BANK OF FINLAND
BULLETIN
EUROJÄRJESTELMÄ
EUROSYSTEMET

# 5 · 2011

# Economic outlook

# Contents



The front cover depicts the national motif on the Portuguese 1 euro coin: Portuguese castles and coats of arms and the royal seal of 1144.


**Bank of Finland Bulletin 5 • 2011**

Vol. 85
Published 12 January 2012
The Bank of Finland Bulletin is published five times a year.

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**Printed**
by Edita Prima Oy, Helsinki 2011





**ISSN-L 1797-3775 (print)**
**ISSN 1797-3783 (online)**



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# Preface

Finland's economic outlook has weakened with the new phase in the international financial crisis. The problems of sovereign debt and related uncertainty over the state of the financial system, particularly in Europe, have subdued the outlook for Finnish exports. At the same time, the heightened uncertainty is also threatening to undermine investment and consumption demand in the domestic economy. Although financial institutions in Finland are in a better position than in many other European countries, they, too, are finding their funding hampered by the prevailing financial market uncertainty.

The deteriorating outlook for the international economy is a consequence of the financial crisis that began a few years ago coupled with the legacy from the boom years that preceded it. This is not the first time in economic history that a boom fed by credit growth and a rapid increase in asset prices has been followed by a crisis from which the recovery is both slow and bumpy.

Developments in recent months have made it clearer than before that pre-crisis economic trends were unsustainable, and that economic growth could be decidedly sluggish in the immediate years ahead. Finland will not be untouched by this, despite the fact that developments in the Finnish economy have been in many respects more balanced than in several other EU countries.

The slowdown in growth and problems with sovereign debt in Europe also place a new light on the outlook for Finland's public finances. Central government finances are in substantial deficit, and the population is ageing. Finland's general government finances have in recent years differed positively from those of most other euro area countries. However, the deteriorating economic environment could also weaken market confidence in Finland. According to the Bank of Finland forecast, Finland's general government debt relative to GDP will grow to approximately 60% in 2015.

To bring the outlook for Finland's public finances onto a sustainable footing will require substantial action on top of the decisions already taken. According to the Bank of Finland's assessment, the objective written into the Government programme of turning growth in the central government debt-to-GDP ratio into a contraction by the end of the present parliamentary term would require a reduction in the central government deficit relative to GDP of around 2½ percentage points.

Long-term sustainability for Finland's public finances would require measures on a much larger scale than the above-mentioned objective in the Government programme, if sustainability is taken to mean that the debt ratio in 2060 is no higher than 60%. This is due to the growing effects in the years ahead from population ageing. In order to achieve sustainability, the general government balance should, in the assessment of the Bank of Finland, be raised permanently by around 5% of GDP in addition to the measures already announced by the Government, assuming the extra steps are taken by 2015. If they are delayed, they will need to be larger still.

In contrast to many other countries in Europe, Finland still has the possibility to bring its public finances onto a sustainable path through controlled, carefully designed measures. This would be possible particularly through action to prolong working careers and reforms to boost labour productivity in basic public services. If these steps are not taken in time, the Government could end up in a situation where it is forced to rapidly reduce the general government deficit at a time when economic developments are weakening.

The deteriorating economic outlook also has implications for employment. An increase in unemployment would have long-lasting effects, with the skills of the unemployed deteriorating and more people becoming excluded from working life. The outcome of this is both human suffering and a long-term deterioration in the potential output of the economy.

Particularly worrying would be an increase in youth unemployment and the number of long-term unemployed. Such a scenario can be countered by both ensuring there is a financial incentive to work and providing public measures that help people find work and support the maintenance of working capacity.

Many enterprises and entire industries have not fully recovered from the recession of 2008 and 2009, and the recent deterioration in the economic outlook poses a new threat to them. As a result, we could be facing a future in which the structures of the economy change more quickly than in the past. The actualisation of these structural changes with as little damage as possible will require adaptability in the economy. In the process of adapting, there will be an important role for an efficient financial system, as also for flexibility in wage formation at enterprise and industry levels.

If the upward trend in labour costs continues more or less at the pace of recent years and labour productivity growth slows down, the pace of increase in unit labour costs will accelerate. There will then be a danger that unit labour costs in Finland will in the immediate years ahead rise faster than the euro area average.

The conclusion of the labour market framework agreement reduces uncertainties surrounding the future trend in labour costs and also reduces the likelihood of labour market strife. At the same time it remains important to take care of the international cost-competitiveness of Finnish output.

It is still not entirely clear how the general line taken in the framework agreement and flexibility in wage formation at enterprise and industry levels will work out in practice during the life of the agreement. Such flexibility could facilitate positive developments in competitiveness and employment and assist in the achievement of economic restructuring with as little pain as possible.

12 December 2011

Erkki Liikanen

## Bank of Finland forecasts

This issue of the Bank of Finland Bulletin presents the Bank's macroeconomic forecast, which is prepared by the Monetary Policy and Research Department. The forecast report examines recent developments in the economy and the outlook for the present calendar year and the next two years ahead. The focus is on the Finnish economy. The forecast itself describes the most probable developments in the economy, while the attached risk assessment discusses the uncertainties relating to the forecast.

The forecast is prepared as part of the Eurosystem staff projections for future macroeconomic developments in the euro area.[1] Accordingly, the underlying forecast assumptions and assessments of future developments in the international economy are the same as in the Eurosystem staff projections. The assumption is for interest rates to develop according to market expectations and for bilateral exchange rates to remain unchanged during the forecast period. The forecast for the Finnish economy and the related risk assessment are prepared using a macroeconomic model developed at the Bank of Finland plus a large body of other data and assessments of economic developments.[2]

The publication schedule for Bank of Finland macroeconomic forecasts has changed in 2011 so that the forecast article and the related separate articles are published in the June and December editions of the Bank of Finland Bulletin. The European Central Bank publishes summaries of the Eurosystem staff projections in the June and December editions of the ECB Monthly Bulletin.

[1] *The Eurosystem comprises the European Central Bank plus the national central banks of countries in the euro area, including the Bank of Finland.*

[2] *The forecast uses the latest version of the Bank of Finland's macroeconomic model, Aino. The basic features of the model are described in the article by Elisa Newby, Jukka Railavo and Antti Ripatti, 'An estimated general equilibrium model for forecasting', Bank of Finland 3/2011, Economic outlook, p.58–66.*

# Executive summary

Finland's economic growth has slowed substantially during the course of 2011.[1] GDP is still well below what it was prior to the recession, and the level of output achieved in 2008 will not be recaptured until 2013. The Bank of Finland forecasts GDP growth of 2.8% in 2011, but only 0.4% in 2012. In 2013, growth is expected to pick up to 1.8%.

Growth has been particularly dampened by a substantial weakening in exports during 2011. Finnish exports have been developing more slowly than world trade and Finland's export markets since the recession, due partly to the structure of the Finnish export sector. Exports focused on capital goods and intermediate goods respond slowly to growth in the export markets. In 2011, export performance has also been hampered by the weakness of service exports. The pace of growth in Finland's export markets has now eased and will not pick up again until the second half of 2012. In 2012, Finnish exports will remain almost at the level of 2011 and will not gather pace until 2013.

Fixed investment has grown in 2011, reflecting an increase in both industrial construction and investment in machinery and equipment. The marked increase in economic uncertainty will, however, cause the postponement of investment projects, and investment growth will run out of steam in 2012. Growth in investment in housing construction has flattened out during the course of 2011 and the weaker economic outlook is reflected in housing demand. Investment in housing construction will grow only slowly in 2012, gathering pace only in 2013.

Household consumption has grown strongly in 2011, but the pace of growth will slow substantially in 2012–2013. Growth in real disposable household incomes will be sluggish in 2012 against a background of a weak employment trend and stubbornly high inflation. Growth in households' consumption expenditure will exceed growth in disposable incomes, and the savings ratio will decline in 2012. An easing in the pace of inflation will support real income growth in 2013, and the savings ratio will continue at the level of the previous year.

The pace of improvement in employment has eased and the unemployment rate remained almost unchanged in 2011. The slowdown in GDP growth will halt the improving trend in employment, and unemployment will increase slightly in 2012. Industrial employment, which declined most strongly during the recession, has scarcely picked up at all in Finland during the subsequent economic recovery. New jobs have come mainly in educational, social and healthcare services. Labour productivity growth will be in cyclical decline in 2012. Moreover, the growing GDP share of public services will subdue the pace of productivity growth over the longer term as well. Wage earners' average earnings are expected to rise by slightly less than 3% per annum over the forecast period as a whole.

Finland's general government fiscal deficit will contract in 2011 to an

[1] This publication is based on statistical data available on 24 November 2011.

estimated 1.3% of GDP as a consequence of tighter fiscal policy and the improving situation in the economy. The general government fiscal position is expected to change scarcely at all in the years covered by the forecast, with the deficit still standing at 1.2% of GDP in 2013. The central government deficit is expected to contract by just 0.5 of a percentage point from 2011, to 3.7% in 2013.Central government debt will continue to grow rapidly during the forecast period, reaching 49.5% of GDP in 2013.

The current account surplus will contract close to balance during the present year. The trade account has moved into deficit on account of a decline in services exports and the weak trend in goods exports. Another factor depressing the current account is the deteriorating terms of trade between import and export prices due to the development of energy and other commodity prices. Import and export volumes will develop at the same pace in 2012 and 2013. The terms of trade will strengthen slightly in 2012 as a drop in commodity prices slows the upward trajectory of import prices. Finland's current account is forecast to be only slightly in surplus in the years 2012–2013.

Inflation has accelerated during the present year to an estimated 3.4%. Rising consumer prices have been driven by higher world market prices for energy and other commodities and changes in indirect taxation. Increases in excise duties and value-added tax will also push up prices in 2012, with inflation forecast to be 2.5%. The weakening outlook for growth in the global economy has depressed market expectations for energy and other commodity prices. Inflation is forecast to slow to 1.7% in 2013.

There is currently a large degree of uncertainty surrounding developments in the global economy. The Bank of Finland forecast is based on the assumption that the euro area debt crisis will not get any worse, and the slowdown in growth in both the euro area and the global economy will be relatively short-lived. In the forecast, growth in the world trade and in Finland's export markets is expected to gather pace in the second half of 2012. This assumption contains a clear downside risk. If the debt crisis were to escalate into an ungovernable crisis affecting the entire euro area and – via financial sector interlinkages and international trade – into a global crisis, this would in all probability hit the Finnish economy very hard indeed.

*Table 1.*

**Forecast summary**

***Supply and demand***

| | 2010 | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|---|
| | At current prices EUR billion | Volume, % change on previous year | | | | |
| *Gross domestic product* | 180.3 | –8.2 | 3.6 | 2.8 | 0.4 | 1.8 |
| *Imports* | 70.3 | –16.1 | 7.4 | –0.7 | 0.0 | 5.6 |
| *Exports* | 72.6 | –21.5 | 8.6 | –3.2 | 0.4 | 6.0 |
| *Private consumption* | 98.5 | –3.1 | 2.7 | 3.7 | 1.2 | 1.4 |
| *Public consumption* | 44.3 | 0.9 | 0.6 | 0.1 | 0.4 | 0.7 |
| *Private fixed investment* | 29.3 | –15.9 | 3.9 | 6.6 | 1.8 | 4.8 |
| *Public investment* | 4.6 | 4.7 | –3.8 | 2.9 | –0.4 | –1.7 |

***Key economic indicators***

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| ***% change on previous year*** | | | | | |
| *Harmonised index of consumer prices* | 1.6 | 1.7 | 3.4 | 2.5 | 1.7 |
| *Consumer price index* | 0.0 | 1.2 | 3.5 | 2.6 | 1.9 |
| *Wage and salary earnings* | 4.0 | 2.6 | 2.7 | 3.0 | 2.8 |
| *Labour compensation per employee* | 2.3 | 3.5 | 3.4 | 2.8 | 3.0 |
| *Productivity per person employed* | –5.5 | 4.1 | 1.8 | 0.5 | 1.7 |
| *Unit labour costs* | 8.2 | –0.5 | 1.6 | 2.3 | 1.3 |
| *Number of employed* | –2.9 | –0.4 | 1.0 | –0.1 | 0.2 |
| *Employment rate, 15–64-year-olds, %* | 68.3 | 67.8 | 68.6 | 68.9 | 69.4 |
| *Unemployment rate, %* | 8.2 | 8.4 | 7.8 | 7.9 | 7.9 |
| *Export prices of goods and services* | –5.7 | 3.9 | 5.7 | 2.5 | 1.4 |
| *Terms of trade (goods and services)* | 2.8 | –2.3 | –1.3 | 1.1 | 0.0 |
| ***% of GDP, National Accounts*** | | | | | |
| *Tax ratio* | 42.5 | 42.1 | 41.9 | 42.6 | 42.7 |
| *General government net lending* | –2.7 | –2.8 | –1.3 | –1.2 | –1.2 |
| *General government debt* | 43.3 | 48.3 | 50.0 | 53.1 | 55.9 |
| *Balance on goods and services* | 1.6 | 1.3 | –0.2 | 0.3 | 0.5 |
| *Current account balance* | 1.8 | 1.8 | 0.0 | 0.2 | 0.3 |

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

# Economic outlook 2011–2013

## Recent developments

GDP growth in Finland has slowed noticeably in 2011. The pace of growth has been particularly affected by a sharp fall in exports during the course of the year.

According to the Statistics Finland's preliminary data on output, GDP grew in the third quarter of 2011 by 0.3% from the previous quarter and 2.8% from a year earlier (Chart 1).[1] In the second quarter of 2011, GDP was up 0.6% on the previous quarter. Average quarter-on-quarter GDP growth was only 0.4% in 2011, as compared with 1.3% in 2010 when output was recovering from the recession. According to the trend indicator of output, output contracted in September by 0.6% month-on-month.

The marked fall in world trade during 2011 has been reflected in Finland in the waning of industrial output and export growth (Chart 2). Services exports, in particular, contracted during the first half of 2011. The volume of goods exports grew month-on-month in August, but is still largely at the same level as at the beginning of the year (Chart 3). The volume index of industrial output is also at the same level as at the end of 2010. Output has declined both in electrical engineering and electronics and in the forest industries. By contrast, chemical industry output has picked up, albeit with considerable fluctuations from month to month. Metal industry growth has improved slightly, especially in the past few months. The capacity utilisation rate in manufacturing has not risen any further in 2011, and the capacity utilisation rate in the forest industries has begun to fall. The

[1] Preliminary data on the national accounts for the third quarter of 2011 are discussed in Box 1. The new Bank of Finland model for short-term forecasting of GDP is discussed in Box 2.

*Chart 1.*

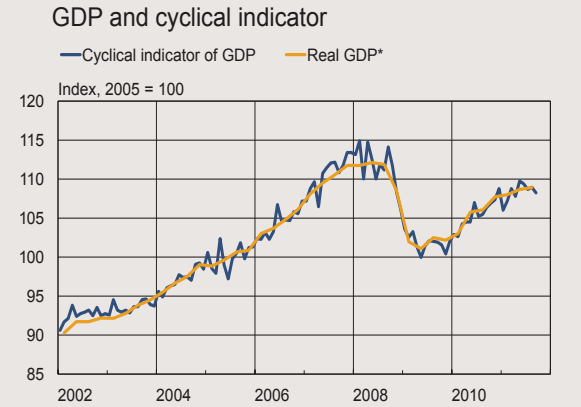



*Chart 2.*

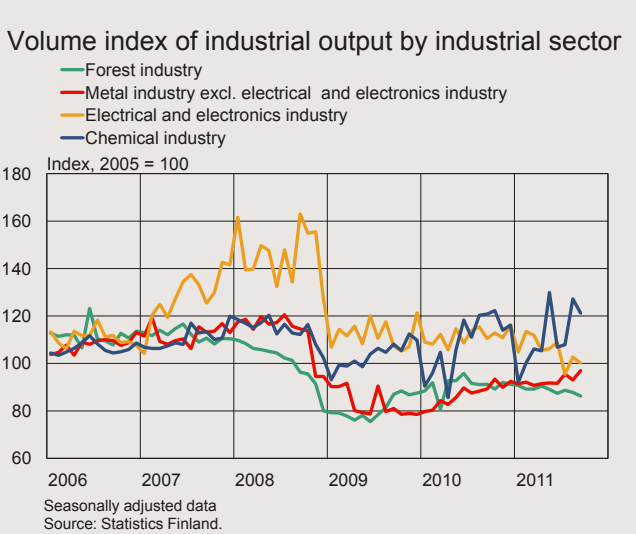
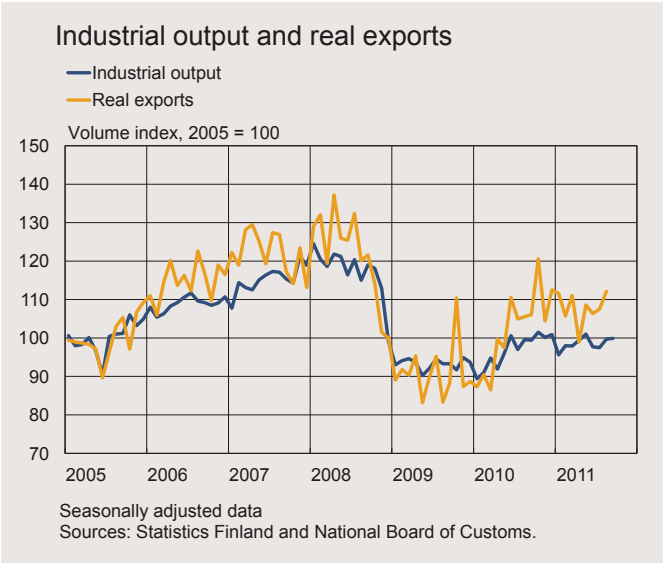


*Chart 3.*




outlook for industrial output growth is overshadowed by a decline in new orders in all main industrial sectors in the third quarter of 2011.

The business outlook for industry has weakened considerably in the course of the year. Output expectations are cautious and order books are smaller than usual. The volume of new orders is expected to remain unchanged, whereas employment numbers are estimated to decrease. Industrial companies' inventories are slightly larger than normal.

The employment situation has continued to improve in 2011, although the positive trend has weakened in recent months. In October, the number of employed was only 8,000 more than a year earlier. The employment rate was 68.3%, or 0.4 of a percentage point higher than a year earlier. The number of employed has increased in social and health care services and construction. Furthermore, the trend fall in the number of employed in industry seems to have come to a halt. Nevertheless, industry still employs about 60,000 persons less than prior to the recession. Job vacancies have not increased further in 2011. The downward trend in the unemployment rate has almost come to a halt, standing at 7.0% in October. The trend unemployment rate adjusted for seasonal and random variation has only contracted during 2011 by 0.3 of a percentage point, to 7.7%.

Consumer confidence in the economy – the leading indicator of private consumption – has weakened considerably in 2011. Consumers' confidence in their own financial situation has also declined to some extent, but is still clearly more robust than confidence in the national economy. However, the weakening of consumer confidence is not yet reflected in private consumption or retail sales, which have continued to grow at a brisk pace. The volume of retail sales was up by 4.1% year-on-year in September. Preliminary data indicates a moderation of sales growth in October. Motor vehicle sales have, in contrast, remained strong throughout the year. All in all, retail trade confidence has remained at the same strong level as at the end of 2010. For the services sector, confidence indicators suggest that sales prospects have weakened in the past few months.

Growth in the volume of new building came to a halt at the end of 2010 and has not risen at all in 2011. The volume of new building was only 2% higher in August than a year earlier.

Housing construction was up 3.8%, whereas other construction remained at the same level as in August 2010. Only industrial and warehouse construction continues to grow at a robust pace, with an annual growth rate of 31% in August.

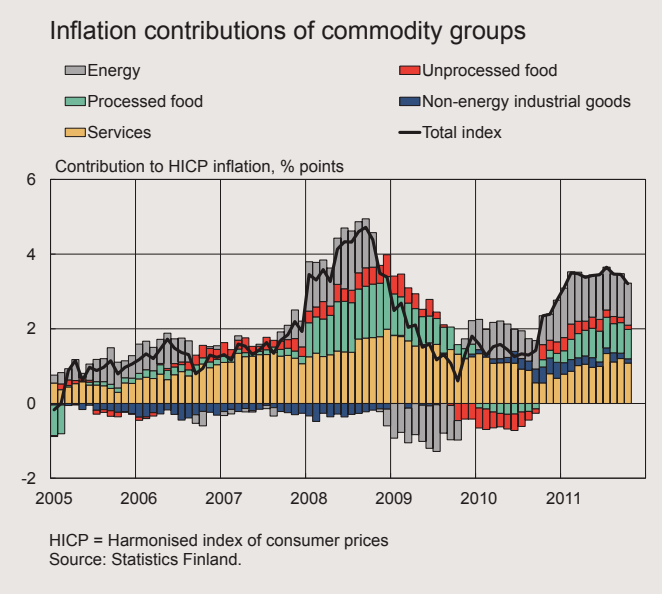
## Continued sharp rise in consumer prices

Consumer prices continued to rise at a brisk pace in the third quarter of 2011. Measured by the harmonised index of consumer prices (HICP), inflation was 3.5%, as compared with 3.4% in the first half of 2011. Inflation as measured by the national consumer price index (CPI) was even higher, at 3.8%. CPI inflation was also affected by a rise in loan interest rates and housing prices.

Inflation was particularly fuelled by a sharp hike in services prices (Chart 4). The rise in services prices accelerated to well over 3% in July, as the reduction of the VAT rate for restaurant and café prices no longer had an impact on annual inflation rate calculations. Rents have also continued to increase strongly, by over 3%. The rise in services prices has been restrained by lower prices for mobile communications services.

Energy prices also continued to contribute strongly to inflation. In the third quarter of 2011, energy prices were 15% higher than a year earlier. Transport fuels have increased by over 11% in 2011. Crude oil prices peaked in April, since when their euro-denominated price has fallen by about 6%. Increases in energy tax pushed up electricity prices in early 2011; these have risen by almost 17% on average over the year as a whole.

*Chart 4.*




Rising food prices have been fuelled by higher commodity prices and increases in indirect taxes in 2011. The rise in unprocessed food prices has moderated during the year, whereas the rise in processed food prices has accelerated again. The growth rate of processed food prices (incl. alcohol and tobacco) was already over 5% in the third quarter of 2011. Of commodity prices, the sharp rise in the world market price of coffee, in particular, has had a strong impact on retail coffee prices in Finland. The introduction of a tax on sweets and ice cream and the increase in the tax on non-alcoholic beverages in January 2011 had an impact on the prices of these product groups.

Non-energy industrial goods prices have risen very moderately during the course of 2011. The acceleration in the

*Box 1.*

## National accounts for the third quarter of 2011

On 5 December 2011 Statistics Finland published preliminary quarterly national accounts data containing the latest statistical data on Finnish economic developments in the third quarter of 2011 and revised data on developments in the first two quarters of 2011.

The Bank of Finland's macroeconomic forecast presented in this publication is based on the quarterly national accounts published by Statistics Finland in September, preliminary GDP data for the third quarter published by Statistics Finland in November and extensive indicator data on economic developments.

According to the most recent quarterly national accounts, GDP growth in the third quarter of 2011 was 2.7% year-on-year and 0.9% quarter-on-quarter. The preliminary GDP data for the third quarter published in November pointed to growth of 2.8% year-on-year and 0.3% quarter-on-quarter.

Growth for the first quarter of 2011 was revised down by 0.1 of a percentage point, and for the second quarter by 0.5 of a percentage point, from preliminary estimates. Accordingly, the revised GDP growth rates for the first and second quarters of 2011 were 0.2% and 0.1% quarter-on-quarter, respectively.

Private consumption growth in the first half of 2011 was slightly slower than projected. Growth rates were revised slightly downwards for both the first and the second quarter. Notwithstanding these downward revisions, growth in private consumption has been brisk. Growth in private investment was also revised slightly down for the second quarter. Exports of services declined substantially during the first half of the year. In the second quarter, services exports were still more than 20% lower than in the second quarter of 2010, although the most recent national accounts indicate a slightly smaller fall than disclosed previously.

In the third quarter, exports and private investment made the strongest contribution to GDP growth. Having contracted by around 11% in the early part of the year, exports grew by 2.4% in the third quarter. Both goods and services exports were up from the previous quarter. In the third quarter, growth in private investment picked up to 2.3% compared with the second quarter. Investment in machinery and equipment increased by 4.5%, but investment in housing construction stagnated. Non-residential construction investment was the only investment category showing a decline on the previous quarter. The expansion of private consumption moderated from earlier in the year. The strongest growth was seen in the consumption of durable consumer goods and services.

In the third quarter, primary production, construction and service production increased from the previous quarter, whereas industrial production declined. The output of the electrical engineering and electronics industry contracted by close to 7% on the previous quarter, whereas output in the other sectors of the metal and engineering industry expanded. Imports fell from the previous quarter, despite an increase in both exports and domestic demand.

Despite the GDP growth witnessed in the third quarter, labour input fell from the previous quarter as measured by both the number of employed and working hours. In contrast, employee compensation increased at a rate of roughly 5%.

The most recent quarterly national accounts data signal a similar development for 2011 as the statistical data published previously. Economic growth was subdued throughout the year compared with growth rates for the previous year. The average GDP growth rate for the first three quarters of 2011 was as low as 0.4% quarter-on-quarter. Given the sluggish trend in exports, growth has relied largely on domestic demand.

*Box 2.*

## Model for short-term forecasting of GDP

Economic policy decision-making is based on assessments of current and future economic performance (nowcasting and forecasting). We draw on forecasts to form a view of prospective economic developments, but we also need to estimate the current state of the economy relying on incomplete data. The publication lag for quarterly GDP statistics is slightly over two months, while indicator information released at a higher frequency on the Finnish economy is abundantly available. Household and business confidence about the economy is monitored monthly via different surveys. These are the fastest channels to provide information on economic activity. Statistics more directly linked with economic output, such as data on industrial production and exports, retail trade and construction, as well as employment and stocks of lending, are generally disseminated with a lag of 1 to 2 months. Financial market information on market interest rates and stock indices can be monitored daily. Consequently, economic forecasters face the challenge of filtering essential information from a vast amount of data in order to estimate near-term GDP performance.

The Bank of Finland has developed a model for short-term forecasting of Finland's GDP. This is a factor-augmented vector autoregressive model, exploiting an exceptionally large set of economic indicators.[1] Factors that are unobserved variables are extracted from this set of indicators, using the principal component method. The factors reflect the co-movements of observed variables and are employed in order to explain macroeconomic developments. Each observed variable is divided into two separate parts, of which one illustrates the co-movement of the variable with other series of observations and the other is an idiosyncratic component of the variable which also incorporates potential measurement bias. The common component of each variable, capturing co-movements, is a linear function of the factors, and the idiosyncratic component is a random variable.

The short-term forecasting model exploits 116 different economic indicators to predict GDP growth. Of these, three factors are extracted that have been modelled using vector autoregressive equations with three lags. The publication lags for economic indicators vary, and a different number of observations of the indicators are typically available. The model estimation takes place in two steps: the first estimation is performed for a period for which monthly observations of all variables are available. This is followed by the fixing of the parameters and by the estimation of the model until the end of the next quarter, applying the Kalman filter. The Kalman filter enables the current quarter forecast to exploit indicator information that is already published. Consequently, the usability of individual indicators in short-term forecasting is affected by both the indicator's link to GDP development and its publication lag. A variable with a good forecasting power for GDP performance is not particularly useful if information on the variable is not published until close to the release of quarterly GDP data.

The model employed by the Bank of Finland for short-term forecasting seeks to predict GDP performance in the current and next quarters. The model is able to forecast the co-movement component of the variable and the dynamics related to macroeconomic developments.
A forecast for factors is made first, which then enables the derivation of a forecast for the co-movement component of each variable. The idiosyncratic component of the variable is

[1] *See, for example, Giannone – Reichlin – Small (2008) Nowcasting: The real-time informational content of macroeconomic data. Journal of Monetary Economics, vol. 55(4).*

assumed to represent random variation, which is not predictable by this model.

The forecasting power of the model can be assessed by comparing the root mean square error (RMSE) of the GDP forecast with the corresponding error of the average forecast.[2] An average forecast refers to a forecast in which GDP is predicted to grow in the immediate quarters ahead at an average pace calculated on the basis of the accumulated observations.

The forecasts are divided according to how many months have elapsed from the beginning of the first quarter for which a forecast is made (Table 1). At period t = 0 one month has elapsed from the beginning of the quarter for which the forecast is made, by which time confidence indicators and financial market information for the first month of the quarter are available. The model forecast becomes more accurate relative to the average forecast during the course of the quarter. The final forecast at period t = 4 is made just ahead of the release of the first GDP estimate, by which time almost all other indicator information for the current quarter is already available. There is no time for as much information to accrue on the coming quarter as on the current quarter. At period t = 4 as much information on the coming

[2] *For the various measures used in the analysis of forecast errors, see Newby – Orjasniemi (2011) Bank of Finland's forecast errors in 2004–2010. Bank of Finland Bulletin, Economic outlook, 3/2011, p. 67–74.*

*Table 1.*

**Forecast errors of the short-term forecasting model**

*The root mean square error (RMSE) of the forecast relative to that of the average forecast*

| | *t = 0* | *t = 1* | *t = 2* | *t = 3* | *t = 4* |
|---|---|---|---|---|---|
| *Current quarter* | *1.03* | *0.75* | *0.57* | *0.51* | *0.53* |
| *Coming quarter* | *1.07* | *1.05* | *0.92* | *0.86* | *0.75* |

*Source: Bank of Finland calculations.*

*Table 2.*

**Point-wise and confidence interval forecasts of the short-term indicator model in different months**

| | *2010* | *2011/I* | *2011/II* | *2011/III* | *2011/IV* |
|---|---|---|---|---|---|
| *June 2011* | *3.2* | *0.8* | *0.9 (0.0–0.9)* | *0.3 (-1.0–1.6)* | |
| *July 2011* | *3.6* | *0.4* | *1.3 (0.3–2.2)* | *0.6 (-0.7–1.9)* | |
| *August 2011* | *3.6* | *0.4* | *1.3 (0.4–2.2)* | *0.9 (-0.3–2.0)* | |
| *16 August 2011* | | | *1.2** | | |
| *September 2011* | *3.6* | *0.3* | *0.6* | *1.0 (0.1–1.9)* | *-0.2 (-1.6–1.1)* |
| *October 2011* | *3.6* | *0.3* | *0.6* | *0.9 (0.1–1.9)* | *-0.3 (-1.6–1.1)* |
| *November 2011* | *3.6* | *0.3* | *0.6* | *0.9 (0.0–1.9)* | *-0.1 (-1.2–1.0)* |
| *15 November 2011* | | | | *0.3** | |

** Flash estimate published by Statistics Finland.*
*The forecast figures of the indicator model are presented in the table with their confidence intervals. The other figures in the table are based on Statistics Finland's quarterly accounts GDP data in seasonally and working day-adjusted terms available at the relevant point in time.*
*Sources: Statistics Finland and calculations by the Bank of Finland.*

quarter is available as was in the current quarter forecast at period t = 1. Accordingly, the root mean square errors of these forecasts are the same.

