually in the forecast period. Average expenditure should also grow a little relative to GDP.

Lower unemployment-related expenditure will subdue expenditure growth this year, as growth in general government expenditure on compensation for employees is also expected to be moderate. Central government expenditure growth, in particular, will be limited because of low growth in discretionary expenditure. In addition, the number of central government employees is projected to remain unchanged and negotiated wage increases will be timed for the end of the year. In contrast, local government

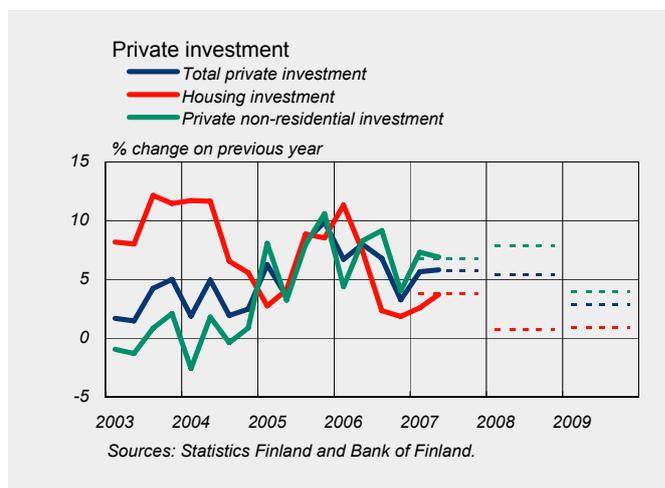
expenditure is estimated to continue to grow at a rate of 5% this year. Expenditure growth will pick up clearly after the end of the current year, with public sector wage increases accelerating and the number of public sector employees experiencing renewed growth. Growth in pension payments is also predicted to gain substantial momentum in the latter part of the forecast period, as the number of pensioners will grow rapidly when the baby boomers reach statutory retirement age. Major transport infrastructure projects will increase general government investment expenditure this year and next to such an extent as to also cause investment expenditure to expand in the forecast period relative to GDP.

### Investment

Growth in private fixed investment in the last two and a half years has been faster than in 2002–2004 (Chart 25). Since the beginning of 2006, however, the rate of growth has slowed slightly, notably in respect of housing construction, in which investment was earlier strong. The focus of growth in construction is in fact shifting from housing to other building construction. Growth in machinery and equipment investment has been regaining some momentum since the beginning of 2006, having been at a virtual standstill for a couple of years.

Increased demand for capital goods both at home and abroad has been reflected not only in the volume of investment but also in prices, which have been rising since 2005. Growth in the value of investment led to the rise in

Chart 25.



the investment ratio continuing in the early part of 2007. Even so, the value of investment in productive capacity relative to GDP continues to be lower than the average for the last 25 years (Chart 26). This is partly explained by ongoing growth in corporate R&D investment, as this expenditure is not included under fixed investment.

In certain industrial sectors, such as engineering, order books are currently at a record high at the same time as capacity utilisation rates have clearly risen. Meeting the order books at a time of increasing capacity constraints will require stronger inputs in investment. Recent good corporate results also provide scope for more investment in the domestic economy. On the other hand, tightening competition on global markets will put pressure on Finnish companies to expand their investments abroad.

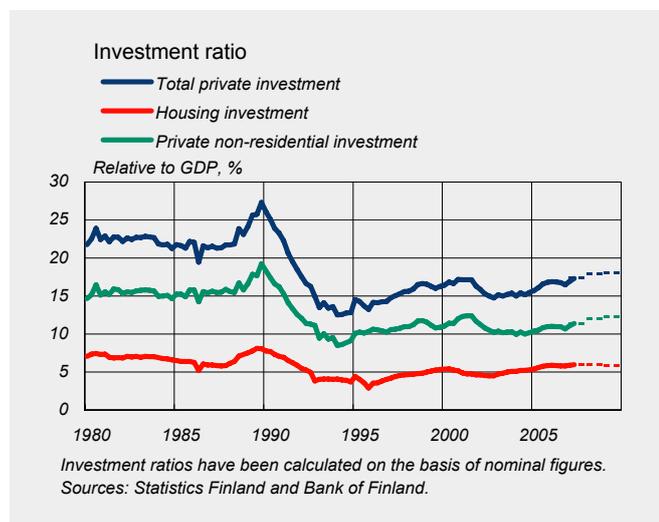
Investment in productive capacity is expected to continue its moderate growth in the forecast period. Growth in construction of business premises is indicated by higher numbers of granted building permits and building starts. The greater need for construction of business premises is due, among other things, to internal migration, construction of new residential areas, tightening competition for market share in the retail trade and investment in Finland by foreign retail chains. There are also signs of growth in leisure centres, while office construction is gathering pace, boosted by demand particularly for new, modern business premises. Industrial and warehouse construction is also on the increase, as industrial

investment is primarily focused on the replacement of old production capacity. Growth in warehouse construction is underpinned by building starts for logistics centres in the neighbourhood of harbours and trunk roads.

Investment in machinery and equipment is forecast to grow considerably, particularly in 2008. This partly stems from the ongoing nuclear power plant construction in Olkiluoto, which is also reflected in construction figures. Aircraft purchases by the air transport sector will also boost investment in machinery and equipment.

The investment forecast is consistent with business survey data, which point to positive investment prospects for industrial companies in the current year. According to the investment survey by the Confederation of Finnish Industries, the manufacturing industry estimates growth in the value of its domestic investment at more than 8%. Of the key industrial sectors, investment is reckoned to be strongest

Chart 26.



in the forest and technology industries. However, most this investment is aimed at capacity replacement or reorganisation of operations. Manufacturers estimate an increase in their domestic R&D investment of just under 4% this year. R&D investment continues to be focused on a single sector, namely the technology industry.

The rate of growth in housing construction is predicted to ease back significantly in 2008–2009. Higher financing costs and rising house prices will dampen demand for housing.

The investment ratio, measured as the ratio of the value of private investment to GDP, has risen since the beginning of 2005 by 1¾ percentage points, reaching 17% this year. Behind this rise has been housing construction, but also non-housing construction. Despite a deceleration in housing construction during the forecast period, buoyant growth in non-housing construction, together with increasing investment in machinery and equipment, will raise the investment ratio to 18% towards the end of the forecast period.

### The world economy and external demand

The world economy continued to grow robustly in the first part of the current year, and the exceptionally long boom in world trade appears to be receding only slightly. The focus of growth is in Asia, Russia and the new EU member states. Growth prospects in the old EU member states (EU15) have not materially changed in the last few months, whereas the current year's

growth in the United States will remain lower than forecast in the spring.<sup>2</sup>

The overall outlook for the international economy continues to be favourable. If the recent uncertainty on the financial markets is temporary, in line with the forecast assumptions, it is expected to dampen international economic activity only moderately during the next few quarters.<sup>3</sup> The possibility of persistent uncertainty gathering momentum, however, poses a significant threat to the forecast continued favourable trend – as does the prospect of a stronger-than-forecast easing of US growth.

In the United States, the trends in private consumption and housing investment have deteriorated and GDP growth is projected to remain at 1.8% in 2007. The EU15 saw continued favourable economic progress in the first half of the year. In recent months, business confidence indicators have weakened to some extent, but point nevertheless to ongoing fairly robust economic activity. In Japan, where growth is currently dependent on investment demand and exports, the outlook remained fairly bright, despite major volatility in investment in the early part of the year. Growth is anticipated to remain at around 2% in the forecast period. Chinese economic growth in the first half of the year continued to be very rapid, due mainly to the briskness of investment. The growth potential in China is estimated to have surged as structural reforms

<sup>2</sup> The Bank of Finland's spring forecast was published in March; see Bank of Finland Bulletin 1/2007.

<sup>3</sup> See Boxes 1 & 2.

and strong investment have removed production bottlenecks.

The deceleration of growth in the EU15 in the second quarter of 2007 is expected to remain temporary. The easing partly stemmed from a slowdown in construction, which in the benchmark period, ie the first quarter, was exceptionally buoyant due to the warm winter. The German VAT increase also subdued economic activity in the second quarter. Available industrial order books data for the third quarter point to robust performance.

GDP growth for the EU15 area in 2007 is expected to accelerate to 2.7%. The 0.2 percentage point upward revision to the forecast from the Bank of Finland's previous forecast is explained by a stronger-than-expected actual trend. Likewise, better-than-expected labour market developments have resulted in a slight upward revision to the growth forecast extending over a longer period. In 2008 and 2009, GDP growth is predicted to be 2.3% and 2.2% respectively (Chart 27; Table 8).

In the United States, growth in domestic demand in the first half of the year decelerated slightly more strongly than forecast due to the sluggishness of housing investment and private consumption. The glut of unsold homes on the market increased further still in the course of the spring and summer. This, accompanied by higher debt servicing costs for housing loans and tighter credit criteria, suggests a continuation of subdued housing investment in the latter part of the year as well (Chart 28).

Chart 27.

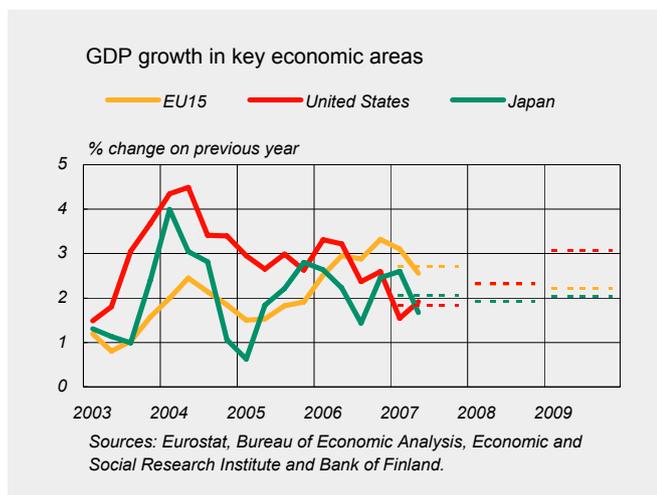
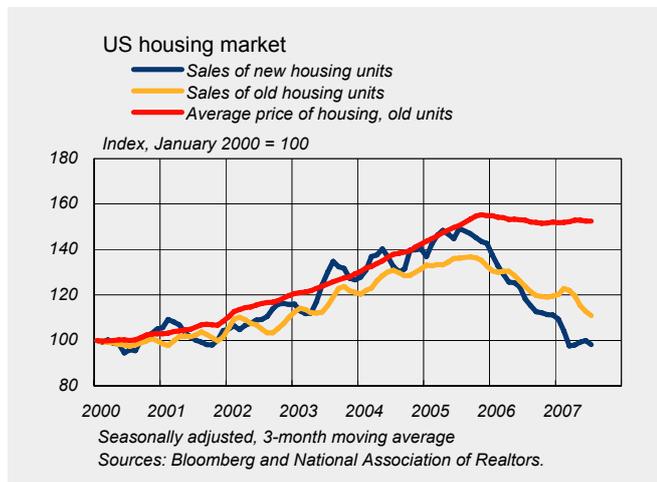


Table 8.

	2006	2007 <sup>f</sup>	2008 <sup>f</sup>	2009 <sup>f</sup>
<b>GDP</b>				
United States	2.9	1.8	2.3	3.1
EU15	2.9	2.7	2.3	2.2
Japan	2.2	2.1	1.9	2.0
World	5.1	4.8	4.4	4.5
<b>World trade</b>				
World trade	8.9	6.5	7.1	7.3
Finland's export markets	10.6	8.7	8.4	8.0

Growth in Finland's export markets equals growth in imports by countries to which Finland exports, on average, weighted by their respective shares of Finnish exports.  
<sup>f</sup> = forecast  
 Source: Bank of Finland.

Chart 28.



Private consumption growth is also anticipated to remain fairly muted in the latter part of the current year and at the beginning of next year. GDP growth is forecast to accelerate slightly in spring 2008. A gradual recovery in housing investment will provide an initial boost to growth, while a stronger pick-up in private consumption should support growth in the middle of the year. The sources of higher growth will be lower interest rates, continued relatively good income and employment development and buoyant world trade. Growth will normalise to around 3% towards the end of the forecast horizon.

Japanese growth rates and particularly investment demand have undergone major fluctuations in the early part of the current year. The growth rate has for several years already been higher than the estimated growth potential, which is reflected, among other things, in a tightening labour market and high capacity utilisation rate. Export-led growth in Japan is estimated at 2.1% for 2007 and 1.9% and 2.0% in 2008 and 2009 respectively. The significance of Asian countries for the Japanese export industry has increased in 2007, alongside a simultaneous deceleration in exports to the United States. The outlook for domestic consumer demand is dampened by weak wage development, reflecting replacement of the ageing work force by lower-paid young employees and competition from cheap labour in neighbouring countries. If these factors remain unchanged in the next few years, no significant recovery in consumer demand is expected to take place in the forecast period.

The Chinese economy has continued to grow robustly in the current year. The continued strength of the rapid growth in investment and exports has been a surprise, while private consumption growth has accelerated as expected. Chinese growth potential is generally estimated to have surged as a consequence of structural reforms and reduced production bottlenecks, causing a slight upward revision to the growth forecast for China. Looking ahead, relocation of entire production chains to China will reduce demand for imported inputs, but the good income development suggests a gradual increase in demand for foreign consumer goods can be anticipated. The goods surplus will, however, remain substantial over the next few years.

The strong growth has also been mirrored in costs, despite monetary policy tightening. The largest volatilities in consumer price inflation do, however, stem from fluctuations in supply of agricultural products. Looking ahead, inflation will be affected by egg cost pressures arising from rapid wage increases and brisk monetary and credit growth. Monetary policy tightening is expected to continue.

Export-driven growth in Asia outside Japan and China continues to be vigorous. Productivity growth, monetary policy and competition from China have, however, kept inflation relatively subdued. In India, the threat of economic overheating has diminished, as higher interest rates have dampened domestic demand and the stronger exchange rate has slowed

growth in exports. Overall, economic growth in Asia outside Japan and China is anticipated to slacken slightly this year and next, while still remaining strong.

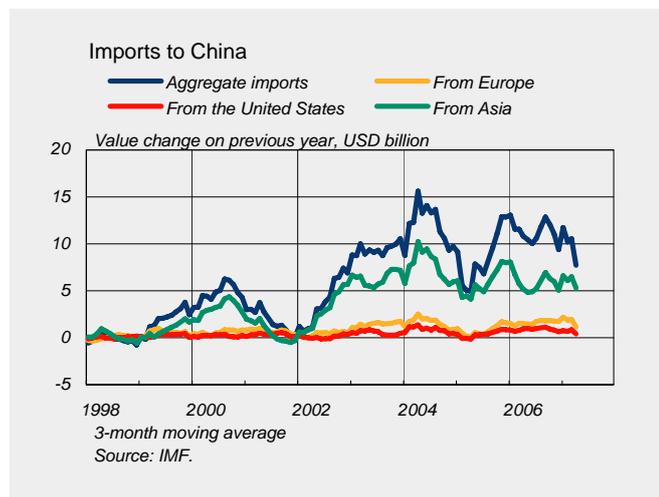
Recent developments in intra-Asian trade suggest a reduced sensitivity to variations in demand from the United States (Chart 29). On the other hand, final demand for intermediate goods traded within Asia is still largely in the United States.

The Russian economy continued to grow rapidly in the early part of 2007, but growth is forecast to bottom out towards the end of the year and in the course of 2008. The present growth of the Russian economy is based on robust growth in consumption, which is predicted to increase much faster than GDP in the forecast period. Investment has also gained in importance, and investment growth appears to have been fairly broadly based across all sectors. Imports will continue to grow, on average, three times faster than exports, given higher income and a strengthening of the rouble in real terms, which – in combination with lower growth in export earnings – will absorb some of the Russian current account surplus during the forecast period.

### Export markets and export prices

The continuation of the strong world economic upswing in the first part of 2007 and the shift of focus in growth to emerging economies have also been reflected in international trade. Both world trade and growth in Finland's export markets have remained brisk.

Chart 29.



Country-specific and regional changes in foreign trade flows have, however, been substantial. Growth in US imports has petered out, but this has been offset by investment-related demand from emerging economies.

Indicator data point to fairly robust world trade developments in the third quarter of 2007 as well. Even so, the turmoil on the financial markets since early August allied to increased uncertainty surrounding the prospects for economic growth are expected to have a slightly downward impact on trade growth over the next few quarters.

Growth in Finland's export markets – ie import growth in countries to which Finland exports, weighted by their respective shares of Finnish exports – has been faster than world trade growth in recent years (Chart 30). GDP and imports have in fact grown vigorously in important target areas for Finnish exports, such as Sweden and Russia. Finland's export markets are also forecast to expand faster than

world trade in the next few years due, among other things, to the strength of imports by Russia and the new EU member states. Towards the end of the forecast period, however, the differential in growth rates is expected to narrow as a result of slower import growth in Russia. Finland's export markets will grow by 8.5% in 2008, ie slightly more slowly than in 2007. In 2009, the figure will be lower still, but will remain above 8%.

Chart 30.

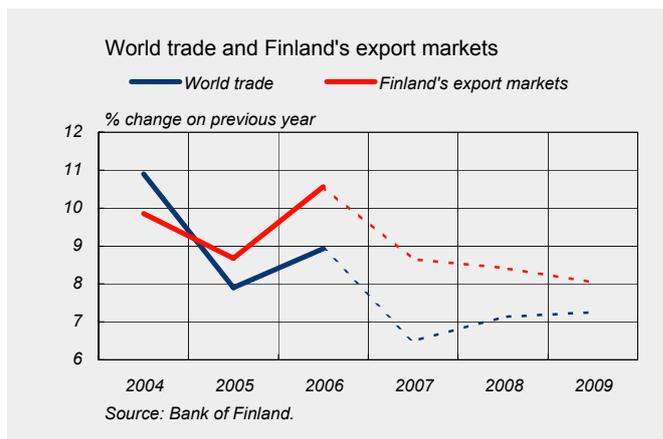
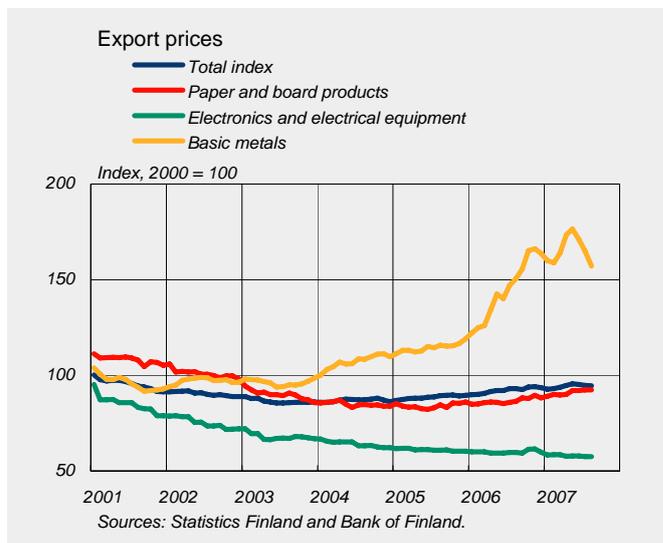


Chart 31.



The composition of imports to Russia, and to some extent also to the new EU member states, is not particularly favourable for Finland. Finland produces very little finished consumer goods, such as cars, on which Russian import demand largely focuses. However, investment in machinery and equipment by Russian industry may open up new opportunities for Finnish engineering exports.

The sectoral composition of Finnish exports differs clearly from that of the rest of the euro area. The high level of world market prices for metals in the first part of 2007 raised Finland's export prices, because manufacture of basic metals accounts for a relatively large proportion of Finnish exports. In the summer months, due to robust demand and higher raw material prices, export prices for machinery and equipment were 2–3% higher than a year earlier. On the other hand, export prices in electronics continued their trendlike decline, as the quality-adjusted prices of mobile phones continued to fall. Export price developments in the paper industry have been muted for several years now. In contrast, prices for sawn timber have risen briskly in the course of the current year, notably due to the recovery in German construction. Strong price dynamics for metals, some chemicals and sawn timber brought the deflator for goods exports in the first half of 2007 to a level that was almost 3% higher than a year earlier (Chart 31).

Price developments in Finnish goods exports largely reflect changes in world market prices. Export prices for

paper are expected to continue rising very slowly in the next few years. North America will provide additional supply to the European paper market, which will serve to keep price hikes in check. Price rises for traditional capital goods are estimated to be relatively moderate in the next few years. The forecast foresees a downward reversal of metal and other raw material prices in the forecast period, which will also be reflected in export prices for Finnish metal products, especially in 2009. With prices of mobile phones and other electronics products falling at an annual rate of 2–3%, increases in export prices for goods and services will remain insignificant next year, and in 2009, the final year of the forecast period, they will start to decline slightly.

### Foreign trade

Growth in exports of goods and services has been rapid in the last three years (Charts 32 & 33). In 2006 the volume of exports increased by a good 10%, even if this figure is overstated by 2 percentage points owing to the base effect from the paper industry labour dispute in 2005. The elevation of export prices also boosted the value of exports. The first half of 2007 still witnessed fairly robust export performance.

Exports have been supported by brisk growth in Finland's export markets. In addition, higher corporate investment demand worldwide has underpinned traditional metal industry exports in particular.<sup>4</sup> Finnish export

growth has been constrained by, among other things, the focusing of Russia's strongly increased import demand on consumer goods, which the Finnish export industry produces on only a limited scale. On the other hand, re-exports of cars to Russia have continued to grow in the first part of 2007, whereas exports of mobile phones through Finland have slackened year-on-year.

The volume of imports of goods and services grew relatively fast until

Chart 32.

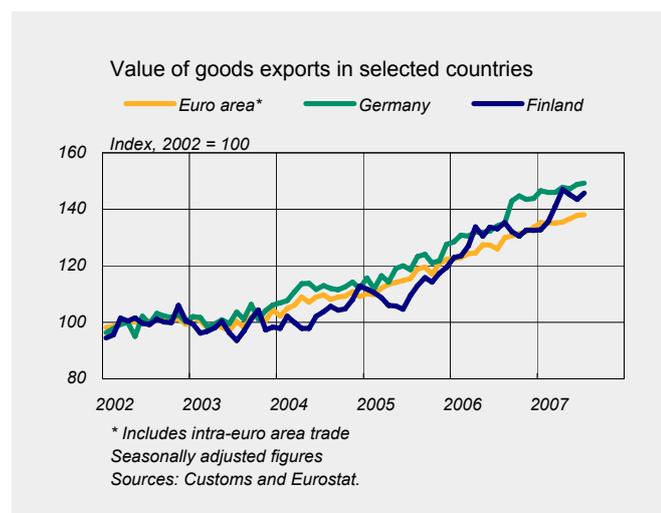
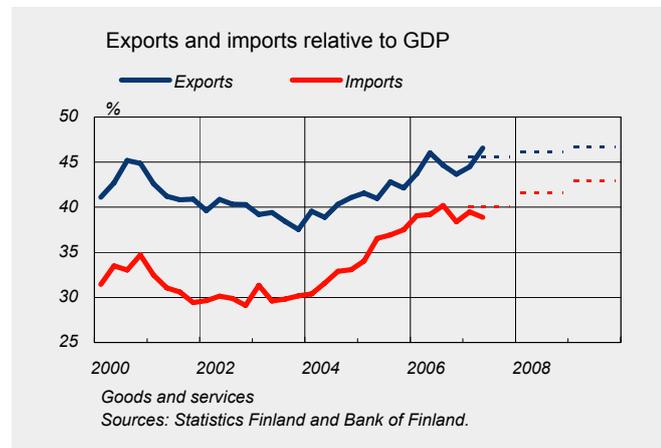


Chart 33.



<sup>4</sup> The role of the metal industry in recent economic growth is analysed in Box 4.

autumn 2006, after which it has remained almost unchanged. This is slightly surprising, given the continued vigour of domestic demand and companies' bright cyclical outlook. Muted sales of new cars may provide a partial explanation for the recent sluggishness in imports. In addition, one of the strongly increased demand components in Finland is construction investment, which is biased towards the home market. Another barrier to import growth has been the recent weakness of growth in electronics output, which uses a great deal of imported components. For instance, the number of mobile phones manufactured in Finland has remained almost unchanged for a couple of years now, gauged on the basis of the difference between export and import statistics.

Growth in the volume of exports of goods and services is forecast to ease from the current year's 7% to 5.5% in 2009. This slowdown in growth is partly due to a slight moderation in growth in Finland's export markets. Moreover, capacity constraints and availability of labour in some export sectors will scale down growth opportunities. Nor are the majority of export industry sectors investing significantly in activities that could expand production by utilising new labour-saving technologies. The engineering industry, however, is forecast to increase some capacity on account of its good export prospects. Russian export duties on roundwood, a source of cost increases, will start to affect export volumes in the forest industry from the

beginning of next year. Nevertheless, the basic scenario of the forecast sets out from the assumption that the sizable additional increases in export duties on roundwood planned for 2009 will not be implemented. The implications of these increases are discussed in a separate risk assessment at the end of this forecast.

Growth in the volume of imports of goods and services is forecast to normalise next year after the dip experienced this year. In 2009, imports should increase almost in tandem with exports.

### Current account

The current account surplus experienced a trendlike decline until 2005 from the peak figures seen at the turn of the millennium. This development was guided by goods trade, in which the surplus diminished as a result of modest growth in the volume of goods exports and a weakening in the terms of trade. The decline in the current account surplus was subsequently reversed, with the surplus posting a slight increase in 2006 to stand at just under EUR 9 billion, ie around 5% of GDP (Chart 34).

The main reason for the growth in the surplus in 2006 was the base effect from the paper industry labour dispute in 2005. This cut goods exports, causing the goods surplus to remain exceptionally small that year.<sup>5</sup> Excluding the impact of the labour dispute, the current account surplus

<sup>5</sup> Developments in the goods balance in 2006 were discussed in the Bank of Finland Bulletin 1/2007, p. 46–47.

would have contracted in 2006 compared with 2005.

The services balance has remained firmly in surplus in the last few years, although the surplus decreased substantially in 2006 compared with the previous year. The surplus has been maintained by growing exports of business services. These include head office services provided to each other by units of multinational groups operating in different countries. Finland's net payments to EU institutions, in turn, have kept current transfers in a substantial deficit. The income balance has been close to balance in recent years. It showed a surplus of just under EUR 1 billion in 2006, when income from investments made by Finnish residents abroad increased markedly from the previous year, causing the investment income balance to show a slight surplus for the first time.

In 2007, the current account surplus is predicted to increase somewhat on the previous year. The continued strength of global investment demand will reinforce exports at the same time as imports grow very moderately. Provided that the services balance, income balance and current transfers remain at the levels of the previous year, growth in the volume of net exports will more than offset the negative impact on the current account from the weakening terms of trade. The current account surplus relative to GDP will also grow slightly in 2007. The post-2007 period will see the recommencement of a gradual erosion of the goods surplus in an environment of

Chart 34.

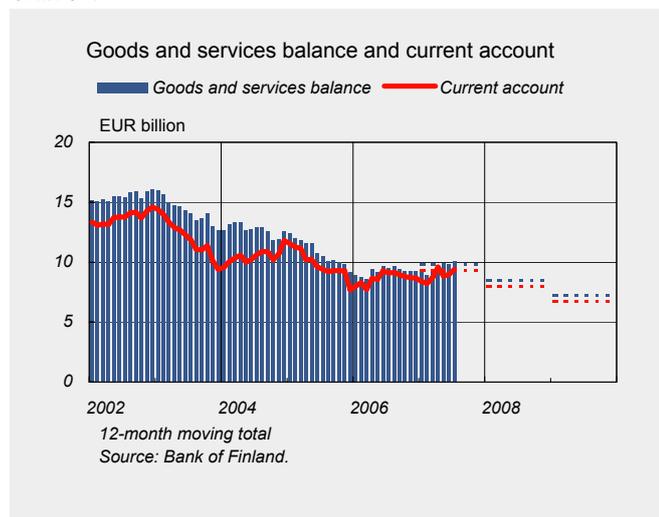


Chart 35.



lower export growth, higher imports and continued deterioration in the terms of trade (Chart 35). Moreover, as no major changes in the services balance, income balance or current transfers are expected in the forecast period, the current account surplus will contract to close to 3½% of GDP in 2009.

### Recent years' growth in real household income

Household income development in the last couple of years has been slower than earlier in the present decade. In 2000–2004, nominal disposable household income grew by more than 5.4% per annum on average.<sup>1</sup> In 2005–2006, the pace slowed to 2.5%, despite concurrent nominal GDP growth of 4.7% on average (Chart 36).

Along with slower growth in nominal income, growth in real income has also decelerated recently owing to the pick-up in the pace of inflation, which began in the first half of 2006, as measured by the national consumer price index. In 2003–2005, inflation was very slow. In 2000–2004, real disposable household income grew at an average annual pace of more than 3%, compared with less than 2% in 2005 and 2006.

Although wages and salaries have grown rapidly in the last couple of years, boosted by excellent economic performance, growth in disposable household income has been slowed by disadvantageous developments in dividend income compared with previous years, and changes in taxation

<sup>1</sup> The figure for disposable income is arrived at in the national accounts on a sectoral basis by adding incoming income transfers to primary income and then subtracting all outgoing income transfers. Primary income in the household sector includes households' received employee compensation, operating surplus, mixed income plus property income minus interest payments. Disposable income can be used for consumption or saved.

(Chart 37). Dividend income has been affected by the reform of corporate and capital taxation, effective as of the beginning of 2005, which led to the bringing forward of some dividend income to the tax year 2004.

Growth in disposable household income was limited in

2005 and 2006 by higher direct taxes and social security contributions paid by households. As well as the rapid rise in aggregate wages, the amount of taxes paid was also increased by the lack of any significant cuts in taxes on earned income in 2005. In 2006,

Chart 36.

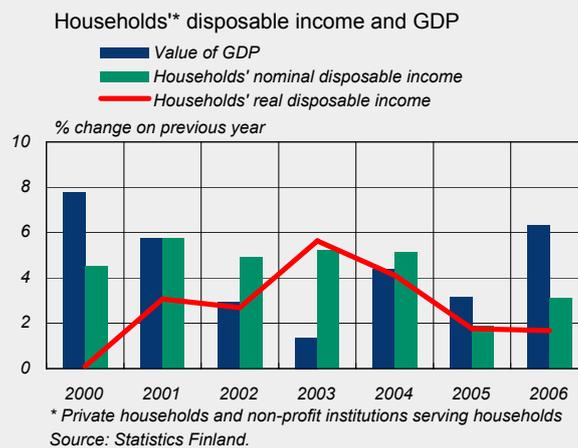
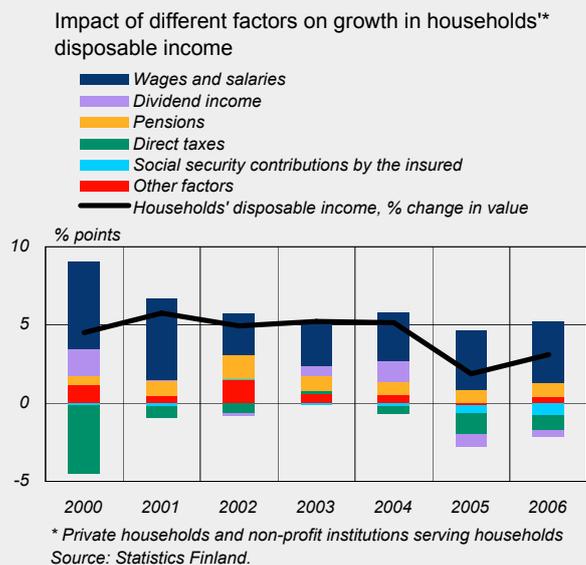


Chart 37.



the rise in direct tax revenues decelerated, partly due to the revision of funding for health insurance: this reduced the taxes paid on earned income but increased the level of social security contributions. The latter were also affected by an increase in unemployment insurance contributions in 2005 and their subsequent reduction in 2006.

Income development is heavily dependent on

developments in employment and wages. In recent years, the growth in aggregate wages has been rapid, bolstered by the positive employment situation. The number of employed in 2006 was almost 110,000 more than in 2000, an increase of 4.2%. The number of hours worked has grown more slowly, as some of the new jobs have been part-time. Even so, the number of hours worked has

had a key influence on household income development, particularly in the last couple of years (Chart 38).

Growth in wages and salaries per hour worked (and per employee) slowed in 2006. There was also a deceleration in aggregate earnings growth, as measured by the index of wage and salary earnings. Rising at an average annual pace of 4% in 2000–2005, this slowed to 3% in 2006. Of this increase, just under 2 percentage points were due to an increase in negotiated wages. At the end of 2004, a general income settlement was concluded for the period February 2005 – September 2007, and the agreed wage increases were moderate.<sup>2</sup>

Growth in pension income has in recent years been limited by the fact that annual adjustments to pensions are strongly influenced by the consumer price index, which grew particularly slowly in 2003–2005. The level of pensions already granted is revised annually using the employment pension index, of which changes in price level account for 80% and changes in earnings for 20% (Chart 39). The inflation rate has an even greater impact on the national pension. This is revised annually on the basis of the national pension index, which follows changes in consumer prices.

Chart 38.

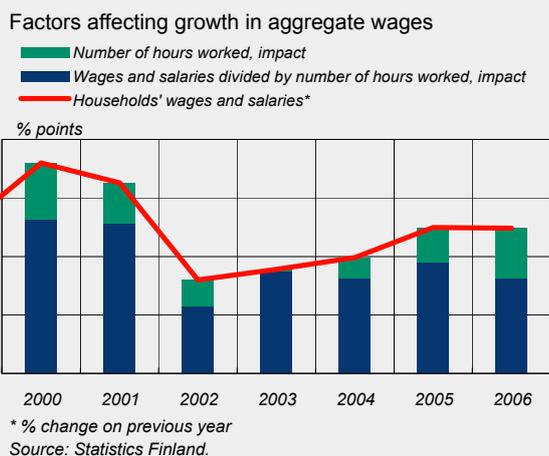
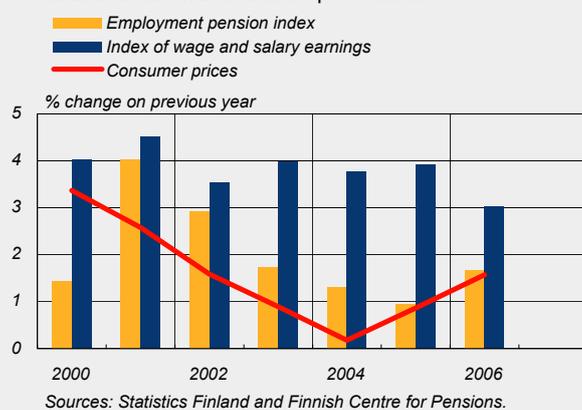


Chart 39.