A review of forecasts made since June 2011 using the indicator model reveals that, from June to August, the model prediction was reasonably in line with Statistics Finland's flash estimate of GDP growth in the second quarter of 2011 (Table 2). In Statistics Finland's first formal quarterly release concerning second quarter GDP performance, however, growth was pronouncedly weaker than had been anticipated and forecast by the model. Third quarter growth predicted by the model rose to nearly 1% during the autumn. Just before the release of estimated GDP performance in the third quarter, the model predicted 0.9% growth, compared with Statistics Finland's flash estimate of 0.3%. The model forecasts slightly negative GDP growth for the fourth quarter.

In Finland, quarter-on-quarter GDP growth fluctuations are very sharp. The source of these fluctuations can typically, as recently, be traced back to abrupt changes in foreign trade. As with other models, this model fails to fully capture such exceptionally wide variation. Short-term forecasting models offer one way of dealing systematically with large data sets, and the forecasts produced by the model help experts form a view of the current state of the economy.

rise of consumer durables prices that began in the latter part of 2010 eased, and prices began to fall, in the latter part of 2011. Prices of consumer durables have been particularly influenced by lower prices for used cars. Prices of daily consumer non-durables have increased by only 0.6% on average in 2011. Prices of other consumer goods have also risen at a much slower pace than headline inflation.

### Summary of recent developments

The latest data on Finnish economic developments indicate that growth has slowed substantially in the course of 2011. Weaker growth in international trade has been reflected rapidly in Finnish exports, and the volume of industrial output has begun to contract in electrical engineering and electronics as well as the forest industries. Industrial confidence indicators have deteriorated markedly during the year. Growth in new orders has come to a halt, and order books are smaller than usual. Construction growth has also stagnated in 2011.

Growth in the services sector has been supported by increased private consumption. Consumer confidence has weakened, but retail sales have continued to grow at a brisk pace. The upward trend in job vacancies has come to a halt, as has also the decline in the unemployment rate.

Consumer prices have continued to rise sharply in 2011. The impact of energy and commodity prices in driving annual inflation will wane over the next few months. However, inflation will be sustained by increases in indirect taxes to be implemented in early 2012.

## Operating environment

### Global economy and Finland's export markets

The outlook for the global economy has deteriorated significantly in the latter part of 2011. Particularly for 2012, the forecasts for both world growth and international trade have been adjusted substantially downwards from the picture on which the Bank of Finland's previous forecast on the Finnish economy was based in June 2011.

Near-term developments in Finland's economic environment will depend decisively on how successfully the spread of the sovereign debt crisis in the euro area can be contained. The debt crisis is no longer just a case of problems in individual countries; it is now affecting the entire financial system in the euro area. The efforts of individual countries in difficulties are no longer necessarily enough to remedy the situation; a broadly based common will to solve the crisis is now essential.

The picture of the global economy on which the forecast is based rests on the assumption that the debt crisis will not continue to deteriorate from the present situation. For this assumption to be realised and the slowdown in the euro area economy to be temporary, as envisaged in the forecast, a rapid strengthening of confidence is essential. If this does not materialise, there is the threat of a steep deterioration in the economic environment and the sliding of the euro area economy into a deep recession.

Growing uncertainty on the financial markets has pushed the main share indices onto a downward trajectory, and risk premia, which inflate financing costs, have grown on both the government and the corporate bond markets. During the course of the autumn, the uncertainty has also impacted on the real economy. Indicators of household and business confidence and expectations have declined since the summer, particularly in the euro area.

Both the continuance and the spread of the sovereign debt crisis in the euro area have hampered the operations of the area's financial markets since the summer. Financial intermediation on the interbank market has been disrupted by both an increase in the spread between secured and unsecured interest rates and an increase in the cost of hedging against credit risk. The debt crisis increases the risks of lending in two ways. In the first place, there is increased uncertainty over being able to recover investments made in the crisis countries. Secondly, the general deterioration in the growth outlook by itself increases the risk of higher loan losses.

### *Outlook for the main economic regions*

Euro area GDP in the third quarter of 2011 was up 0.2% on the previous quarter. The pace of growth was as slow as the second quarter. The GDP trend will remain weak in the immediate future. This is indicated both by the broadly based weakening in confidence indicators and by slower growth in demand for credit in the autumn. Domestic demand in the euro area is forecast to begin to grow gradually during the course of 2012, with private consumption and private investment both recovering as the prevailing uncertainty recedes and the outlook for demand stabilises. Export growth, too, will gradually begin to support improvement in euro area output during the course of next year. GDP growth will, however, remain very slow in the euro area in 2012, with euro area growth also being affected by the legacy of weak growth in 2011.

US GDP in the third quarter of 2011 was up 0.5% on the previous quarter. Growth was slightly faster than in the second quarter, with private consumption and capital investment growing more quickly than before. Political uncertainty and the euro area crisis have impaired financial market confidence in the United States, too, during the autumn. This is impacting negatively on corporate and household expectations. Moreover, a political decision has not been reached on whether to terminate or continue extensions to unemployment benefits and temporary reductions in social security contributions due to end at the turn of the year. The uncertainty is reflected in the economy as a sluggishness in consumption growth. Nevertheless, US GDP growth is expected to continue in 2012 on average almost as strongly as in 2011.

China continues to be the engine driving global growth. It is expected to continue to grow strongly in the immediate years ahead, if at a slightly slower pace and despite the fact that the extensive stimulus package of three

years ago has increased the risks surrounding the country's financial sector. As the world's second largest economy, Chinese growth benefits the whole of Asia. Asian growth in 2011 has been subdued by the strong recession in the Japanese economy in the wake of the natural disaster in March. On the other hand, the reconstruction work appears to be having a positive knock-on effect on industrial economies' exports to Japan, and particularly on small Asian economies that depend on exports.

In Russia, private consumption and investment have continued to grow fairly brightly in the latter part of 2011. Increased domestic demand has particularly boosted imports, in contrast to industrial output, where growth has been very weak since the summer. Russia's economic growth is forecast to remain fairly strong during the forecast period, with GDP expected to grow by 3.8% in 2012 and slightly over 4% in 2013.

*Table 2.*

**Growth in GDP and world trade**

| *GDP* | *2010* | *2011f* | *2012f* | *2013f* |
|---|---|---|---|---|
| *United States* | *3.0* | *1.8* | *1.8* | *2.5* |
| *Euro area** | *1.8* | *1.5–1.7* | *-0.4–1.0* | *0.3–2.3* |
| *Japan* | *4.1* | *-0.3* | *1.9* | *1.7* |
| *Asia excl. Japan* | *9.4* | *7.3* | *6.7* | *7.4* |
| *World* | *5.1* | *3.7* | *3.6* | *4.1* |
| *World trade* | *12.4* | *6.9* | *5.6* | *7.1* |
| *Finland's export markets*** | *13.0* | *7.2* | *4.6* | *6.4* |

** The Eurosystem staff projections for macroeconomic developments in the euro area. The uncertainty related to the estimates is illustrated by presenting them as ranges. The ranges are based on differences between estimates made in previous years and actual developments. The breadth of the ranges is the mean of the absolute values of these differences, multiplied by two.*
*** 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.*
*f = forecast*
*Sources: Eurosystem and Bank of Finland.*

World GDP growth is estimated to slow from the 5.1% seen in 2010 to just under 4% in 2011, but to speed up again in 2013. The focus of growth is still on the emerging economies, whereas in the developed economies it will be rather slow throughout the forecast period. World trade is forecast to grow by approximately 7% in 2011, before easing back to around 5½% in 2012.

Combined imports by Finland's export markets are estimated to grow slightly more slowly than world trade during the forecast period. This is partly because import growth in developed economies – which are important for Finnish exports – is on average slower than global import growth. World trade growth is focused on the emerging economies. Moreover, it seems probable that the prevailing widespread uncertainty is postponing household and corporate decisions to purchase consumer durables and capital goods, a factor reflected in the slow growth in world trade at the end of 2011 and early in the new year. This has serious implications for the outlook for Finnish exports, in which capital goods play a major role.

### *Commodity prices and foreign trade prices*

The moderate decline in world market prices for commodities has continued through the autumn. The background to the fall in prices is slower growth in demand as a result of slower economic growth worldwide and a weaker outlook for growth going forward. In the forecast, the price of Brent crude oil is assumed to follow the trend prevailing in futures prices on 18

November 2011. On this basis, the dollar price of crude oil at the end of the forecast period would average around 9% less than the price in early November 2011.

There has been a considerable decline in commodity prices (excl. oil) during the autumn. Industrial raw material prices have been depressed by a slight slowing in the pace of demand for raw materials on account of the slower world economic growth and the weakened outlook for future growth. The downward trend in food prices has been influenced by the good outlook for harvests and a drop in the cost of production inputs in agricultural output – largely in respect of energy products. The forecast assumption is that commodity prices (excl. oil) will continue to decline in the immediate quarter ahead, thereafter turning onto a moderate upward trend in the second quarter of 2012.

The decline in commodity prices is reflected in the export prices of many countries occupying a key position in respect of Finnish exports. The export prices (excl. oil) of Finland's export competitors will rise moderately during the forecast period: the expectation for 2012 is for a 2% annual rise in euro-denominated prices, and for 2013 an annual rise of around 1½%. The moderate trend in export prices is due to a strongly competitive market, which leaves no room for raising prices, instead increasing pressures to raise productivity.

### *Interest rates and exchange rates*

According to the forecast assumption based on market expectations, the 3-month Euribor will come down from 1.6% in the last quarter of 2011 to 1.2% in the third quarter of 2012. Thereafter it will rise to reach 1.5% in the last quarter of 2013 (Chart 5).

Long-term interest rates (ie on Finnish 10-year government bonds) will rise from 2.4% in the last quarter of 2011 to approximately 3% in the third quarter of 2012 and thereafter to around 3.4% at the end of the forecast period (ie the last quarter of 2013). Thus, the yield curve will become slightly steeper during the forecast period (ie the spread between long and short-term interest rates will grow). The external value of the euro is assumed to remain unchanged during the forecast period (Table 3).

The interest rate assumptions in the forecast are derived from market expectations on 17 November 2011. The assumptions regarding interest rates and exchange rates are purely technical in

*Chart 5.*

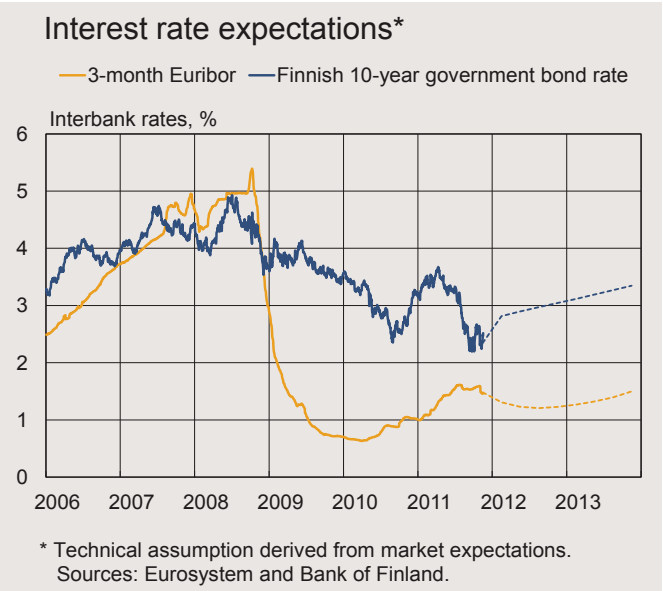


*Table 3.*

**Forecast assumptions**

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| *Finland's export markets,[1] % change* | *–13.3* | *13.0* | *7.2* | *4.6* | *6.4* |
| *Oil price, USD/barrel* | *61.9* | *79.6* | *111.5* | *109.3* | *104.0* |
| *Euro export prices of Finland's trading partners, % change* | *–4.6* | *7.5* | *4.3* | *2.2* | *1.6* |
| *3-month Euribor, %* | *1.2* | *0.8* | *1.4* | *1.2* | *1.4* |
| *Yield on Finnish 10-year government bonds, %* | *3.7* | *3.0* | *3.0* | *2.9* | *3.2* |
| *Finland's nominal competitiveness indicator[2]* | *107.6* | *103.6* | *102.9* | *102.5* | *102.5* |
| *US dollar value of one euro* | *1.39* | *1.33* | *1.40* | *1.36* | *1.36* |

*[1] 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.*
*[2] Narrow plus euro area, 1999Q1 = 100*
*f = forecast*
*Sources: Eurosystem and Bank of Finland.*

nature and do not constitute a forecast of the monetary policy of the Governing Council of the European Central Bank. Nor do they embody any estimate of equilibrium exchange rates.

## Financial markets

The European sovereign debt crisis and uncertainty on the financial markets are also hampering access to finance for Finnish households and businesses.[2] In Finland, the banking sector is still in good shape, but monetary conditions could weaken rapidly. Financial institutions' capital adequacy and profitability are, however, still strong, although the debt crisis in Europe has deepened.

In order to stabilise financial conditions in Europe, several countries have initiated measures to prevent them going any deeper into debt. These measures have not so far succeeded in reassuring the markets. The European sovereign debt crisis is not having any direct effect on the functional capacity of the financial system in Finland, but the impact on the availability and cost of market-based funding for the banks has recently been considerable. The forecast assumption is that the current market uncertainty will be a temporary phenomenon, and the lending capacity of the Finnish banking sector is expected to remain stable.

Banks' access to unsecured long-term funding has weakened during the new phase of the crisis in the second half of the current year (2011). Correspondingly, the role of covered bonds as a source of banks' long-term funding has grown. The interbank money market in the euro area is no longer functioning as well as before summer 2011, and banks operating in Finland, which as a rule have excess liquidity, deposit it with the central bank in preference to the market. If the difficulties in accessing funding are prolonged, this will be reflected in a decline in lending to businesses and households. Relative to many other banks in the euro area, however, Finnish banks still receive market funding more easily and at lower cost.

[2] The stability of the financial system is discussed below in the article 'Financial stability'.

Increasing uncertainty and declining conditions for economic growth have strongly reduced market interest rate expectations during the second half of 2011. In November, the European Central Bank lowered its key policy rate to 1.25%. During the forecast period 2011–2013, the 3-month Euribor is expected to decline slightly in 2012 and rise again at the end of 2013, to 1.5%.

Non-financial corporations' financial results have suffered as ebbing demand has passed the effects of the debt crisis on into the real economy. Businesses have prepared for weakening availability of funding by extending the maturity of their loan programmes and reinforcing their cash reserves. The pace of growth in bank loans to the corporate sector has accelerated slightly during the autumn, but there has been a marked reduction in funding via the bond markets.[3] Share indices have declined substantially since late summer 2011, and share prices have persisted at a lower level than before. Stock market uncertainty is currently casting a shadow over the financial situation in the corporate sector.

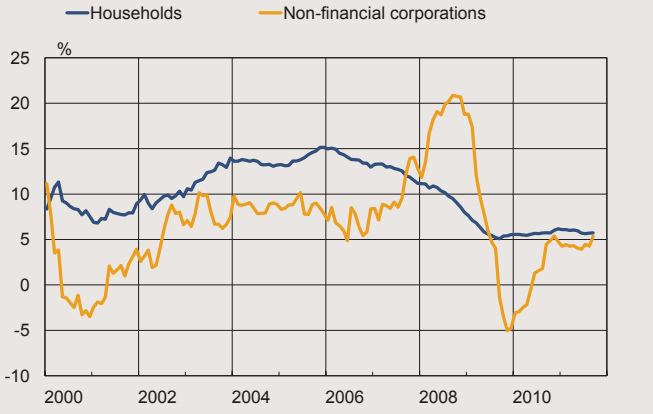
The corporate loan stock has grown in autumn 2011 at an annual pace of around 5% since the same time the previous year (Chart 6). During the forecast period, the pace of growth is expected to ease as demand ebbs. Funding demand is being reduced by businesses postponing investment projects due to the exceptional degree of uncertainty surrounding the economic outlook. With the decline in funding demand, access to funding is not expected to constitute a restraint on business.

The stock of loans to households has continued to grow through 2011 at a stable annual rate of approximately 6%. Growth in the stock of housing loans has continued to be slightly faster than this, at around 7%. The household loan stock is, however, growing much more slowly than before the financial crisis.

According to market expectations, market interest rates will continue to be exceptionally low, and interest costs for those with housing loans will also continue to be relatively low in the immediate years ahead. Finnish households have taken on extra debt in recent years, but at the same time house prices have risen, pushing up the value of housing assets. The general economic situation does, however, pose a threat to households' capacity to service their housing loans, and a weakening

*Chart 6.*

Lending to households and non-financial corporations*




* Annual growth in Finnish monetary institutions' euro-denominated lending to households and non-financial corporations in the euro area.
Source: Bank of Finland.

[3] Bank of Finland Bulletin 2/2011: Financial stability. Bank of Finland.

employment situation could seriously undermine their position.

### Fiscal policy assumptions

Finland's general government balance deteriorated strongly in 2009 and 2010 due to the deep recession in the real economy and the stimulus measures taken in response. In order to stabilise central government finances and enhance the sustainability of general government, the new Government programme published in June 2011 set out adjustments totalling EUR 2.5 billion in central government finances over the years 2012–2015. Of these stabilisation measures, around half are designed to be realised through tax increases, and half through cuts to growth in public expenditure.

The forecast's fiscal assumptions[4] relating to 2011 are taken from the Finnish Government's 2011 Budget. The most significant stabilisation measures contained therein were the increases to energy and environmental taxes at the beginning of 2011. Income tax scales were adjusted for inflation and to compensate for the taxation effects of earnings growth. All in all, the tax base changes in the 2011 Budget will strengthen central government finances by around 0.4 of a percentage point relative to GDP.

The 2012 Budget further shifts the focus of taxation in the direction of indirect taxes. Central government tax receipts will be augmented by increases in transport taxes and certain excise duties, particularly on tobacco and alcohol. Indirect taxation will also be increased by a rise in the value-added tax percentage on newspaper and magazine prescriptions. Tax receipts from consumption will also be augmented by the increase to diesel tax from the beginning of 2012, as set out in the 2011 Budget. Meanwhile, income tax receipts will be somewhat strengthened by an increase of 2 percentage points in the rate of tax on capital income, to 30%, and to 32% for capital income in excess of EUR 50,000. In addition, a phased restriction of tax deductions for interest expenses on housing loans to 75% of loan interest by 2014 and reduction of the maximum domestic help credit to EUR 2,000 will both boost tax receipts in the immediate years ahead. In contrast, tax receipts will be reduced primarily by inflation adjustments to income tax rates and increased deductions in respect of both central and local government income tax to compensate for earnings growth and reduce the tax burden on the low paid. Moreover, a reduction of 1 percentage point in corporation tax, to 25%, will slow the pace of growth in corporation tax receipts.

The gross value of the tax increases included in the 2012 Budget equals approximately 0.5% of GDP, but, due to the simultaneous tax reductions, the net increase in tax receipts will be very modest, at around 0.1% of GDP. Central government expenditure cuts and retargeting will consolidate central government finances in 2012 by around 0.4% relative to GDP. The most significant single measure is the cut in central government transfers to local

[4] The assumptions are based on the situation on 24 November 2011.

government. All in all, the measures to stabilise central government finances will in 2012 reduce the central government fiscal deficit by around 0.5% relative to GDP. The forecast does not take into account measures included in the framework labour market agreement that serve to weaken central government finances by a total of around 0.2 percentage points relative to GDP. Approval of the framework agreement will weaken central government finances by approximately that amount.

In 2013, central government finances will be bolstered by introduction of the bank tax indicated in the Government programme, but weakened by adjustments to income tax rates to compensate for earnings growth and inflation.

Local government's transfers from central government are assumed to grow during the forecast period at an average pace of slightly below 4% per annum despite the expenditure cuts affecting them. The savings targeted at local government will increase pressures for a rise in local income tax. This is assumed to rise in line with the long-term average pace of increase, or around 0.1 of a percentage point annually. Local government income will also be boosted by a 5 percentage point temporary increase in the local government share of corporation tax receipts in 2012 and 2013.

There will be a marked increase in earnings-related pension contributions over the next few years. Overall, employees' contributions will rise by 0.9 of a percentage point in 2011–2013, and employers' contributions by 0.7 of a percentage point. Other social security funds are assumed to remain more or less in balance with the support of central government transfers.

In 2014, central government finances will be consolidated by the introduction of a windfall tax on energy companies and increases to transport taxes. The increases to indirect taxation will not, however, increase overall tax receipts, as income tax rates will be adjusted in 2014–2015 to prevent tighter taxation of labour as a consequence of earnings growth and inflation. The forecast does not take into account efforts mentioned in the Government programme to combat the black economy, or increases in tax receipts as a consequence of these. Looking to 2014, earnings-related pension contributions are assumed to rise by a combined total of 0.4 of a percentage point in line with an agreement between the Government and the labour market organisations.

## Non-financial corporations

### Exports dip

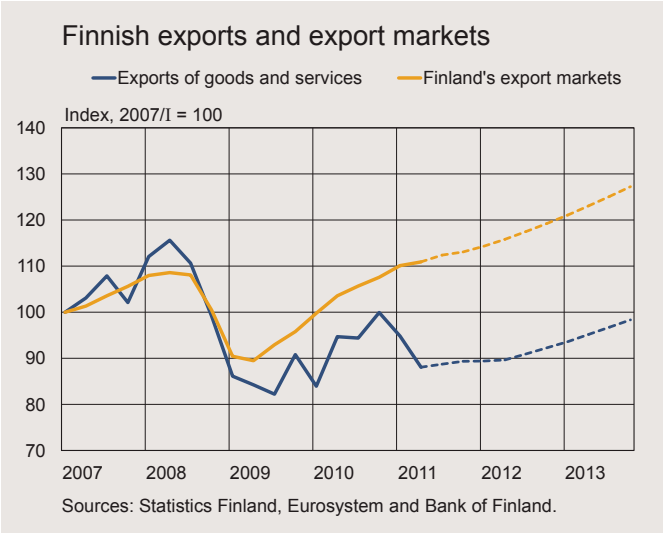
In 2010 , exports of goods and services still grew by almost 9% from the previous year: goods exports were up more than 10%, and services exports by a good 3%. Lower export volumes are forecast for 2011. The volume of both goods, and particularly services, exports declined in the first part of the year. The deterioration has been

especially sharp in services, which have dropped by around 20% from average levels in 2010. Following the slowdown in world trade, growth in export demand will decline, with export growth projected to remain close to zero in 2012. World trade growth is forecast to accelerate in 2013, fuelling a renewed upswing in exports.

Finnish exports will lag behind growth rates in the export markets throughout the forecast horizon, due to the subdued demand for capital goods, which are a key ingredient of Finnish exports (Chart 7). Export growth is expected to pick up gradually only in the latter half of 2012, following the expected recovery in demand for capital goods in Finland's export markets. However, export volumes are not expected to return to the peak levels of 2008 before the end of the forecast period.

In the early part of 2011, the sluggish development of export volumes was partly offset by a surge in export prices, particularly in the chemical, paper and processed metal industries. The increase in export prices is expected to moderate over the forecast horizon. An expected fall in the price of oil and other commodities will reduce upward pressure on export prices, which will be further contained by sluggish demand in Finland's export markets and spare capacity in the corporate sector. Over the next few years, a fairly strong rise in the price of domestic labour input will be the main source of cost pressures for export companies.

*Chart 7.*




## Slower growth in domestic demand

Domestic demand for the goods and services of Finnish companies has remained strong in 2011. In retail trade, robust demand has been sustained since the beginning of the year, while the production of services has continued on a steady growth path. However, the demand outlook for companies focusing on the domestic market is expected to deteriorate over the forecast horizon, in step with a deceleration of private consumption and investment growth.

The expansion of housing investment flattened out at the beginning of 2011. Housing construction is now back to pre-recession levels. According to the forecast, the economic uncertainty will be reflected in the demand for housing, and housing investment is expected to increase only moderately in 2012. Similarly, growth in other construction activity will not gain momentum until 2013. Subdued growth in real household incomes is expected to produce slower growth in

retail trade. Demand for health care and social welfare services is projected to continue on a steady growth path over the forecast horizon.

## Uncertainty depresses investment

The improvement in the capacity utilisation rate of manufacturing industry came to a standstill in 2011 as manufacturing output stagnated. The capacity utilization rate for the aggregate industrial sector has remained slightly below its long-term average. In 2011, capital investment (private investment excluding housing) is forecast to expand by approximately 8% from the previous year. The relatively brisk rate of growth reflects the recovery of industrial and commercial construction that set in already in 2010, as well as higher investment in machinery, equipment and transport vehicles, which was up nearly 10% in the early part of 2011, compared with the average for 2010 (Chart 8). Investment in machinery and equipment still remains well below pre-recession levels.

In the future, the prevailing economic uncertainty is expected to be strongly reflected in company investments. Corporate profitability has not yet been restored to pre-crises levels, while the decline in the outlook for demand will postpone investment projects for expansion of production capacity. In the course of 2012, capital investment is expected to focus on replacement investment. Investment is forecast to pick up gradually only in the latter half of 2012. Availability of funding should not impose any restriction on private investment in the forecast period.

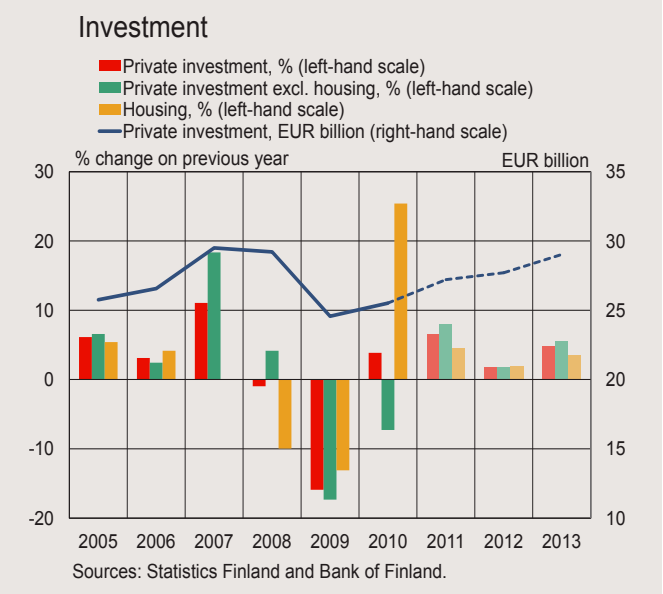
The private sector investment ratio will rise only moderately over the forecast horizon. The ratio of housing investment to GDP will not increase much in the period, while aggregate private investment will remain below pre-crisis levels.

## Unit labour costs rising

The moderation of output growth will reduce companies' need for additional labour. In 2011, the employed population will be roughly 25,000 persons more than a year before. With employment growth tapering off, the number of employed is expected to decline slightly in 2012. Labour demand will increase moderately in 2013, in response to a recovery in output growth.

Companies' cost pressures are projected to mount in 2012, fuelled by an increase in unit labour costs due to a projected decline in productivity.

*Chart 8.*



*Box 3.*

## Corporate profitability by sector in Finland

Analysis of corporate performance yields valuable information on the growth outlook for the economy. Only profitable business generates investment, boosts output and creates jobs. Corporate profitability depends on a number of factors, including end-product prices, remuneration of production factors (such as compensation of employees and capital rent) and intermediate goods prices. Profitability typically declines in an economic downturn, as the adjustment in production factor utilisation is not necessarily able to keep pace with the contraction in demand.

At company level, business profitability is generally analysed by the measures of operating profit margin and rate of return on total assets (ROA). At the aggregate sectoral and corporate sector levels, the operating profit margin may be estimated by the operating surplus to output ratio, using national accounts data.

At company level, the ROA rate measures company profits relative to balance sheet equity and non-equity. Based on national accounts data, this measure can also be estimated by the ratio of operating surplus to net capital stock at the aggregate sectoral and corporate sector levels. The ratio of operating surplus to value added is another national accounts indicator for measuring corporate profitability. This measure expresses corporate performance from the perspective of the functional income distribution of the economy as a whole.

A comparison of the conceptual framework of company and national accounts reveals that the major differences are related to the treatment of immaterial items: these are included in company accounts but not in national accounts (Table 1).