**Index of wage and salary earnings, employment pension index and national consumer price index**



<sup>2</sup> Recent developments in wages are examined in more detail in Box 8.



# Costs and prices

## Labour costs

The rate of growth in wages has not accelerated in the early part of 2007, compared with 2006. Earnings growth has remained stable, at approximately 3% per annum (Chart 40). In contrast, the new pay agreements concluded in 2007 by individual trade unions foresee rapid growth in wages during the forecast period.

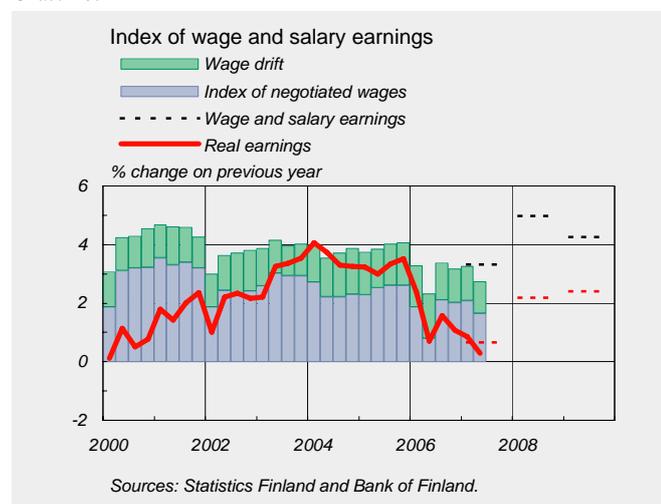
Industry-specific wage negotiations are currently under way in the labour market because the fairly comprehensive incomes policy settlement for 2005–2007 expired at the end of September 2007. The cost effect of the wage increases under the old comprehensive settlement was 2.5% in March 2005 and 2.1% in June 2006. By the autumn, settlements had been concluded in eg the technology and chemicals and the financial sector. In early autumn, negotiations have taken place in eg local and central government and in several private service industries. In some sectors, the present settlement does not expire until 2008.

The most important settlements signed by mid-September are long-term agreements typically valid for or terminable after two years. In line with the settlements, wages and salaries will be increased within the first two years by nearly 4% annually, including a general wage and salary increase, a one-off payment, and other items. The focus of the general increases is on the first part of the contract period, with the largest ones taking place in autumn 2007. This effect is increased by the one-off payments paid in several industries at the beginning of the contract period that will not perma-

nently increase the level of earnings. A number of sectors are still seeking to reach an agreement by the beginning of October. In local government, for example, the parties have been negotiating a wage and salary increase more or less in line with that negotiated by the unions in industry. Also in local government, negotiations have been under way on an additional equality payment to direct pay increases to female-dominated professional sectors. This will be partly funded from the Budget.

Settlements already concluded in the private sector indicate that conditions of employment, both wages and working hours, are increasingly being agreed on locally. The proportion of locally agreed wage and salary increases is significant, particularly in the technology industry, where, in addition to a general increase of approximately 6% for the first two years, a company or workplace specific increase of a maximum of 2½% has also been agreed. In the financial sector, too, a proportion of pay increases are to be

Chart 40.



agreed on an individual basis between employers and employees. Where implemented, this sort of local flexibility can improve productivity and the match between labour supply and demand. The growth in wage drift is likely to slow slightly, as local flexibilities are already increasingly reflected in negotiated wages.

Compensation per employee also includes cyclically sensitive overtime pay and bonuses, which do not affect the index of wage and salary earnings.

Compensation per employee has grown steadily since 2006, at an annual rate of approximately 3% (Chart 41). A sectoral analysis up to year 2006 does not suggest a significant growth in wage drift in any of the main industries (see Box 8). In early 2007, however, there were some signs of growing wage drift in those industries most affected by labour bottlenecks, particularly construction.

The forecast estimates that wages will grow fairly rapidly in 2008, after which the pace will level off slightly. This reflects both the fact that the focus of negotiated pay increases is on the first part of the agreement period, and also the expected gradual slowdown in economic growth, which will be accompanied by a decrease in overtime pay and bonuses. In contrast to Finland's experience in recent years, growth in real earnings in 2007 and 2008 will, due to strengthening inflation, be well below nominal earnings growth. Inflation will moderate again in 2009, and in 2008–2009 real earnings growth will be a good 2%.

Due to the accelerating growth in wages, unit labour costs are forecast to grow faster in 2008–2009. If productivity growth does not reach the level forecast, there is a risk Finland could gradually lose its competitiveness. Higher labour costs partly explain the forecast acceleration in consumer price inflation in the next few years.

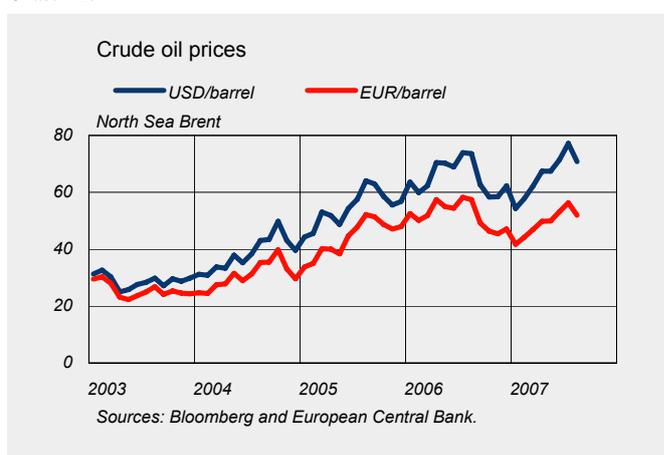
### Commodity prices

The world market price of oil has fluctuated considerably in the past year (Chart 42). This year, it reached

Chart 41.



Chart 42.



a record high, at approximately USD 80/barrel. Oil price developments reflect the continued strong expansion of the world economy and the strong demand for oil. The pricing policy of oil-producing countries and the volatility on the global financial markets have also affected the world market price.

We have assumed that crude oil prices will remain broadly unchanged over the next few months and will decline only slightly in the immediate years ahead. According to our forecast assumption based on oil futures prices, the average price of crude will be slightly under USD 75/barrel in 2008 and will still be slightly over USD 70/barrel towards the end of the forecast period as the strong expansion of the world economy sustains demand for oil and the available production capacity, which has remained relatively tight, grows only slightly. Although the use of non-fossil fuels will increase, it will not be enough to substantially reduce crude oil prices. Oil prices may fluctuate considerably in the future, too, due to eg unexpected weather conditions.

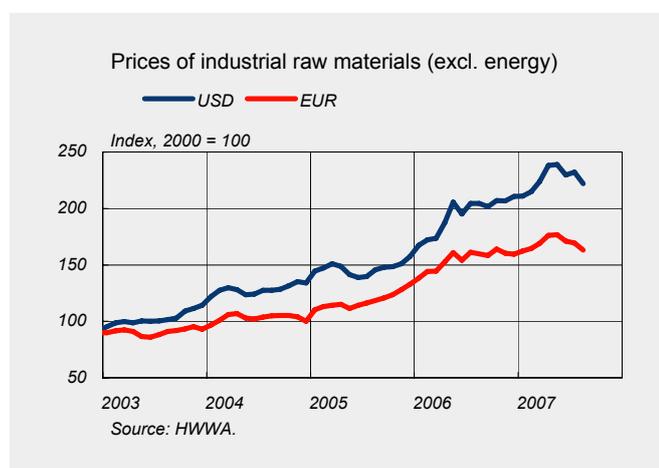
In 2006, the prices of industrial raw materials (excl. energy) rose substantially more than the previous year, by over 30% in USD terms (Chart 43). During the course of the current year, there has been a considerable rise particularly in the dollar prices of raw materials from their levels at the turn of the year. Due to the continued rapid expansion of the world economy and buoyant investment, particularly in the emerging economies, demand for

raw materials has remained strong relative to supply. At the same time, raw material inventories have declined.

The high prices are forecast to gradually boost output of raw materials over the forecast period. Commodity prices will thus decline by approximately 4% per annum after 2007.

The world market price of agricultural products has continued to rise at a rapid pace in 2007. Cereal prices in particular, but also meat and dairy prices, have risen considerably, in some cases to record high levels. The unusual weather conditions recently have had a considerable impact on prices. This impact is expected to remain temporary. Prices have, however, also been driven upwards by more permanent factors such as the growing demand for bio energy and changes in food consumption patterns in the emerging economies. Finally, the robust expansion of the world economy has reinforced the impact of the above-mentioned factors on the world market price of food raw materials.

Chart 43.



## Import prices

Measured by Statistics Finland's import price index, import prices in 2006 were up an average of 7.5% on the previous year, and the rise has accelerated in 2007. Of product groups, the prices of energy products fluctuated by far the most, as they follow the development of crude oil prices (Chart 44). The prices of raw materials (excl. energy) and intermediate goods continued to rise until May 2007, thereafter showing a slight decline.

Chart 44.

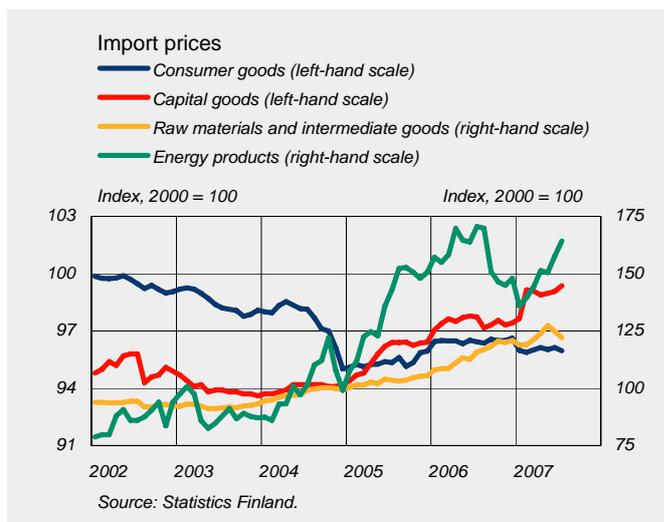
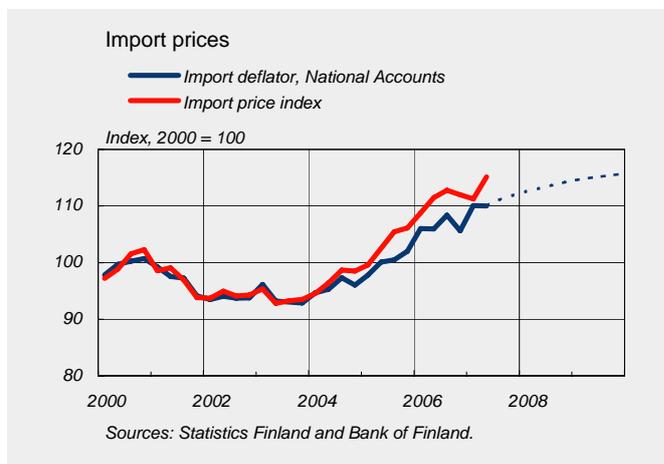


Chart 45.



International competition, growing imports from Asia and the slight rise in the external value of the euro have maintained the moderate development of import prices for consumer goods in recent years. In 2006, they rose by over 1% on average from the previous year. This year, however, they have begun to decline slightly, in contrast with other import prices. By contrast, the import prices of capital goods have continued to rise in 2007, driven by sustained robust demand on the international market and the rise in raw material prices.

The import deflator used in the national accounts has in recent years risen more slowly than the import price index (Chart 45). This is due to differences in the definitions: the import deflator is a more extensive measure of import prices and includes services, the import prices of which have in recent years risen rather moderately.

Import prices will continue to follow the development of raw material prices over the next few years. The continued historically high oil prices will help to sustain the high level of import prices, while, on the other hand, the declining prices of industrial raw materials (excl. energy) will have the opposite effect. The import prices used in the national accounts are expected to rise this year by 4%, but import price inflation in 2008–2009 will average 2%.

## Domestic producer prices

Industrial producer prices have increased considerably in recent years, due to the rise in the world market price of energy and other raw materials

(Chart 46). In 2006, prices increased by some 5% on the previous year. In June–August 2007, however, there was a slight fall in prices following the levelling off of the rise in world market prices for raw materials.

Since the majority of industrial output in Finland is exported, industrial producer prices largely reflect international price trends, and hence export prices. The industries producing capital goods and intermediate goods consume large amounts of raw materials and energy. The strong rise in the world market price of metals and crude oil, in particular, has therefore pushed up production costs in manufacturing. Moreover, labour costs in Finland have risen sharply in the present decade, although this has been compensated by the rapid growth in labour productivity.

### Higher producer prices for food

Production costs in the food industry have also recently been subject to upward price pressures. The strong increase in the world market prices for cereals and other food raw materials has also driven up the production costs of staple foodstuffs in Finland. The rise in cereal prices has nevertheless been much more moderate in Finland than on the world market (Chart 47). According to the HWWA index, the price of cereals has risen since the beginning of 2005 by approximately 55%. The producer price index for agriculture shows that, during the same period, producer prices of cereals have increased in Finland by approximately 22%.

Cereals account for a relatively small share of food production costs in

Finland; in the case of bread, for approximately 5% of the production costs. The largest production costs are in processing, which accounts for approximately half of the total costs. Rising labour costs, together with raw material prices, will thus have a significant impact on food production costs. Production costs are also affected by changes in energy prices.

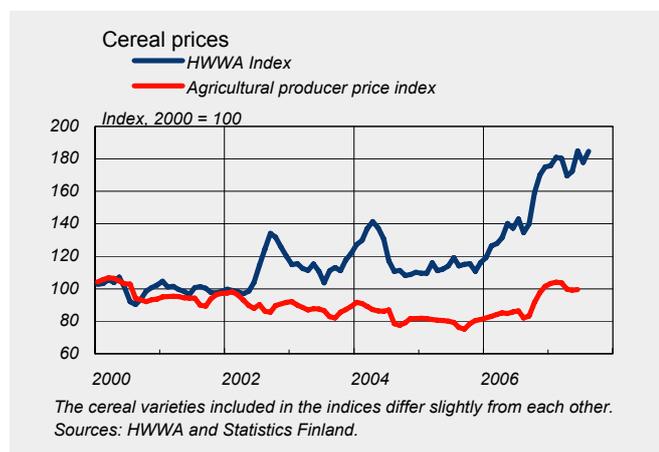
### Moderate rise in domestic production prices

The rise in private sector production costs will accelerate slightly in the next

Chart 46.



Chart 47.



few years. Rising raw material prices and accelerating growth in labour costs will combine to increase production costs. The rise in production costs will, however, be dampened by labour productivity growth of average approximately 2% per annum over the forecast period (Chart 48). Although the rise in unit labour costs will accelerate somewhat over the forecast period due to faster growth in wage costs, the rise will nevertheless remain moderate.

With moderate growth in productivity and only a temporary acceleration

in the rise in unit labour costs, the increase in domestic production prices will also remain moderate in 2007–2009. Growth in private sector production prices will, in fact, accelerate slightly only in 2008, as a result of increasing wage costs. Moreover, the assumed levelling off of the rise in commodity prices will dampen the increase in production prices.

### Consumer prices

The rise in consumer prices in Finland in recent years has been well below the euro area average. As measured by the harmonised index of consumer prices (HICP), inflation in Finland was 1.3% in 2006, compared with 2.2% in the euro area (Chart 49).

The annual rate of increase in the HICP is still not rapid, although it has accelerated slightly over the past year. The increase in prices has been particularly pronounced in services. This is almost entirely due to the reversal around mid-2006 of the earlier declining trend in telecom prices. Telephone call charges have gone up by over 10% in the past year. Housing rents as well as restaurant and café prices have also been increasing rapidly for quite some time. Other factors accelerating the increase in the HICP in early 2007 include rising prices for vehicle fuels and the increase in certain food prices, eg vegetables.

The rise in consumer prices has been dampened most by non-energy industrial goods. The prices of used cars and entertainment electronics, in particular, have continued to decline in

Chart 48.

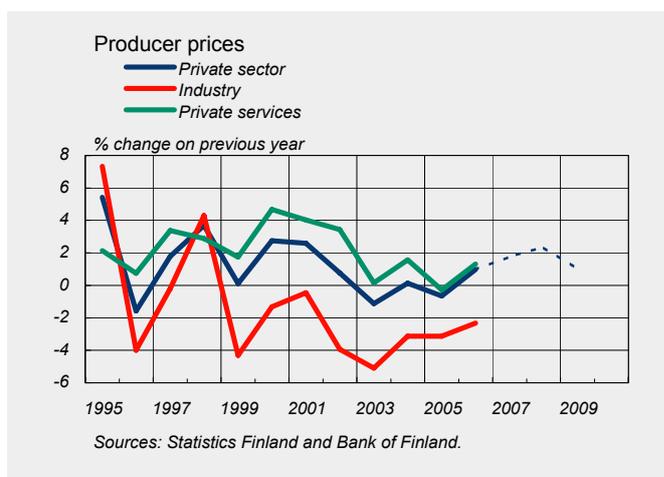
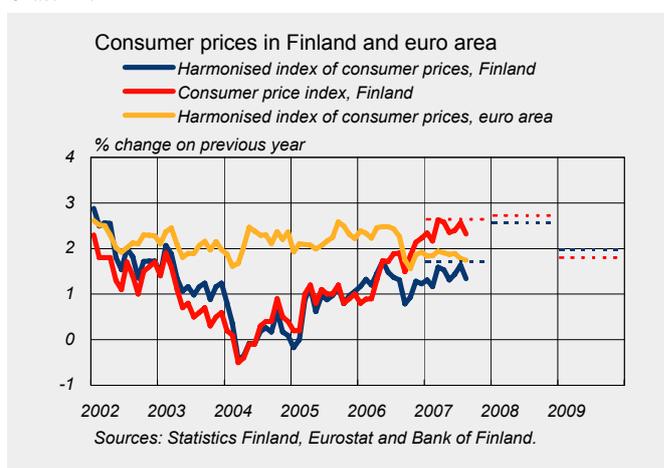


Chart 49.