Compared with previous decades, the profitability of Finnish companies was good on average in the first post-millennium decade, measured by all three profitability indicators of the national accounts. The profitability of the corporate sector as a whole has improved considerably since the mid-1990s (Chart 1). In the industrial sector, the improvement in profitability was especially due to the success of the electrical engineering and electronics industry. Because of its high sensitivity to economic fluctuations, the construction sector has shown more variation in profitability than industrial or service sectors. The most stable financial performance has been recorded in services, which have sustained a steady profitability throughout

*Table 1.*
**Correspondence between company and national accounts**

| *Company accounts* | *National accounts* |
|---|---|
| *Net turnover, other operating income* | *Output at basic prices* |
| *– Variable and fixed costs excl. labour costs* | *– Intermediate consumption at purchaser's prices* |
| *= Value added* | *= Value added* |
| *– Labour costs* | *– Compensation of employees* |
| *= Operating margin* | *= Gross operating surplus* |
| *– Planned depreciation* | *– Depreciation of fixed assets* |
| *= Operating profit* | *= Net operating surplus* |
| ***Performance measures*** | |
| *Operating margin, operating profit margin* | *Operating surplus/output* |
| *Operating profit/value added* | *Operating surplus/value added* |
| *Operating profit/non-current assets, ROA* | *Operating surplus/net capital stock* |

*Sources: Accounting Ordinance 30 Dec 1997/1339 and European System of National Accounts 1995.*

the 2000s. Not even the financial crisis and the deep recession in its wake have had as marked an effect on corporate profitability in service sectors as in the industrial and construction sectors (Chart 2).

In 2000–2008, the profitability of manufacturing industry as a whole was slightly over 10% on average. Improvements in profitability have been recorded ever since the late 1990s, especially in electrical engineering and electronics (Chart 3). In 2000–2008, the operating surplus of the electrical engineering and electronics industry represented roughly 20% of output on average, compared with only 7% for other sectors of the metal and engineering industry.

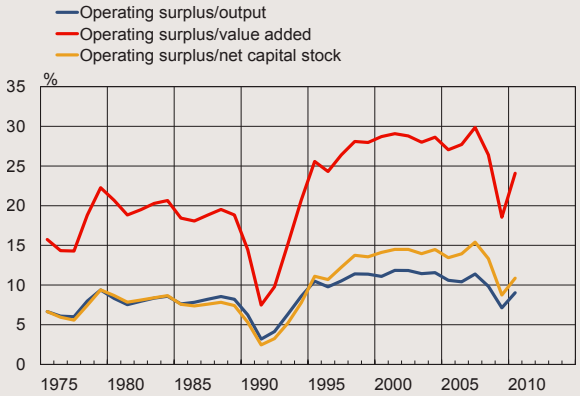
Companies in the manufacturing sector have shown mixed developments in profitability. Whereas profitability in the forest industries has varied between –3% and 15%, companies in the chemical industry have posted a relatively stable performance, showing a profitability ratio of around 10% ever since the 1990s (Table 2). Measured by the operating surplus to output ratio, the profitability of manufacturing industry as a whole declined from 9% to 4% in 2009.

In 2000–2008, the electrical engineering and electronics industry accounted for roughly 41% of the output of the metal and engineering industry and around one-fifth of total manufacturing output. Consequently, changes in profitability in this industry are reflected in the profitability of the whole industrial sector. When the financial crisis hit, profitability in electrical engineering and electronics declined by around 15 percentage points as a result of a marked contraction in end-product demand. In 2009–2010, the industry's contribution to industrial output fell by 4 percentage points.

In recent decades, companies in the service sectors have on average posted a much more stable financial performance than industrial companies. In services, financial performance relative to output improved by a few percentage points in the first post-millennium decade. Retail trade, in particular, has been successful in considerably improving profitability compared with previous decades. The profitability of service-sector companies declined by only one percentage point during the financial crisis.

*Chart 1.*

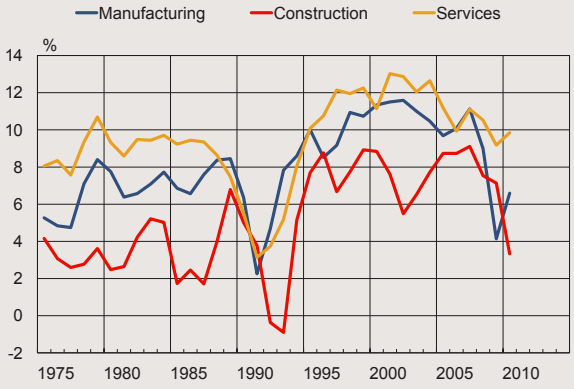
Corporate profitability across the economy




Source: Statistics Finland.

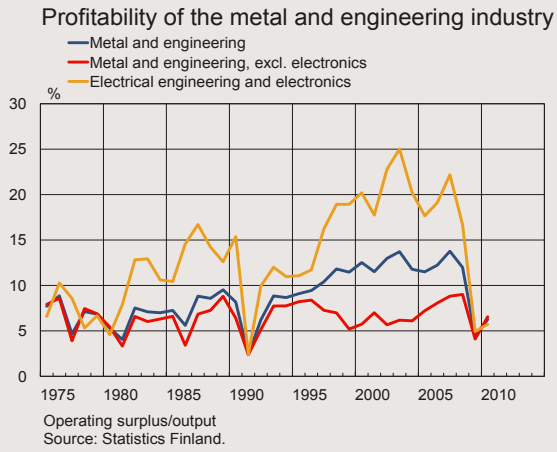
*Chart 2.*

Profitability by sector




Operating surplus/output
Source: Statistics Finland.

*Chart 3.*




However, companies in the retail trade sector were hit harder by the recession, showing a decline in profitability of around 3 percentage points.

After the early 1990s crisis, corporate profitability in Finland rose strongly and reached a good level in the past decade, also in European terms. However, the financial crisis that began in 2008 ruined the performance of Finnish companies. In 2010, profitability improved again in all sectors other than construction, but, nevertheless, still remained far below pre-crisis levels. Preliminary data indicate that profitability growth has come to a standstill in the course of 2011, and there is no major improvement in profitability foreseeable in the future.

The recovery from the recession of the early 1990s and the improvement in corporate performance were fuelled by a rapid restructuring of the economy. However, a similar economic restructuring to boost growth and corporate performance is not foreseeable at present. The situation is rather the contrary when looking at the corporate sector as a whole. The performance of manufacturing industry is very likely to remain more subdued than before, considering that the output contribution of electrical engineering has fallen from pre-crisis levels. The profitability of the industry has also plummeted, and now stands at an exceptionally low level. Corporate performance is, therefore, likely to remain below pre-crisis levels. Such a reduction in the tax base would also have adverse effects on the fiscal outlook of the Finnish economy, through a decline in corporation tax receipts.

*Table 2.*

**Operating surplus to output ratio, %**

| | *1975–1990* | *1991–2000* | *2001* | *2002* | *2003* | *2004* | *2005* | *2006* | *2007* | *2008* | *2009* | *2010* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Manufacturing industry* | 6.9 | 8.4 | 11.5 | 11.6 | 11.0 | 10.5 | 9.7 | 10.1 | 11.1 | 9.0 | 4.1 | 6.6 |
| *Forest industries* | 3.8 | 7.4 | 15.1 | 11.7 | 8.4 | 7.8 | 5.7 | 6.8 | 6.8 | 2.5 | –3.3 | 5.0 |
| *Chemical industry* | 10.3 | 9.5 | 10.2 | 11.0 | 9.9 | 13.4 | 10.4 | 9.8 | 10.4 | 7.6 | 7.9 | 8.9 |
| *Metal and engineering industry* | 7.2 | 9.1 | 11.5 | 13.0 | 13.8 | 11.8 | 11.5 | 12.3 | 13.8 | 12.0 | 4.4 | 6.3 |
| *Metal and engineering industry, excl. electrical engineering and electronics* | 6.4 | 6.5 | 7.0 | 5.7 | 6.2 | 6.1 | 7.2 | 8.1 | 8.9 | 9.1 | 4.1 | 6.6 |
| *Electrical engineering and electronics* | 10.6 | 13.2 | 17.7 | 22.8 | 25.0 | 20.2 | 17.7 | 19.1 | 22.2 | 16.7 | 4.9 | 5.7 |
| *Electronics* | 10.9 | 14.2 | 19.4 | 25.8 | 28.0 | 22.5 | 18.8 | 20.4 | 24.1 | 17.4 | 3.3 | 4.5 |
| *Vehicle manufacturing* | 4.4 | 4.6 | 3.2 | 5.8 | 6.8 | 2.9 | 5.0 | 3.7 | 2.0 | 3.5 | –1.9 | 1.2 |
| *Construction* | 3.6 | 5.6 | 7.6 | 5.5 | 6.5 | 7.7 | 8.7 | 8.7 | 9.1 | 7.5 | 7.1 | 3.3 |
| *Services* | 8.8 | 8.8 | 13.0 | 12.9 | 12.0 | 12.6 | 11.2 | 9.9 | 11.1 | 10.5 | 9.2 | 9.9 |
| *Retail trade* | 10.8 | 9.7 | 14.8 | 15.1 | 14.4 | 15.3 | 14.6 | 13.1 | 14.4 | 15.3 | 12.2 | 12.9 |

*Source: Statistics Finland.*

Productivity growth is expected to gain momentum in 2013 in step with the recovery in output growth, causing unit labour costs to fall back again.

In 2011, there was strong growth of almost 3.5% in average wages, ie employee compensation per wage-earner, but the pace of growth will fall slightly below 3% in 2012 and 2013. In the forecast period, corporate profitability will be supported by both falling commodity prices and low interest rates. An average rise of just under 2% in unit labour costs over the forecast horizon is slightly higher than in most competitor countries. In the forecast, nominal exchange rates are assumed to remain unchanged.

### Companies face a weaker operating environment

Growth in international trade began to moderate in 2011, and at the same time Finnish exports of goods and services began to contract. By contrast, growth in private consumption and investment was sustained from the year before. Driven by robust domestic demand, the operating surplus of companies is expected to increase in 2011, albeit at a slower pace than in 2010.

Corporate profitability will, however, not be restored to pre-crisis levels.[5] The foreseen increase in payroll expenses in parallel with slow productivity growth will raise unit labour costs. The price competitiveness of Finnish companies will not improve in the forecast period.

[5] Corporate profitability by sector is discussed in Box 3.

The demand outlook for Finnish companies has deteriorated. Growth in export demand is expected to fall back in 2012, depressing the growth outlook for export companies. Growth in domestic demand will also slow, with a deterioration in the employment outlook and a decline in household consumption growth. The growth outlook for both exports and the domestic market will improve slightly towards the end of the forecast period, with renewed momentum in international trade and faster growth in real household incomes both forecast.

## Households

The heightened uncertainty surrounding the global economy and financial markets has depressed Finnish households' expectations of future economic developments. According to Statistics Finland's consumer confidence indicator, Finnish consumers' confidence in both their own finances and in the economy as a whole has dwindled in the latter half of 2011 to the lowest level since the 2009 recession (Chart 9). However, the decline in consumer expectations has not, so far, been reflected in retail trade, the growth of which has been sustained by favourable employment developments and a low level of interest rates, despite the high rate of inflation. Households have especially increased their purchases of durables, such as private cars.

The employment outlook has deteriorated markedly since summer 2011. Employment is expected to decline in the course of 2012, while the downtrend in unemployment will bottom out. Employment will not improve much in 2013, either. With employment at a standstill, the income growth of employees will hinge entirely on earnings growth. Average wages are expected to increase at close to 3% in 2012 and 2013. As regards other household income, retirement income, in particular, will increase by more than 3½%, in step with higher index increments and growth in the retired population. Growth in households' disposable income will fall below 3% in 2012, reflecting slower earnings growth (Chart 10). In 2013, income growth will pick up slightly.

Improvements in purchasing power will be held back by an increase in consumer prices of 2.5% in 2012. However, inflation rates are projected to fall distinctly below 2% in 2013. In 2011, private consumption is estimated to grow by 3.7%, but consumer behaviour is cautious amid the economic uncertainty and depressed expectations. Consumption growth is projected to slow rapidly, settling at only slightly above 1% in 2012. The sluggish growth in consumption will continue in the following year, too.

Growth in private consumption will, however, be stronger than the rise in households' real disposable income in 2012, and this will be reflected in a slight fall in the savings ratio. In 2009–2010, the household savings ratio was over 4%, its highest level in almost 20 years. In 2013, the savings ratio is expected to remain broadly unchanged at around 1%, or close to the long-term average. According to market expectations, Euribor rates will remain low throughout the forecast period. With interest rates low, households' debt servicing expenses will remain at a reasonable level relative to disposable income.

Average household indebtedness relative to disposable income has been

*Chart 9.*

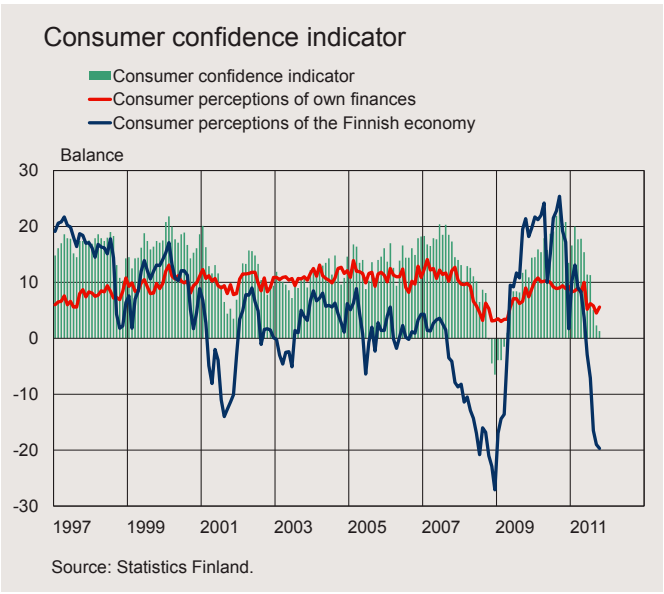
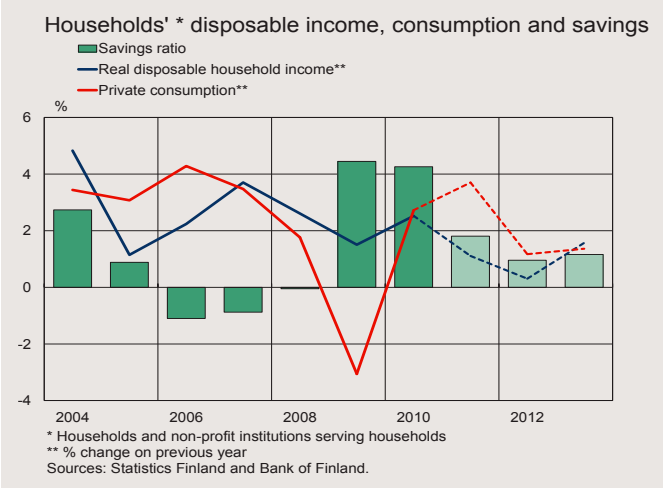



*Chart 10.*



steadily increasing since the turn of the millennium. However, the extension of mortgage repayment periods together with a sustained low level of interest rates has helped households cope with their debts. Most households have some economic margin to respond to a moderate increase in the mortgage rate or a temporary spell of unemployment. However, if the unemployment situation were to markedly deteriorate, the risks related to the debt servicing capacity of households would also grow.[6]

## GDP and employment

### Structure of growth

The pace of GDP growth in the Finnish economy has slowed substantially in 2011 compared with the previous year. According to the preliminary data on Statistics Finland's trend indicator of output, output grew in the third quarter by only 0.3% from the previous quarter. Finland's GDP is forecast to grow slightly less than 3% in 2011 (Chart 11).

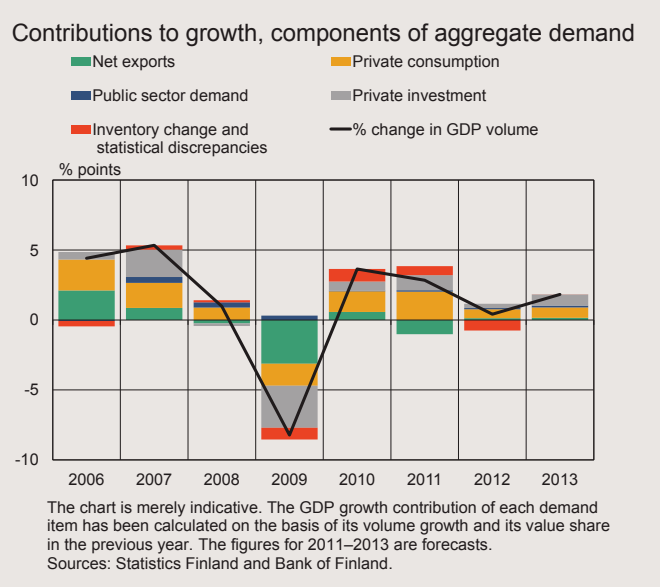
The Finnish economy recovered fairly rapidly from the recession caused by the global financial crisis, but GDP is still forecast to be approximately 3% lower than its pre-crisis record levels. In 2011, economic growth has been sustained by private consumption and investment. Growth in inventories has also contributed to the growth in output. Exports declined in the first half of the year, as growth in services exports was well down on before. As a result, net exports (the difference between exports and imports) contributed negatively to output growth in 2011 (Chart 12).

Economic growth is forecast to ease back considerably in 2012, with

[6] See the article 'Finnish households' economic margin' by Petri Mäki-Fränti (below).

*Chart 11.*


*Chart 12.*



Finland's GDP growing by only 0.4%. The increase in private consumption will be considerably weaker than before, due to the slowing pace of growth in household incomes. Growth in fixed investment will be weak, due to the uncertain economic outlook. Growth in inventories will also decline on the previous year, further dampening output growth.

The growth impact of consumption will remain subdued in 2013, despite the forecast pick-up in GDP growth to nearly 2%. Growth will be supported by a gradual recovery in investment. Finnish exports will gather pace with the recovery of international trade, but import volumes will also grow, as a result of which net exports' contribution to output growth will be close to zero, as in 2010.

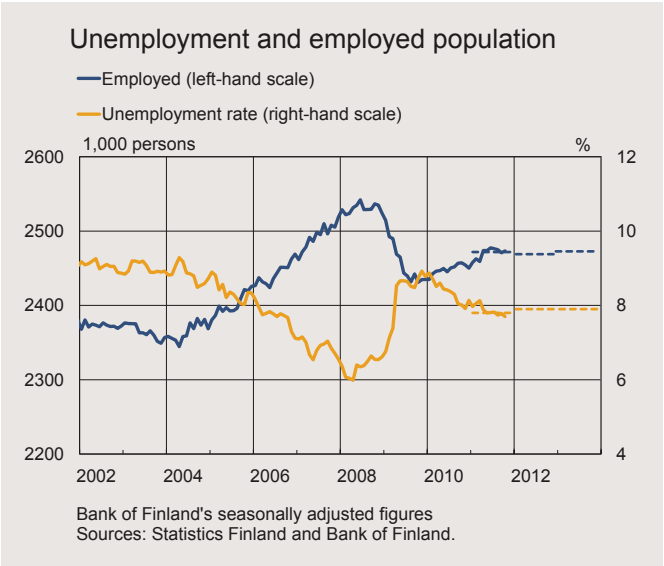
## Labour market

The pace of recovery in the labour market has eased in 2011. The fall in unemployment has slowed considerably compared with 2010, and employment growth has been subdued (Chart 13). The number of employed increased in 2011 by an average of 25,000 persons. The decline in the number of people temporarily laid off has come to a virtual halt since the first half of the year. The deterioration in the economic outlook has thus already impacted on the labour market.

As a result of the slowing of the economy, the improvement in employment will come to a halt and unemployment will increase slightly in 2012. The recovery in output growth in 2013 will not be enough to significantly increase jobs. The number of employed in 2013 is forecast to be at the level of 2011, and the unemployment rate will remain at 7.9%.

By far the largest number of job losses in 2008–2010 (over 60,000) were in industrial production. A significant number of jobs were also lost in construction, in wholesale and retail trade, and in hotel and restaurant services. Although industrial employment has improved slightly from its lowest point during the recession, during the economic recovery new jobs have come mainly in educational, social and healthcare services (Chart 14). In these services, the number of hours worked has, however, decreased. Jobs in these areas are typically in the public sector or in services purchased by the public sector. Although the biggest job losses during the recession and the strongest improvement in employment in the recovery took place in different sectors, thus far there have been no

*Chart 13.*



signs of an increase in labour market mismatches.

Youth unemployment increased rapidly during the recession (Chart 15). Since then, the situation has eased slightly, but the improvement has halted at approximately 20%. Youth unemployment is higher than immediately prior to the recession, but more or less at the average level for the past decade. The youth unemployment rate has been higher than that of older age groups since the mid-1990s, when the unemployment rate of the under-25s was nearly twice that of older age groups. Currently, the youth unemployment rate is more than three times higher. A higher youth unemployment rate relative to other age groups is a problem that persists throughout the economic cycle.

Unemployment among older age groups has declined at a slower pace than youth unemployment. The persistently high level of unemployment is gradually starting to push up the proportion of long-term unemployed, ie those out of work for more than a year. An increase in the proportion of long-term unemployed typically follows an increase in the overall unemployment rate with a lag, and its pace of decline is considerably slower than that of the unemployment rate. The share of long-term unemployment among the total unemployment figures began to grow only in the second half of 2009. According to statistics from the Ministry of Employment and the Economy, in the second half of 2011, of the total number of unemployed, approximately a fourth were long-term unemployed. A prolonged period of unemployment results in a decline in job opportunities, thereby significantly increasing the risk of greater structural unemployment.

The deep recession in 2008–2009 was relatively short-lived, and the extensive use of temporary lay-offs provided a buffer against growth in unemployment. In the future, lay-offs will not be sufficient for labour market

*Chart 14.*

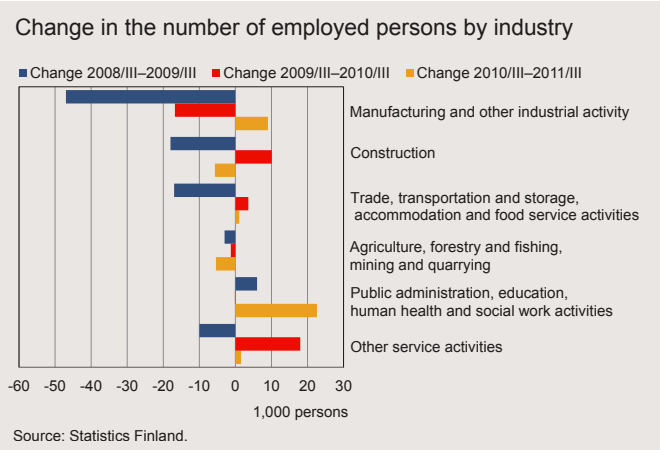
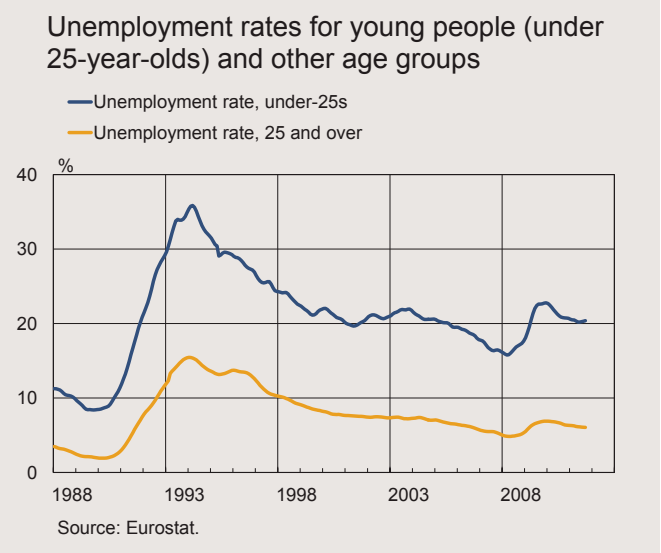



*Chart 15.*



adjustment if output and employment continue to flow from industrial production to services.

### Productivity

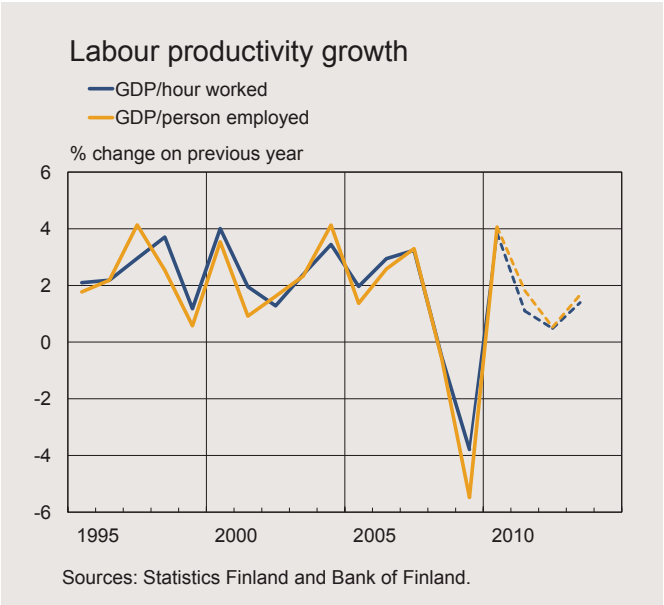
Labour productivity growth fluctuates fairly strongly year-on-year, because productivity reacts to sudden fluctuations in output typically with a lag of a couple of quarters. Labour productivity growth rates develop in parallel with cyclical changes. A slowdown in GDP growth will usually slow the pace of improvement in labour productivity.

During the recession, productivity declined strongly, but in 2010 labour productivity grew by some 4%. Labour productivity measured in terms of GDP per capita is forecast to grow in 2011 by approximately 2%. In 2012, productivity growth will slow to ½%, due to the strong contraction in economic growth. Productivity growth is forecast to pick up slightly in 2013, in line with output growth.

In the long term, improvements in productivity will depend not on the economic cycle, but on supply factors, ie growth in production inputs and technological progress. The recession that followed the financial crisis has accelerated the changes in the structure of production, and trend growth in production is expected to decline to well under 2%. Industrial output is still distinctly weaker than before the recession, and it would appear that a considerable portion of the loss in output will be permanent.[7]

The recession fuelled a shift in jobs, particularly industrial jobs, to low-cost countries. The electronics industry has accounted for the largest share of GDP growth in the current decade, and it has considerably decreased its production in Finland. This change will have a major impact on productivity growth in the economy as a whole. After the recession, the strongest growth in output and employment has been witnessed in educational, social and healthcare services. Demand for public services, and hence the GDP share of these services, will continue to grow as the population ages. This structural change will also slow productivity growth, due to the notably weak growth of productivity in public services.

*Chart 16.*




[7] The measurement of potential output is discussed in Box 4.

*Box 4.*

## Estimating potential output is a challenging task

Potential output generally refers to the highest level of GDP which can be achieved without the intensification of price and cost pressures. The utilisation of production resources, ie labour and capital inputs, is then at the optimal level, permitting balanced economic growth. The growth rate of potential output is, in turn, dependent on the growth rates of production inputs and total factor productivity.

The output gap represents the difference between actual and potential output. If the output gap is positive, actual output is higher than potential output, with the utilisation of production factors exceeding a sustainable level. This results in surging cost developments and mounting inflationary pressures. Correspondingly, a negative output gap causes price pressures to subside and inflation rates typically to decelerate.

Estimates of potential output are used both to assess the cyclical situation and to forecast longer-term growth prospects. To ensure an appropriate and timely economic policy stance, it is important to gain as precise a picture of the current economic situation as possible. Analyses of the sustainability of public finances are also based both on estimates of the current size of the output gap and on an assumption of potential output growth over the next few decades.

In contrast to actual output, potential output is not, however, directly measurable or observable. Various methods have been developed for the assessment of potential output, based either on purely statistical observations or a combination of economic theory, empirical methods and macroeconomic modelling. This box discusses output gap estimates based on three different methods. The production function method and the Hodrick-Prescott filter are traditional approaches to analysing the cyclical situation, while the Bank of Finland's dynamic general equilibrium model[1] represents the latest trend in macroeconomic modelling.

The production function method generates estimates of the growth trends of production inputs and technical developments. For assessment of potential labour input, a time-varying non-accelerating inflation rate of unemployment (NAIRU) is estimated. The capital input to economic production is assumed to be directly derived from the observed capital stock. The impact of technical developments, ie total factor productivity, on output growth is, in turn, calculated as a residual, ie by deducting the contribution to growth made by labour input and capital from output growth. Cyclical fluctuations are filtered out of the time series of total factor productivity thus obtained, to create a productivity trend series that better reflects technical developments and the gradual adoption of new technology. Typically, the growth path of potential output is obtained by inserting the growth paths of labour and capital input and total factor productivity discussed above into the Cobb-Douglas production function.

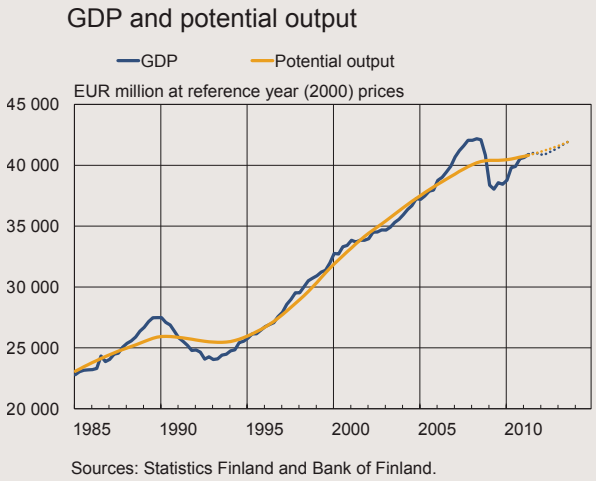
The Bank of Finland's forecasting and policy analysis tool, Aino, is a modern dynamic general equilibrium model. In this kind of model, potential output refers to the output growth path achieved under conditions of perfect wage and price flexibility. In contrast, the Hodrick-Prescott filter is a purely statistical method, designed to eliminate random fluctuations from the GDP growth path. The stability of the potential output path produced by the filter is dependent on the parameter values selected.