2007. In recent months, the annual rate of change in consumer prices has also been dampened by developments in vehicle fuel prices. This is however, mainly due to a base effect stemming from price developments in 2006.

The rate of increase in the national consumer price index (CPI) has in recent years accelerated to a level well above that of the HICP. This is due to the rise in housing prices and the interest rate on housing loans and consumer credit (Chart 50). These items are included in the national CPI but not in the HICP.

One factor that has helped to keep the rise in consumer prices moderate in recent years has been the relatively subdued development of unit labour costs. Price pressures have also been dampened by a slight appreciation in the external value of the euro, increased imports from Asia and heightened competition on the domestic market, eg in retailing. In contrast, the rising price of energy and other raw materials has contributed to driving inflation in Finland.

### Inflationary pressures increasing

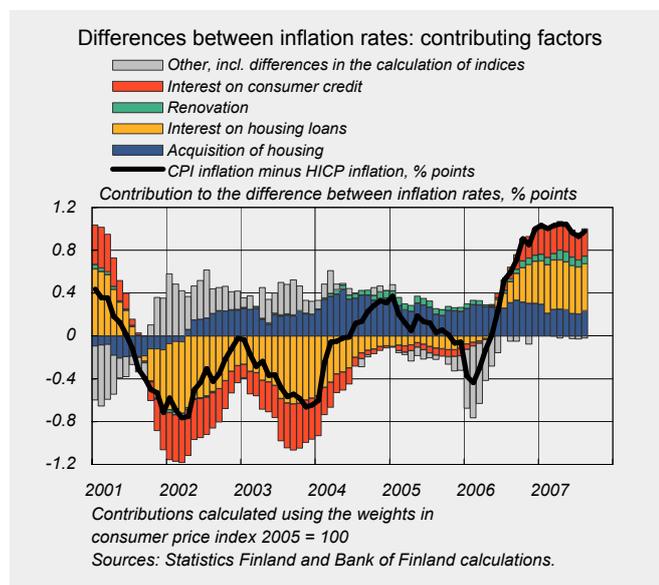
Inflation over the next few years is projected to be higher than in recent years. This is mainly due to the pick-up in the rate of growth in wages. Price developments will also be affected by changes in indirect taxation and the rising world market price for food raw materials. According to our forecast assumption, the world market prices of energy and metals will no longer directly accelerate inflation in Finland in 2008–2009.

Inflation according to the HICP is projected to accelerate to 1.7% on average in 2007. Fuel prices are forecast to push up the annual rate towards the end of 2007 due to a decline in prices a year earlier from the peak levels in summer 2006.

In 2008, HICP inflation is projected to accelerate to 2.6% on average. The planned increases in taxes on energy and alcoholic beverages will boost consumer prices by approximately 0.4% at the beginning of 2008. Inflation will also be spurred in 2008 by the forecast acceleration in the rate of growth in labour costs. Moreover, the recent sharp rise in the world market price for food raw materials, eg cereals, is expected to have some impact on domestic consumer prices for food.

HICP inflation is forecast to slow again to 2% in 2009. The rise in import prices will ease and the temporary inflationary impact of increases in energy

Chart 50.



and alcohol taxes will no longer influence the calculation of annual inflation. The cut in VAT on food in October 2009 will also dampen the rate of increase in consumer prices.

The rate of increase in the national CPI is projected to accelerate to 2.7% on average in 2008. It is forecast to

slow to a level below HICP inflation during the course of 2008, due to the fact that the rise in interest rates is expected to level off, in line with market expectations. National CPI inflation will also be dampened by a slower rate of increase in housing prices.

Box 8.

### Wages have developed fairly evenly across industries

This box examines earnings growth across the main Finnish industries in 1996–2006, based on data issued by Statistics Finland.<sup>1</sup> During this period, wages were agreed in comprehensive incomes policy

<sup>1</sup> *The National Accounts and the index of wage and salary earnings 1995=100.*

settlements, with the exception of the industry-specific collective bargaining by individual trade unions in 2000. GDP growth was rapid on average, at almost 4% per annum, and inflation was subdued. Earnings growth averaged 3.6%, and real earnings adjusted for changes in

the consumer price index grew by 2.2% per annum.

Of the 3.6% average annual increase in earnings in 1996–2006, 2.4 percentage points were accounted for by negotiated wages and 1.2 percentage points by wage drift, defined as the difference between the rate of growth of the index of wage and salary earnings and negotiated wages (Table 9).<sup>2</sup> Earnings growth was fairly steady; it was highest in 2001 (4.5%), and lowest in 1997 (2.4%) (Chart 51). Wage developments followed fairly closely changes in negotiated

Chart 51.



Source: Statistics Finland.

<sup>2</sup> *The index of wage and salary earnings measures the development of full-time wage earners' average earnings during standard working hours. Compensation per employee includes wages and salaries (incl. overtime pay and bonuses) plus social security contributions paid by the employer.*

Table 9.

**Wage development 1996–2006***Average growth percentages 1996–2006*

	<i>Proportion of wage sum in 1995, %</i>	<i>Earnings</i>	<i>Negotiated wages</i>	<i>Wage drift</i>	<i>Compensation per employee</i>
<i>Total economy</i>		3.6	2.4	1.2	3.1
<i>By main industry</i>					
<i>Agriculture and forestry</i>	1	3.3	2.5	0.8	2.6
<i>Manufacturing</i>	25	3.8	2.3	1.6	3.6
<i>Energy and water supply</i>	1	3.7	2.4	1.3	3.8
<i>Construction</i>	6	3.6	2.3	1.3	3.4
<i>Wholesale and retail trade</i>	11	3.5	2.6	0.9	2.5
<i>Hotels and restaurants</i>	2	3.1	2.5	0.6	2.7
<i>Transport, storage and communications</i>	8	3.5	2.4	1.1	3.3
<i>Financial intermediation and insurance</i>	4	4.1	2.6	1.5	2.9
<i>Real estate and business activities</i>	8	3.8	2.5	1.3	3.6
<i>Public administration</i>	8	3.7	2.5	1.2	3.0
<i>Education</i>	8	3.2	2.5	0.7	2.7
<i>Health and social services</i>	13	3.3	2.5	0.8	3.1
<i>Other community, social and personal services</i>	4	3.5	2.5	1.0	2.3
<i>By sector</i>					
<i>Private</i>	61	3.7	2.4	1.3	3.1
<i>Central government</i>	11	3.7	2.5	1.2	3.1
<i>Local government</i>	28	3.3	2.6	0.7	3.0

*Source: Statistics Finland.*

wages, with wage drift remaining broadly stable at just over 1%. During the period under review, the average annual rate of growth of compensation per employee was 3.1%. Measured by this broad indicator, wage developments followed more closely the business cycle, with annual growth in wages fluctuating between 1.6 and 4.7%.

Over the period 1996–2006, the annual rate of earnings growth averaged 3.1 to 4.1% in all the main industries. Growth was most rapid in financial intermediation and insurance, in manufacturing and in real estate, renting and research and development activities, whereas

in agriculture and forestry, in hotels and restaurants, in education and in health and social welfare earnings grew by just over 3% on average.

The rapid growth in earnings in financial intermediation and insurance was due to both increases in negotiated wages and wage drift. Moreover, growth in earnings varied considerably from year to year.

In manufacturing, increases in negotiated wages were, on average, on the same level as in the economy as a whole, whereas wage drift was higher. Average wage growth was thus more rapid than in the economy as a whole, with the index of wage

and salary earnings in manufacturing growing by 3.8%, and compensation per employee by 3.6%. In the various manufacturing industries, average growth in earnings varied between 3.0 and 4.3%. Growth was most rapid in the manufacture of paper and textiles, where wage drift was also greatest. In the manufacture of electrical and optical equipment, wage growth was equal to the average for manufacturing as a whole.

In construction, wage drift was high and annual growth in compensation per employee varied considerably in comparison with less cyclically sensitive industries. Wage

Table 10.

## Annual change in wages in main industries: weighted average and standard deviation

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>Index of wage and salary earnings</b>											
Total economy	4.2	2.4	3.5	2.7	4.0	4.5	3.5	3.9	3.8	3.9	3.0
Standard deviation	0.6	0.6	0.5	0.5	0.7	0.7	0.4	0.3	0.4	0.3	0.3
<b>Index of negotiated wages</b>											
Total economy	3.1	1.4	2.7	1.8	2.8	3.4	2.2	2.9	2.4	2.5	1.7
Standard deviation	0.5	0.2	0.3	0.1	0.1	0.3	0.2	0.2	0.0	0.1	0.1
<b>Wage drift</b>											
Total economy	1.1	1.1	0.9	1.0	1.2	1.1	1.3	1.1	1.4	1.5	1.3
Standard deviation	0.6	0.7	0.6	0.5	0.7	0.7	0.4	0.4	0.4	0.3	0.3
<b>Compensation per employee</b>											
Total economy	2.6	1.6	4.5	2.2	3.7	4.7	1.8	2.8	3.6	3.8	2.8
Standard deviation	1.5	1.2	1.3	1.4	1.1	1.5	1.1	0.6	0.8	0.7	0.6

Standard deviation calculated using the weights for wage sum in 1995

Sources: Statistics Finland and Bank of Finland calculations.

developments in construction were, on average, similar to those in manufacturing.

In service industries, particularly in hotels and restaurants, in education and in health and social welfare, wage drift accounts for a fairly moderate share of total earnings. In these sectors, earnings growth was on average slightly lower than in other industries. Wage developments in health and social welfare were closer to the average trend in the economy as a whole if we take into account not only standard working hours, but also additional work and overtime. The increasing proportion of part-time jobs can be seen in wholesaling and retailing, where earnings growth was as rapid as in the economy

as a whole, but the rate of growth in compensation per employee was slower.

An examination of employer sectors shows a fairly similar growth in negotiated pay increases and compensation per employee (Table 9). However, in the private sector and central government, wage-earners' earnings grew on average at a slightly higher pace than in local government. In local government, wage drift was generally low, whereas in central government there was a growth in wage drift due to changes in the structure of duties and employees' professional skills.

Wage developments have become increasingly harmonised across the main industries: the standard deviation in growth in

negotiated wages, wage drift and compensation per employee is decreasing over time (Table 10). A similar harmonisation of wage developments is not visible across the various manufacturing industries.

Overall, growth in wages was fairly uniform in the main industries. Average increases in negotiated wages differed only slightly, varying from 2.3% (manufacturing and construction) to 2.6% (financial intermediation and insurance, wholesale and retail trade). Thus, the differences in earnings growth between the various industries were due to wage drift. A similar phenomenon can also be found in the various manufacturing industries.

# Risk assessment

## International economy

In the international economy the risks to growth are predominantly on the downside. This is due to the recent uncertainty on the financial markets, a stronger-than-expected cooling of the US housing market and the partly related possibility it will prove impossible to resolve global imbalances in a controlled manner.

The recent uncertainty on the financial markets means the international economy could develop more weakly than envisaged in our baseline forecast, where it is assumed the interbank market will become normalised relatively quickly. The recent uncertainty is in some respects unprecedented, which makes it hard to assess the scale of the downside risks. We look at this in more detail in Box 2.

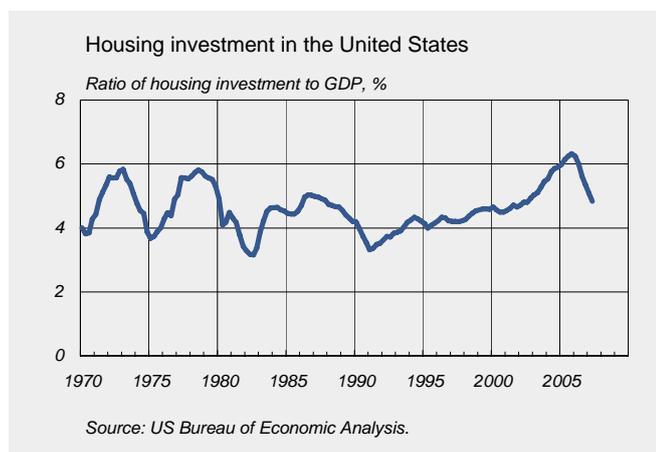
In Europe, the outlook for the real economy remains relatively bright. Although consumer and business confidence indicators have weakened somewhat in recent months, they still point towards fairly strong economic performance. In the bank-based system prevailing in Europe, the corporate investment impact of financial market uncertainty will depend on banks' ability to extend new loans. The currently available data suggests banks' balance sheet development will slightly depress the pace of their future lending, but the impact will be marginal, being reflected more in short-term fluctuations in inventories and the postponement of some investment projects, provided there is a swift return of interbank confidence. Admittedly, it is possible the crisis in confidence could

be more prolonged and have a more serious impact on banks' ability to lend.

The longer-term economic outlook for the EU's 'old' member states (EU15) is also fairly bright and the most significant risks relate more to developments in export markets than domestic issues. The economies of the EU15 would actually have potential for faster growth than at present towards the end of the forecast period if the labour market were to achieve further efficiency gains and productivity-enhancing investments were to take off.

The impact of the cooling US housing market has been taken into account in the forecast by assuming it will cause a deceleration in the pace of US growth in 2007 of slightly over one percentage point (Chart 52). If the large number of unsold houses and the tightening of the housing loan market lead to a strong drop in house prices, the household saving ratio will probably rise and consumption growth become more subdued. If, at the same time, the risk premia on inward investment to the United States grow so

Chart 52.



much as to cause a dramatic depreciation in the value of the dollar and a rise in long-term interest rates, the outcome could be a serious recession in the US economy. This would seriously weaken the outlook for the world economy.

Recent years have seen a rapid increase in Chinese goods exports, and their share of the US market has grown briskly. The prices of Chinese goods have, however, begun to rise and a further increase in market share will be more difficult to achieve. There has now been a slowing in the pace of growth in domestic demand in the United States. Even so, the pace of investment in China has continued unabated. It is possible that capacity is still being developed in China on the basis of over-optimistic expectations of rapid demand growth in the United States, and there is a risk the capital thus accumulated could remain unutilised. The necessary adjustment in the capital stock could be reflected throughout the Chinese economy in a decline in willingness to invest. Meanwhile, the redirecting of the already constructed capital stock could lead to over-supply in a number of industries.

### Domestic economy

The growth outlook for the Finnish economy remains bright, but a slowing in the pace of growth from the average annual rate of approximately 4% in recent years is inevitable. According to the Bank of Finland's forecast, growth will gradually slow down as world growth fades slightly and growth-limiting factors in the domestic economy

– shortages of skilled labour and other capacity constraints – become more pronounced. More moderate growth without an overheating economy means a continued fairly favourable trend in respect of employment and the balance of public finances. The forecast foresees the recent acceleration in inflation as a temporary phenomenon. Vital to the realisation of the inflation forecast are a continuation of the positive productivity development of recent years and further improvements in the efficiency of the labour market.

In the immediate years ahead, the greatest uncertainties regarding Finnish growth relate to possible disturbances in the international economy. The biggest risk of significantly weaker-than-forecast growth would be if the financial market uncertainty originating from the US housing loans market were to last longer and be stronger than assumed in the forecast.<sup>1</sup> The situation could develop into a credit slump, leading to tighter borrowing conditions and subduing interest-sensitive investments and consumption both worldwide and in Finland. In this event, the Finnish economy would suffer primarily from slower growth in foreign trade, although the weaker financing conditions would also have a direct impact. This risk is examined in more detail in Box 2.

Another significant threat to international trade growth and, by extension, growth in Finland is the emergence of protectionism. At the end of the present chapter we present an

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<sup>1</sup> The forecast assumptions are presented in Box 1.

alternative scenario describing the potential impact on the Finnish forest industry of proposed Russian export duties on roundwood and the knock-on effects on the Finnish economy in the immediate years ahead. The baseline forecast has been made on the assumption that Russia will implement the increases in export duties on roundwood planned for April 2008. The implementation of larger increases planned for later will depend on a political process the results of which are not anticipated in the forecast; their possible impact is therefore assessed in the alternative scenario.

Domestic uncertainties, particularly those relating to the labour market, would, if realised, depress growth relative to the baseline – although only gradually. The risk that the pace of wage rises could accelerate without improvements in productivity or labour supply relates largely to the labour market bottlenecks generated by a strongly growing economy. From an employer's perspective this means difficulties in finding appropriately skilled labour, particularly in economic growth centres. These challenges can only be increased by population ageing and the retirement of the babyboom generation in the next few years. On the other hand, there have recently been signs of a hoped-for flexibility in the labour market as employees nearing retirement age have been carrying on longer in working life. Moreover, recent trends have encouraged a more positive re-evaluation of rather questionable assessments of what proportion of the still large number of unemployed could

find work as the economy grows. In addition to this, foreign workers have met labour demand in Finland to a greater degree than forecast. In the event, there has not been any widespread overheating of the various sectors of the economy, despite the fact that recruitment difficulties have been hampering growth in an increasing number of companies.