A quarterly analysis of Finnish GDP growth and the level of potential output estimated by the production function method over the period

[1] *The basic structure of the model is described in 'A general equilibrium model for forecasting' by Elisa Newby, Jukka Railavo and Antti Ripatti, published in the Bank of Finland Bulletin 3/2011: Economic outlook.*

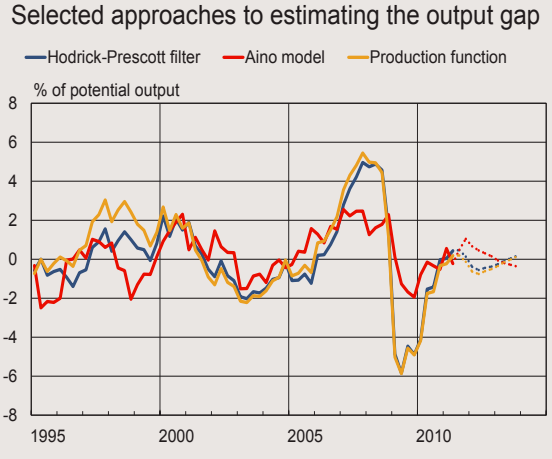
1985–2010 clearly demonstrates the cyclical fluctuations of the economy (Chart 1). The overheating of the economy in the late 1980s resulted in higher cost developments and ended in a deep recession. By this measure, actual output was close to 6% higher than potential output at the cyclical turning point. Over the years 1990–1993, potential output fell by almost 2%, as the non-accelerating inflation rate of unemployment increased in response to the restructuring of the economy and productive capital was destroyed as entire sectors of industry vanished in the wake of the economic restructuring. The rate of potential output growth was highest in 1996–2001, during the 'reindustrialisation' of Finland in response to the rapid advances in ICT. The unravelling of the techno bubble at the beginning of the present millennium also marks a turning point in economic developments (Chart 1). Similarly, the buoyant growth period witnessed in 2006–2008 distinguishes itself as a period of overheating. Despite the collapse in GDP by more than 8% in 2009, by this measure potential output did not contract during the financial crisis.

*Chart 1.*




Sources: Statistics Finland and Bank of Finland.

*Chart 2.*




Source: Bank of Finland.

Despite the inconsistency of the output gaps estimated by the production function method, the Hodrick-Prescott filter and the Aino model, the methods, nevertheless, provide a qualitatively similar picture of economic output relative to output potential (Chart 2). The output gap estimates generated by the Aino model are typically lower than those produced by the more conventional methods. As the general equilibrium model also accounts for short-term real disruptions, estimates of potential output come closer to the level of observed output. The

timing of cyclical turning points over the 2000s has been largely consistent across the methods.

The various methods give a mixed picture of potential output growth before and during the financial crisis. Measured by the production function method (and the Hodrick-Prescott filter), potential output growth came to a halt but potential output did not decline. In terms of the chart, this means that when the crisis hit the Finnish economy, the change in the output gap was of the same magnitude as the contraction in GDP. Aino also pointed to a decline in potential output in response to weaker short-term development in labour productivity and external demand.

Although the methods employed provide inconsistent estimates of potential output trends during the recession, their estimates of the current situation are largely consistent. According to the December 2011 forecast on the economic developments foreseen for the next few years, GDP will be more or less in line with potential output at the end of the forecast period, whichever of the approaches discussed here is taken as a basis for the analysis. Estimates of potential output are, in principle, surrounded by a high degree of uncertainty, as the output potential of an economy is not an observable variable, in contrast to GDP. However, in light of this analysis it seems clear that the financial crisis has caused a downward shift in the level of the growth path of potential output.

## Public finances

The economic improvement, combined with renewed growth in tax receipts, brought growth in the general government deficit to a halt in 2010, at 2.8% of GDP. This was almost unchanged from 2009 (Table 4). Central government finances moved deeper into deficit, at 5.5% of GDP, as growth in revenue was curtailed by stimulus measures. The local government fiscal balance showed an improvement on the previous year, but still remained slightly negative despite supportive measures from central government and moderation of spending growth. The surplus on the pension funds increased in step with higher investment income and social security contributions. Largely due to the sizeable central government deficit, general government EDP debt[8] rose to 48.3% in 2010.

There will be a distinct improvement in the general government balance in 2011 in response to fiscal tightening and the improved economic outlook.[9] The general government deficit is projected to contract to 1.3% of GDP. Central government finances, in particular, will strengthen, with the expansion of tax bases and the tightening of fiscal policy. General government tax receipts will increase by

[8] EDP debt (previously known as EMU debt) refers to consolidated general government debt, ie the consolidated debt of central and local government and social security funds. In other words, internal general government debt is excluded. The data on EDP deficits and debts are reported to the European Commission twice a year under the Excessive Deficit Procedure, EDP. The data are used in the context of the EU Stability and Growth Pact for assessing the condition of public finances in Member States.

[9] Finnish public finances, the fiscal policy stance and fiscal sustainability are analysed in Box 5.

*Table 4.*

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

| | *2008* | *2009* | *2010* | *2011f* | *2012f* | *2013f* |
|---|---|---|---|---|---|---|
| *General government revenue* | *53.6* | *53.2* | *52.5* | *52.0* | *52.8* | *52.9* |
| *General government expenditure* | *49.3* | *55.9* | *55.3* | *53.4* | *54.0* | *54.0* |
| *General government primary expenditure* | *47.9* | *54.5* | *53.9* | *52.2* | *52.7* | *52.6* |
| *General government interest expenditure* | *1.5* | *1.4* | *1.4* | *1.2* | *1.3* | *1.5* |
| ***General government net lending*** | ***4.2*** | ***–2.7*** | ***–2.8*** | ***–1.3*** | ***–1.2*** | ***–1.2*** |
| *Central government* | *0.5* | *–4.8* | *–5.5* | *–4.2* | *–3.7* | *–3.7* |
| *Local government* | *–0.4* | *–0.6* | *–0.3* | *–0.1* | *–0.3* | *–0.3* |
| *Social security funds* | *4.1* | *2.7* | *3.0* | *3.0* | *2.9* | *2.8* |
| *General government primary balance* | *5.7* | *–1.3* | *–1.5* | *–0.1* | *0.1* | *0.3* |
| ***General government debt*** | ***33.9*** | ***43.3*** | ***48.3*** | ***50.0*** | ***53.1*** | ***55.9*** |
| *Central government debt* | *29.3* | *37.1* | *41.7* | *43.7* | *46.7* | *49.5* |
| *Tax ratio* | *42.8* | *42.5* | *42.1* | *41.9* | *42.6* | *42.7* |

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

nearly 7%, mainly due to higher indirect tax receipts. Income tax accruals will also be stronger than the previous year. Despite a further improvement in economic conditions, however, growth in total general government spending will remain broadly in line with 2010, following higher consumption and pension expenditure. The central government deficit is projected to contract to 4.2% of GDP in 2011. The local government fiscal position will improve close to balance, supported by higher tax receipts and larger income transfers from central to local government.

The general government balance will improve only slightly in 2012 and 2013, against a background of slower growth in tax receipts and continued fairly rapid spending growth. The slowing of private consumption and employment growth will constrain growth in revenues from output and earnings. Over the forecast horizon, growth in general government expenditure will remain below the average growth rates for previous years, although accelerating somewhat from 2011, mainly due to higher pension expenditure. The general government deficit is forecast to equal 1.2% of GDP in 2013. The central government deficit will remain large over the next few years, and is expected to decline by only 0.5 percentage points from 2011, standing at 3.7% in 2013 (Chart 17).

The surplus on the pension funds will remain around 3% over the next few years. In addition to investment income, the strong surplus will be sustained by an increase in pension contribution rates. This is despite a growth in pension expenditure in 2012, due particularly to substantial index increments. Other social security funds will remain close to balance over the forecast horizon, reflecting larger income transfers from central government.

Total general government expenditure will rise at an average pace of just under 4% per annum over the forecast horizon. Because of higher index increments and an increase in beneficiaries, growth will be strongest in pension expenditure. In consumption expenditure, growth will be contained by a slight reduction in the public sector labour force and savings in government spending. A sustained rise in the level of earnings in the region of 3%, combined with increasing use of intermediate products, such as purchased services, by municipalities, will, however, contribute to maintaining moderate growth in consumption

*Chart 17.*

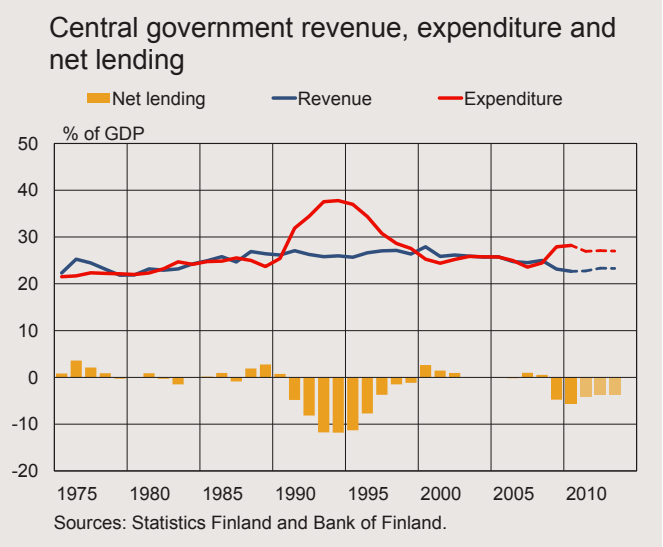
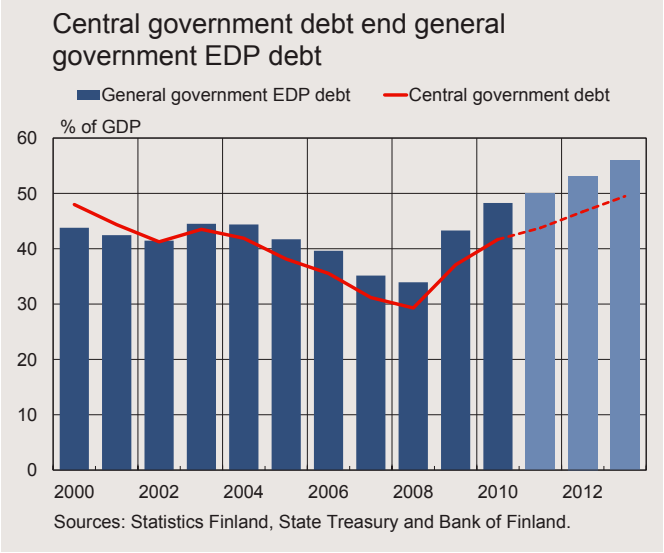


*Chart 18.*




expenditure. By contrast, central government interest expenditure will surge in the face of rapidly growing central government indebtedness.

Growth in public investment expenditure is projected to be moderate over the next few years. Investment spending by central government is predicted to decline over the forecast horizon, and investment spending by local government will grow more slowly than in previous years. There will be fewer new central government-financed road and infrastructure projects launched, while growing refurbishment needs in the municipalities will maintain local government investment pressures. General government investment expenditure will increase markedly only in 2011 as pension fund investments are restored to normal levels.

Despite the tightening of taxation in 2011, the overall tax ratio will decline slightly because of the prevailing growth structure. Thus, the expansion of tax bases will be outpaced by nominal GDP growth. However, the overall tax ratio will rise in 2012, with further tightening of taxation due to the fiscal adjustment measures and a deceleration of growth in nominal GDP. In 2013, the overall tax ratio will, at 42.7% of GDP, be broadly unchanged from 2012.

The upward trend in the general government debt-to-GDP ratio will not be reversed over the forecast horizon extending up to 2013 (Chart 18). The primary balance will move slightly into surplus, but this will be insufficient to reverse the upward trend in debt. Despite the fiscal adjustment measures, central government debt will rapidly increase to 49.5% of GDP over the forecast horizon. Total general government EDP debt will, in turn, grow to roughly 56% of GDP by 2013.

The forecast for the public finances is surrounded by many uncertainties, not least relating to the overall near-term economic outlook and the conduct of fiscal policy. In fact, the general government balance may be weaker than projected, if the overall momentum of the economy is distinctly slower than predicted. Subdued economic growth would impair growth in fiscal revenues and increase cyclically driven expenditure. The fiscal balance may also emerge stronger than forecast, if additional fiscal adjustment measures are implemented to push down the debt ratio in line with the Government programme. Mounting economic uncertainty may also be reflected in the public finances via the social security funds. Lower investment earnings for pension funds would result in a stronger-than-predicted decline in the general government balance.

*Box 5.*

## Finland's public finances

### *Fiscal policy stance*

The euro area sovereign debt crisis and the overhanging threat of the situation escalating into an uncontrolled euro area-wide crisis also place constraints on the fiscal policy options available to Finland. The deterioration in the economic outlook, combined with the exceptional degree of uncertainty surrounding financial markets and indigenous long-term problems in Finland's public finances, are reflected in the Government's fiscal policy strategy. The Government programme makes a strong commitment to ensuring fiscal sustainability. Fiscal policy has been tightened for both 2011 and 2012. Apart from decisions on spending limits, fiscal policy decisions as far ahead as 2013 have not yet been taken.

The Government programme includes a commitment to comply with the spending rule for central government, ie to keep the expenditure within regulated spending limits. The decision on spending limits provides for a narrowing of the spending limits set by the former Government by approximately EUR 1.2 billion by 2015. Central government spending limits at fixed prices will remain broadly unchanged from 2011 throughout the spending limit term, ie until 2015.

The crucial role played by the fiscal sustainability objective in economic policy is highlighted by the provision made in the Government programme for further fiscal tightening if the central government debt-to-GDP ratio does not shift onto a clearly downward path and the central government deficit settles at above 1% of GDP. Government will monitor the achievement of the objective on an annual basis. In its programme, Government makes a commitment to consolidate central government finances by front-loading adjustments of spending and revenue and implementing structural measures over the years 2012–2015. The objective of the programme is to turn growth in the debt ratio into a marked contraction.

The focus of tax policy lies on indirect taxes. In wage taxation, annual adjustment of the tax rates is planned to prevent the automatic tightening of taxation in response to higher inflation and real earnings growth built into the progressive tax regime.

### *Fiscal policy rules and the objectives of the Government programme*

According to the forecast, the fiscal policy measures decided so far will leave a significant structural deficit in central government finances (Table 1).

*Table 1.*

**General government fiscal balance and debt 2009–2015**

| *% of GDP* | *2009* | *2010* | *2011f* | *2012f* | *2013f* | *2014f* | *2015f* |
|---|---|---|---|---|---|---|---|
| *Net lending by public sector (ESA95)* | *–2.7* | *–2.8* | *–1.3* | *–1.2* | *–1.2* | *–1.1* | *–1.2* |
| *Primary public sector balance* | *–1.3* | *–1.5* | *–0.1* | *0.1* | *0.3* | *0.6* | *0.5* |
| *Net lending by central and local government* | *–5.4* | *–5.8* | *–4.3* | *–4.1* | *–4.0* | *–3.9* | *–4.0* |
| *Primary central and local government balance* | *–4.0* | *–4.4* | *–3.1* | *–2.7* | *–2.5* | *–2.2* | *–2.1* |
| *General government debt* | *43.3* | *48.3* | *50.0* | *53.1* | *55.9* | *57.8* | *59.7* |
| *Central and local government debt* | *46.0* | *50.7* | *52.3* | *55.3* | *58.1* | *59.9* | *61.7* |
| *GDP, %* | *–8.2* | *3.6* | *2.8* | *0.4* | *1.8* | *1.8* | *1.6* |

*f = forecast*
*Source: Bank of Finland calculations.*

Hence, the upward trend in the central government debt-to-GDP ratio will be sustained over the next few years, well ahead of the actual growth in expenditure that will result from population ageing. If the Government sticks to the objective set out in its programme of turning growth in the debt ratio into a contraction by 2015, the trend in the economy forecast by the Bank of Finland would mean there is a need for expenditure cuts, tax increases or structural measures to strengthen central government finances to a total amount of roughly 2½ % of GDP in addition to the measures already decided in the present parliamentary term. In reality, the fiscal consolidation needs are even greater, considering the losses in output and employment that will result from fiscal tightening.

The Government programme may reflect spending projections based on more favourable developments in revenue growth than currently foreseen. Notwithstanding the stricter spending discipline compared with previous years, compliance with the spending limits does not necessarily guarantee a sustainable level of expenditure relative to developments in the financial base. Rather, there is a risk that the ratio of spending limits expenditure-to-GDP will rise. Besides subdued economic growth, this also reflects the possibility that the rate of the price increase of central government spending could outpace the price increase of GDP by a clear margin. In 2000–2010, the annual rise in the price index of government spending was, on average, 1 percentage point stronger than the rise in the GDP price index.

In terms of the stabilisation of central government finances, the spending limits will probably not sufficiently contain expenditure growth. Thus, expenditure management policy conflicts with the objective of fiscal sustainability. This conflict may weaken the credibility of fiscal policy and interfere with the long-term orientation of expenditure policy. Considering that the spending limits regulate the medium-term plans and priorities of the administrative branches, there will be costs involved in the redefinition of the limits. There is a risk that the need for spending cuts will, in practice, result in an inappropriate allocation of savings in terms of the growth and social policy objectives of public finances.

### *Public debt*

Since 2009, central government financing needs have been considerably higher than in previous years. In 2011, central government's gross borrowing requirement amounts to EUR 23 billion, of which a little over EUR 7 billion is needed to cover the central government deficit. The rest is mainly aimed at refinancing maturing bonds. The total amount of central government debt is forecast to grow from EUR 78 billion in October 2011 to EUR 117 billion by the end of 2015.

Benchmark bonds, primarily euro-denominated bonds of fixed-rate series, account for nearly 90% of central government debt. The maturities of the benchmark loans range from a few years up to 15 years. Recently, the average maturity of central government debt has shortened slightly, and currently stands at a little over 5 years. Debt obligations, which are issued mainly for liquidity management purposes, make up around 10% of the debt and represent the most important source of short-term funding for central government. According to the Bank of Finland's balance of payment statistics, more than 90% of Finnish government debt instruments are held by foreigners.

The Finnish government has retained its highest AAA credit rating throughout the sovereign debt crisis. During the crisis, yields on Finnish government bonds have closely followed yields on equivalent German bonds. However, with the escalation of the sovereign debt crisis in the latter half of 2011, the spread between Finnish and German bond yields has widened somewhat.

The higher level of interest rates will gradually be reflected in central government interest

expenditure as old loans are renewed and new ones taken out to satisfy net borrowing needs. According to the forecast assumptions, the implicit rate of interest on central government debt (central government interest expenditure divided by the credit stock) was around 3% in 2011 and will rise to 3.5% by 2015. Over this period, interest expenditure will grow from EUR 2.3 billion to EUR 3.8 billion. This reflects an increase in the total amount of debt as well as higher interest expenditure. If the implicit rate of interest were to increase more than projected, eg by 2.0 percentage points, interest expenditure would grow to EUR 4.4 billion, or 2% of GDP.

Local government debt has also increased sharply throughout the 2000s, currently amounting to EUR 16 billion, or 9% of GDP. Growth is expected to remain strong also in the years to come. In local government, loan financing is almost entirely based on credit from Municipality Finance Plc.

Besides central government debt, central government guaranteed debt has also increased substantially during the past few years. According to Statistics Finland, the central government guarantee stock amounted to EUR 23 billion in September 2011, compared with a pre-recession volume of about EUR 13 billion at the beginning of 2008. Most of the guarantee stock is related to guarantees and credit authorisations awarded to non-financial and housing corporations. Central government liabilities have also been considerably increased by the guarantee liabilities awarded in an effort to combat the euro area sovereign debt crisis. Together with the guarantee liabilities of EUR 14 billion to the European Financial Stability Facility (EFSF), the total liabilities of Finland's central government will climb to approximately EUR 37 billion, or 20% of GDP.

### *Fiscal sustainability*

The conduct of fiscal policy assumed in the forecast[1] means that central and local government finances will post a substantial structural deficit at the end of the Government term. With the persistence of slow economic growth in the long term, the debt ratio will continue to edge up. The deficit will deepen further towards the end of the 2020s, as the growth in ageing-related expenditure gains momentum. The realisation of this scenario would mean that there would be a considerable fiscal gap to cover in the following parliamentary terms. Halting the upward trend in the debt ratio alone would call for extensive additional adjustment.

There are various approaches to assessing the need for fiscal consolidation. The traditional approach of the Bank of Finland has been to apply a scenario based upon the assumption that the public debt ratio is stabilised at 60% of GDP by means of adjusting taxation and expenditure.[2] The findings of the calculation show that stabilisation of the debt ratio at 60% of GDP would require the implementation of fiscal tightening measures on a large scale until 2025 (Table 2), after which the need for fiscal consolidation will decline. By 2040, fiscal consolidation measures amounting to 5½ of GDP must be implemented on top of the decisions already taken. Employees' earnings-related pension contribution rate would increase by about 4 percentage points, and if the remaining fiscal consolidation were solely based on the tightening of taxation on wage earnings, the average increase in the wage tax rate would be 7 percentage points. Some need for additional adjustment would still remain for the 2050s and 2060s.

The *sustainability gap* is another widely applied measure of fiscal consolidation needs. The

[1] *Besides the measures provided for in the 2012 budget, the fiscal policy measures also include a decision to prevent the tightening of the withholding tax rate in 2013 and 2014, as well as the introduction of a bank levy and a windfall tax in 2013 and 2014. However, the deficit-increasing measures included in the framework agreement with the labour market organisations have not been taken into account.*

[2] *On the macroeconomic effects of population ageing see the article 'Analysis of the total economic effects of population ageing using the general equilibrium model' by Helvi Kinnunen and Jukka Railavo (below).*

sustainability gap indicates the scale of a one-off fiscal tightening move required for permanent stabilisation of the public debt trend. The projection assumes that the adjustment is implemented in full in the course of the present parliamentary period. As non-recurring adjustments provide for front-loaded tightening, the required additional adjustment would amount to a total of around 5% of GDP, which is somewhat less than in the scenario outlined in Table 2.

The fiscal consolidation measures announced for the current parliamentary term amount to approximately 1½% of GDP, roughly one-third of which is attributable to the rise in the pension contribution rate. Fiscal tightening as measured by the changes in the cyclically adjusted primary balance of central and local government finances amounts to a little under 1% of GDP. In the absence of new adjustment measures in addition to those already decided, huge savings will have to be made in the next few parliamentary terms.

The bill from the deferral of fiscal consolidation may, in practice, be much higher than mentioned here. With the emergence of the financial crisis, the problems with sovereign debt have also increased market pressures in countries with a lower than average level of indebtedness. A rapid contraction of growth in the debt ratio is prompted by the uncertainty of economic developments, as well as by the liquidity risks. At present, there is no leeway whatsoever in central government finances, so there is little scope for fiscal policy to smoothen disruptions in economic growth and thereby support growth in the funding base.

Structural measures increasing the supply of labour and improving labour productivity in public services will play a crucial role in reducing the fiscal sustainability gap. Extension of working careers would markedly reduce the need for fiscal adjustment. Sustainability calculations show that if ageing employees were to postpone retirement by one year on average, the need for fiscal adjustment in later years would diminish by approximately 1 percentage point of GDP[3] (Table 2). Roughly estimating, a pension reform that would bring about an increase of 3 years in working careers and keep pension benefits unchanged would cover a half of the sustainability gap in Finland.

*Table 2.*

**Fiscal adjustment need in % of GDP: baseline scenario and scenario based on extension of working careers by one year**

| | *Baseline scenario* | *Longer careers* |
|---|---|---|
| *2011–2015: Government programme* | *1.4* | |
| *2016–2020* | *2.5* | *1.2* |
| *2021–2025* | *1.6* | *1.2* |
| *2026–2030* | *0.7* | *0.8* |
| *2031–2035* | *0.5* | *0.8* |
| *2036–2040* | *0.5* | *0.6* |
| *2041–2050* | *0.4* | *0.2* |
| *2051–2060* | *0.2* | *0.2* |
| *Need for adjustment 2015–2040* | *5.7* | *4.7* |
| *Need for adjustment 2015–2060* | *6.3* | *5.1* |

*Source: Bank of Finland calculations.*

[3] *The assumption is that the probability of non-participation in the labour market for employees over 55 would always fall to the same level as for employees one year younger.* ***Working careers are assu****med to be gradually prolonged from 2013 onwards. In the calculation, extension of working careers is set to reduce the number of pensioners and the amount of pension expenditure. Output growth from the increase in labour input is not assumed to influence the growth of public expenditure in euro terms.*

### *Assessment of fiscal policy and the outlook for fiscal sustainability*

As currently in the rest of the industrialised world, the cyclical aspects and long-term objectives of Finnish fiscal policy are mutually contradictory. In 2009 and 2010, there was still no doubt about the validation for relaxing the fiscal policy stance. The recession was generally dismissed as a short-term disruption that justified the stabilisation of resulting employment and output losses by raising public spending and lowering taxation. Employment losses, typically, have protracted negative implications for the economy. When the recession hit, it was considered important to seek to prevent exclusion from the labour market in a situation where a decline in labour supply was known to be imminent anyway, given the ageing of the population.

These arguments remain valid in the current situation. The near-term outlook for economic growth has deteriorated substantially, which would require the implementation of fiscal policy measures to bolster domestic demand. The scope of active fiscal policy is, however, constrained by both the currently foreseeable long-term deterioration of international developments (in response to the global financial crisis) and domestic structural factors (above all the ageing of the population). Both of these factors jeopardise the favourable development of the funding base of public finances. Furthermore, given that the response of sovereign funding costs to an increase in the debt ratio may be more sensitive, there are, in practice, no alternatives to a sustainability driven policy.

The timing of the measures for fiscal sustainability has more crucial generational implications in Finland than in most other countries. The Finnish demographic structure is undergoing profound change. Considering that the costs of the pension scheme already impose a substantial burden on future generations, efforts should be made to ensure that the fiscal adjustment measures do not aggravate things further. Structural measures, including longer working careers and higher cost efficiency in public services, would support the fiscal balance and foster a more equal distribution of resources across generations. The structural measures would also work towards lowering the need for fiscal tightening overall. Failure to foster long-term economic growth or to contain increases in the costs of public services implies the introduction of more aggressive short-term tightening measures in order to maintain the credibility of fiscal policy.

## External balance

The current account surplus in 2010 totalled EUR 3.2 billion, or about 1.8% of GDP (Chart 19). Foreign trade was recovering, and the volume of Finland's goods and services exports increased by almost 9% per annum. The value of imports increased slightly faster than that of exports and the surplus for goods and services was less than a third of the peak level recorded prior to the recession.

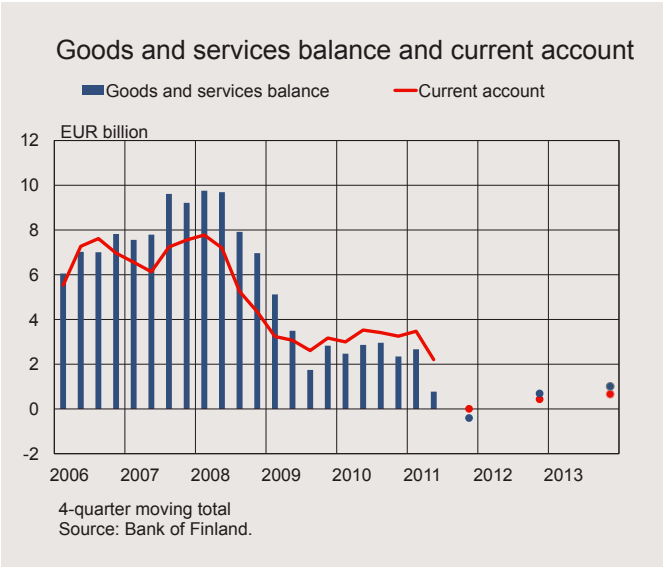
According to seasonally adjusted preliminary data, the current account posted only a slight surplus in the first half of 2011. Compared with the corresponding period in 2010, the value of goods and services exports increased much more mutedly than the value of imports, and according to seasonally adjusted data the trade account posted a deficit of EUR 0.5 billion. This was largely due to a sharp decline in services exports in the early part of 2011. The trade account is forecast to remain slightly in deficit in 2011. Besides trade volumes, the balance is also weakened by the terms of trade (the relationship between import and export prices), which will deteriorate in 2011 owing to a rapid rise in import prices. According to the forecast, the current account will be in balance in 2011.

The trade account will strengthen gradually in 2012 and 2013. Export and import volumes will grow only marginally in 2012 and not gain momentum until 2013. The terms of trade will strengthen slightly in 2012, as export prices rise by about 1 percentage point faster than import prices. In 2013, import and export prices will increase at the same pace.

The income account posted a surplus of EUR 2.7 billion in 2010. The increase in the surplus was due to eg improved results by Finnish companies' foreign subsidiaries. The surplus on the income account will decline, but nevertheless remain large in the forecast period compared with the years prior to the financial crisis. The financial results of international companies' Finnish subsidiaries have not returned to the levels prevailing prior to 2009. The deficit on the current transfers account relative to GDP will remain largely unchanged for the forecast period.

Finland's current account is forecast to be close to balance throughout the forecast period. The current account has recorded a surplus uninterruptedly since the mid-1990s.

*Chart 19.*



Despite strong growth in exports, the current account surplus has been gradually eroding, due to the weakening trend in the terms of trade. The erosion of the current account to a balanced position in 2011 primarily reflects weak export dynamics.

From the perspective of savings and investment in the different sectors of the economy, the contraction of the current account surplus in 2011 indicates that, across the economy as a whole, investment is increasing more rapidly than savings. The corporate sector balance remains in surplus, even though the surplus is forecast to decline in 2011 on account of increased fixed investment and larger inventories. The deficit on the household balance will grow in 2011 due to lower savings. By contrast, the public sector deficit will contract in 2011, although not enough to compensate for the weakening of the private sector surplus. In 2012–2013, non-financial corporations' financial surplus will improve slightly due to the sluggishness of investment. Otherwise, no major changes are forecast in the financial balances of the various sectors, and the current account – ie the net international investment position of the Finnish economy as a whole – will improve slightly.

## Wage and price trends

### Average wages growing faster than labour productivity

In 2011, earnings are expected to grow by 2.7%, but, due to high inflation, real earnings will decline slightly. In 2012–2013, the trend in negotiated wages is expected to be in line with the framework agreement concluded between the labour market organisations in autumn 2011. The cost implications of pay rises and other changes in the terms and conditions of employment contracts will be 2.4% in 2012 and 1.9% in 2013.

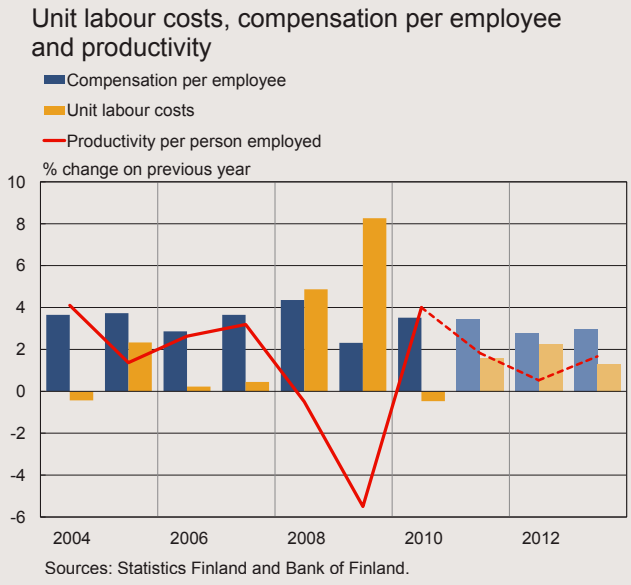
The contribution of other factors – for example merit pay, one-off payments and structural changes – on the level of earnings will continue to grow slowly, by approximately ½% in 2012, due to a decline in labour demand. Nominal earnings will grow by 3% per annum in 2012, which means that real earnings will grow again. In 2013, growth in nominal earnings will slow, to slightly less than 3%, due to smaller negotiated pay rises. Real earnings will, however, grow at a faster pace than in the previous year, due to a deceleration in inflation to below 2%.

The index of wage and salary earnings includes not only basic pay but also merit pay and contractual one-off payments. In other words, it measures compensation for a standard labour input. Average wages – ie compensation per employee – also include overtime

and extra work, which are sensitive to cyclical fluctuations. Hence the trend in average wages more clearly reflects cyclical fluctuations. Average wages are expected to have risen by 3.4% in 2011, ie at a clearly higher pace than wage and salary earnings (Chart 20). In 2012–2013, as the economy slows, the trend in average wages will reflect developments in the index of wage and salary earnings.

Due to the slowdown in economic growth, labour productivity growth will slow significantly in 2012. The rise in average wages will hence exceed significantly the growth in labour productivity in 2011 and 2012, and unit labour costs will increase by nearly 2% on average. With the recovery in output in 2013, labour productivity growth is expected to pick up again.

*Chart 20.*




## Slower rise in producer prices

The pace of rise in import prices slowed during the summer, due to the levelling off of increases in energy and commodity prices. In September, import price inflation was 7.6%, and it is expected to decelerate to just over 1% in 2012. The pace of rise in industrial producer prices has halved in 2011, to approximately 4%; in September, the rise in export industry producer prices slowed to slightly over 3% per annum, and the producer prices of industrial goods sold in Finland rose by 5.2%. Service sector producer prices have also risen in 2011, by 2.1% year-on-year. Construction costs are on average 3.4% higher. In October, the costs were lower than in September.

## Higher indirect taxes drive inflation in 2012

Inflation accelerated to 3.4% in the first three quarters of 2011, as measured by the harmonised index of consumer prices (HICP). In 2011, inflation was pushed up by increases in indirect taxation, eg energy tax and taxes on sweets, ice cream and non-alcoholic beverages. Changes in indirect taxes are expected to affect annual inflation in 2011 by 0.5 of a percentage point on average.[10]

There will be further hikes in indirect taxes in 2012. The biggest impact on inflation – approximately 0.4 of a percentage point – will be due to an increase in excise duties on alcohol and tobacco. The other changes in

[10] The impacts on euro area prices of structural features, competition and regulation are examined in Box 6.

*Box 6.*

## Structural features and competition in the distributive trades sector: impact on euro area prices

In September 2011, the European Central Bank published a Structural Issues Report[1] which examines the impact of structural features, competition and regulation of the euro area distributive trades sector on cross-country differences in the level and dynamics of consumer prices. The distributive trades sector is a substantial part of the economy: motor, wholesale and retail trade account for about 20% of the value added and for nearly 25% of overall employment of the euro area non-financial business sector. The report focuses on retail trade because of its key importance for price-setting behaviour.

There are considerable intra-euro area differences in the structural features of the distributive trades sector. For example, in the grocery trade Finland is distinguished by the high market share of hypermarkets, the second highest after France. In contrast, in Finland the market share of discounters is among the smallest in the euro area, accounting for only around 5% of the total turnover of the grocery retail market. The price level at discounters is usually slightly lower, and thus their market share may also have implications for country differences in price levels.

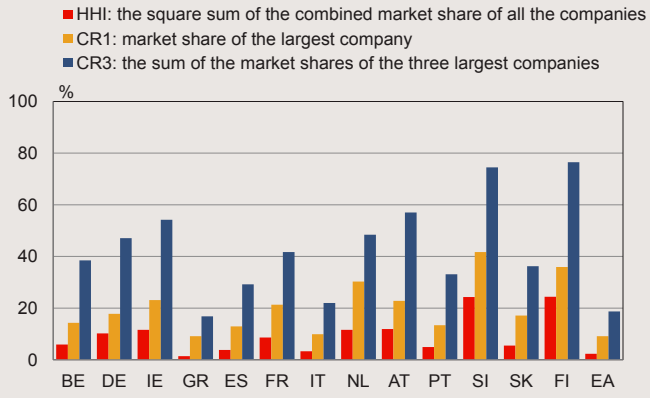
Relatively low productivity in the service sector, and particularly the distributive trades sector, is often highlighted as a major factor behind the widening aggregate productivity gap between the euro area and the United States. The productivity gap in the distributive trades sector can partly be explained by ICT investments and the impact of ICT on total factor productivity. Regulation is also likely to play a role in the productivity gap: in the United States, new entrants have boosted productivity in the distributive trades sector. Moreover, European countries could benefit from the dismantling of barriers to market entry and constraints on competition. There are also major productivity differences between the retail sectors of the euro area countries. Labour productivity in the distributive trades sector, measured in terms of value added per person employed, is in Finland higher than the euro area average, but if we consider wage-adjusted labour productivity that takes into account self-employment and part-time labour the difference vanishes.

### *Measuring the degree of competition in the distributive trades presents a challenge*

The most common indicators of competition in the distributive trades sector are concentration measures based on market share (Chart 1). The report shows that Finland has the highest concen-

*Chart 1.*

Concentration measures for the euro area grocery retail sector, 2004–2009




Sources: Euromonitor and ECB (2011).

[1] *European Central Bank (September 2011) Structural Features of Distributive Trades and Their Impacts on Prices in the Euro Area. Occasional paper series no 128, September 2011. See http://www.ecb.int/pub/pdf/scpops/ecbocp128.pdf.*

tration rate in the euro area grocery retail trade.[2] Although a high degree of concentration may lead to less competition, the efficiency gains arising from higher concentration may outweigh the negative effects of lower competition. On the other hand, it is often argued that competition should be analysed at the local rather than the national level. For example, Finnish studies of local competition show that discounters also affect the prices charged by their rivals located close to them.[3] The ECB's Structural Issues Report analyses competition by using a detailed dataset on retailers and their location. The findings lead us to conclude that the Finnish retail grocery trade sector has a high degree of concentration, both at local and national level. In France and Portugal, the degree of concentration is high at local level, but not at national level. The report also examined retailers' memberships in international buying groups, and the results show that in Greece, too, the local retail grocery trade has a high degree of concentration.

Level of competition can also be assessed on the basis of profitability indicators. The retail grocery sector's profit margins in Finland are slightly above the euro area average. Profit margins are highest in Slovenia, which, together with Finland, has the highest concentration rates. Of the sub-sectors of the distributive trades sector, the lowest profit margins are found in grocery retailing.

### *No clear correlation between concentration and price levels in the distributive trades sector*

Differences in euro area price levels narrowed in the first years after the introduction of the euro, but in recent years price dispersion has risen in some product groups. This is partly due to strong volatility in food and energy prices. Moreover, there is still a clear border effect on price dispersion: price dispersion is higher between cities across borders than between cities within borders. Of the product groups, the lowest variation in prices is found in electronics and appliances, whereas the highest differences are observed in the alcoholic beverages and tobacco group. In the food/non-alcoholic beverages group, the difference between the minimum and maximum price levels across the euro area in 2009 was 58%. In most product groups, Finland was among the countries with the highest prices levels.

The report examines the impact of competition on price differences with the help of statistical analysis. The analysis took into account cross-country differences in VAT rates, relative income levels, expenditure share, and population density.[4] A somewhat surprising finding was that market concentration impacted both positively and negatively on relative price levels, depending on the indicator. Of the market concentration measures, a high Herfindahl–Hirschman Index (HHI) indicates a lower level of prices. The HHI is the square sum of market shares, ie the weights increase with firm size. Thus, the observation may be due to the fact that economies of scale are also reflected in prices. The concentration ratio CR5 is the sum of the market shares of the five largest companies. In the analysis, the CR5 indicator impacted positively on price levels, perhaps capturing the effect on prices of weak competition.

Regulation is another factor affecting the operating conditions and degree of competition in the distributive trades sector. For the purpose of this study, the OECD product market regulation indicator was updated. The results of the indicator show that in recent years euro area regulation has eased, although there are

[2] *Also in other product groups (excl. electronics and appliances), the degree of concentration in the Finnish retail trade is among the highest in the euro area.*

[3] *Kiuru, P – Mankinen, R – Niilola, K – Pulkkinen, M – Riipinen, T (2004) Vähittäiskaupan kansainvälistyminen ja tehokkuus – case päivittäistavarakauppa. LTT-Tutkimus. ('Internationalisation and efficiency of retail trade – Case: retail grocery trade'; in Finnish only).*

[4] *Higher VAT rates and level of income have a positive impact on relative price levels, and expenditure share and population density have a negative impact on price levels.*

considerable cross-country differences. The analysis showed that regulation has a somewhat contradictory impact on price levels. Price controls naturally have a negative impact, while barriers to entry have a positive impact. Opening hours or other operating restrictions were found to have an insignificant impact. The implementation of the Services Directive would ease the degree of regulation, thus promoting competition in the distributive trades sector.

### *Structure of distributive trades sector affects price dynamics*

The structural features of the retail grocery trade sector were found to have an impact on price dynamics, when measured by the frequency of price changes:[5] price changes are more frequent in supermarkets and hypermarkets than in traditional corner shops. When the dataset on the retail grocery sector were combined with regional CPI data, a positive link was observed between price changes and the concentration rate of the sector. A regional analysis shows that weaker regional competition was associated with higher price dynamics, as measured by the concentration indicator (HHI).[6]

Price dynamics were also assessed by examining the pass-through of changes in agricultural producer prices to industrial producer prices and consumer prices.[7] This study confirmed the well-known observation that the response to changes in agricultural commodity prices is quicker and stronger at the producer level than at the consumer price level. In this context, the study produced an interesting observation: in countries where discounters have a larger market share, consumer prices respond more clearly to changes in commodity prices.

Based on the results presented here, we would conclude that promoting competition in the distributive trades sector via structural changes may further reduce price dispersion across the euro area, strengthen the Single Market and promote the transmission of monetary policy. The high degree of concentration and price levels in the Finnish distributive trades sector indicate that there is a lack of competition, but the cross-country differences in the profit margins of the sector may be too small to attract foreign competition. The report also indicates that the degree of regulation also has an impact on differences in price levels, and therefore the easing of regulation to promote competition should also be examined in Finland.

[5] *The study used individual price and survey data collected under the Inflation Persistence Network.*

[6] *Here, the CPI data covered Germany, Spain, Italy, Austria, Portugal and Finland.*

[7] *The analysis covered Belgium, Germany, Spain, France and Italy.*

taxation will involve a rise in excise duties on sweets, ice cream and non-alcoholic beverages, and in the VAT on newspapers and magazines and labour-intensive sectors, as well as the excise duty on motor fuels, and car and vehicle taxes. In total, increases in indirect taxation will push up HICP inflation in 2012 by some 0.8 of a percentage point (Chart 21).

Inflation is, however, forecast to slow to 2.5% in 2012 as energy prices decline moderately in accordance with expectations on crude oil prices and growth in aggregate demand slows. In 2013, HICP inflation will slow further, to 1.7%, as the upward impact of the hike in indirect taxes ends.

National consumer price inflation (CPI inflation) also takes into account eg changes in interest on housing loans and consumer credit, house prices and the price of gambling, which are not included in the calculation of HICP inflation. CPI inflation is expected to be 2.6% in 2012 and to decelerate further, to 1.9%, in 2013.

The pace of rise in food prices will slow only slightly in 2012. The prices of processed food will be pushed up by increases in alcohol and tobacco duties and hikes in the duties on sweets, ice cream and non-alcoholic beverages. The pace of rise in the prices of unprocessed food, eg fruits and vegetables, is expected to be slower than in 2011, as energy prices level off.

Service prices will continue to rise in 2012 at the same pace as 2011. The increase in excise duty on food will also impact on the prices of café and restaurant services; these have been rising at a fairly rapid pace already since late 2011. In addition, the upward trend in energy prices and labour costs in 2011 will probably, even after a lag, be passed through into service prices, eg rents and transportation services.

The upward trend in non-energy industrial goods prices has slowed significantly in 2011. The quality-adjusted prices of consumer durables, eg entertainment electronics and used cars, have begun to decline again in recent months. Increases in consumer non-durables have remained moderate, and the prices of pharmaceuticals, for example, have decreased. The upward trend in energy and commodity prices and other production costs is, however, expected to be passed through into industrial goods in 2012. Industrial goods prices will also be affected in 2012 by a rise in the excise duty on newspaper and magazine subscriptions and changes in vehicle taxation.

The risks to the inflation forecast are on the upside. The indirect impact

*Chart 21.*

HICP inflation and inflation excluding changes in indirect taxation


HICP = Harmonised index of consumer prices
Sources: Statistics Finland and Bank of Finland.

of tax changes could be stronger than expected. In addition, the fairly rapid pace of rise in prices in 2011 may, with a lag, still have a stronger-than-expected impact on inflation in 2012. The slowing of economic growth may cause the postponement of planned increases in prices, and later, as economic growth picks up, inflation may be significantly higher than forecast. Strong fluctuations in energy and commodity prices are also possible, as witnessed in recent years.

## Risk assessment

### Euro area debt crisis poses the main threat to economic activity

Downside risks to economic activity are currently highlighted. The euro area debt crisis is the main factor bringing uncertainty to the forecast. The forecast is based on the assumption that the crisis will not get any worse, that no new countries will join the club of debt crisis countries and that the situation will not escalate into a global crisis as in 2008. A further forecast assumption is that the deceleration in world trade will be temporary and that world GDP growth will pick up again in 2013.

During the autumn of 2011, however, the debt crisis developed in a way that highlights the risks involved in international economic activity. In the course of the autumn, the sovereign bond spreads of euro area countries so far deemed stable and the best in terms of credit ratings also began to rise vis-à-vis Germany. The Finnish long-term government bond yield spread relative to the corresponding German government bond yields has widened to about 0.7 of a percentage point. This is due to investor willingness to shift assets into liquid safe-haven investments, which has lowered German bond yields.

There are two main sources of market uncertainty. The first is the lack of market confidence in the ability of the crisis countries' political systems to stabilise their public finances in a sustainable fashion. Remedying this matter is each country's own responsibility. Another source of uncertainty concerns the crisis countries' chances of financing their budgets at a reasonable cost. In order to remove this uncertainty, the countries may need external help. The purpose of the EU and IMF support programmes is to both strengthen each country's ability to implement fiscal consolidation and safeguard the availability of reasonably priced financing not only for crisis countries but also for countries potentially threatened by the crisis, and thereby calm the markets.

Until now, there has been no success in achieving this goal. The crisis has already escalated into acute insolvency in Greece. The risk of problems getting out of control elsewhere, too, has increased. The first contagion effects of such tensions are already visible in world trade, for which growth has slowed during the autumn.

If the situation were to escalate into a disorderly crisis at euro area level, the

higher cost of finance, a credit crunch and the weakening of aggregate demand would not remain only European phenomena; their implications would spread the world over via financial sector interlinkages and world trade.

As a small open economy, Finland would be particularly sensitive to such a global crisis. In the recession following the financial crisis, Finland's exports and GDP collapsed more severely than in any other advanced economy. It is highly probable that a new global recession would also hit Finland hard. The implications that a new downturn in world trade and higher financing costs would have for the Finnish economy are discussed in greater detail in the alternative scenario presented below. The article *Financial stability* (below) analyses the risks escalation of the debt crisis pose for the Finnish financial sector.

### Employment losses may prove larger than expected

Lay-off arrangements and employers' need to hoard skilled labour provided a buffer for unemployment growth during the recession of 2008–2009. This was possible because of the relatively short duration of the recession. The forecast also foresees fairly limited employment losses relative to the cyclical developments, in the context of a temporary slowdown in labour productivity growth. Deceleration in the pace of economic growth will remain temporary, with companies' labour reserves fully adapted following the recession in the wake of the financial crisis. In addition, labour demand is expected to continue growing in education and health and social services, where it is not as sensitive to cyclical fluctuations as in industries focused on exports .

The forecast for labour market developments may prove optimistic. As industrial production, in particular, has recovered from the recession more slowly than expected, companies may have greater labour reserves left than estimated. If economic growth continues at as slow a pace as predicted and the pre-recession level is not attained in industrial production, companies that avoided redundancies during the recession may find they can no longer afford to maintain their current levels of labour. Accordingly, one of the risks to the economic forecast is the possibility that the employment situation could weaken considerably more than projected and unemployment start to rise rapidly.

If business prospects were to deteriorate permanently in Finland, companies' need to investment would decline further still. An increasingly large share of Finnish exports is composed of administrative, research and development and other intra-company services rather than manufacturing and assembly. The recession accelerated the relocation of manufacturing and assembly jobs to countries with cheaper labour, and it currently appears that a large proportion of the manufacturing jobs that disappeared during the recession have been lost for good. If Finnish export companies fail to make use of the growth potential of the export markets in business services,

industrial production threatens to remain at a permanently lower level than pre-recession.

### Household consumption may experience a sharper dip than forecast

The most important domestic risk relates to private consumption. In the forecast, the pace of growth in private consumption will slow, but it will still act as a driver of growth, thereby preventing the Finnish economy from plunging into recession. Consumption growth will exceed growth in disposable household incomes in 2012, and the household savings ratio will decline by almost one percentage point. The forecast is based on data pointing to ongoing favourable consumption developments in recent times, a low level of interest rates throughout the forecast period and Finnish households' still fairly strong financial position.

This relatively positive outlook includes a clear downside risk. As the household savings ratio typically rises in uncertain times, the pace of growth in private consumption will be even more dependent on consumers' future expectations than on income developments. In recent years, the consumer confidence indicator has relatively well depicted shifts in private consumption, particularly downward shifts. In the financial crisis of 2008–2009, for example, the indicator began to fall a few months prior to the onset of the recession.

So far, increased consumer uncertainty has only been reflected in confidence indicators. If households estimate that the slower pace of economic growth is mainly temporary, the savings ratio may decline moderately, as in the baseline forecast. If, by contrast, confidence in economic and employment developments is to weaken protractedly, the savings ratio may rise sharply, just as in 2009–2010. In this case, private consumption could contract considerably. If this were to happen, it would not be possible to avoid recession.

*Box 7.*

## Alternative scenario: debt crisis escalates into global recession

The slowdown in world economic growth and the aggravation of the euro area sovereign debt crisis have increased uncertainty and subdued growth expectations both in Finland and in its export markets. The baseline forecast foresees markedly lower growth in Finland's export markets in 2011–2013 than predicted in the Bank of Finland's previous forecast released in June. Accordingly, exports are projected to contract in 2011, due in particular to weak performance in the early part of the year, with the volume of exports in 2012 remaining at almost the previous year's level. Short-term interest rates will remain low, but a high degree of uncertainty will dampen investment growth in 2012. With developments according to the baseline forecast, however, the Finnish economy will not plunge into a full-scale recession. The forecast assumption is for the deceleration in export demand growth to be only temporary. According to the baseline forecast, the unemployment rate will rise only slightly and disposable household income will grow at an average annual rate of a good 3%. Confidence in the financial markets is assumed to be restored during 2012, with economic activity also picking up in Finland.

Significant downside risks still relate to the euro area debt crisis and world economic growth. The lack of confidence may cause world growth to remain more muted than forecast and world trade to recover more slowly than assumed in the baseline forecast. In a global environment, such demand shocks are rapidly passed on to the real economy. Owing to the Finnish economy's high dependence on exports, fluctuations in export demand would be promptly reflected in output directed at the export markets. Moreover, financial markets are increasingly important for the development of the real economy, as the availability of finance would be easily tightened in response to increased risks.

Using the general equilibrium model developed at the Bank of Finland,[1] this alternative scenario was produced to illustrate a global recession and its pass-through to Finland's macroeconomic performance. Under this scenario, growth in Finland's export markets will decelerate from the fourth quarter of 2011 onwards. Export market growth is assumed to be about 6 percentage points lower in both 2012 and 2013 than in the baseline forecast. The waning of external demand will be gradual and more long-lasting than the unpredictable and sharp drop in 2008. The phase of weakest demand will fall on 2012, with full recovery not seen until 2014.

The global weakening of demand will cause foreign trade prices to fall worldwide. The scenario foresees almost unchanged competitiveness for Finland. As it is a global recession that takes hold, foreign exchange rates are not expected to change. The alternative scenario assumes that nominal wage developments will be broadly in line with negotiated wage developments according to the baseline forecast, meaning that projected wage drift is expected to disappear. Wage adjustment to economic performance will thus be relatively slow.

The key results of the scenario are presented in tables 1 and 2. The contraction in export demand will be directly passed through to exports, for which growth will weaken by almost 6 percentage points during two consecutive years, relative to the baseline forecast. As export industry output is highly

[1] *The calculation of the alternative scenario is based on the latest version of the Bank of Finland's macroeconomic model Aino. The basic model features are described in the article by Elisa Newby, Jukka Railavo and Antti Ripatti 'A general equilibrium model for forecasting', Bank of Finland Bulletin 3/2011: Economic outlook, p.58–66.*

*Table 1.*

**Alternative scenario: debt crisis escalates into global recession**

| | 2011 | 2012 | 2013 |
|---|---|---|---|
| ***GDP and employment*** | | | |
| *Real GDP, % change* | | | |
| *Baseline forecast* | 2.8 | 0.4 | 1.8 |
| *Alternative scenario* | 2.5 | –2.0 | 0.7 |
| *Difference* | –0.3 | –2.4 | –1.1 |
| *Number of employed, 1,000 persons* | | | |
| *Baseline forecast* | 2,472 | 2,469 | 2,473 |
| *Alternative scenario* | 2,470 | 2,419 | 2,372 |
| *Difference* | –2 | –50 | –101 |
| *Unemployment rate, %* | | | |
| *Baseline forecast* | 7.8 | 7.9 | 7.9 |
| *Alternative scenario* | 7.9 | 9.0 | 10.1 |
| *Difference* | 0.1 | 1.1 | 2.2 |
| ***External balance*** | | | |
| *Export prices, % change* | | | |
| *Baseline forecast* | 5.7 | 2.5 | 1.4 |
| *Alternative scenario* | 5.6 | 1.3 | 0.1 |
| *Difference* | –0.1 | –1.2 | –1.3 |
| *Exports, % change* | | | |
| *Baseline forecast* | –3.2 | 0.4 | 6.0 |
| *Alternative scenario* | –3.5 | –5.6 | –0.4 |
| *Difference* | –0.3 | –6.0 | –6.4 |
| *Imports, % change* | | | |
| *Baseline forecast* | –0.7 | 0.0 | 5.6 |
| *Alternative scenario* | –1.4 | –8.2 | 0.4 |
| *Difference* | –0.7 | –8.2 | –5.2 |
| *Current account, % of GDP* | | | |
| *Baseline forecast* | 0.0 | 0.2 | 0.3 |
| *Alternative scenario* | –2.2 | 1.6 | 1.0 |
| *Difference* | –2.2 | 1.4 | 0.7 |
| *Finland's export markets, % change* | | | |
| *Baseline forecast* | 7.2 | 4.6 | 6.4 |
| *Alternative scenario* | 6.8 | –1.8 | 0.5 |
| *Difference* | –0.4 | –6.4 | –5.9 |
| ***Wage and price developments*** | | | |
| *Labour compensation per employee, % change* | | | |
| *Baseline forecast* | 3.4 | 2.8 | 3.0 |
| *Alternative scenario* | 3.3 | 2.1 | 1.8 |
| *Difference* | –0.1 | –0.7 | –1.2 |
| *Private consumption deflator, % change* | | | |
| *Baseline forecast* | 2.8 | 2.5 | 1.6 |
| *Alternative scenario* | 2.6 | 0.3 | –0.3 |
| *Difference* | –0.2 | –2.2 | –1.9 |
| *Real average wage, % change* | | | |
| *Baseline forecast* | 0.6 | 0.3 | 1.4 |
| *Alternative scenario* | 0.7 | 1.8 | 2.1 |
| *Difference* | 0.1 | 1.5 | 0.7 |

*Source: Bank of Finland.*

*Table 2.*

**Implications of the alternative scenario for the general government balance in 2011–2015**

| | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| ***General government balance*** | | | | | |
| *General government net lending, % of GDP* | | | | | |
| *Baseline forecast* | *–1.3* | *–1.2* | *–1.2* | *–1.1* | *–1.2* |
| *Alternative scenario* | *–1.5* | *–2.8* | *–4.5* | *–4.9* | *–4.8* |
| *Difference* | *–0.2* | *–1.6* | *–3.3* | *–3.8* | *–3.6* |
| *General government debt, % of GDP* | | | | | |
| *Baseline forecast* | *50.0* | *53.1* | *55.9* | *57.8* | *59.7* |
| *Alternative scenario* | *50.3* | *57.0* | *63.1* | *67.2* | *70.8* |
| *Difference* | *0.3* | *3.9* | *7.2* | *9.4* | *11.1* |

*Source: Bank of Finland.*

dependent on imports, imports will also shrink on the back of lower demand for industrial raw materials and intermediate goods. Import demand will also be dampened by sharply falling investment and fading household consumption. With the value of imports declining, the trade balance will turn slightly more positive in 2012 than in the forecast. The terms of trade will not improve by as much in 2012 as forecast, remaining nearly unchanged in other years.

According to the alternative scenario, a worsening downturn in the world economy will also be reflected in Finland's financial market. Banks' financing costs will increase, and the rates of interest paid by customers will also rise. Financing conditions will be tightened, and a higher degree of uncertainty will push up risk premia by about 2 percentage points. This large increase in risk premia is a reflection of a protracted erosion of confidence. Lower provision of credit and higher risk premia add to the financing costs of companies. There will be a marked decline in private investment. According to the scenario, however, the impact of an international recession on investment will be stronger than the impact of higher risk premia. About two thirds of investment reduction will be due to weakening export demand.

In the alternative scenario, GDP growth will remain lower than forecast during three consecutive years. In 2012, GDP will contract by 2.0%. Growth will still be slower in 2013, with the economy subsequently returning gradually to its pre-recession level. Adjustment will be accelerated by a lower wage and price level than projected in the baseline forecast.

A deep recession will necessitate a downward adjustment of wages. The scenario assumes that wage increases will broadly follow the development of negotiated wage rises according to the baseline forecast. Wage drift will contract so as to approach zero in 2012–2013, and the rate of increase in average wages will decelerate appreciably. Real wages will rise in 2012–2013 because of lower inflation, and this will further underpin weak labour demand.

The number of people employed in 2013 will be about 100,000 less than in the forecast. Unemployment will begin to rise, and the unemployment rate will peak at over 10% in 2013. As a consequence of the previous recession, the number employed declined by about 90,000 between 2008 and 2009. This alternative scenario foresees an

even stronger employment response to GDP contraction than in the 2009 recession. Deprived of the financial room for manoeuvre experienced during the previous recession, and therefore unable to make use of this resource, companies cannot hoard their skilled labour. The longer duration of the downturn illustrated in the alternative scenario will also add to redundancies. Although foreign trade came to an unexpected halt in the previous recession, demand began to recover fairly soon in many sectors and there was widespread use of temporary lay-offs rather than redundancies.

In the alternative scenario, despite continued nominal wage increases, the weakening employment situation will reduce disposable household income. Declining purchasing power will act as a constraint on consumption in spite of the low interest rates. Slow real income developments and household caution will be directly reflected in private consumption. Just as in the previous recession, the household savings ratio will begin to rise as economic growth decelerates and the employment situation deteriorates.

Low export demand and higher funding costs will reduce aggregate demand, thereby curbing inflation. The pace of increase in consumer prices will fall close to zero in 2012 and 2013.

The general government fiscal deficit will worsen considerably compared with developments in the baseline forecast. In 2013, the general government deficit would be almost 3½ percentage points larger than the baseline ratio. The alternative scenario assumes that in 2013 general government debt to GDP will grow by more than 7 percentage points relative to the baseline. General government debt would rise to as high as 70% of GDP by 2015. The scenario indicates that a downturn markedly less severe than the 2009 recession would strongly impair the health of Finland's public finances.

## Changes from the previous forecast

The picture provided by the present Bank of Finland forecast for the performance of the Finnish economy in 2011–2013 is distinctly gloomier than in the forecast released in June 2011. GDP will grow more slowly throughout the forecast period than predicted in the summer. GDP growth is projected to be 1.0 percentage point lower in 2011 and 2.2 percentage points lower in 2012 than envisaged in the summer forecast. In 2013, growth will be 0.6 of a percentage point lower than previously envisaged. In June it was projected that GDP would reach its pre-recession level during 2012, but the deceleration in growth moves this forward for a further year.