The strongest phase of economic growth will, according to the forecast, be followed by an acceleration of wage increases in 2008. If rising wages are accompanied by improved productivity and an easing of the mismatch between labour supply and demand, this will contribute to growth, as is assumed in the forecast. Labour supply incentives will in the immediate years ahead be enhanced by flexibilities in collectively agreed terms and conditions, the already implemented pensions reform and the income tax cuts included in the current Government programme. These sorts of measure will, however, be needed to a greater degree than assumed in the forecast if the pace of rise in the employment rate and fall in the number of unemployed is to be sustained in 2009 and beyond.

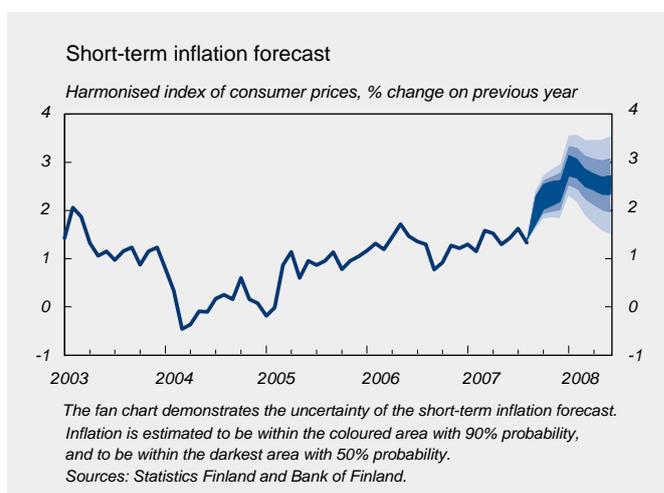
The new collective agreements nevertheless involve a risk that the greater flexibility they allow will not be extensively applied in practice. In this event, the pace of wage rises will accelerate during the lengthy period of over two years covered by the current round of agreements, but the agreements on wages will not be used sufficiently to support improvements in productivity. This risk applies to the entire economy,

including the public sector. In this sense, too, improvements in wages and productivity need to be interlinked.<sup>2</sup>

There is now a risk that nominal wage rises will, via production costs and inflation expectations, feed inflation. A long-term acceleration in the pace of domestic inflation would gradually undermine Finland's competitiveness, which has remained relatively stable in recent years, particularly when compared with other countries in the euro area. A faster rise in unit labour costs in Finland than elsewhere in the euro area would be reflected within a few years in a loss in export market shares, the recapture of which could not succeed without a subsequent control of cost rises for a period of several years. Weaker price competitiveness would also erode Finland's attractiveness to investors both foreign and domestic, which would in turn endanger a continuation of positive productivity

<sup>2</sup> The links between wage rises and productivity are analysed in more detail elsewhere in this publication. See Kajanoja, Railavo and Rantala, 'Wages and macroeconomic developments: simulations using the Aino model' p. 87–93.

Chart 53.



development. The risk of thus slipping onto the path of weakening cost competitiveness is heightened by the international environment's becoming more sensitive to signs of inflation.

During the recent cyclical upswing, general government revenue has accumulated more than could have been expected purely on the basis of the growth in the tax base. The risk is that cyclical or otherwise exceptional income will be used for purposes other than funding one-off projects or the reduction of debt. If this were to happen, it would weaken the sustainability of government finances in a situation where population ageing will begin increasingly to push up public expenditure and erode its financial base. Attempts have been made to control public expenditure growth by increasing the productivity of basic service production. The statistics reveal, however, that this has in recent years continued to decline on average.<sup>3</sup> If the efforts to improve productivity do not succeed, public expenditure will grow faster than forecast. If, in addition, the pressures on public service production lead to higher-than-forecast wage rises, this will inflate the expenditure burden relative to the funding base, even if the fixed-price growth in expenditure – volume development of public service production – remains as forecast.

#### Short-term inflation risks

We turn next to consider the forecast uncertainty regarding the short-term inflation outlook in relation to the

<sup>3</sup> Labour productivity in social welfare and health care services is discussed above in Box 6.

harmonised index of consumer prices' short-term inflation forecast.<sup>4</sup> The same risk assessment also applies to inflation according to the national consumer price index, with the addition of the uncertainty surrounding house prices and the interest rates on loans. As with the longer-term risks described above, these risks also tend to the upside, ie in the direction of faster-than-forecast inflation. This is indicated in Chart 53 by the slight asymmetry in the fan illustrating the short-term inflation forecast: the probability of inflation turning out to be faster than forecast is estimated to be greater than the probability it will be slower. The most important reason for this is the risk of stiffer competition in the world market for food, which would be reflected in higher food prices in Finland. A similar impact would come from the risk of labour costs rising more than forecast; if this were to

<sup>4</sup> The Bank of Finland produces a monthly short-term inflation forecast on the harmonised index of consumer prices and its five categories. The forecast currently covers until the middle of 2008. The short-term inflation forecast fan chart was presented for the first time in Box 3 of the Bank of Finland Bulletin 3/2003.

happen it would be reflected most strongly in service prices.

The uncertainty surrounding the short-term inflation forecast is at present slightly greater than normal. This is indicated by the breadth of the fan in Chart 53. The main reason for this is the trend in crude oil prices, and hence the performance of energy items in the harmonised index of consumer prices. The past couple of years have seen rather sensitive fluctuations in the price of crude oil.

#### Alternative scenario: Impact of Russian export duties on roundwood

Russia is the Finnish forest industry's main source of imported roundwood.<sup>5</sup> Currently, approximately 20% of the industry's roundwood comes from Russia. In February 2007, Russia decided to gradually raise export duties

<sup>5</sup> In 2006, the Finnish forest industry consumed 75 million cubic metres of roundwood, 20 million of which came from imports. Russia's share of the imports was a good 15 million cubic metres. In addition, in 2006, the forest industry imported 2.5 million cubic metres of woodchips, half of which came from Russia. Purchases from private Finnish forest owners furnished a further 45 million cubic metres.

Table 11.

Alternative scenario						
<i>Deviations from forecast</i>						
	2007	2008	2009	2010	2011	2012
<i>Annual deviation, % points</i>						
GDP	0.0	-0.1	-0.3	-0.1	0.1	0.1
Imports	-0.1	-0.4	-0.5	-0.2	0.0	0.0
Exports	0.0	-0.4	-1.1	-0.4	0.2	0.1
Private consumption	-0.1	-0.1	0.0	0.0	0.0	0.0
Private sector investment	-0.1	-0.2	0.0	0.0	0.1	0.1
Price of private consumption	0.0	0.0	0.0	-0.1	-0.1	0.0
Index of wage and salary earnings	0.0	-0.1	-0.1	-0.1	0.0	0.0
Index of real wage and salary earnings	0.0	0.0	-0.1	0.0	0.1	0.1
<i>Deviation, level</i>						
Employed, 1,000 persons	-0.8	-2.8	-7.1	-8.0	-6.6	-6.1
Unemployment rate, % points	0.0	0.1	0.1	0.2	0.1	0.1

Source: Bank of Finland calculations.

on roundwood. The first increase took effect on 1 July 2007, and the most significant rise is due to take place at the beginning of 2009.<sup>6</sup>

The baseline scenario of the Bank of Finland's new forecast is based on the assumption that, regarding the planned increases in duties, a small additional increase will still be implemented at the beginning of April 2008. The larger rises planned for implementation thereafter are not expected to take place. If only the assumed increase in export duties is implemented, the macroeconomic impact on Finland will be very small. Below, we present an alternative scenario assessing what it would mean for the Finnish economy if Russia were to implement all the planned increases in export duties on roundwood.

The alternative scenario assesses the impact the increase in duties would have on the Finnish forest industry's use of roundwood and on forest industry output, and also the knock-on effect the changes in forest industry output would have on output in other industries.

The adjustment of the Finnish economy to a decline in output and employment caused by the export duties on roundwood is modelled using the Bank of Finland's macroeconomic model Aino. Aino is a new-generation dynamic general equilibrium model that systematically describes economic

agents' behaviour across the economy as a whole.<sup>7</sup> The economy's short-term reactions depend largely on the price and nominal wage rigidities used in the model and the costs of adjusting the capital stock.

### **Export duties are part of Russia's economic strategy**

The rises in export duties on roundwood were proposed by President Putin and have received fairly widespread approval in Russia. The aim is to make it unprofitable to export roundwood from Russia in order to increase domestic processing of wood and shift the focus of forest industry exports from roundwood to refined products. This is part of Russia's broader aim of decreasing dependency on raw material exports and diversifying the production structure of the economy beyond the energy sector. The end of roundwood exports would not significantly depress Russia's export receipts, since roundwood accounts for only a few per cent of the total value of Russian exports.

Preventing the export of roundwood is also hoped to increase foreign investment in the forest industry, where investment is badly needed in infrastructure and modernising production facilities. In practice, the imposition of export duties

<sup>6</sup> At the beginning of July 2007, the export duty on roundwood was raised to EUR 10/m<sup>3</sup>. On 1 January 2008, the duty will be increased to EUR 15/m<sup>3</sup>, and on 1 January 2009 to EUR 50/m<sup>3</sup>. For birch pulpwood, the increase to EUR 50/m<sup>3</sup> will take effect only at the beginning of 2011. In 2006, the average export price of Russian roundwood was approximately EUR 50/m<sup>3</sup>, and in the first half of 2007 approximately EUR 60/m<sup>3</sup>.

<sup>7</sup> For more information on Aino and its properties, see Kilponen, Ripatti and Vilmunen, 'Aino: the bank of Finland's new dynamic general equilibrium model of the Finnish economy', Bank of Finland Bulletin 3/2004, and Kilponen and Ripatti, 'Suomen Pankin yleisen tasapainon malli (Aino) ja reaalisten suhdannevaihteluiden teoria', Kansantaloudellinen aikakauskirja 4/2006. ('The Bank of Finland's general equilibrium model (Aino) and the theory of real cyclical changes', Finnish Economic Journal, 4/2006.) Available in Finnish only.

may, however, have a negative impact on investment, as they undermine the predictability of the operating environment.

#### **Russian roundwood can be partly replaced from other sources**

The alternative scenario assumes that part of the roundwood imported from Russia can be replaced by increasing imports from other countries and by purchases from domestic sources. The main source of new domestic supply is private forests, where growth has for quite some time far outstripped the rate of felling. In the scenario, we cautiously estimate that the annual rate of felling from private forests can be increased by 5 million cubic metres, or slightly over 10%.

The scenario also assumes that increased imports of wood chip and other roundwood from alternative sources can be used to replace more than 2.5 million cubic metres of the above-mentioned 15 million cubic metres of roundwood imported from Russia. In practice, this would see the forest industry's shortfall of roundwood shrinking from 20 to 10% when all the alternative domestic and foreign sources of timber are added together.

#### **Export duties would also affect other industries**

In the forest industry's production process, roundwood is irreplaceable, and the scenario therefore assumes that the industry's output also decreases by 10%. This would also cut output in other industries, due to the interlinkage between industries.

In assessing sectoral interdependencies, we use here the latest input/output data for 2004 supplied by Statistics Finland. The assessment shows that a 10% decrease in forest industry output would also cause a significant decline in output in other industries with close links to the forest industry.<sup>8</sup> In chemicals, output would decline by approximately 1%, in land transport by 2%, and in energy production by approximately 2%. The scenario also takes account of an approximately 10% increase in domestic forestry output as a result of the growing supply of timber from domestic forests.

The direct impact on GDP of the production losses in the forest industry would be a good 0.4%. Due to the knock-on effects, the total impact on GDP would be almost one and a half times the direct impact from the decline in forest industry output. The increased output from domestic forestry would, however, almost entirely reverse the impact from production losses in other industries, and relative to the baseline GDP would decline by approximately 0.5%.

#### **The economy adjusts slowly**

In a general equilibrium model, alternative scenarios always have to be soundly based. In Aino, this export duty

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<sup>8</sup> The scenario assumes that a decline in forest industry output would cut output in industries producing intermediate goods for the industry. The scenario also takes account of the corresponding impact on other industries of the demand for intermediate goods in those industries supplying the forest industry. In contrast, the scenario does not take account of the impact the decreasing supply of intermediate goods produced by the forest industry would have on domestic industries consuming those goods.

scenario can be depicted by generating a major disturbance in a sector that produces goods for export. This is done by assuming that in production for export the efficiency of imported input declines and importers' pricing margins grow in 2009. In Aino, the declining efficiency of import input also dampens demand for domestic intermediate goods.

Since the decrease in forest industry output causes a contraction in efficiently used production capital in the economy, the calculation also assumes that the efficiency of the capital input across the economy as a whole declines slightly in 2009. This means that output is smaller than the physical properties of the capital input. Such a situation arises eg when part of the physical capital stock is not used. The closure of production plants in the forest industry due to a shrinking supply of imported wood is a good example of such a situation.

The simulations using Aino show that the economy would already start to adjust to the new equilibrium before the major rise in export duties at the beginning of 2009. In Aino, economic agents take into account future decline in total output and income and adjust their behaviour in advance. Already in 2007–2008, total output growth slows slightly relative to the baseline scenario and employment loses momentum. In 2009, total output growth is 0.3 percentage points slower than the baseline scenario due to the end of roundwood imports from Russia. Based on input-output analysis, the cumulative output decline is approxi-

mately 0.5% relative to the forecast for 2007–2010.

The employment trend reflects the slower output growth. The scenario assumes that the development of real wages does not follow the weakening trend in labour productivity growth.<sup>9</sup> The impact the disturbances have on inflation remains very limited, and hence the difference between the development of real wages and productivity growth explains the relatively strong deceleration in employment growth.<sup>10</sup> Relative to the baseline, employment contracts the most in 2009, by approximately 4,000 persons. The impact on the number of employed is largest in 2010, at around 8,000.

The decrease in forest industry output assumed in the scenario has the strongest impact on imports and exports. Finnish exports decline in 2007–2010 by approximately 2% relative to the baseline. The expected slowing of output growth has an immediate impact on domestic demand. Households adjust consumption immediately, due to lowered expectations of future earned income and the weakening trend in wealth development. Growth in corporate profits slows because, due to price rigidities, companies are unable to fully pass rising costs on to prices.

<sup>9</sup> The assumption is based on the view that the rise in earnings over the next few years has largely been decided already, and possible duties on timber will therefore have no impact on wage formation across the economy. Technically, the assumption is performed by temporarily decreasing the labour market's degree of competitiveness.

<sup>10</sup> Another alternative scenario that presents a similar situation is reported elsewhere in this publication. See Kajanoja, Railavo and Rantala, 'Wages and macroeconomic developments: simulations using the Aino model', p. 87–93.

Due to the slower growth in output, the capital stock has to be adjusted downwards through a contraction in investment growth. As a result, the expected slowing of output growth is reflected in investment to a slight degree as early as 2007.

The adjustment of the economy to a new situation usually takes several years as labour and capital input are directed to new locations. In the longer term, when the economy has fully adjusted, the negative impact on employment disappears and total output returns to its growth trajectory.

The present scenario is based on the assumption that approximately half of the over 15 million cubic metres of roundwood previously imported from Russia can be replaced from other sources. In such a case, forest industry output declines by approximately 10%. The assessments on alternative sources and increased use of domestic roundwood are, however, subject to major uncertainties. If the increases in

export duties stop the import of roundwood from Russia completely, and if an alternative supply cannot be found, forest industry output declines by approximately 20% and the impact on exports is twice that presented above. In such an event, the loss in total output is more than twice as high, due to the fact that output in domestic forestry does not grow as assumed above. In this extreme scenario, total output would contract by approximately 1.4%, and employment by around 16,000 persons relative to the baseline over the period 2007–2010.



# Household wealth in Finland

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This article examines household wealth in Finland. The main source of data is a survey of household wealth published by Statistics Finland in 2007 and recognised as the most comprehensive source of data on household wealth and its distribution in Finland.<sup>1</sup> Its publication lag is rather long, with the most recent data at present covering the year 2004. The picture provided by this study is augmented with the help of financial accounts data published by Statistics Finland and the Bank of Finland.<sup>2</sup> Finnish household wealth is compared with households in other countries with the help of research published in December 2006 by the WIDER Institute.<sup>3</sup>

The points to emerge include:

1. The value of Finnish households' net wealth (ie the difference between total gross financial and fixed assets and total liabilities) is low in comparison to reference countries with corresponding income levels. The difference cannot be explained entirely by differences in data sources or, for example, the structure of pension systems.

2. The recession of the early 1990s and the accompanying banking crisis had a significant impact on the net wealth of households in Finland. According to the

above-mentioned wealth study, the impact was not the result of increased indebtedness so much as changes in the value of gross assets. Since the recession, asset values have once again begun to rise. A comparison between generations indicates that the value of assets held by those born in the 1940s would appear to have recovered least since the recession.

3. Compared with the reference countries, a large part of Finnish household wealth is tied to the value of housing. This means that, relative to households in the reference countries, the balance of risk is weighted more towards trends in the housing market and less towards the financial market.

4. Wealth distribution has become more unequal between 1987 and 2004. Even so, in international comparison Finland remains one of the countries with the most equal wealth distribution.

5. Approximately 9% of Finnish households have negative net assets. Calculations suggest the credit risk these households pose to the banks is fairly low.

6. Approximately 7% of households that participated in the 2004 study on household wealth stated they used their home as guarantee on credit other than a housing loan. Hence, as well as the effect on the housing market, house prices also have implications for both consumer durables and financial markets.

## Value of Finnish household wealth

In comparative international studies (incl. the aforementioned WIDER study), a generally used measure of the value of household wealth is the per capita value of net household assets.