The changes in the forecast outlook are due to the weakening outlook for the global economy. The worsening of the sovereign debt crisis has eroded growth expectations in Europe, and a higher degree of uncertainty has sapped the confidence of Finnish households and businesses. The changes in the economic operating environment in both Finland and Finland's export markets will lead to more subdued economic activity in 2011 and 2012 than predicted in the summer. Growth in Finland's export markets in the forecast period is estimated to be significantly weaker than in the June forecast, which will dampen the pace of export growth in 2011–2013. Developments in both industrial output and exports have already been lower than anticipated in 2011. In June, exports were projected to grow by 8% over the year as a whole, but the new forecast foresees export contraction. Underlying this change in the forecast is the performance of exports, notably exports of services, which was particularly weak in the first half of the year.

Consumer prices are predicted to rise by 0.4 of a percentage point faster in 2012 and by 0.4 of a percentage point more slowly in 2013 than forecast in June. The higher inflation forecast for 2012 than in June is due to indirect tax increases, whose impact on annual inflation will be 0.8 of a percentage point. These measures had not been taken into account in the June forecast; consequently, price pressures arising from sources other than taxation are now perceived as being more muted in 2012 than previously thought.

On the back of the intensification of the European debt crisis, market expectations of the

*Table 1.*
**Current and June 2011 forecast**

| | *2010* | *2011* | *2012* | *2013* |
|---|---|---|---|---|
| *GDP, % change* | *3.6* | *2.8* | *0.4* | *1.8* |
| *June 2011* | *3.1* | *3.8* | *2.6* | *2.4* |
| *Inflation (HICP), %* | *1.7* | *3.4* | *2.5* | *1.7* |
| *June 2011* | *1.7* | *3.4* | *2.1* | *2.1* |
| *Finland's export markets, % change* | *13.0* | *7.2* | *4.6* | *6.4* |
| *June 2011* | *13.7* | *8.4* | *7.4* | *7.1* |
| *Current account, % of GDP* | *1.8* | *0.0* | *0.2* | *0.3* |
| *June 2011* | *3.1* | *2.1* | *2.1* | *2.3* |
| *General government net lending, % of GDP* | *–2.8* | *–1.3* | *–1.2* | *–1.2* |
| *June 2011* | *–2.8* | *–1.2* | *–1.0* | *–0.7* |

euro area interest rate level in the forecast period have been revised significantly downwards. Compared with the summer 2011 forecast, markets expect the three-month Euribor to remain 1.1 percentage points lower in 2012, at 1.2%. In 2013, the short-term market interest rate is expected to average 1.4%, which is 1.4 percentage points lower than projected in the summer. Despite the exceptionally low level of interest rates, housing investment is predicted to grow at a more sluggish pace than in the June forecast. Demand uncertainty will also keep capital investment lower than estimated in the previous forecast.

The pace of growth in the value of imports in 2011–2012 will be markedly more subdued than in the summer forecast, but the pace of growth in the value of exports will decline even more strongly. Consequently, the trade account will move into deficit in 2011. The current account will be close to balance throughout the forecast period, and the surplus relative to GDP will remain much lower in the forecast period than foreseen in the June forecast.

The general government balance will strengthen in 2011, with the deficit predicted to contract to 1.3% of GDP. The weak economic outlook for the immediate years ahead will keep the general government deficit at broadly the same level as in 2011 throughout the forecast period, although fiscal consolidation measures have already been initiated. Compared with the June forecast, the deficit at the end of the forecast period will be ½ a percentage point larger.

# Financial stability

**Europe is in the throes of a systemic crisis. The spread of the euro area debt crisis to large euro area countries has further eroded investors' confidence in the debt-servicing capacity of governments and banks, increased uncertainty in the financial markets and reduced interbank lending. If the crisis in confidence cannot be promptly contained, the European financial system is threatened by a paralysis as serious as or more serious than that of autumn 2008.**

**European banks' long-term unsecured funding has been at a near standstill since late summer 2011. A broad-based strengthening of the banks' capital positions is essential to support their funding and lending activities, prevent a credit crunch and halt the spread of the crisis.**

**Escalation of the euro area debt and confidence crisis also poses the main current threat to the stability of the Finnish financial system. Finnish banks and large non-financial corporations acquire a considerable proportion of their funding through debt instruments on the international financial markets. A protracted crisis of confidence in the financial markets would therefore hamper funding for Finnish banks and companies.**

**The operating environment for financial institutions will be difficult in the immediate years ahead because of the expected sluggishness of economic growth. Low market interest rates may also create risks for the financial system over the long term.**

**Finland must be prepared to take prompt action if a prolonged debt crisis threatens to cut off funding for Finnish monetary financial institutions and adequate financial intermediation for Finnish households and businesses. Policymakers also need to be more determined in their efforts to consolidate the long-term sustainability of the country's public finances. The events of the euro area debt crisis reveal how damaging a lack of confidence towards fiscal sustainability can be for the economy and for the stability of the financial system.**

## International operating environment remains turbulent

### *Long-term market funding for European banks at a near standstill*

The decisions taken by the heads of state or government of EU and euro area countries at their end of October 2011 summit concerning eg the loan programme for Greece, strengthening the capacity of the European Financial Stability Facility (EFSF) and bank recapitalisation have not done much to dispel the distrust felt towards the debt-servicing capacity of several euro area countries and European governments and banks. The spread of the debt crisis to large euro area countries is very dangerous for the entire global economy.

Sovereign bond yields for many large euro area countries rose to alarmingly high levels in late autumn 2011. The lack of confidence in banks, in turn, has extensively blocked both

their access to funding on the financial markets and interbank lending (Chart 1).

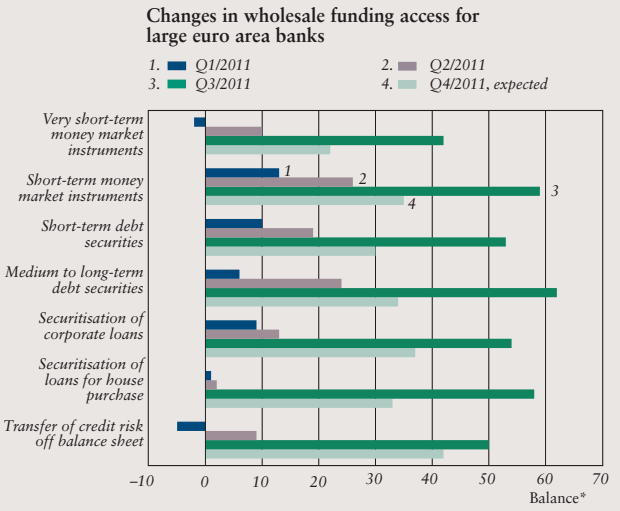
The functioning of the European financial system deteriorated sharply in the autumn of 2011. A considerable amount of European banks' long-term debt instruments will fall due for payment in the first quarter of 2012. If banks fail to acquire adequate levels of new long-term funding, their capacity to provide credit to households, non-financial corporations and other loan applicants will be further impaired. This would exacerbate the already serious financial problems in Europe.

Provision of bank credit to households and non-financial corporations tightened in Europe as early as the third quarter of 2011, and banks expected the tightening to continue in the fourth quarter.[1] There is a threat of a sharp contraction in banks' credit supply, ie a credit crunch. Meanwhile, it has become increasingly difficult for non-financial corporations to access market funding, and the premia on credit default swaps for corporate bonds have risen (Chart 2).

The main reason for European banks' current problems is the escalation of the euro area debt crisis in a situation where the European banking system remains inadequately restructured after the previous phase of the crisis. A permanent resolution of the debt crisis requires credible long-term measures aimed at enhancing the sustainability of euro area countries' public finances and boosting economic growth. A prompt safeguarding of banks' funding access and lending capacity is, however, necessary to alleviate the current acute phase of the crisis.

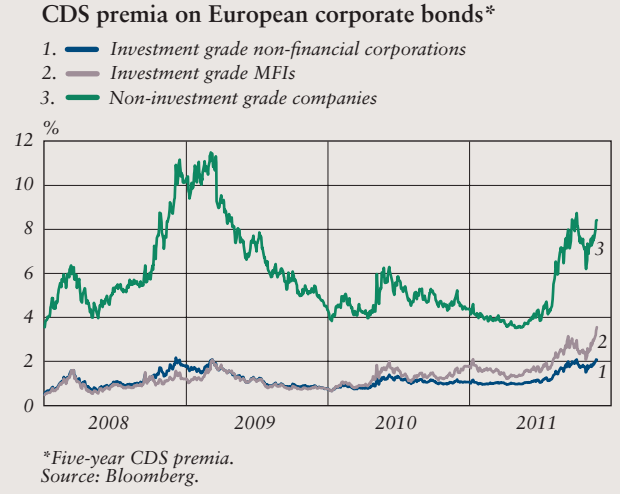
In order to secure long-term bank funding in Europe, it may be necessary

*Chart 1.*




**The percentage of banks that reported a deterioration in their wholesale funding access minus the percentage of banks that reported an easing in their wholesale funding access.*
*Source: ECB (October 2011) Bank Lending Survey.*

*Chart 2.*




**Five-year CDS premia.*
*Source: Bloomberg.*

[1] ECB (October 2011) Bank Lending Survey.

to reintroduce public guarantees, offered for purchase by investors with a view to protecting bondholders against bank default, as security for banks' long-term bonds. Such guarantees were already applied after the crisis became more severe in autumn 2008. As decided at the October 2011 summit, the entry criteria, pricing and other conditions need to be agreed at EU level.

### *European banking system needs more capital*

The European banking system needs more capital to avert a credit crunch, restore banks' mutual confidence and normalise funding. However, the action plan agreed at the October 2011 summit for raising large European banks' core capital ratio to at least 9% by the end of June 2012 is challenging.

The plan is based primarily on tapping private sources for new capital. The objective merits support, but raising new private capital in the current cyclical and market situation is difficult.

In the first place, shareholders of poorly capitalised banks have little incentive for raising new capital, as the acquisition of new capital mainly benefits these banks' creditors rather than existing shareholders.[2] Secondly, new private capital is currently expensive, as investors take a sceptical attitude towards almost the entire banking industry. Thirdly, banks are finding it increasingly difficult to generate profit and thereby accumulate new capital in a deteriorating operating environment.

A critical question for economic activity is how much banks improve their capital positions by reducing lending.[3] Banks and their associations have warned that they may find this option more attractive than raising capital. In the absence of additional measures, the plan designed at the summit may at its worst lead to an outcome that it expressly seeks to avoid: an abrupt and sharp contraction in the provision of bank credit.

*There is a risk of an abrupt and sharp contraction in the provision of bank credit.*

The European Banking Authority (EBA) has estimated how much new capital the banks of each member state should acquire in order to meet the capital target agreed at the October summit.[4] Banks are required to submit to their respective national supervisors their plans detailing the actions they intend to take to reach the set targets. In some countries, these plans are already well advanced.

Banks should strengthen their capital ratios primarily by raising new capital rather than by cutting their lending. The European Systemic Risk Board (ESRB) should be closely linked to the process of assessing the macro-economic and financial stability-related consequences and risks that arise from banks' recapitalisation plans.

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[2] This is called a debt overhang problem.

[3] Banks' capital ratio = equity/risk-weighted assets. Banks can improve their capital ratios by either increasing their equity (increasing the numerator) or reducing their assets such as lending (reducing the denominator). In the current operating environment, the latter alternative may be more attractive from the banks' point of view. From the perspective of financial stability, however, this alternative is not desirable.

[4] See http://www.eba.europa.eu/News--Communications/Year/2011/The-EBA-publishes-Recommendation-and-final-results.aspx#.

### *Valuation and disclosure rules for banks' exposures need to be improved*

Uncertainty about the size and distribution on bank balance sheets of sovereign exposures and complex structured securities holdings that caused concern at the earlier phase of the crisis has added to doubts about banks' ability to service their debts. There are thousands of billions of euro worth of sovereign exposures on bank balance sheets worldwide. The bulk of these bonds are valued at amortised cost (Table 1), which may significantly deviate from the market value prevailing at any given time. There have also been considerable differences in valuation practices across countries.[5] Going forward, valuation and reporting of banks' exposures need to be more consistent and transparent.

Also, the regulatory treatment of banks' holdings of sovereign bonds must be carefully reassessed. The EU Capital Requirements Directive has allowed banks to treat their sovereign holdings as practically risk-free investments, which has not been in line with the spirit of the international capital standards issued by the Basel Committee on Banking Supervision.[6]

### *Banks must also strengthen their leverage ratios*

With lessons drawn from the bitter experiences of the sovereign debt crisis and the preceding subprime mortgage crisis, investors have begun to look with a more critical eye at the risk-weighted capital ratios calculated by banks themselves on which current bank capital regulation is based. In fact, market participants have begun to increasingly apply a simple leverage ratio[7] in analysing banks' capital adequacy. The leverage ratio is deemed less sensitive to manipulation than risk-weighted ratios.

Euro area banks' leverage ratios are, on average, lower than those of

[5] European Securities and Markets Authority (25 November 2011) Sovereign debt in IFRS financial statements. Public statement.

[6] Capital regulation concerning banks' sovereign exposures is discussed in greater detail in, for example, the speech by Hannoun: 'Sovereign risk in bank regulation and supervision: Where do we stand?' http://www.bis.org/speeches/sp111026.htm?ql=1.

[7] Leverage ratio = equity/non-risk-weighted assets.

*Table 1.*

**Recognition of debt crisis countries' sovereign bonds on European banks' balance sheets**

| | *Relative share, %* | *Accounting standards* | |
|---|---|---|---|
| | | *Impact* | *Valuation method* |
| *Trading book* | *12* | *Changes in market value, impact on profit/loss* | *Fair value* |
| *Banking book, available for sale* | *49* | *Changes in market value, impact on equity* | *Fair value* |
| *Banking book, held to maturity* | *39* | *Impairment provisions, impact on profit/loss* | *Amortised cost, impact on profit/loss if losses materialise* |

*Source: IMF (September 2011) Global Financial Stability Report.*

other EU banks (Chart 3). The aggregate leverage ratio of the German banking sector, for example, was the lowest among the EU countries in 2010. The capital adequacy of the Finnish banking sector is at the average level in a European comparison using the leverage ratio as a gauge. The difficulties encountered by European banks in seeking to access market funding show that investors do not perceive European banks' capital positions – measured by non-risk-weighted assets – and thus their loss buffers as being adequate relative to their current risks.

Financial institutions operating on weak leverage ratios have become increasingly exposed to bank runs on the wholesale funding market. This applies in particular to financial institutions that finance the bulk of their operations with short-term market funding and whose business is narrowly focused. An example of this type of financial institution was the heavily indebted Franco-Belgian-Luxembourgian Dexia bank, specialised in local authority funding. The drying up of funding pushed Dexia into default in September 2011.

### *Banks' inflated return targets may pose a threat to stability*

The euro area debt crisis is a continuation of the global financial crisis that came to a head in autumn 2008, for which one of the main reasons was banks' excessive risk-taking. Many large European banks have announced that they still aim to achieve as high or almost as high returns on equity as in the years preceding the financial crisis.

In the foreseeable operating environment of slow growth, it will be difficult for the banking sector as a whole to attain the targeted returns in a manner other than taking very high risks. Unfortunately, the costs for banks' failed risk-taking have often fallen on taxpayers.

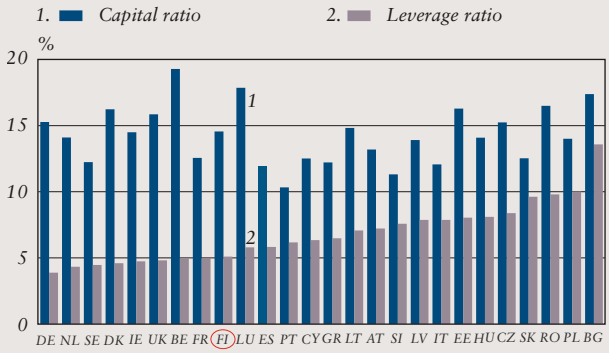
Ambitious return targets set by investors and bank management can at their best encourage banks to streamline their operations. There is overcapacity in the European banking system, and its orderly unwinding is both necessary and desirable.

*During a period of slow economic growth, it will be difficult for the banking industry to attain its return targets without taking big risks.*

Instead of streamlining operations, however, banks can also increase the return on equity via two channels that are undesirable from a stability point of view. Firstly, they can reduce the amount of their equity relative to total assets and finance their operations increasingly by debt, such as short- and long-term debt instruments. The aggregate debt of the US financial sector relative to GDP, for example,

*Chart 3.*

**Banks' capital and leverage ratios in EU countries, 2010**




*Source: European Central Bank.*

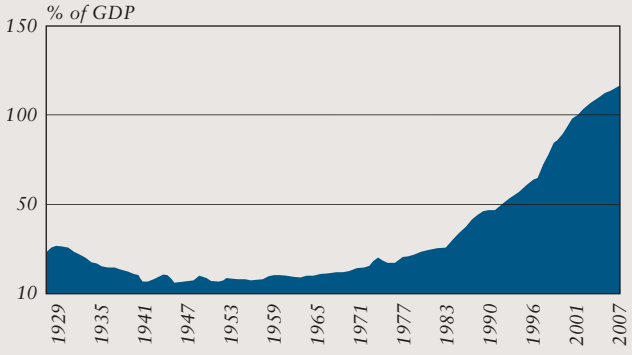
grew almost tenfold in 1950–2007 (Chart 4). Similar developments were witnessed in several other countries. This leveraging enabled some banks to increase their return on equity to even 30% in the years up to the latest financial crisis.

The ongoing tightening of capital requirements restricts banks' use of leveraging. Another method employed by banks for raising their return on equity is higher risk-taking in lending and investment. This has the effect of boosting the return on equity during good times. Correspondingly, the losses from failed risk-taking also grow.

Recent years provide plenty of examples of how short-sighted policies for maximising the return on equity have mainly served the interests of bank management and investors with a short-term orientation. This has not often benefited investors operating on a long-term basis: the prices of bank shares dropped in autumn 2011 to levels last seen 20 years ago.

*Chart 4.*

**Indebtedness of US financial institutions 1929–2007**




*Source: Adair Turner (29 September 2011) Speech, Southampton University.*

Accordingly, it would be in the interests of bank shareholders to apply risk-based approaches for assessing profitability and setting return targets. The results-based incentives for bank management and staff should also be built on indicators that take account of risks in line with international recommendations and provisions.

Analysts and credit rating agencies should promote the application of risk-based measures. Authorities responsible for macroprudential and institutional supervision, in turn, should more effectively oversee the development of banks' incentive and remuneration schemes and their impact on risk-taking. Distorted incentives should be addressed with the available tools.

## Finland must prepare for crisis spillover

### *Non-financial corporations prepared for a deteriorating financial situation*

The state of international financial markets resembles the situation in autumn 2008 in many respects. At that time, the insolvency of the Lehman Brothers investment bank triggered a serious international financial crisis. The stability of the Finnish financial system is, however, only slightly weaker than average in the light of key stability indicators (Chart 5).[8]

Heightened financial market tensions in autumn 2011 also hamper the acquisition of funding by Finnish banks and financing by Finnish

[8] The indicators used in the financial stability map (Chart 5) and their calculation methods are illustrated in the Bank of Finland Bulletin, Financial stability, 2/2011, Box 1.

companies on international financial markets and from foreign banks. In addition, the more negative macroeconomic outlook[9] erodes Finnish companies' expectations of their export and investment performance. Companies' lower levels of investment have contributed to reducing their financing needs.

Domestic banks have not restricted their lending to Finnish non-financial corporations. Banks' corporate lending stock grew moderately at an annual rate of about 5% in autumn 2011. Worthy of note in the current situation is the recovery of the commercial paper market. The volume of commercial paper shrank sharply in 2008, subsequently remaining at a pronouncedly lower level than before. The situation has changed since then, and the stock of commercial paper has grown rapidly by about EUR 2 billion in the course of 2011.

On the basis of information derived from various sources, non-financial corporations have prepared as far as possible for a deterioration in the financial situation. Domestic companies' indebtedness has not increased in relative terms in recent years (Chart 6). Moreover, large companies have extended the maturities of their loan programmes. In 2011, Finnish companies concluded EUR 11 billion worth of new syndicated loan agreements. They also increased their cash holdings.

Upcoming changes to the regulations concerning financial institutions are expected to lead to at least a moderate rise in the price of bank loans granted to the corporate sector. The importance of market funding as a source of funds for non-financial corporations is, therefore, likely to increase.

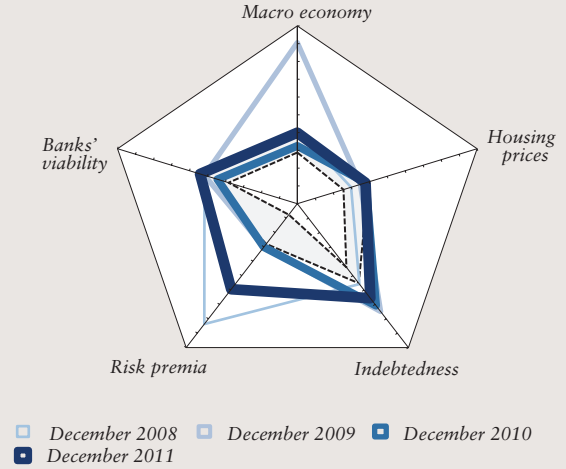
The problem is that the domestic bond market is very thin, with few issues. Under normal circumstances, large companies are able to raise market funding from abroad, but this is not possible or advantageous for small and medium-sized enterprises. Even large companies may rapidly encounter difficulties in accessing foreign market funding, as witnessed in 2008 and in autumn 2011. In crisis situations, investors tend to withdraw from peripheral regions, in which Finland can be included.

From a stability point of view, it would be advisable to increase the share of domestic investors in market funding for non-financial corporations.

*Domestic banks have not restricted their lending.*

*Chart 5.*

**Financial stability map for Finland**

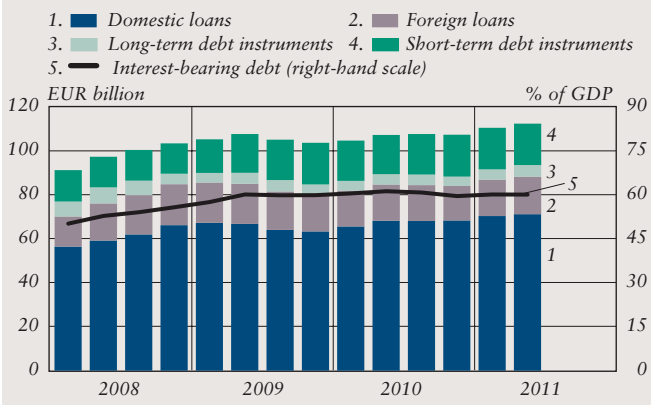



*Sources: NASDAQ OMX Helsinki, banks, Statistics Finland and Bank of Finland.*

[9] See 'Economic outlook 2011–2013' (above).

*Chart 6.*

**Interest-bearing corporate debt in Finland**




*Sources: Bank of Finland and Statistics Finland.*

This could take place by, for example, launching a domestic debt market directed at small and medium-sized enterprises to which lower disclosure requirements would apply than those governing listed companies.[10]

The financial situation of Finnish households was discussed in detail in the Bank of Finland Bulletin, Financial stability, 2/2011, published in spring 2011.[11] The situation has not changed much since then. The stock of housing loans granted to households continues to grow very evenly, at an annual rate of slightly below 7%. Growth in consumer credit and other loans has been considerably more subdued. Housing prices have in real terms remained at broadly the same level since summer 2010. The unemployment rate is almost the same as in spring 2011.[12]

### *Banks' liquidity risk management increasingly important during the debt crisis*

The Finnish banking sector's capital position has not undergone major changes. The quality of equity is good, as the majority of it is of the highest quality, ie common equity.[13] The banking sector's ratio of the highest-quality equity, ie the Core Tier 1 capital ratio, was 12.8% at the end of September 2011. This is well above the minimum requirement in the current Basel II capital adequacy framework and the temporary minimum ratio of 9% that the European Banking Authority (EBA) requires major European banks to reach by the end of June 2012.

The banking sector's notional loss buffer relative to the minimum Core Tier 1 capital ratio of 9% required by the European Banking Authority was EUR 5.8 billion in September 2011. When assessing banks' capital adequacy, it should be remembered that bank capital regulations impose only the minimum capital requirement. Recently, markets have required banks to have a capital ratio that is significantly higher than the minimum requirement. A capital position weaker than required by the markets would hamper banks' funding.

The Finnish banking sector is relatively dependent on market funding,

[10] Speech by Pentti Hakkarainen, Deputy Governor of the Bank of Finland: 'Mihin pääomamarkkinamme ovat menossa?' ('Where are our capital markets heading?') (http://www.suomenpankki.fi/fi/suomen_pankki/ajankohtaista/puheet/Pages/ph_puhe_111013.aspx).

[11] Bank of Finland Bulletin, Financial stability, 2/2011 http://www.suomenpankki.fi/en/julkaisut/bulletin/financial_stability/Pages/default.aspx.

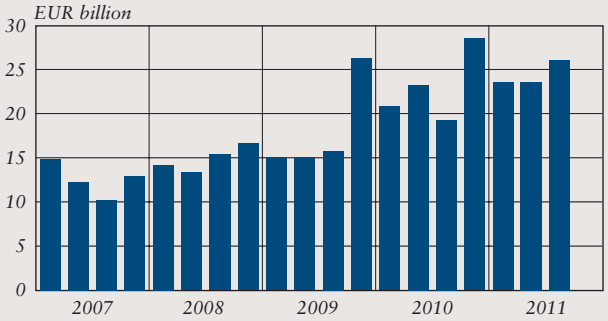
[12] Households' ability to adjust to a weakening of their financial situation is discussed in this Bulletin in the article by Petri Mäki-Fränti.

[13] FIN-FSA press release (25 November 2011).

due to the fact that the stock of MFI loans to the euro area non-financial sector exceeded by more than EUR 40 billion the stock of deposits by the sector. Banks cover this funding gap mainly by issuing certificates of deposit and bonds. To ensure continuity of funding, banks hold a liquidity buffer that consists of cash and liquid assets; this enables them to cover possible disturbances in market funding. Banks have prepared for the growing uncertainty by building up their liquidity buffers (Chart 7).

*Chart 7.*

**Liquid assets of the Finnish banking sector**




*Banking sector excl. insurance activities. Liquid assets = cash + debt securities eligible for refinancing with central banks.*
*Sources: Bank of Finland and Financial Supervisory Authority.*

To secure the availability of market funding, it is of key importance for banks to maintain a high credit rating. During the sovereign debt crisis, European banks have been divided into two groups in terms of long-term funding. Banks with a weak credit rating are dependent on central bank funding, as they are able to acquire only a very limited amount of funding or no funding at all from the market. The other group consists of banks with a high credit rating (minimum AA), and Finnish banks are in this latter group. These banks were able to acquire unsecured market funding at a cheap rate until summer 2011.

However, the issuance of unsecured loans by banks came to a halt at the end of summer 2011, although the issuance of covered bonds resumed after a short break. In autumn 2011, banks acquired funding mainly via covered bonds, and unsecured funding consisted mainly of small, individual issues. Moreover, the price of funding via covered bonds rose significantly in autumn 2011.

The liquidity position of the Finnish banking sector has remained good thus far. However, the sector's dependency on funding mainly from the foreign market opens a channel via which international market disturbances could suddenly weaken the availability of funding in a peripheral country like Finland. Finnish political decision-makers and authorities must be prepared to introduce (rapidly, if necessary) fee-based state guarantees on banks' refinancing.

### *Operating environment for financial institutions increasingly difficult*

Banks' operating environment will remain difficult in the immediate years ahead. The upward trend in market interest rates since the second part of 2010 was reversed in summer 2011, and rates are expected to remain low in the years ahead. In this respect, the situation has changed radically since spring 2011, when the Bank of Finland published its last assessment of financial stability. The low level of interest rates puts pressure on banks' profitability,

*Banks' operating environment will remain difficult because the low level of interest rates puts pressures on banking profitability.*

due to the narrowing of the margin between lending and deposit rates, because the majority of loans are tied to Euribor rates, whereas deposit rates cannot decrease much from their current low levels.

An environment of low interest rates may also cause other risks if profitability pressures encourage banks to take excessive risks to achieve their income target. A prolonged period of low interest rates may also result in an underestimation of banks' credit risks and excessive borrowing by the private sector if the low level of interest rates fuels debt growth or postpones the deleveraging of excessive debt, or if borrowers do not prepare adequately for a rise in interest rates.

In addition to low interest rates, banks' profitability outlook is dampened by increasingly pessimistic assessments of future macroeconomic developments. Economic growth in the immediate years ahead is expected to be slower than previously forecast, which will weaken the demand for banking services and increase banks' loan losses.

The Finnish banking sector has, however, taken steps to prepare for a decline in profitability. The results of the stress tests conducted by the Financial Supervisory Authority in spring 2011 show that the Finnish banking sector's capital adequacy would withstand a scenario of negative GDP in 2011–2012 and a decline in asset prices accompanied by a fall in short-term interest rates to very low levels. Moreover, a decline in the market value of bonds issued by euro area crisis countries will have only a minor direct impact on Finnish banks, due to their very small sovereign bond-related claims on these countries.

A prolonged period of low interest rates will also affect the operation of insurance institutions and hamper fulfilment of the return requirement. Of life insurance companies' savings accrued, over 60% are based on a guaranteed rate of interest, and, at least in the case of old insurance policies, it will be difficult to achieve the required return. The challenges of employment pension funds' investment activities will also continue to grow if interest rates remain low for a prolonged period.

### *Financial market infrastructure supports financial stability*

The financial market infrastructure (payment systems and securities clearing and settlement systems) has been constructed with a view to preventing systemic risk.

In a payment system in which payments are settled on a gross basis in central bank money, the participants are not exposed to counterparty risk. The same applies to securities settlement systems, in which securities transactions are settled on a gross basis in accordance with the delivery-versus-payment (DvP) principle. Systems settling transactions on a net basis apply a variety of risk management methods, eg collateral, guarantee funds, or specific credit facilities to cover the obligations of a defaulted party.

During the debt crisis of the past three years, in particular, uncertainty in the financial markets has been high. Payment and settlement systems have

nevertheless operated reliably and contributed to the functioning of the markets. For example, during the US investment firm MF Global's default in November 2011 the overall risk management of the infrastructure was effective, and the incident did not cause systemic risk.

Nevertheless, system operators have to develop their risk management on an ongoing basis to prevent systemic risk. The primary responsibility lies with the systems and their participants. The authorities support these measures, within their competencies. The work will also be bolstered by the principles for financial market infrastructures that will be published by the Committee on Payment and Settlement Systems (CPSS), operating under the auspices of the BIS, and the International Organization of Securities Commissions (IOSCO) in 2012.[14]

Authorities must inform the markets without delay and as extensively as possible if an undertaking operating on the financial markets has been declared insolvent. The communication arrangements are defined in EU legislation. Upon receiving notification, a payment and settlement system must suspend from the system a participant that has been declared insolvent and commence other measures to cover the obligations of the defaulted participant and to minimize the damage to other participants in the system.

Accurate flow of information is essential, as incorrect procedures may cause a system significant liability for damage. A delay in access to information enables a participant that has been declared insolvent to use its assets even after the declaration of insolvency, which may, in the worst case, lead to the emptying of the assets of the estate in bankruptcy, and thereby incur losses to creditors. The duty of ensuring the flow of information lies primarily with the authorities.

## Rapid progress in the reform of banking regulation

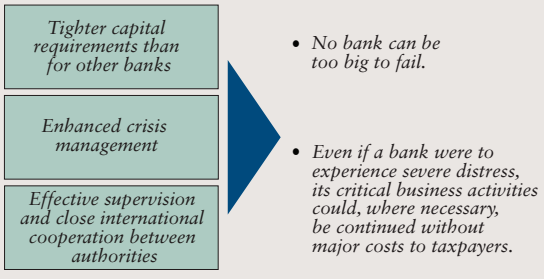
### *Tighter regulation of systemically important banks*

Significant progress was made in late autumn 2011 regarding the tighter regulatory and supervisory framework for systemically important financial institutions (SIFIs) prepared by the Basel Committee and the Financial Stability Board (FSB) (Chart 8).

Systemically important financial institutions are financial institutions

*Chart 8.*

**Tight requirements for globally systemically important banks**




*Source: Bank of Finland.*

[14] See Committee on Payment and Settlement Systems (CPSS), http://www.bis.org/cpss/index.htm, and International Organization of Securities Commissions (IOSCO), http://www.iosco.org/.

*Nordea has been defined as a globally systemically important bank. These financial institutions will be subject to tighter minimum capital requirements.*

whose distress or disorderly failure would cause serious negative externalities to the wider financial system and economic activity. The Basel Committee has identified a group of 29 globally systemically important banks (G-SIBs). The group includes one Nordic bank, Nordea.

The minimum capital requirements for globally systemically important banks will gradually be raised, and the requirements will be tighter than for other banks.[15] Authorities' responsibilities, powers and cooperation arrangements will be reformed to facilitate the possible reorganisation of a bank's business in a crisis situation without costs for taxpayers. In addition, the supervision of G-SIBs will be strengthened. The reforms will subsequently cover not only banks but also other financial institutions that are determined to be globally systemically important and financial institutions that are systemically important on the national level.

*The goal of regulatory reform is to transfer the cost of banks' risk taking back to shareholders and financiers.*

Insolvency legislation on conventional non-financial corporations is not highly effective in the insolvency of a financial institution – particularly a systemically important one. There is therefore a need to reform and harmonise the legislation on the restructuring of financial institutions. The European Commission's proposal for a Directive should be issued in the near future.

Some countries, for example the United Kingdom, Switzerland and Sweden, have announced plans to impose on systemically important banks capital requirements that are tougher than the requirements in Basel III.[16] These countries have large and highly concentrated banking systems relative to the size of their economies.

The Finnish banking system also has a high degree of concentration. Finnish authorities should also assess which financial institutions are systemically important on the national level and assess, based on international criteria, whether additional capital requirements and other special requirements should be imposed on these financial institutions.

The reforms that have already been published and those that are still to be published are essential. Size, complexity and systemic interconnectedness has increased strongly in recent decades, and the largest financial institutions have become too big and complex to fail. Due to the special role of these financial institutions, the majority of the costs caused by their risk-taking have actually, from time to time, been covered by the taxpayers. The purpose of the reforms is to transfer the costs back to those who should be responsible for them, ie to the shareholders and financiers of financial institutions.

Tighter regulation and supervision of systemically important financial institutions is, however, not enough to eliminate financial crises and the costs that arise. Financial crises have emerged throughout history, also in banking systems dominated by small banks.

[15] The macroeconomic impacts of the new requirements are assessed in a report by the Basel Committee on Banking Supervision: 'Assessment of the macroeconomic impact of higher loss absorbency for global [sic] systemically important banks'. October 2011. http://www.bis.org.

[16] See eg Riksbank (25 December 2011) New capital requirements for Swedish banks. Press release.

Moreover, it is uncertain whether it is possible to survive, even with enforced measures, a systemic crisis in which typically a large number of systemically important financial institutions are in difficulties at the same time.

Indeed, the causes of financial crises lie deeper than the moral hazard and distorted incentives of systemically important financial institutions. The largest macroeconomic problem related to financial crises is heavy fluctuations in credit supply and demand: lending grows very strongly during a boom and declines even more strongly in a crisis. In the worst case, these credit cycles generate large systemic crises. The biggest challenge for the authorities responsible for financial stability is to find new, macroprudential tools for smoothing credit cycles (see subsection below).

### *Forthcoming EU banking regulation may restrict national authorities' tools for preventing financial crises*

The Basel Committee on Banking Supervision published in December 2010 an extensive reform package on banking regulation (Basel III). The framework proposed by the Basel Committee is a recommendation. A large number of countries are, however, committed to implementing the recommendations in their national legislation. In the EU, the framework will be included in the Directive and regulation on banks' capital requirements on which the European Commission published a proposal in July 2011.

The Commission's proposal differs from Basel III significantly in some respects. The recommendations of the Basel Committee include international minimum requirements for bank capital, liquidity and leverage. In contrast, according to the Commission's proposal, EU Member States would not be allowed to deviate from the majority of the requirements and impose either more lenient or stricter requirements. For example, the majority of the quantitative requirements on banks would be implemented through a regulation that would be directly applicable without the need for national transposition.

The Commission's goals to harmonise banking regulation, reduce regulatory arbitrage and alleviate the regulatory burden on banks are commendable. The Commission's proposal would, however, limit the set of possible national measures for the prevention of financial crises (Table 2).

For the prevention of financial crises, national authorities should have

*Table 2.*

**Macroprudential measures included in the European Commission's proposal for capital adequacy regulation**

| | *Measures* |
|---|---|
| *Pillar 1* | ***EU-level macroprudential measures*** |
| | *Power for the Commission to tighten the requirements temporarily across the board for specific activities/exposures* |
| | ***National measures*** |
| | *Tighter loan-to-value limits for loans secured by commercial and/or residential property* |
| | *Counter-cyclical buffer requirements* |
| *Pillar 2* | *National supervisors can impose a wide range of measures – including additional capital requirements – on individual institutions or groups of institutions in order to address higher-than-normal risk* |

*Source: European Commission (July 2011) Capital Requirements Directive IV – Frequently Asked Questions.*

a larger set of discretionary measures to dampen financial market imbalances, for example excessive lending and indebtedness or excessive risk taking by banks. Several of the potential tools are included in the future EU capital adequacy framework. The Commission's proposal would, however, allow the discretionary use of only a few of the national measures of banking regulation.

It is justifiable to keep the set of macroprudential measures narrow to improve the predictability of policy measures, to facilitate communication on use of the measures, and to reduce unexpected combined effects from use of a large number of measures. It is, however, not clear whether the macroprudential measures included in the Commission's proposal for a Directive would be sufficient to prevent future financial crises.

EU regulations should allow Member States to set minimum capital, liquidity and leverage ratio requirements that are permanently tighter than EU regulations if the safeguarding of the national financial system calls for it.

*Keywords: financial system, stability, banking sector, securities markets, payment and settlement systems*

# Finnish households' economic margin

**The debt ratio of Finnish households has grown steadily over the past decade and in 2011 stood at approximately 108% of disposable household income.[1] Despite the growth in the debt ratio, the low level of interest rates has enabled households to continue to service their loans, and the employment situation did not show any rapid deterioration even during the recession of 2008–2009. There have actually been very few payment defaults by Finnish households, despite the growth in the debt ratio.**

**The most heavily indebted households could nevertheless be vulnerable to financial difficulties. Even a short period of unemployment, or an increase in housing loan interest rates, could force them to substantially reduce their accustomed level of consumption, with this being reflected in increased volatility in aggregate private consumption. This would in turn amplify cyclical volatility in the economy. Moreover, excessive levels of debt increase the risk of households defaulting on their payments, and in an extreme scenario household credit risks could endanger the stability of the entire financial system.**

**More important than the average debt ratio is the way in which debt is distributed between households. High-income and wealthy households are better placed than low-income households to bear risks that are large not just in absolute euro terms, but also relative to household income. The larger the amount of money left over after loan servicing costs, the easier it will be for a household to adjust its consumption in the event of a decline in income due, for instance, to unemployment.**

*Petri Mäki-Fränti*
*Economist*
*Monetary Policy and Research*

This article examines the current economic margin of households in Finland. By 'economic margin' we mean households' capacity to adapt in the event of a weakening in their financial position due, for example, to unemployment or an increase in interest rates. Our aim is to discover how much money households have at their disposal when essential living costs are subtracted from net income. In addition to housing costs, we also take account of households' outlay on other consumption. In this respect, the article follows the methodology applied to Swedish households by Persson (2009) and Jönsson & al. (2011). The present article expands on the study of Finnish household debt and payment defaults carried out by Risto Herrala in 2009. In order to be able to better clarify the connection between household indebtedness, on one side, and form of housing tenure and growth in the average size of housing loans, on the other, the article deals separately with owner-occupier households and those in rented accommodation.

The data on households' disposable income and housing costs have been taken from Statistics Finland's income distribution

[1] The figure does not include households' share of housing company debts.

statistics, with the most recent data being for 2009. An even more comprehensive picture of the financial position of households would require us to include household assets in our calculations. The most recent available data on the assets of Finnish households is, however, from as long ago as 2004, and we have therefore left data on assets outside our calculations. The income distribution data on households' disposable income does, nevertheless, include capital income, which means our calculations can take account of assets indirectly.

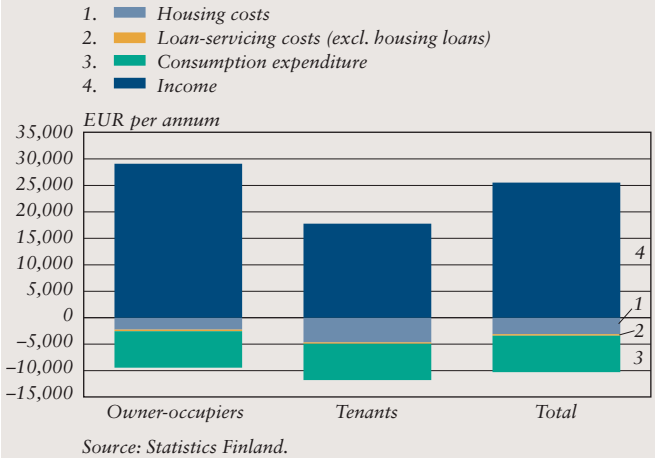
## Finnish households' economic margin

If we compare average household income and expenditure according to form of housing tenure, calculated per modified OECD consumption unit, we observe that owner-occupier households tend to have considerably higher incomes than those in rented accommodation (Chart 1).[2] The disposable income of households in rented accommodation averages just upwards of 60% of the income of owner-occupier households. Renting households also have considerably higher housing costs than owner-occupiers. The housing costs of owner-occupiers consist largely of capital instalments and interest payments on their housing loans, but less than half of the owner-occupiers in the data actually have a housing loan.

For households with housing loans, the average size of loan was EUR 78,600, and in respect of these loans, interest payments in 2009 were approximately EUR 2,350, and capital instalments EUR 4,870 per household. However, the large number of entirely debt-free households meant the average housing costs of owner-occupiers were just EUR 2,250, compared with average rental costs of EUR 4,670 in the same year for households renting their home. In fact, the average sum disposable per month after housing costs is considerably smaller for households in rented accommodation than for those owning their own home.[3]

*Chart 1.*

**Owner-occupiers' and tenants' income and living costs**




*Source: Statistics Finland.*

[2] A household's OECD consumption units are calculated as follows. The first adult in the household is given a weight of 1, and subsequent adults a weighting of 0.5. Members of the household aged under 16 are given a weighting of 0.3. These weightings are used to calculate the divisor. As an example, the combined income of a household of two adults and two children is divided by 2.1. The aim is to take account of the fact that, in a household with several members, fixed costs are shared between more than one person.

[3] Owner-occupiers can be divided into those living in their own detached house and those with an apartment representing shares in a housing company. Rental occupation covers both main tenants and subtenants. Those in right of occupancy accommodation or in a part-ownership dwelling have been omitted from the study.

In order to assess the size of margin households have to adjust to financial shocks through their decisions on consumption and savings, as well as subtracting housing costs from income we also need to subtract households' other essential living costs. In the light of our data, unavoidable housing and other expenditure by both rental and owner-occupier households would appear on average to be substantially lower than their disposable income (Chart 1). Moreover, in our calculation, households' average financial buffers are underestimated, as they do not consume their entire surplus income, some of which is saved. Savings augment households' financial and real assets, although this is not reflected in the calculation, except in respect of capital income.

Average household income and expenditure does not tell us how large a proportion of households live on the minimum level of subsistence and are in danger of getting into payment difficulties if their income were to decline or if they were to face unexpected expenses. Households' risk of payment default can be clarified by examining the position of those households in the weakest position financially, or in other words, by assessing the proportion of households whose income would no longer cover their unavoidable expenditure in the event of unemployment, for example.

Economic margin is defined as the sum of money a household has left over each month once housing costs, debt-servicing costs and other essential living costs have been subtracted from its disposable income. It is determined separately for owner-occupiers and households in rented accommodation, which means that households are assumed to differ from each other purely on the basis of how their housing costs are treated. The housing costs of owner-occupiers comprise the monthly costs of servicing their housing loan (including both interest payments and instalments on the loan capital) and the maintenance charge on their apartment, where applicable. The housing costs of tenants, in addition to their rent, are utility charges (including electricity and water charges). For both owner-occupiers and tenants other loan-servicing costs cover consumption loans, study loans, loans for pursuit of business activities and other loans.

*Table 1.*

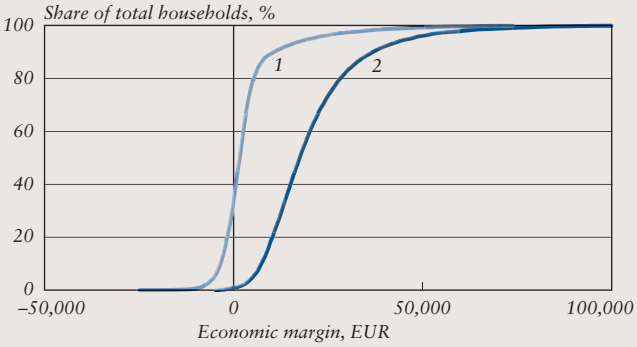
| *Household margin per consumption unit =* |
|---|
| *Disposable income* |
| *– Housing costs* |
| *– Interest and capital instalments on debts (excl. housing loans)* |
| *– Esential consumption expenditure* |

In addition to housing costs, our calculations also take account of households' other essential living costs. It is considerably more difficult to give a clear, unambiguous definition of these costs than for housing costs. Persson (2009) and Jönsson & al. (2011) studied the household margin using data on Swedish households, wherein household living costs were assessed with the help of estimates on minimum consumption levels for Swedish households published by Statistics Sweden. The present study draws on estimates by Finland's National Consumer Research Centre of

*Chart 2.*

**Cumulative distribution of economic margin for owner-occupier households**

1. Average consumption
2. Minimum consumption

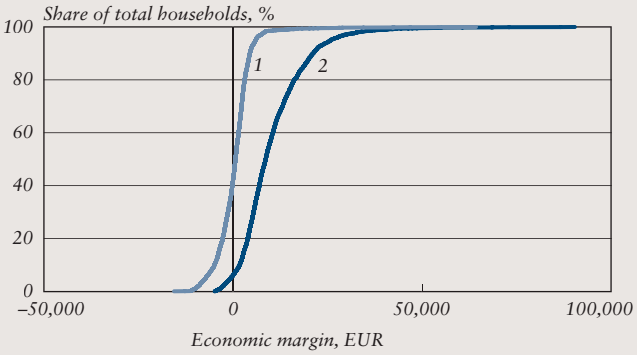



*The margin for 'minimum consumption' is based on the definition of decent minimum consumption calculated by the National Consumer Research Centre. 'Average consumption' corresponds to the distribution of the household margin when living costs are defined as the average level of consumption within income quintiles.*
*Sources: Statistics Finland and calculations by the Bank of Finland.*

*Chart 3.*

**Economic margin distribution curve for tenant households**

1. Average consumption
2. Minimum consumption




*The margin for 'minimum consumption' is based on the definition of decent minimum consumption calculated by the National Consumer Research Centre. 'Average consumption' corresponds to the distribution of the household margin when living costs are defined as the average level of consumption within income quintiles.*
*Sources: Statistics Finland and calculations by the Bank of Finland.*

a reference budget of decent minimum consumption for model households of different sizes and types.[4] These estimates are supplemented by alternative calculations in which the essential living costs of households are estimated on the basis of average living costs for different income groups instead of using a minimum consumption level.

## Approximately a fifth of households have very little economic margin

If we examine the cumulative distributions of economic margin for owner-occupiers and renting households in charts 2 and 3, we can see how large the proportion of households is that have income levels insufficient to cover even their essential expenditure. Households' economic margin is indicated on the horizontal axis, with a perpendicular cutting the axis at zero. The economic margin of households to the left of the perpendicular is less than zero, and their proportion of all households can be read off the vertical axis. The distribution curves are based on two different definitions of households' essential living costs. 'Minimum consumption' is based on the definition of decent minimum consumption calculated by the National Consumer Research Centre, while 'average consumption' corresponds to the distribution of households' margin when living costs are defined as the average level of consumption within income quintiles.

Independent of the form of housing tenure, household incomes are almost sufficient to guarantee essential consumption in almost all cases. When we calculated the economic margin relative to the National Consumer Research Centre's definition of minimum consumption, only a good 1% of owner-

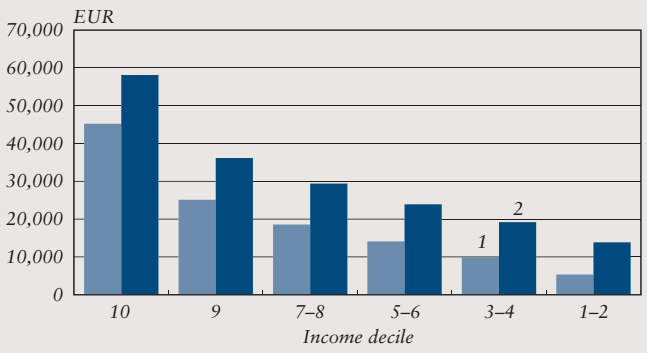
[4] Lehtinen, A-R (2010).

occupiers and 3.5% of renting households are utterly lacking in economic margin. In contrast, it would appear to be difficult for many households to achieve the average consumption within their own income quintile even if they put aside no savings at all. If we define consumption as the average level of consumption for each income group, approximately two fifths of both owner-occupier and tenant households have less than zero economic margin. This outcome, for its part, illustrates a skewed distribution of income and consumption whereby the median households in each income quintile earn and consume less than the average household.

The comparison of household incomes and economic margin according to income quintiles and form of housing tenure reveals that those households with a large margin would be able, in the event of short-term unemployment or a rise in housing loan interest rates, to cope with their unavoidable expenditure without a significant need to reduce their other consumption (Chart 4 and Chart 5). It would be sufficient for them to reduce their rate of savings or release their earlier savings. However, whatever the form of housing tenure, households' economic margin steadily declines as we move from the highest-earning income group towards the lowest earners. The differences in household margin between the highest-earning and two lowest-earning quintiles among owner-occupier households were approximately tenfold when consumption was defined as minimum subsistence consumption. After unavoidable expenditure, the highest-earning households had almost EUR 3,800 in disposable income remaining per month per consumption unit, while the margin for households in the two lowest-earning quintiles averaged just over EUR 400. For renting households, too, the margin for those in the highest-earning quintile exceeds EUR 3,000.

*Chart 4.*

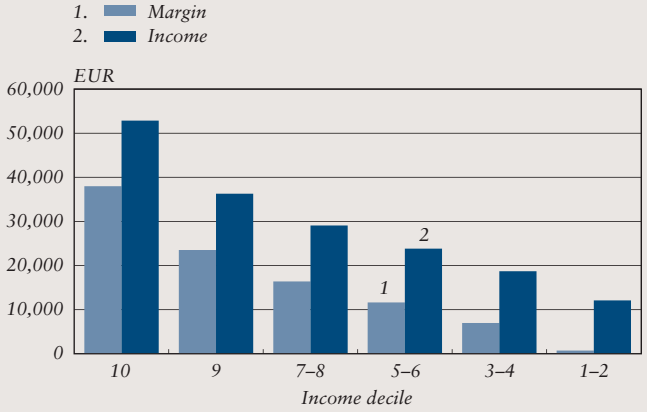
**Disposable income of owner-occupier households and their economic margin by income decile**




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

*Chart 5.*

**Disposable income of tenant households and their economic margin by income decile**




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

*Table 2.*

**Average economic margin of owner-occupier and tenant households with a level of debt exceeding 100% of annual disposable income**

| | *Average, EUR per annum* | *Median, EUR per annum* | *Margin < EUR 0, % of households* |
|---|---|---|---|
| *2005* | *11,359* | *10,344* | *6.8* |
| *2006* | *11,543* | *10,290* | *7.0* |
| *2007* | *12,553* | *10,410* | *7.8* |
| *2008* | *11,931* | *10,695* | *7.3* |
| *2009* | *14,288* | *12,539* | *3.7* |

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

*Table 3.*

**Average economic margin of owner-occupier and tenant households with a level of debt exceeding 200% of annual disposable income**

| | *Average, EUR per annum* | *Median, EUR per annum* | *Margin < EUR 0, % of households* |
|---|---|---|---|
| *2005* | *10,042* | *9,014* | *8.8* |
| *2006* | *9,425* | *8,532* | *9.0* |
| *2007* | *11,238* | *8,737* | *10.3* |
| *2008* | *9,769* | *8,421* | *10.9* |
| *2009* | *12,580* | *11,070* | *5.3* |

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

*Table 4.*

**Average economic margin of owner-occupier and tenant households with a level of debt exceeding 300% of annual disposable income**

| | *Average, EUR per annum* | *Median, EUR per annum* | *Margin < EUR 0, % of households* |
|---|---|---|---|
| *2005* | *7,916* | *7,289* | *13.1* |
| *2006* | *7,681* | *6,954* | *12.3* |
| *2007* | *9,697* | *6,941* | *18.9* |
| *2008* | *7,043* | *6,840* | *17.7* |
| *2009* | *10,662* | *9,641* | *8.8* |

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

The margin in the two lowest-earning quintiles is around zero, even when consumption is at the minimum level.

### *Most heavily indebted households*

The vulnerability of households to financial setbacks also increases as their level of debt grows relative to disposable income. However, the low interest rates of recent years and longer repayment periods for housing loans have enabled households to cope with both interest payments and capital instalments on larger loans than before. Below, we examine how households' economic margin changes as their level of debt relative to income grows (Tables 1–3). In this calculation, the overall level of debt is given values of over 100%, over 200% or over 300% of disposable income. The tables are based on data for the years 2005–2009 and indicate households' median and average margin plus the proportion of households whose margin is less than zero.

Neither the average household margin nor the proportion of households with negative margin have developed linearly over time.[5] From 2008 to 2009 there is a clear increase in the economic margin, despite the fact that the recession caused by the financial crisis was at its deepest in 2009. This is explained by a rapid growth in disposable income in 2009 and lower debt-servicing costs due to the low level of interest rates. Moreover,

[5] If a household's debt is at least double its income, its economic margin deteriorates relative to the previous year in 2006 and 2008. The decline in the margin in these years is explained by both weak (in 2008, negative) income development and an increase in the sums devoted to reducing the capital on outstanding loans.

unemployment affected only a relatively small proportion of households.

Whether measured by average or median, the economic margin expectedly declines as we move from those households with the lightest levels of debt on average (over 100% of annual disposable income) towards the most heavily indebted households (over 300% of disposable income). Nevertheless, in 2009 the difference was only around one quarter, meaning an average household would not experience financial difficulties even if its debt were more than three times its disposable income. Also, a median household in the most-indebted group would in 2009 still have a margin of around EUR 800 a month. The position of average and median households does not, however, tell us anything about the effects of indebtedness at the tail end of the distribution. As indebtedness increases, the proportion of households with a negative margin begins to grow strongly. In the baseline sample (indebtedness over 100% of disposable income) 3.7% of households have a negative margin, while the corresponding figure among the most heavily indebted households is as much as 8.8%.

## Household stress tests

Household stress tests were used to study the economic vulnerability of Finnish households to a sudden drop in income or increase in essential expenditure, such as a substantial increase in housing loan interest rates.

### *Unemployment shock*

In the stress tests, households' ability to withstand shocks is measured first by estimating the proportion of households whose economic margin would enter negative territory if unemployment were to rise by 3, 5 or 10 percentage points.[6] Our calculations are based on household data from 2009, but the data on household incomes and expenditure has been projected to 2011 using the average growth figures for nominal incomes and private consumption over the years 2009–2011. Level of consumption is defined in the calculations according to the definition of minimum consumption produced by the National Consumer Research Centre. This leaves households with a negative economic margin with great difficulties in servicing their housing and other debts purely by adjusting their other living costs without having to resort to rescheduling their loan repayments, for example.

Based on the stress tests, a rise in the unemployment rate could substantially increase the payment difficulties of households with housing loans. A 3 percentage point rise in the unemployment rate would increase the proportion of households with a negative margin more than fivefold, from 0.5% to 2.4%. A rise in the unemployment rate of 10 percentage points would shrink the margin below zero for as many as 6.2% of households with housing loans (Table 5).

[6] The credibility of the assumptions regarding unemployment growth can be assessed by placing them against the background of unemployment growth in the two most recent previous economic recessions. During the recession of the early 1990s, the average unemployment rate rose from 3.2% in 1990 to 16.7% in 1994, which is 3.5 percentage points more than in the worst scenario presented here. In the recession following the financial crisis, the unemployment rate rose from 6.4% in 2008 to 8.5% in 2010, which corresponds in scale to the mildest figure presented in our scenario.

*Table 5.*

**Impact of an increase in the unemployment rate on the number of households with a negative margin**

| *Increase in unemployment rate, %points* | *3* | *5* | *10* |
|---|---|---|---|
| ***Owner-occupiers, % of households*** | | | |
| *Post-shock* | *2.4* | *3.1* | *6.2* |
| ***Tenants, % of households*** | | | |
| *Post-shock* | *10.6* | *11.3* | *13.5* |

*Pre-shock, households with a negative margin totalled 0.5% of owner-occupiers and 8.8% of tenant households.*
*Source: Bank of Finland calculations.*

*Table 6.*

**Impact of a rise in housing loan interest rates on the number of households with a negative margin**

| *Size of interest rate rise, % points* | *1* | *3* | *5* |
|---|---|---|---|
| *Post-shock* | *1.6* | *2.2* | *3.0* |

*Pre-shock, households with a negative margin totalled 1.4% of owner-occupier households.*
*Source: Bank of Finland calculations.*

The smaller average incomes of renting households relative to owner-occupier households are reflected in the results of the stress tests. With unemployment at its present level, the economic margin is negative for almost 9% of renting households. Even a significant increase in unemployment would, however, be less visible among these households than among owner-occupiers. If the unemployment rate were to rise by 10 percentage points, the proportion of households with a negative margin would grow by just under 5 percentage points.

Jönsson & al. (2011) estimated the impact of unemployment and interest rate shocks on banks' loan losses in Sweden, assuming that the amount of loan losses depends directly on the proportion of households with a negative margin. A doubling of the number of households with a negative margin would, viewed thus, double the amount of loan losses. If a similar argument is applied to the Finnish data, it would appear that even a substantial rise in the unemployment rate would not cause serious problems for Finnish banks. In 2010, banks' stock of loans to households in Finland stood at around EUR 99 billion, of which housing loans accounted for EUR 74.4 billion. The scale of loan losses for banks from housing loans was 0.02%.[7] The baseline figure for households with a negative margin was 0.5%, and a rise in the unemployment rate of, for example, 10 percentage points would multiply this share by a factor of 13.5. If we assume a linear connection between payment defaults and the economic margin, the loan losses from housing loans of banks operating in Finland would pose no threat to the financial soundness of the banks.

### *Interest rate shock*

The stress test examines the effects of a rise in interest rates: how large a proportion of households would be exposed to the risk of experiencing payment difficulties if the interest applied to their housing loan were to rise by 1, 3 or 5 percentage points.[8] The stress test on the effects of a rise in interest rates on housing loans is based

[7] Vesala and Palmroos (2011).

[8] The most significant growth in households' interest expenditure to date has been in the years before the Finnish recession of the early 1990s and before the recent post-financial-crisis recession. In 1987–1990, the ratio of household interest expenditure to disposable income grew from 5.8% to 9.9%, and in 2006–2008 from 3.7% to 5.6%.

on data including households whose relevant member was outside the labour market in 2009. The proportion of households with a negative economic margin (1.4%) at the outset, before the assumed rise in interest rates, is therefore marginally higher than the corresponding proportion in the case of an unemployment shock (0.5%).