<sup>1</sup> Statistics Finland (2007) 'Kotitalouksien varallisuus 1988–2004' (Household wealth 1988–2004), Finland's official statistics.

<sup>2</sup> The quarterly financial accounts statistics published by the Bank of Finland provide a sectoral breakdown of financial assets and liabilities in the Finnish economy. Financial accounts statistics are available on a quarterly basis on the Bank of Finland website (<http://www.bof.fi/en/tilastot/rahoitustilinpito/index.htm>) and annually from Statistics Finland ([http://www.stat.fi/til/index\\_en.html](http://www.stat.fi/til/index_en.html)). The Federation of Finnish Financial Services also regularly publishes data on the financial assets and liabilities of Finnish households based on its own surveys (<http://www.fkl.fi>).

<sup>3</sup> Davies J, Sandström S, Shorrocks A and Wolf, E (2006), *The World Distribution of Household Wealth*. WIDER Institute, <http://www.wider.unu.edu/research>.

Calculation of this indicator can be illustrated by the following example.

According to the Statistics Finland survey, the gross per capita wealth of Finnish households in 2004 was EUR 68,000. Gross wealth covers the main forms of fixed assets such as apartments, summer cottages and vehicles plus investments in financial assets. The same source put the per capita liabilities of the household sector at around EUR 9,000. Net per capita wealth, EUR 59,000, is arrived at by subtracting liabilities from gross wealth.

Chart 1 shows the net per capita wealth of Finnish households in 2000 and 2004, and for comparison the median net per capita wealth in 2000 in the reference countries, ie the ‘high income countries’, based on the WIDER study.<sup>4</sup> The values are presented at current prices. The data on Finland in the WIDER study

<sup>4</sup> The high income countries included in the analysis are Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, New Zealand, Norway, Spain, Switzerland, the United Kingdom and the United States.

are estimated based on Statistics Finland’s wealth survey for 1998.

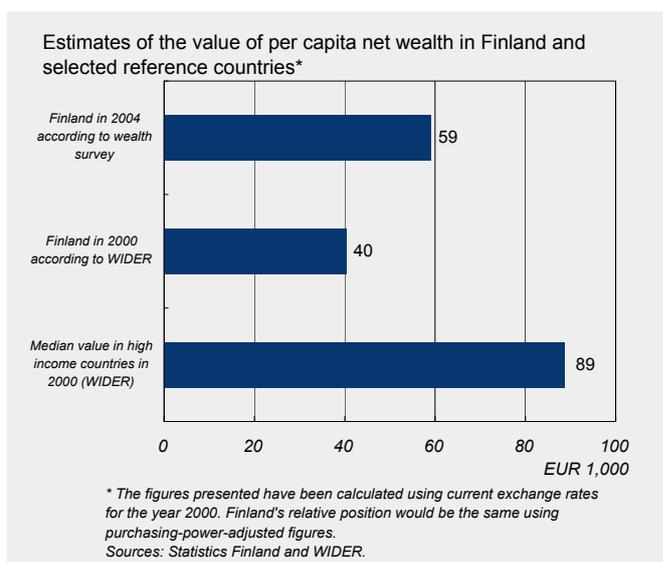
As the chart shows, the value of Finnish households’ net wealth in 2000 was approximately EUR 40,000, or only just under half the international reference level. In 2004, the per capita value of Finnish households’ net wealth at current prices was still well below the median value of the reference countries at the turn of the millennium.

The difference between Finland and the reference countries is partly explained by the data sources used. Calculations based on the data for the WIDER wealth study for the year 2000 put per capita household financial assets in Finland at approximately EUR 7,000. According to the published financial accounts data, however, the per capita value of Finnish households’ financial assets in 2000 was approximately EUR 22,000, or EUR 15,000 more than the estimate used in the WIDER study. However, even such a large adjustment in the charts would not be enough to bring Finland up to the level of the reference countries.<sup>5</sup>

It would therefore seem there are factors other than simply the choice of statistical source underlying the relatively low net wealth of households in Finland. One possible explanatory

<sup>5</sup> There are many reasons for the differences between the wealth survey and financial accounts data. The former is based on interviews, which means the results are affected by ignorance, forgetfulness or unwillingness to provide information. Sampling errors could also influence the outcome of the wealth survey, as the distribution of wealth is skew. Taken together, these factors mean that the wealth survey could underestimate households’ financial assets. On the other hand, financial accounts data could exaggerate them somewhat, as, in addition to households, they also include non-profit institutions. See Hamunen, E and Säylä, M (2007) ‘Suomiko varallisuuden häntäpäätä?’ (Is Finland really bottom of the wealth table?), Tieto & Trendit 11 (2007/1), Statistics Finland.

Chart 1.



model is provided by the debt neutrality hypothesis presented in Barro (1974).<sup>6</sup> Barro believes households take the state of public finances into account when accumulating wealth. According to the hypothesis, public savings displace household savings.

It is, therefore, possible that household decisions on savings take account of the state of public finances and the funds set aside to cover future pension liabilities. Viewed internationally, Finland's general government debt is small and the earnings-related pension funds have accumulated considerable assets. This could partly explain the comparatively low level of household savings and net household wealth in Finland.

There is no available international comparison of household wealth that takes account of the state of public finances in accordance with the debt neutrality hypothesis. In respect of Finland, however, we can make the following observation: even the transfer to households of all the assets accumulated in compulsory earnings-related pension funds in the year 2000 would not have raised Finnish households' net wealth to the median level of the reference countries. In 2000, per capita assets in the earnings-related pension funds totalled slightly over EUR 10,000.<sup>7</sup>

To sum up, we can say that the per capita net wealth of Finnish households is small relative to the reference countries, for reasons that are not entirely clear. Next, with the help of

earlier wealth surveys, we shall examine the historical developments that have led to the present situation.

### Accumulation of wealth 1987–2004

Economists traditionally believe that people accumulate wealth as a buffer against unexpected drops in income and fluctuations in income related to the different phases of life. According to the permanent income hypothesis proposed by Milton Friedman (1957), households accumulate wealth when their current income exceeds the level of their 'permanent income', and correspondingly they consume wealth when their current income falls below this level. In Modigliani and Brumberg's life-cycle model (1954 and 1990), working-age households at the height of their lifetime earnings cycle save for old age, when their income will be below their life-cycle average.<sup>8</sup>

Table 1 presents the net wealth of households in Finland according to the

<sup>8</sup> Friedman, M (1957) A Theory of the Consumption Function. MIT Press; Modigliani, F and Brumberg, R (1954), 'Utility Analysis and the Consumption Function: an Interpretation of Cross Section Data', in Kurihara, K (ed.) Post Keynesian Economics. Rutgers University Press, New Brunswick; Modigliani F and Brumberg, R (1990), 'Utility Analysis and Aggregate Consumption Function: an Attempt at Integration', in Abel, A and Johnson, S (eds.) The Collected Papers of Franco Modigliani, Vol. 2: The Life Cycle Hypothesis of Saving. MIT Press, Cambridge.

Table 1.

Net wealth 1987–2004*		
	<i>Per capita net wealth (in euro at 2004 prices)</i>	<i>Net wealth relative to GDP</i>
1987	28,513	140
1988	29,517	135
1994	27,147	137
1998	35,518	142
2004	51,414	177

\*To facilitate comparison, a narrow definition of wealth has been employed for all the years presented in the table, excluding eg holiday homes and insurance-related savings. The estimated per capita wealth for 2004 is therefore smaller than the figure presented in Chart 1.  
Source: Statistics Finland.

<sup>6</sup> Barro, R (1974) 'Are Government Bonds Net Wealth?', Journal of Political Economy, Vol. 82, No. 6, 1095–1117.

<sup>7</sup> Data from the Finnish Pension Alliance (TELA) website (<http://www.tela.fi>).

wealth surveys for 1987, 1988, 1994, 1998 and 2004 at 2004 prices and relative to GDP. It is clear from the table that, during the years of recession and banking crisis in the early 1990s, when both GDP and real household incomes declined, the net wealth of Finnish households at fixed prices also declined in line with the permanent income hypothesis. The value of net wealth did

not climb back to the level of 1987 until the second half of the 1990s. Since the recession, the net wealth of Finnish households has been growing.

We can see from Chart 2 that growth in net wealth has varied considerably depending on the life phase of households. Contrary to the life-cycle hypothesis, the real value of wealth has risen during the period under review across all age groups. If we examine the charts across the generations, the impact of the recession and the banking crisis stands out. It would seem that there was no increase in net wealth in any of the generations during the recession years. According to the wealth survey, the decline in the value of net wealth (at 2004 prices) is not due to an increase in debt so much as a change in the value of gross wealth.

The value of both fixed assets and financial assets (at 2004 prices) declined during the recession. The age group that would appear to have suffered most from the recession is those born in the 1940s, who were then in their prime wealth accumulation years. The net wealth of this generation has recovered only slightly since the recession.

Chart 2.

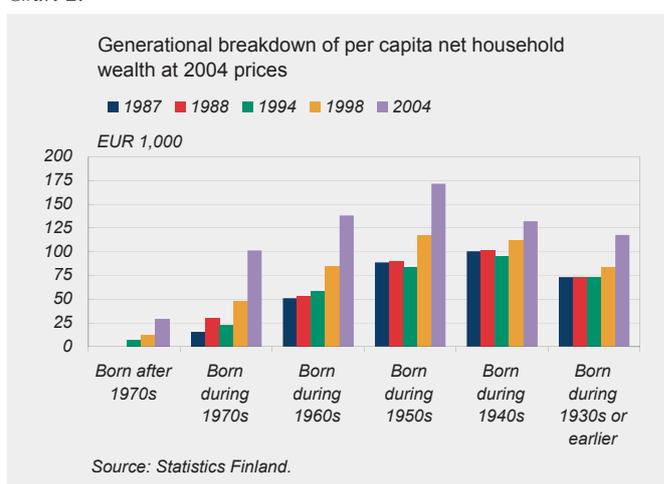
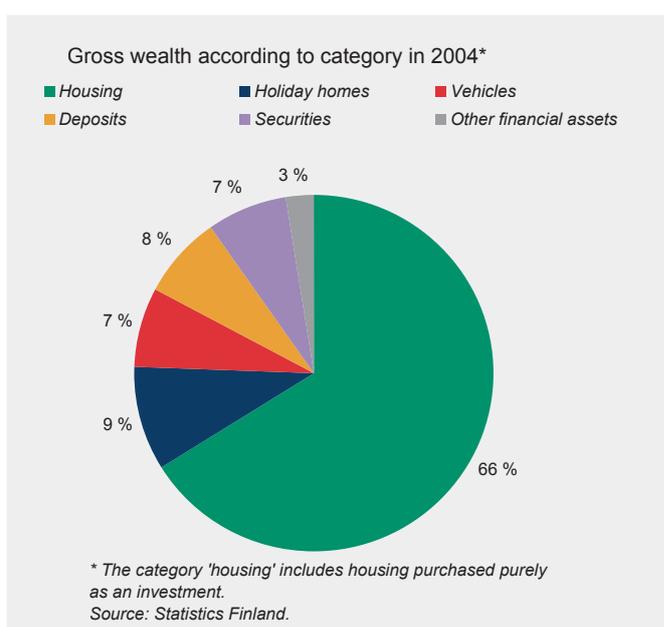


Chart 3.



### Categories of wealth

When discussing the distribution of wealth across different categories, the general practice is to indicate each category's share of gross wealth (ie before subtraction of liabilities). Chart 3 shows that in 2004 the family house was the largest category of wealth, with a weighting of around two thirds. Holiday homes and vehicles accounted for around 16%, and various types of

financial assets around 17% of gross household wealth.

Modern financial theory sees the distribution of wealth as indicating households' vulnerability to different sorts of risk.<sup>9</sup> Based on the data produced by the wealth survey, it would appear that Finnish households are particularly vulnerable to housing market risks. Fluctuation in housing values (ie, in the short term, house prices) does not as such reduce the benefits of home ownership, but it does make it harder to use one's home as security on a loan. The housing market risks facing households are realised in a situation where the value of a property declines to close to or below the value of the household's outstanding loans. In such a situation, the household could be unable to get additional credit and thus purchase consumer durables or move to a larger house, or even be forced to offer its creditors additional security to guarantee its existing loans.

We can use the WIDER study to make a rough comparison between the structure of Finnish households' wealth and the situation prevailing in other countries. The comparison on the distribution of wealth includes only those countries for which the data on household wealth has been gathered through research based on interviews.

Chart 4 shows that a relatively large proportion of household wealth in Finland is in fixed assets and only a small proportion in financial assets. Of the reference countries, only in Spain was the

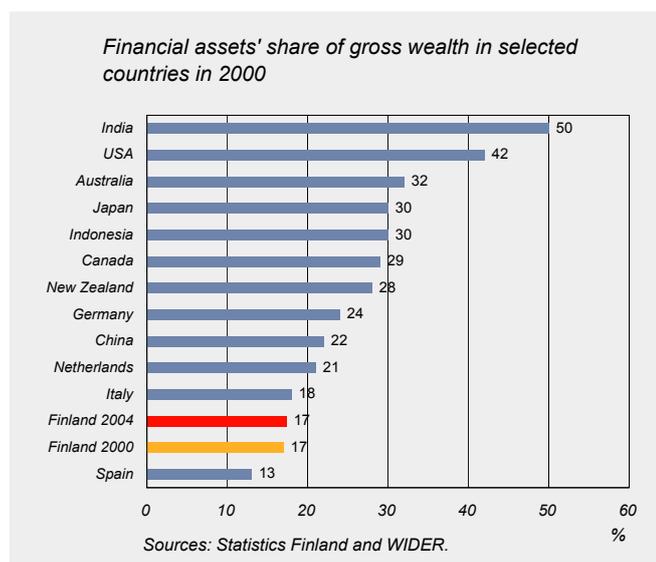
share of total wealth taken by financial assets smaller than in Finland in the year 2000. This means that Finnish households are more exposed to housing market risks and less exposed to risks from the prevailing financial situation (eg changes in share prices or interest rates on deposits) than most of the reference countries. The study does not, however, explain why the share of financial assets is so small in Finland. A partial explanation could lie in the fact that in Finland the assets saved in pension funds are primarily classified as public sector assets – not household assets.

#### Even distribution of wealth

The evenness of wealth distribution is often measured using the Gini coefficient.<sup>10</sup> At the extremes, the Gini coefficient has the value 'zero' when wealth is completely equally distributed across a population,

<sup>10</sup> Calculations using the Gini coefficient and interpretation of the results are discussed in Lambert, P (1993) *The Distribution and Redistribution of Income. A Mathematical Analysis*. 2nd edition. Manchester University Press.

Chart 4.



<sup>9</sup> A review of the literature is provided in Campbell, J (2006) 'Household Finance', *The Journal of Finance*, Vol. XLI, No. 4, 1553–1604.

and the value ‘one’ when distribution is at the unequal extreme. Growth in the Gini coefficient means increasing inequality in the distribution of wealth.

Table 2 reveals that at the beginning of the period under review in 1987 and 1988 the Gini coefficient of net wealth stood at approximately 0.50, while at the end of the period in 1998 and 2004 it was 0.56. Thus, net wealth was less equally distributed at the end of the period than at the beginning. The table also shows that the distribution of wealth is more unequal than the distribution of disposable income.

Although the degree of inequality in the distribution of wealth has increased, viewed internationally Finland remains one of the most equal countries in respect of wealth distribution. Of the industrial countries whose wealth distribution was assessed in the WIDER study, only in Japan and Spain was wealth distribution in 2000 as even as in Finland. The least equal countries in the study in terms of wealth distribution were the United States and Switzerland, where the Gini coefficient in 2000 was approximately 0.80.

Besides the issue of equality, the distribution of wealth is also important from the perspective of financial system

stability. The wealth survey does not provide sufficient evidence to form a precise picture of the credit risks banks face on their lending to households: for instance, the data on loan guarantees and household expenditure is not comprehensive. It is, however, possible to make a rough estimate of the proportion of loans held by the most vulnerable households. From the perspective of financial stability, the most at risk are households whose net wealth is negative and whose income is insufficient to service their debts and cover their normal consumption expenditure.

Of the households covered by the data in the wealth survey, an estimated 16% were budget constrained in 2004 in the sense that their disposable income was insufficient to cover interest payments and capital instalments on their housing loan and what the household itself assessed to be its ‘normal consumption expenditure’. Of these budget constrained households, 16% had negative net wealth, ie their wealth was insufficient to repay their loan or to guarantee it. The negative net wealth of budget constrained households – ie the stock of loans that households could not guarantee against assets – was EUR 330 million in 2004. According to this rough calculation, the negative net wealth of budget constrained households in 2004 was small relative to banks’ risk tolerance. This reinforces the view that the credit risks banks faced on their lending to households were at that time fairly negligible.<sup>11</sup>

Table 2.

Population distribution of net wealth and disposable income between households as measured by the Gini coefficient		
	<i>Net wealth</i>	<i>Disposable income</i>
1987	0.50	0.30
1988	0.49	0.30
1994	0.51	0.31
1998	0.56	0.35
2004	0.56	0.37

Sources: Statistics Finland and Bank of Finland calculations.

<sup>11</sup> For more details see the assessment provided in the Bank of Finland publication Financial Stability ([http://www.bof.fi/en/julkaisut/financial\\_stability/index.htm](http://www.bof.fi/en/julkaisut/financial_stability/index.htm)).

### Use of wealth as security on consumer or investment credit

The impact on consumption and other expenditure of changes in the value of wealth is referred to in the economic literature as 'the wealth effect'. From the perspective of the traditional life-cycle theory, changes in the value of wealth have an impact on life-cycle/permanent income and hence consumption.

One way in which an increase in the value of wealth can funnel through into consumption is the use of wealth as security on consumer credit ('housing equity withdrawal' or 'mortgage equity withdrawal').<sup>12</sup> The extent to which housing equity is being used to finance consumption or other expenditure is hard to gauge, and estimates of the extent of the practice vary greatly between countries.

Of the households covered by the 2004 wealth survey, approximately 7% indicated they had used their house as security on a loan for consumption or investment. In 2004, approximately two thirds of Finns lived in owner-occupied housing, which means an estimated one in ten of these households have used the equity on their present dwelling to take out a loan other than a housing loan.

According to the wealth survey, housing equity plays an important role specifically in the case of larger

consumption and investment loans, the average size of such loans where housing equity was used as security being approximately EUR 40,000. The total sum involved was around EUR 6.6 billion. This corresponds to approximately one third of household borrowing exclusive of housing loans.

Comparing the situation in Finland with other countries is somewhat problematical due to the different definitions used in different countries. Schwartz et al reported that in Australia 12% of households in 2004 used their housing equity to finance spending. Benito and Powell reported that 4.1% of British households used their housing equity in the same way in 2002. The use of housing equity to finance spending was particularly widespread in the Netherlands during the years of strongly rising property prices towards the end of the 1990s. In 1999, according to the Dutch central bank, 56% of loans secured against housing equity were taken out for purposes other than the purchase of housing.

The data on the use of housing equity supports the view that housing wealth is important to households not only in providing somewhere to live. Housing is also used to some extent as security on credit other than housing loans. Fluctuations in house prices can therefore have implications for consumer goods markets (especially durables) and for households' investment behaviour on the financial markets.

<sup>12</sup> For an examination of this topic see eg Schwartz, C, Hampton, T, Lewis, C and Norman, D (2006), A Survey of Housing Equity Withdrawal and Injection in Australia. Reserve Bank of Australia Discussion Papers 8/2006; Benito, A and Powell, J (2004) 'Housing Equity and Consumption: Insights from the Survey of English Housing', Bank of England Quarterly Bulletin 3/2004; De Nederlandsche Bank (2000) 'Survey among Dutch Mortgage Holders on the Use of Mortgage Credit', Quarterly Bulletin June 2000.



# Wages and macroeconomic developments: simulations using the Aino model

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## Three scenarios

Wages in Finland have risen faster than the euro area average during Economic and Monetary Union, ie since 1999. Finland's stronger labour productivity growth relative to the euro area average has, however, maintained the international price competitiveness of Finnish output.<sup>1</sup> The overall performance of the Finnish economy in recent years has in fact been fairly good, and the employment situation has improved. Macroeconomic trends in the coming years will be significantly affected by what happens on the labour market, but wage increases will in turn depend on expected developments in the macroeconomic environment.

We provide below three scenarios illustrating interrelations between wage increases and macroeconomic developments in Finland. The baseline scenario, used as a benchmark, sees the economic outlook as being broadly in line with recent years' actual and predicted developments. The baseline scenario does not, however, necessarily represent the forecast presented in this Bank of Finland Bulletin. The first two scenarios envisage growth in wage and salary earnings about one percentage point higher than the baseline in 2008 and 2009. In the third scenario, wage and salary earnings growth does not respond to a deceleration in labour productivity growth.

These alternative scenarios do not assume changes in the macroeconomic

environment. The world economy and Finland's export markets, commodity prices, exchange rates and interest rates are assumed to evolve as set out in the baseline scenario.

The first two alternative scenarios diverge from each other with respect to what causes stronger-than-baseline earnings performance. Of the two, the first presents a situation where the rate of increase in nominal wages is faster than the baseline rate because of a change in the internal dynamics of the labour market: the degree of competition in the labour market diminishes, ie workers' pricing power increases.

The second scenario starts from the premise that there will be a favourable change in technological progress. This leads to a short period with a higher rate of labour productivity growth than suggested by the baseline scenario, enabling a temporary upturn in nominal wage increases. Given the different determinants of higher earnings performance in these two alternative scenarios, it is not surprising that macroeconomic developments as reflected in the scenarios are also highly divergent in both the short and the longer term.

The third scenario illustrates a situation where labour productivity growth is assumed to decelerate but the rate of increase in nominal wages to remain in line with the baseline scenario, because the labour market is presumed to become simultaneously less competitive.

<sup>1</sup> See Box 'Wages in Finland risen faster than euro area average', Bank of Finland Bulletin 1/2007, p. 57–58.

### The Aino model

Our scenarios were produced using the Bank of Finland's Aino model.<sup>2</sup> The macroeconomic model systematically describes economic agents' behaviour in the economy. The key features of the model are consistent with modern macroeconomic theory. Households make their decisions concerning consumption and labour supply according to their preferences. In doing so, they take into account the effects of their current behaviour on their future prospects. Similarly, firms seek to achieve as high profits as possible. The model allows for rigidities related to price and nominal wage adjustments. Capital stock adjustment is also sluggish.

A systematic description of economic agents' behaviour and economic adjustment mechanisms provides a particularly useful tool for making alternative scenarios of macroeconomic developments. Typically, in the absence of macroeconomic models, only qualitative assessments of alternative developments could be undertaken.

The Aino model presupposes imperfect competition in the labour market, meaning that workers can influence the determination of their nominal wages. Likewise, competition in the product market is imperfect and producers have pricing power with respect to their products. The more competition there is in the market, the lower the price and the larger the output volume will be. Similarly, the

degree of competition in the labour market determines the price of labour and employment.

When the Aino model is used to make alternative scenarios of wage developments, a well-defined reason for alternative wage developments must be indicated. In the model all markets clear, and wages are one of the prices that bring markets to equilibrium. The same question must be addressed in any serious discussion on the current economic situation: macroeconomic performance related to alternative wage developments is naturally affected by factors driving changes in the rate of increase in wages. Therefore, we provide below scenarios with different factors underlying wage developments that differ from the baseline scenario.

### Weaker competition in the labour market

The first alternative scenario assumes a permanent strong growth in workers' pricing power in the labour market in the last quarter of 2007 (Table 1). This triggers a temporary acceleration in the rate of increase in nominal wages, as the economy adapts to its new, less competitive equilibrium. Owing to the presence of nominal wage rigidities, wages do not immediately converge to the new equilibrium. Weaker competition is taken into account in the scenario so that nominal wage and salary earnings increase in 2008 and 2009 by about one percentage point more than in the baseline scenario. Thereafter, the rate of change in nominal wages will be consistent with the baseline rate of change.

<sup>2</sup> For a more detailed discussion of the Aino model and its features, see Juha Kilponen, Antti Ripatti and Jouko Vilmunen, 'Aino: the Bank of Finland's new dynamic general equilibrium model of the Finnish economy', Bank of Finland Bulletin 3/2004.

Weaker competition in the labour market leads to both higher nominal and real wages and lower employment. A higher rate of increase in nominal wages means a faster-than-baseline rise in costs for employers, causing larger upward pressures on prices. While firms pass cost increases gradually on to product prices, inflation picks up temporarily. Employment and output remain permanently lower than in the baseline scenario.

The rate of increase in the index of real wage and salary earnings accelerates less than that of nominal wage and salary earnings, as inflation also picks up temporarily. Real wages rise in two years to a level about 1.5% higher than the baseline. In the long run, however, the increase in real wage and salary earnings will be only 0.4% more than in the baseline scenario, as the capital stock gradually decreases and adjusts permanently to weakening employment.

Consumer demand reacts to the expected future deterioration of output and consumption opportunities. Behind the more subdued consumption lies the fact that, although real wage and salary earnings remain higher than in the baseline scenario, real aggregate wages gradually decline because of weaker employment to a level lower than the baseline projection. The model views consumers as being forward-looking, with their consumption expenditure depending on expected rather than actual income.<sup>3</sup> Investment growth will also slacken, as capital stock adjusts to the new, lower output equilibrium.

Foreign trade reactions are rather limited. Export demand will be affected by price competitiveness, which is set to weaken with a time lag, in line with the higher rate of increase in wages. Wage and salary earnings growth will have a

<sup>3</sup> If some households were assumed to be subject to liquidity constraints, private consumption growth would accelerate slightly, but only in the short term.

Table 1.

Alternative scenario: Permanent weakening in labour market competition					
	2007	2008	2009	2010	Level, deviation from baseline, % Long term
<i>Annual change, deviation from baseline, % points</i>					
GDP	0.0	-0.3	-0.4	-0.1	-1.3
Imports	0.0	0.0	0.2	0.1	0.0
Exports	0.0	-0.2	-0.3	-0.1	-0.6
Private consumption	-0.1	-0.2	-0.1	-0.1	-1.4
Private sector investment	-0.1	-0.7	-0.5	-0.1	-1.3
Private consumption deflator	0.0	0.2	0.4	0.1	
Index of wage and salary earnings	0.1	1.0	1.0	0.1	
Index of real wage and salary earnings	0.0	0.8	0.6	0.0	0.4
Number of employed, 1,000 persons	-1	-16	-30	-32	
Number of employed	-0.1	-0.6	-0.5	-0.1	-1.3
Average labour productivity	0.0	0.3	0.2	0.0	0.0
General government debt, % of GDP (level deviation)	0.0	0.3	0.8	1.1	

Source: Bank of Finland calculations.

dampening effect on imports, both because of lower domestic demand and via exports. The Finnish export sector uses a relatively high level of imported raw materials and intermediate products in its output. However, price increases in domestic output relative to foreign output cause consumer spending to shift towards imported items. These divergent factors cancel each other out in this scenario.

Employment will weaken by about 30,000 persons in three years compared with the baseline scenario. This is due to higher real wages, which reduce labour demand and future output. Labour productivity growth increases temporarily, as employment weakens more than output. Capital stock adjustment is sluggish, causing an initial growth in the capital stock per person employed, thereby improving labour productivity.

A higher rate of increase in nominal wages has a negative impact on the balance of the public sector. In the short term, general government debt to GDP will grow compared with the baseline scenario, as the stronger rate of increase in nominal wages also augments public sector wage costs, and weaker employment requires higher income transfers to households. In the Aino model, unexpected additional expenditure in the public sector impairs the sector's budget balance, as the fiscal policy rule regulating the relationship between tax rates and public debt is very stiff in the sense that taxation tightens only after a fairly long time lag. In the long run, however, the rule returns the debt to GDP ratio back to

its original level by gradually tightening taxation.

Changes in labour market competition have no permanent effects on the growth rates of key economic variables, only on their levels. Once the economy has adjusted to a new equilibrium, demand and supply components start expanding at the same pace as in the baseline scenario. Weaker competition, however, leads to permanent baseline deviations of different sizes. GDP, private consumption and private sector investment are a good 1% lower than the baseline figures. Lower price competitiveness will also constrain exports in the long term. In the new, less competitive equilibrium, the capital stock is smaller than in the baseline scenario, thereby gradually undermining real wage developments but nevertheless leaving long-term real earnings 0.4% higher than the baseline projection. The Aino model foresees no impact from labour or product market competition on the long-term rate of growth in labour productivity, so that labour productivity returns to its baseline rate in the long term. This also means an equal weakening of employment and GDP.

### Higher labour productivity growth

In the second alternative scenario, labour-augmenting technological change is assumed to increase temporarily and cause a permanent improvement in the level of labour productivity in the last quarter of 2007 (Table 2). The rate of productivity growth picks up temporarily compared

with the baseline scenario. The productivity hike from the baseline is timed and scheduled so as to allow for an increase in nominal wages in both 2008 and 2009 that is about one percentage point higher than in the baseline scenario.

Unit labour costs will contract slightly at the initial stage, as wage adjustment is more sluggish than productivity growth because of nominal rigidities. For the same reason, a slow decrease in productivity growth back to the baseline rate will raise unit labour costs in 2009. As firms take account of future cost increases in their pricing, inflation will pick up slightly as early as 2008. An immediate strong boost in consumer spending will also add to inflationary pressures in the short term.

Accelerating inflation causes real wages to grow more slowly than nominal wages. Higher real wages nevertheless mean that labour demand and employment growth do not

markedly increase relative to the baseline scenario.

Workers' permanently growing real wages will be reflected in stronger consumer spending. Enhanced labour productivity also increases future spending opportunities. Households adjust their spending behaviour immediately, and private consumption growth increases by more than one percentage point in 2008. Immediate reactions from investment are also fairly strong, and capital stock adjusts to be consistent with the new higher output equilibrium.

Improved productivity contributes positively to the general government budgetary position. Public sector wage costs rise, but higher tax revenue from earned income and consumption offset the impact of cost increases.

In the long run, the level of labour productivity will be permanently better than in the baseline scenario. The level improvement in productivity will not

Table 2.

Alternative scenario: Advances in technological development					
	2007	2008	2009	2010	Level, deviation from baseline, % Long term
<i>Annual change, deviation from baseline, % points</i>					
GDP	0.3	1.2	-0.2	-0.1	2.0
Imports	0.4	1.9	0.3	0.0	2.0
Exports	0.3	1.3	-0.1	0.0	2.0
Private consumption	0.4	1.3	-0.1	0.0	2.0
Private sector investment	0.5	2.1	-0.3	-0.1	2.0
Private consumption deflator	0.0	0.3	0.4	0.0	
Index of wage and salary earnings	0.0	0.9	0.9	0.1	
Index of real wage and salary earnings	0.0	0.6	0.5	0.1	2.0
Number of employed, 1,000 persons	4	9	-3	-5	
Number of employed	0.2	0.2	-0.5	-0.1	0.0
Average labour productivity	0.2	1.0	0.3	0.0	2.0
General government debt, % of GDP (level deviation)	-0.2	-0.7	-0.5	-0.3	

Source: Bank of Finland calculations.

affect relative prices in the economy in the long term. GDP, consumption, investment, foreign trade and real wages are all – along with labour productivity – 2% higher than in the baseline scenario. Productivity has no impact on employment in the long run, as real wage developments reflect long-term productivity growth.

#### Weaker labour productivity growth and less labour market competition

The third alternative scenario examines a situation where the rate of growth in labour productivity slows temporarily and labour market competition abates at the same time (Table 3).<sup>4</sup> This scenario combines the effects of the first two scenarios but assumes a productivity change of opposite direction. The

<sup>4</sup> In the literature, these phenomena are referred to as real wage resistance. The historical reference often used is the productivity growth slowdown of the 1970s, which was only identified later and accepted in wage formation, and is claimed to have weakened employment particularly in Europe.

purpose is to present a situation in which a labour productivity growth slow down – as compared with the baseline scenario – following a decline in technological development would require a fall in the rate of increase in nominal wages of about one percentage point in 2008 and 2009 while the rate of increase in wage and salary earnings nevertheless remains consistent with the baseline scenario. The assumed reason for this is a simultaneous change in the functioning of the labour market so that the degree of competition diminishes.<sup>5</sup>

From the perspective of economic activity, this scenario reflects a bad option, as it excludes one of the economy's key channels of adjustment to negative productivity shocks, ie a downward adjustment of wages.

<sup>5</sup> The decline in the degree of competition is estimated so that the rate of increase in earnings remains unchanged from the baseline scenario. The degree of competition falls slightly less than in the first alternative scenario.

Table 3.

Alternative scenario: Deceleration in technological development and permanent weakening in labour market competition					
	2007	2008	2009	2010	Level, deviation from baseline, % Long term
<i>Annual change, deviation from baseline, % points</i>					
GDP	-0.4	-1.5	-0.1	-0.1	-3.2
Imports	-0.4	-1.9	-0.2	0.0	-2.0
Exports	-0.3	-1.5	-0.2	-0.1	-2.5
Private consumption	-0.5	-1.5	0.0	0.0	-3.3
Private sector investment	-0.6	-2.7	-0.1	0.0	-3.2
Private consumption deflator	0.0	-0.1	0.0	0.1	
Index of wage and salary earnings	0.0	0.0	0.0	0.0	
Index of real wage and salary earnings	0.0	0.1	0.0	-0.1	-1.7
Number of employed, 1,000 persons	-5	-23	-24	-24	
Number of employed	-0.2	-0.7	0.0	0.0	-1.3
Average labour productivity	-0.2	-0.8	-0.1	-0.1	-2.0
General government debt, % of GDP (level deviation)	0.2	1.0	1.2	1.4	

Source: Bank of Finland calculations.

Compared with a mere negative productivity shock, the decline in GDP growth is slightly stronger still.<sup>6</sup> Employment weakens faster than in the case of a mere productivity shock, as real wages remain unchanged from the baseline.

Lower demand reduces price pressures, whereas weaker labour market competition increases firms' costs, thereby giving rise to upward pressure on prices. In this scenario, these divergent effects cancel each other out.

In the long term, the economy will contract relative to the baseline scenario by more than in the case of a mere negative productivity shock.

Employment will weaken in relative terms by less than GDP, as changes in labour productivity have no long-term employment effects. Workers' real wages will decrease compared with the baseline scenario, but less than in the case of a mere decline in productivity.

### What do the simulations reveal?

The first two alternative scenarios show that the macroeconomic effects of a pick-up in the rate of increase in wages significantly depend, in both the short and the long term, on the factors underlying such acceleration. If the reason is the determination of wages in the labour market in a manner different from earlier practices, the effects of an increase in wage and salary earnings growth on the economy will be clearly negative. Both output and employment will undergo permanent deterioration. An increase in the wage and salary

earnings index that is one percentage point higher than in the baseline scenario and lasts for two years will reduce the number of employed by 30,000 persons over the same period. In contrast, higher wage and salary earnings growth following stronger productivity performance will increase output and raise real wages in both the short and the long term. The third scenario indicates that real economy losses in terms of output and employment as a result of a weakening in labour productivity will be greater if there is no equivalent decline in the rate of increase in wages.

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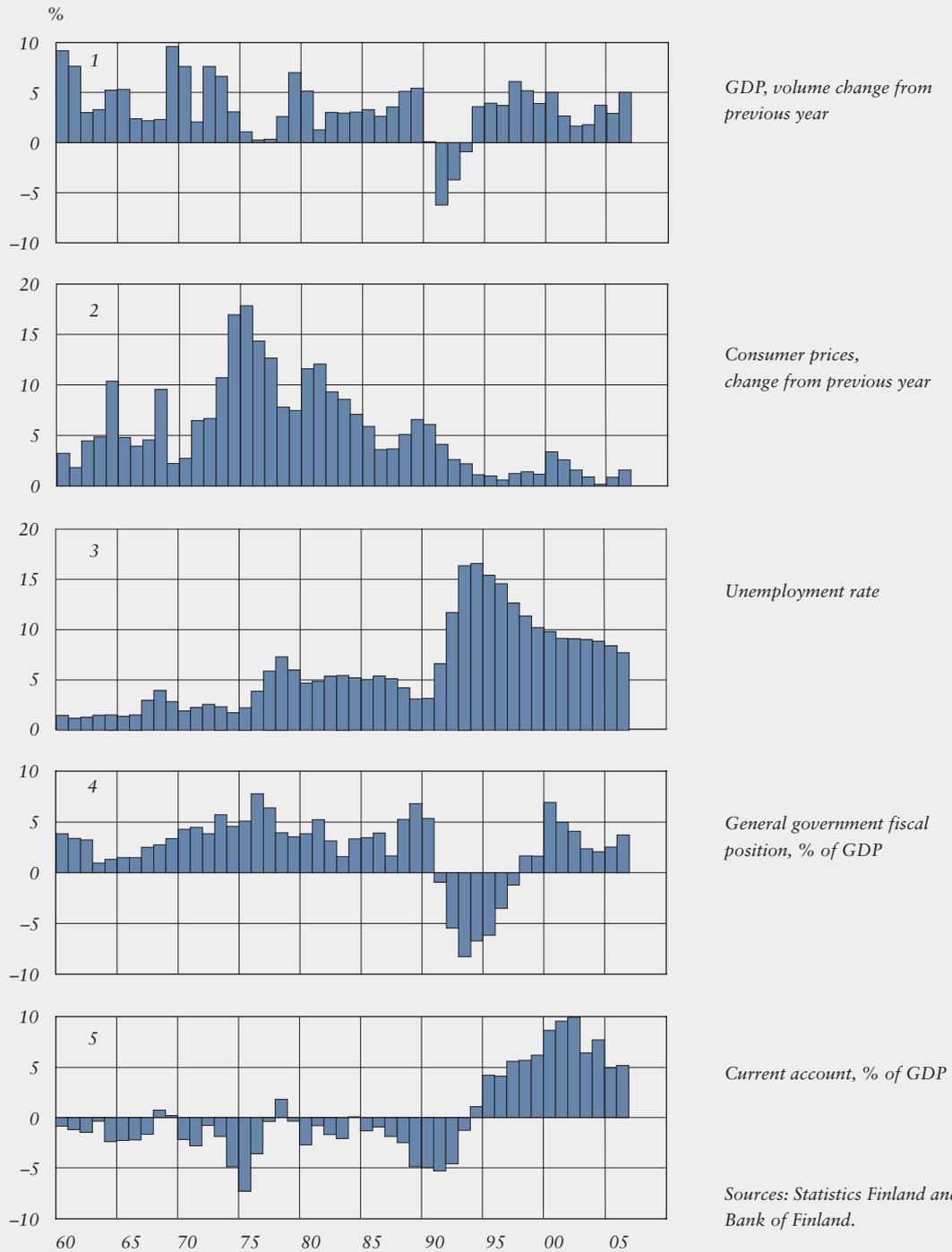
<sup>6</sup> The repercussions of a negative productivity shock are of similar size as in the above case of a positive productivity shock, but in the opposite direction.



# Charts

1. Finland: key economic indicators
2. Price stability in the euro area and Finland
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17. Regional distribution of Finnish exports
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21. Finland: GDP and industrial production
22. Unemployment rate in the euro area and Finland
23. Hourly labour costs in the euro area and Finland
24. Selected asset prices in Finland

## 1. Finland: key economic indicators



## 2. Price stability in the euro area and Finland

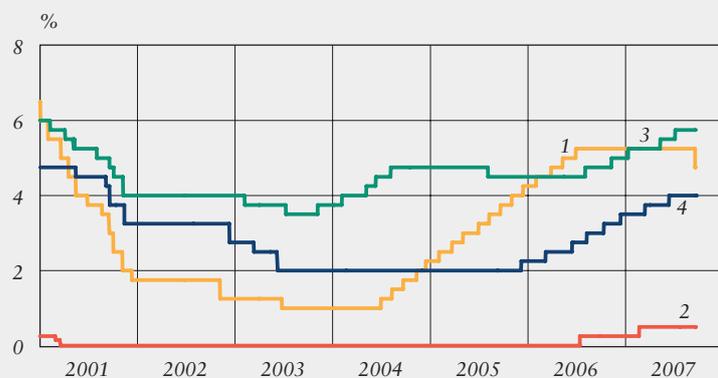


Harmonised index of consumer prices, 12-month change, %

1. Euro area
2. Finland

Sources: Eurostat and Statistics Finland.

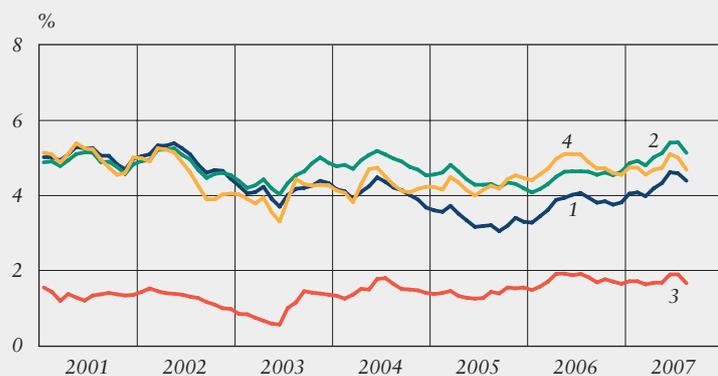
## 3. Official interest rates



1. USA: fed funds target rate
2. Japan: 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

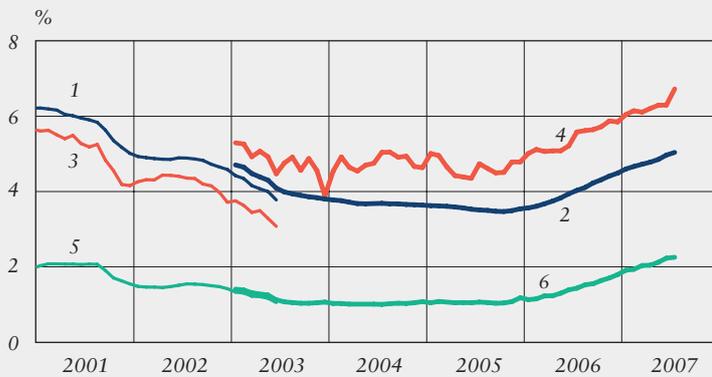
Source: Reuters.

### 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.

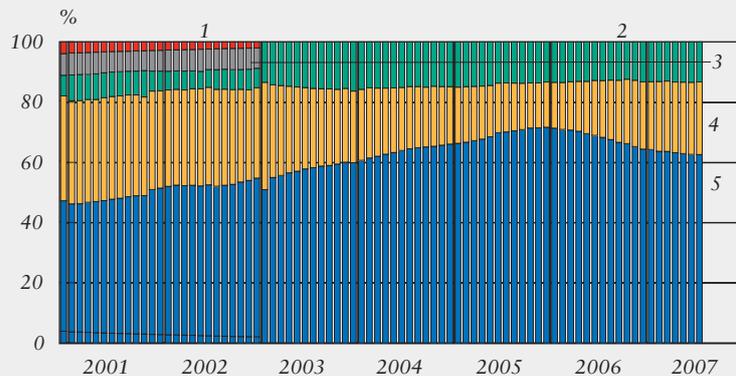
### 6. Average lending and deposit rates



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

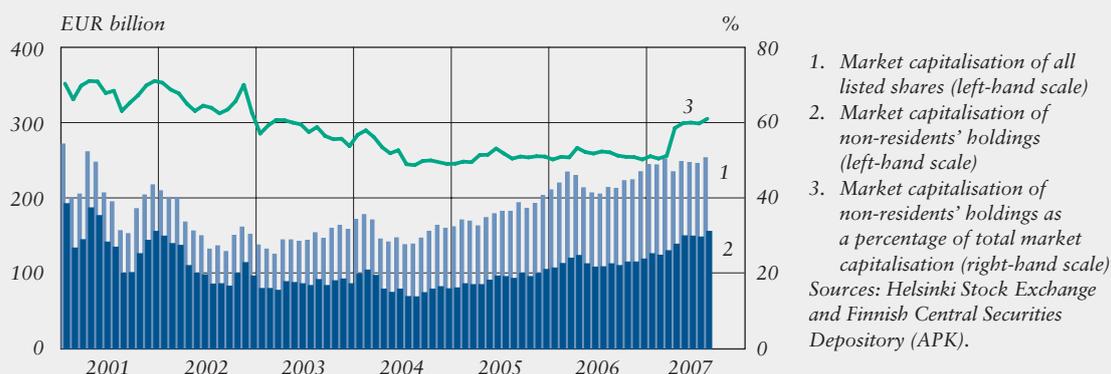


January 2001 = 100

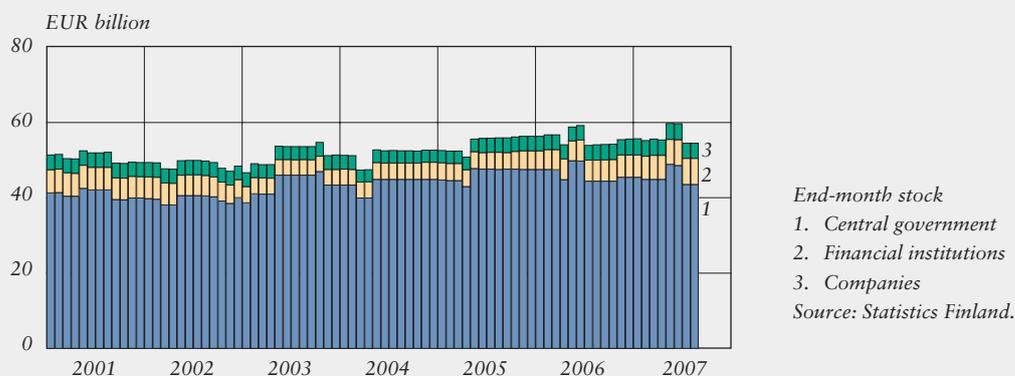
1. Total euro area: Dow Jones Euro Stoxx index
2. Germany: DAX index
3. Finland: OMX Helsinki All-Share Index

Sources: Bloomberg and Helsinki Stock Exchange.

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



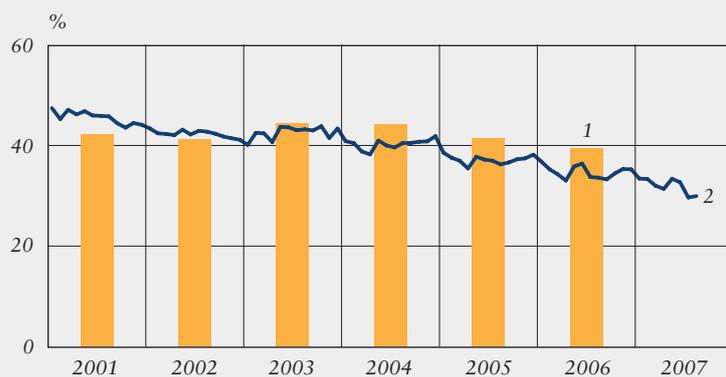
### 12. Bonds issued in Finland



### 13. Public sector balances in Finland



#### 14. Public debt in Finland

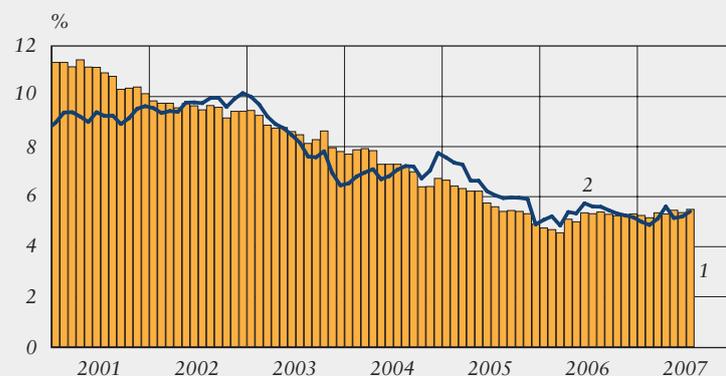


% of GDP

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

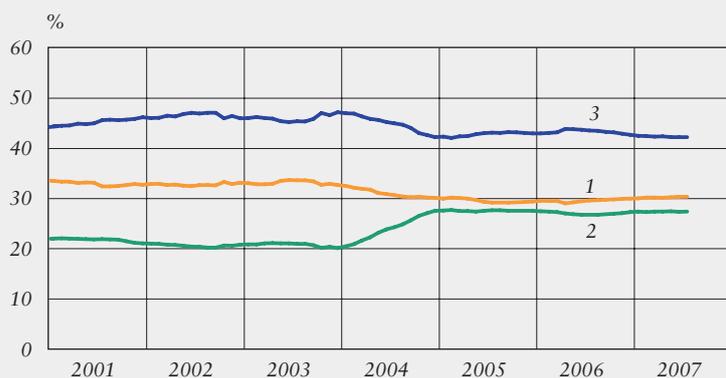


12-month moving totals, % of GDP

1. Services account (trade in goods, fob)
2. Income account

Source: Bank of Finland.

### 17. Regional distribution of Finnish exports

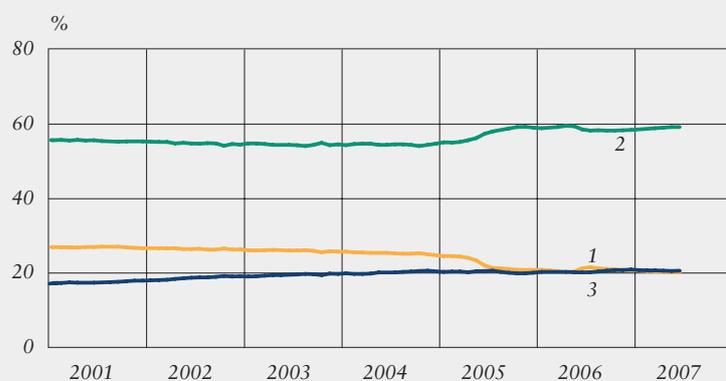


12-month moving totals,  
percentage of total exports

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



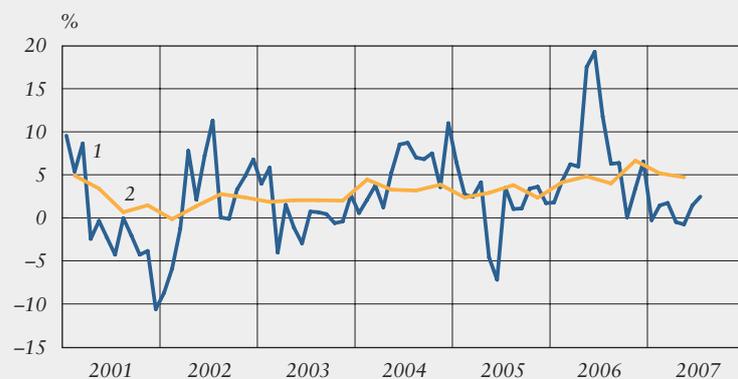
% of GDP

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



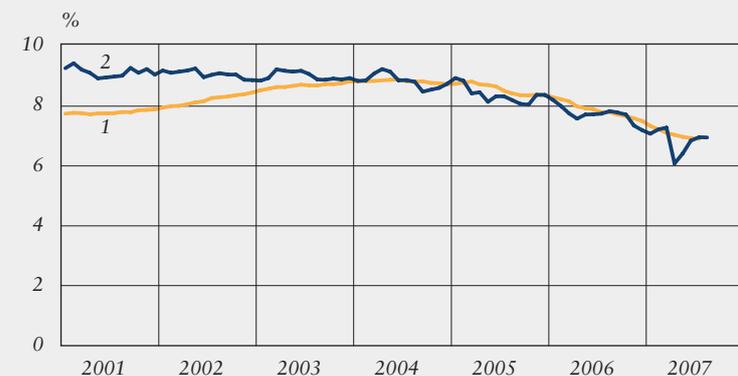
Percentage change from previous year

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 m<sup>2</sup>)

Source: Statistics Finland.

# Organisation of the Bank of Finland

4 May 2007

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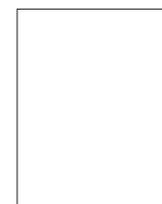
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