A small, 1 percentage point rise in interest rates increases the proportion of negative-margin households only marginally, by 0.1 of a percentage point. If, on the other hand, interest rates on housing loans were to rise by 5 percentage points, the effects would be on a scale similar to a 5 percentage point increase in the unemployment rate: ie the proportion of negative-margin households would rise to upwards of 3%.

### A rise in the unemployment rate would substantially increase households' payment difficulties

Although the average indebtedness of Finnish households has risen steadily, households have on average a good degree of economic margin. Many households would not be forced to compromise essentially on their accustomed level of consumption even if their financial situation were to deteriorate temporarily. Form of housing tenure is, however, a distinguishing factor: owner-occupier households tend to be considerably better off financially than households who rent, with over half of owner-occupier households being entirely debt-free and large housing loans being concentrated in a few high-income households. Moreover, interest rates on housing loans have been low in recent years, while instalments on loan capital have also not taken an unreasonable share of household income due to the lengthening of repayment periods. The average housing costs of renting households are, in fact, considerably higher than those of owner-occupiers.

Although the average economic margin of households is considerable, even a short spell outside the labour market substantially weakens the economic margin of both owner-occupiers and renting households. At the weaker end of the income spectrum there are quite a lot of households that cannot adjust to a substantial loss of income from eg unemployment simply by reducing consumption. There are, however, more renting households living on the margins of subsistence than overindebted owner-occupier households.

According to the results of the stress tests, a rise in the unemployment rate could considerably increase the payment difficulties of households with housing loans. Even a 3 percentage point rise in the unemployment rate would increase the proportion of households with a negative margin more than fivefold, to 2.5%.

*Keywords: household indebtedness, economic margin of households, stress tests, microdata*

## Bibliography

Herrala, Risto: Kotitalouksien velkaantuminen ja maksuhäiriöt Suomessa ['Household debt and payment defaults in Finland'; in Finnish only], Euro&talous 4/2009.

Jönsson, Kristian – Nordberg, Anders – Wallin Fredholm, Maria (2011): Household indebtedness – consequences for the banks' credit losses and financial stability, Riksbank Commission of Inquiry Into Risks on the Swedish Housing Market–RUTH, 2011, Sveriges Riksbank, p. 135–152.

Lehtinen, Anna-Riitta (2010): Mitä eläminen maksaa?: kohtuullisen minimin viitebudjetit ['What does living cost?: an outline budget for a reasonable minimum'; in Finnish only]. Kuluttajatutkimuskeskus [National Consumer Research Centre].

Persson, Mattias. (2009): Household indebtedness in Sweden and implications for financial stability – the use of household-level data. BIS Papers 46, p. 124–135.

Vesala, Jukka – Palmroos, Peter (2011): Millaiset ovat Suomen asuntolainamarkkinat ja miten kotitaloudet voivat hallita lainariskejään? [What are the characteristics of the Finnish housing market and how can households manage their loan risks?; in Finnish only] Studia Monetaria lecture, 15 November 2011, Helsinki.

# Analysis of the macroeconomic effects of population ageing using a general equilibrium model

**The macroeconomic effects of population ageing will be considerable. Projections with a general equilibrium model highlight a structural shift in the economy and a pronounced fall in the standard of living in the wake of population ageing. Total output will decline not only in response to a fall in labour input but also due to a shift in the output structure towards service sectors. A substantial increase in the tax ratio will, in practice, make labour markets other than the public labour market wither away, while the ratio of private consumption to GDP will fall permanently.**

This article discusses public spending growth related to population ageing and its macroeconomic effects in the light of a general equilibrium model. In a general equilibrium model, the intertemporal budget constraint on each economic agent must hold at all times. If, for example, public finances are deeply in deficit, economic agents are aware that there will be tax increases or public spending cuts in the economy to ensure appropriate servicing government debt and compliance with budget constraints. In line with these expectations, economic agents will adjust their own consumption and investment decisions to reflect optimal decision rules and resource constraints, with a view to achieving market equilibrium. Hence, a general equilibrium model does not recognise unsustainable levels of public debt or a sustainability gap in the same sense as static sustainability calculations.

In such a model, the scope of fiscal policy adjustment is, however, strongly dependent on policy choices, considering the mixed responses of economic agents to changes in various spending and tax instruments.[1] Hence, the final need for adjustment may be on a scale very different from that suggested by a static sustainability gap indicator.

Below, we will analyse the fiscal adjustment related to growth in public consumption against the Bank of Finland's general equilibrium model Aino, which lends itself to the analysis of demographic ageing. The effects of higher expenditure on public services extend an earlier version of the model that captures the effect of ageing via the pension scheme.[2] Taxes and various contributions levied on labour are selected as the policy option. The model features two fiscal policy rules: pension contributions serve to stabilise the balance sheet of employee pension funds, while changes in the wage tax rate serve to stabilise the balance sheet of other public finances.

## Describing ageing and public spending with the model

The Bank of Finland's general equilibrium model provides a relatively rough modelling of population ageing. The description of demographic shifts has been facilitated by the division of households into two categories: working-age and elderly households. The households within each category

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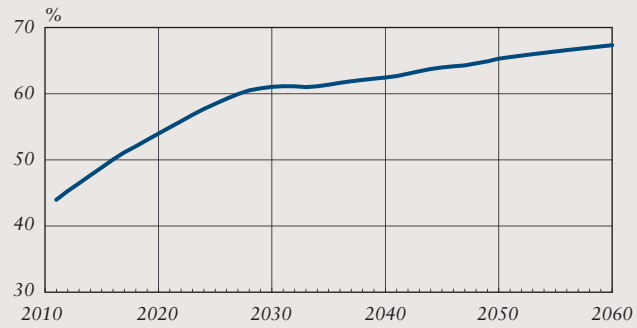
[1] Kinnunen, H – Railavo, J (2010) Politiikkasimulointeja julkisen talouden vahvistamisesta Suomessa ('Policy simulations of strengthening public finances in Finland'). BoF Online 7/2010.

[2] Kilponen, J – Kinnunen, H – Ripatti, A (2006) Population ageing in a small open economy – some policy experiments with a tractable general equilibrium model. Bank of Finland's Discussion Papers 28/2006.

are presumed to be mutually similar. Working-age households refer to 15–59-year-old persons who all participate in the labour force. Elderly households comprise persons over 60 who may choose between retirement and gainful employment. The labour force participation of elderly persons may, for example, reflect policy measures that change the incentives for labour supply. The effects of population ageing are analysed against the benchmark of a stable economy with a steady rate of population growth and constant life expectancy. Similarly, growth rates for total factor productivity and real wages are constant, while inflation rates are stable. Public consumption growth keeps pace with output growth, general government finances remain unchanged and the ratios of public debt and pension funds to GDP remain intact. Furthermore, on this balanced growth path, the pension replacement rate remains unchanged, while the retired population grows at a steady pace.

*Chart 1.*

**Old-age dependency ratio: ratio of persons aged over 59 to persons aged 15–59**




*Source: Statistics Finland.*

The model captures three factors underlying demographic dynamics, ie developments in the number of employees and retirees: length of working careers, life expectancy and growth in the working-age population. These parameters define the changes in the old-age dependency ratio and permit the representation of ageing as an economic disorder or shock. The parameters are assigned values that reflect the developments foreseen in the population forecast of Statistics Finland in order to obtain a permanent shock consistent with demographic change.

The calculation assumes that life expectancy at 60 will increase from the current 24 years to 32 years by the end of this century, which entails an extension of the potential period of retirement by one third. Furthermore, the growth of the working-age population will slow down, as the new cohorts entering the labour market are smaller than those retiring from it (Chart 1).[3] The adverse effect of population ageing on the economy is alleviated by the extension of working lives. Retirement is expected to be deferred from the current age of 59 years to 62 years. In addition, the pension replacement rate will be reduced.

The effects of ageing manifest themselves in stronger growth of the old-age dependency ratio in the 2020s, after which the rate of growth will

[3] Here, the old-age dependency ratio illustrates the ratio between the number of persons aged over 59 and the number of persons aged 15–59. Generally, the old-age dependency ratio illustrates the ratio between the number of persons over the age of 65 to persons aged 15–64. In 2010, the former ratio was 43, and the latter 27.

moderate. The model calculations analyse ageing as a permanent shock to the economy. Following the ageing of the population, both output volumes and the prices of commodities and production inputs will change, with the economy adjusting to a new balanced growth path. The ceiling on the public debt-to-GDP ratio is set to regulate the responses of policy instruments, which causes the burden from the adjustment to balance out over time. The projections assume that government debt will remain close to 60% of GDP, and pension funds at around 50% of GDP, throughout the period of simulation.

Through its effects on public consumption and pension expenditure, ageing has a direct impact on fiscal balance sheets, but the model also captures other structural and dynamic changes compared with the starting benchmark of unchanged population dynamics. Previous simulations of ageing have modelled the economic effect of ageing via higher pension expenditure.[4] With retirement, the supply of labour declines, causing a contraction in the tax base. The tax rate must be raised in response in order to ensure compliance with the constraints on public debt. Higher taxation of wage earnings will discourage the supply of labour by the working-age population. Although the reduction in pension replacement rates will stimulate labour supply among the elderly, this is not enough to offset the decline in total employment rates. Higher real wages, in turn, will depress labour demand. In fact, GDP will, in the long term, be much lower than in the baseline. We will now move on to analyse the contribution to the macroeconomic effects of ageing made by the growing need for public services by an ageing population.

## Effect of ageing on public consumption

### *Ageing increases the share of public spending in the economy*

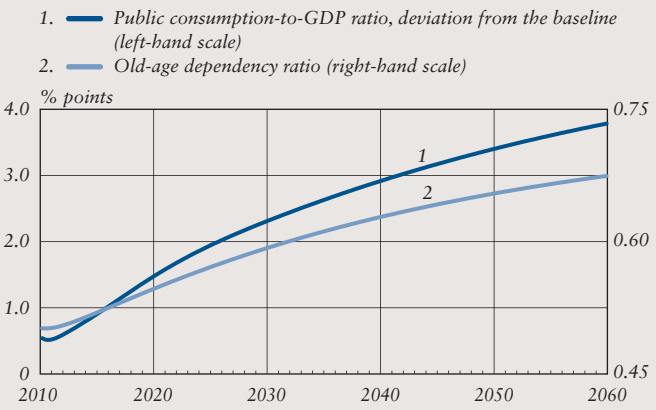
Population ageing increases the need for health care, long-term care and social welfare services funded by the public sector. Projections of resulting cost increases are based on the common assumption that the supply of public services will, in the future, meet the higher demand for services from an ageing population. Another general assumption is that growth in expenditure on public services is indexed to GDP growth, excluding the change in demographic structure.

In the model, the higher demand for public services in response to ageing raises the ratio of public consumption to GDP with an amount consistent with the growth of public spending related to the demographic structure. The assumption of the changes in age-related consumption spending is consistent with the estimates of the EU Working Group on Ageing, which assume that the need for services will remain unchanged by age category. In other respects, the public services-to-

[4] For closer details on the effects, see Kilponen, J – Kinnunen, H – Ripatti, A (2006) Population ageing in a small open economy – some policy experiments with a tractable general equilibrium model. Bank of Finland's Discussion Papers 28/2006.

*Chart 2.*

**Public consumption-to-GDP ratio, deviation from the baseline and modelled approximation of the old-age dependency ratio**




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

GDP ratio is assumed to remain constant, ie the rising standard of living resulting from economic growth will be fully reflected in the costs of public services.

Public consumption growth will be strongest in the 2020s at a time when the rise in the old-age dependency ratio has already started to slow. In the model, public consumption growth in response to ageing represents a positive demand shock that would boost total demand were it not for the financial consequences involved (Chart 2).

### *Long-term macroeconomic effects*

In so far as the ageing of the population is related to a drop in fertility rates and an increase in longevity, it represents a permanent shock to the economy. According to the population forecast of Statistics Finland, the dependency ratio will remain high even after the demographic effect of the baby-boomers has subsided.

For calculation of the macroeconomic effects of ageing, an age-related component of public consumption has been inserted into the model, capturing the effects of service provision. The ageing of the population also brings other structural shifts to the economy, including changes in labour productivity, labour supply and potential output. The effects of ageing are also reflected in pension contribution rates.

Public consumption growth is modelled as a shock that raises the ratio of public spending to GDP in the long term by around 5 percentage points compared with the base year of 2010.[5] In the model, the time path of public consumption expenditure is dependent on the changes in the old-age dependency ratio. Growth in age-related expenditure reaches its peak somewhat earlier in the model than for example in the projections of the EU Working Group on Ageing. The explanation is that the ageing parameters of the model do not permit the generation of a completely accurate time path.

In the model, the expansion of public service provision is translated into output losses in other sectors following the engagement of labour for production of these services. In addition to declining labour availability, the effect on other sectors of the economy is also reflected in higher labour costs. The dominant effect, however, is the

[5] See European Commission (2011) The 2012 Ageing Report: Underlying Assumptions and Projection Methodologies, European Economy 4/2011, and the Ministry of Finance (2011) Stability programme update for Finland 2011, Economic Surveys 16a/2011.

need for raising taxes on labour considerably in response to public consumption growth. Higher taxation causes widespread job and output losses.

The permanent effect of ageing on economic conditions resulting from the rise in the ratio of public consumption-to-GDP can be calculated by comparing the new long-term equilibrium with the initial assumption of stable population growth. In the model, public consumption growth includes increases in both tax-funded purchased services and the public sector's own service production. The model simulations assumed that the structure of public consumption will remain unchanged, ie both consumption items were expected to increase at the same pace. In the model, purchased services exert a somewhat different influence on labour demand and productivity. The purchased services are produced by the private sector but are subject to the government budget constraint. Purchased services stimulate employment in the private sector, which enjoys better productivity than the public sector.

The total effects of ageing, which account for an increase in aggregate age-related spending, ie public consumption and pensions, tighten

*Table 1.*

**Long-term macroeconomic effects of ageing**

| | *Effect, excl. public consumption growth* | *Total effect* | *Effect of public consumption growth* |
|---|---|---|---|
| *Dependency ratio, % points* | *23.4* | *23.4* | *0.0* |
| *Change in pension replacement rate, % points* | *–10.0* | *–10.0* | *0.0* |
| *Pension expenditure/GDP, % points* | *1.9* | *2.1* | *0.2* |
| *Public consumption/GDP, % points* | *0.4* | *5.5* | *5.1* |
| *Wage tax rate, % points* | *2.6* | *11.4* | *8.7* |
| *Pension contribution rate, % points* | *3.2* | *5.2* | *1.9* |
| *Overall tax rate, % points* | *2.4* | *7.8* | *5.4* |
| *Employment rate, %* | *–11.7* | *–16.5* | *–4.8* |
| *Share of public employment, % points* | *0.4* | *5.9* | *5.5* |
| *GDP, %* | *–10.4* | *–11.6* | *–1.2* |
| *Private consumption/GDP, % points* | *2.0* | *–1.8* | *–3.8* |
| *Labour productivity, % points* | *0.9* | *–0.8* | *–1.7* |
| *Consumer prices, %* | *–1.7* | *–2.7* | *–1.0* |
| *Price of GDP, %* | *0.0* | *0.2* | *0.2* |
| *Price of public consumption, %* | *2.1* | *3.2* | *1.1* |

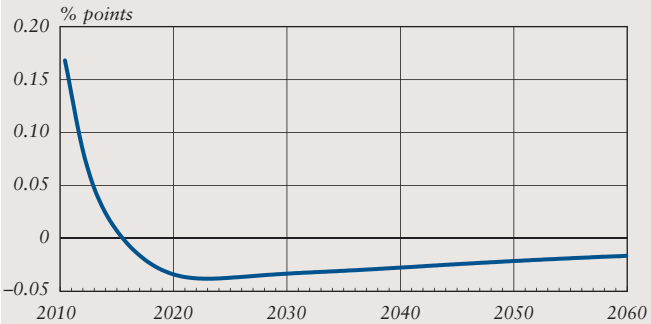
*Source: Bank of Finland calculations.*

taxation substantially. The wage tax rate will increase by more than 11 percentage points, while the pension contribution rate will rise by 5.5 percentage points. The overall tax rate, ie taxes and contributions relative to GDP, will rise by around 8 percentage points over the long term (Table 1, second column).

The need for tightening the tax regime is escalated by labour market responses. In the new long-term labour market equilibrium, the wage level is higher and total employment rates lower than in the baseline. The level of employment remains below the baseline in response to a contraction of both labour demand and supply. There will be a permanent increase in the public-sector share of the employed population of roughly 6 percentage points. Given that productivity growth in the public sector is slower than in the private sector, average labour productivity in the economy overall will decline by around 1 percentage point following the increase in public service production.

*Chart 3.*

**Effect of public spending growth on GDP growth**




*Source: Bank of Finland calculations.*

The growing demand for labour in the public sector also increases the price of public consumption. The higher wage pressures resulting from a tightening in labour market conditions depress the profitability of other sectors of the economy, which displaces private production. Overall, real GDP will be 10% lower than in the baseline.

### *The growing need for age-related services and the dynamics of the economy*

If the total costs of age-related spending were to be covered exclusively out of earnings-related revenue and expenditure, the wage tax rate would increase to an unrealistically high level. In practice, the whole adjustment process can hardly be based on one policy instrument alone. However, an evaluation of the properties of the model calls for closer examination of the economic effects of this policy option by means of dynamic adjustment paths.

In the calculation, fiscal policy is governed by a number of tax rules that keep government debt close to 60% of GDP, and pension funds at around 50% of GDP, throughout the simulation period. An analysis of economic adjustment paths extending as far as 2060 (Chart 3) indicates that the economic effects of ageing require a very long period of adjustment in the model. The rise in the old-age dependency ratio and the resulting growth in age-related spending will moderate from a stronger initial growth rate. Hence, the increase in the tax rate will be strongest in the 2020s, thereafter slowly approaching its new equilibrium.

In the short term, public consumption growth has the character of a positive demand shock. Public consumption will displace domestic consumption through a number of channels. The private consumption-to-GDP ratio will decline, but not as much as the ratio of public demand will rise. Thus, a permanent positive demand effect from ageing will persist in the economy, sustaining public service production and public employment. Consequently, the model calculations point to GDP growth over the next few years. Part of the change in public consumption is also a reflection of changes in GDP. Non-age-related public consumption mirrors changes in GDP. As GDP thus remains lower than in the baseline scenario, non-age-related public consumption spending will also fall after the 2020s.

Public consumption growth will boost GDP growth temporarily (Chart 3). The positive effect will be short-lived, as the increase in taxation will depress the supply of labour and private demand. The growth in public consumption spending will hold back GDP growth for several decades to come.

The government debt-to-GDP ratio will rise at the start of the simulation period, because the response of the tax rule will have a time lag. During the first few years, government will finance expenditure growth by increased borrowing. The tax rule will, however, gradually start to tighten the withholding tax regime, with the amount of government debt falling back towards the baseline. The growing demand for labour in the public sector will push up wage costs and hence reduce demand for labour in the private sector. Overall, the number of employed will decline compared with the baseline.

As labour productivity growth is slower in the public than in the private sector, an increase in the labour force participation rate of the public sector will fairly rapidly be reflected in a slower rate of average labour productivity growth.

## Evaluation

Former projections with the Bank of Finland's general equilibrium model have related to the needs for raising taxes and pension contributions in response to the lower supply of labour and higher pension expenditure following population ageing. The calculations discussed in this article also account for public consumption growth due to ageing. This provides an estimate of the total burden on the economy caused by ageing in a context where the adjustment is based exclusively on increases in wage-related taxes and contributions.

The macroeconomic consequences of population ageing are far-reaching. In contrast to sustainability analyses of the effects of ageing, the present analysis highlights a structural shift in the economy and a pronounced fall in the standard of living as compared with a non-ageing economy. Total output will decline not only in response to a fall in labour input but also due to a shift in the output structure towards service sectors. The strong growth of labour force participation in public

services will impair the longer-term growth prospects of the economy. As an increasing share of a labour force that is set to shrink is involved in the production of services, with lower-than-average productivity, the rate of productivity growth in the economy overall will fall considerably. A substantial increase in taxation will, in practice, make labour markets other than the public labour market wither away, while the GDP share of private consumption will fall permanently.

In the general equilibrium model, the effects of ageing are strongly dependent on the choice of policy instrument for maintaining budget balance. It should be emphasised that the estimates of the dynamic adjustment paths presented in this article are not entirely plausible. As the growth of the old-age dependency ratio is slower in the model than in the population forecast, the adjustment of the economy to a new equilibrium is delayed. A pronounced slowdown in the growth of the old-age dependency ratio is difficult to capture by the demographic dynamics of the model. Consequently, the model shows only a slow increase in age-related public spending. The dynamic path presented, hence, clearly exaggerates the length of the period in the course of which the fiscal adjustment measures should in practice be implemented. In fact, the strongest need for fiscal adjustment will occur earlier than indicated here.

The findings show that if the increase in public spending is financed out of earnings-related taxes and contributions, the total tax rate will, in the long run, rise by close to 8 percentage points compared with the baseline. A tax rate increase of this magnitude holds government debt at 60% of GDP and keeps the ratio of pension funds to GDP unchanged. This leaves no need for fiscal adjustment in the economy; instead, the introduction of higher taxes on labour will represent the whole adjustment. However, the costs of the adjustment as measured by losses of GDP, employment and productivity are so enormous that reassessment of public revenue and expenditure remains the only viable option. Indeed, structural reforms promoting longer working lives and raising the productivity of public service production are key factors in ensuring fiscal sustainability. In addition, other reforms of economic structures are needed to support employment and labour productivity. In this way, there will be less need to tighten the withholding tax regime, although some tightening is to be expected.

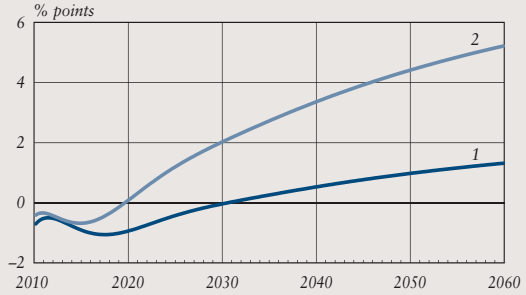
*Keywords: population ageing, age-related expenditure, general equilibrium model*

*Chart 4.*

**Deviations from baseline: total effects of ageing and effects of ageing excl. impact of public consumption growth**

**Overall tax rate**

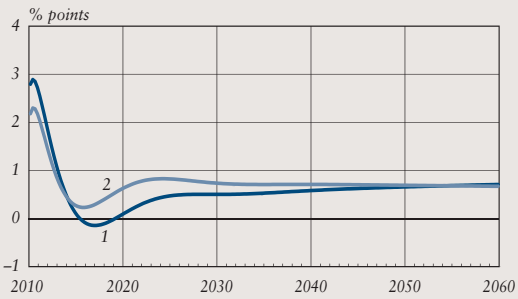
1. Ageing (effect excl. impact of public consumption growth)
2. Ageing and age-related expenditure (total effect)




*Source: Bank of Finland calculations.*

**Government debt-to-GDP ratio**

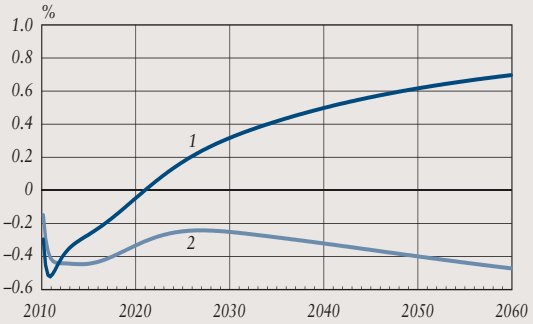
1. Ageing (effect excl. impact of public consumption growth)
2. Ageing and age-related expenditure (total effect)




*Source: Bank of Finland calculations.*

**Labour productivity**

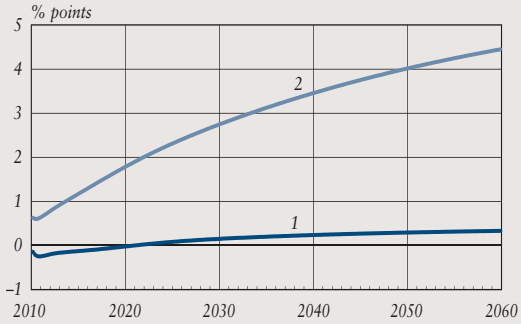
1. Ageing (effect excl. impact of public consumption growth)
2. Ageing and age-related expenditure (total effect)




*Source: Bank of Finland calculations.*

**Employment share of services financed out of tax revenue**

1. Ageing (effect excl. impact of public consumption growth)
2. Ageing and age-related expenditure (total effect)




*Source: Bank of Finland calculations.*

# Articles and boxes from previous publications

## Articles

***Fiscal policy responses of euro area countries to the economic crisis.*** Helvi Kinnunen and Maritta Paloviita. Bank of Finland Bulletin 4/2011.

***Central banking and balance sheet risks.*** Tuomas Välimäki. Bank of Finland Bulletin 4/2011.

***Macroprudential policy tools.*** Juhana Hukkinen and Karlo Kauko. Bank of Finland Bulletin 4/2011.

***Long-term supply of labour.*** Helvi Kinnunen and Petri Mäki-Fränti. Bank of Finland Bulletin 3/2011.

***An estimated general equilibrium model for forecasting.*** Elisa Newby, Jukka Railavo and Antti Ripatti. Bank of Finland Bulletin 3/2011.

***Bank of Finland's forecast errors in 2004–2010.*** Elisa Newby and Seppo Orjasniemi. Bank of Finland Bulletin 3/2011.

***Finland's economic outlook 2011–2013.*** Bank of Finland Bulletin 1/2011.

***How can we identify risks to macrostability?*** Heidi Schauman and Katja Taipalus. Bank of Finland Bulletin 1/2011.

***Macroprudential policy and its relationship to monetary policy.*** Marko Melolinna and Jukka Vauhkonen. Bank of Finland Bulletin 1/2011.

***New facilities help safeguard financial stability in Europe.*** Jenni Hellström. Bank of Finland Bulletin 1/2011.

***Talouskriisit muuttavat makrotaloustieteen suuntaa.*** [Financial crises change the course of macroeconomics; in Finnish only]. Jarmo Kontulainen and Jouko Vilmunen. Euro & Talous 4/2010.

***Eurojärjestelmän vakuuspolitiikka normalisoituu, mutta ei palaa entiselleen.*** [The Eurorystem's collateral policy will normalise but not return to what it was; in Finnish only]. Kaarina Huumo. Euro & Talous 4/2010.

***From regulated financial markets to Economic and Monetary Union.*** Tapio Korhonen. Bank of Finland Bulletin 2/2010.

***Financial markets have a major influence on business cycle fluctuations in the real economy.*** Hanna Freystätter. Bank of Finland Bulletin 2/2010.

***Rahapolitiikan toimeenpano finanssikriisin aikana.*** [Implementing monetary policy during the financial crisis; in Finnish only]. Tuomas Välimäki. Euro & Talous 3/2010.

***Basel III -uudistus parantaa pankkien riskinkanto-kykyä.*** [Basel III improves banks' risk-bearing capacity; in Finnish only]. Jukka Vauhkonen. Euro & Talous 3/2010.

***Climate change and monetary policy.*** Markus Haavio. Bank of Finland Bulletin 2/2010.

***Kuinka Japani selviytyy suuresta julkisesta velastaan?*** [How can Japan manage its huge public debt; in Finnish only]. Seija Parviainen ja Katariina Tanhua-Tyrkkö. Euro & Talous 3/2010.

***Julkisen sektorin rahoituksen haasteet euroalueella.*** [Challenges of public sector financing in the euro area; in Finnish only]. Heli Huhtala and Mikko Spolander. Euro & talous 2/2010.

***Epätavanomaisten rahapoliittisten toimenpiteiden vaikutus euriborkorkoihin.*** [The impact of non-standard monetary policy measures on Euribor rates; in Finnish only]. Mika Pösö. Euro & talous 1/2010.

***Paineita pankkien vakavaraisuussääntelyn muuttamiseen.*** [Pressures to change banks' capital adequacy regulation; in Finnish only]. Esa Jokivuolle and Jukka Vauhkonen. Euro & talous 1/2010.

***Valtion rahoitustarpeet ja institutionaaliset sijoittajat.*** [Government financing needs and institutional investors; in Finnish only]. Heli Huhtala. Euro & talous 1/2010.

***Skenaarioita maailmantalouden tasapainotto-muuksien korjaantumisesta.*** [Scenarios for correction of global imbalances; in Finnish only]. Mika Kortelainen and Marko Melolinna. Euro & talous 1/2010.

## Boxes

### Bank of Finland Bulletin, Economic outlook 3/2011

- National accounts for the first quarter of 2011 (p. 9).
- Recent euro area monetary policy (p. 15).
- Job-matching in the labour market after the recession (p. 24).
- Medium-term outlook for public finances (p. 28–29).
- Central and local government financial assets (p. 30–31).
- Finland's net international investment position has improved by less than the current account surpluses indicate (p. 33–35).
- Inflation higher in Finland than in the euro area (p. 38–39).

### Bank of Finland Bulletin, Economic outlook 2/2010

- Financial market disturbances and developments in the real economy in Finland (p. 22–23).
- Household debt (p. 24–26).
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- Foreign trade in services narrowly based (p. 56–59).
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- Financial position of non-financial corporations in Finland (p. 23–24).
- Labour supply (p. 31–33).
- Labour input and productivity (p. 34–35).
- Impacts of economic crisis on potential output (p. 36–37).
- World trade and external demand (p. 49–50).
- Productivity and wage formation (p. 58–59).
- VAT changes and inflation (p. 60–61).
- Finland's price competitiveness (p. 62–64).

## Alternative scenarios

- Alternative scenario: an increase in domestic wage and price pressures. Bank of Finland Bulletin, Economic outlook 3/2011 (p. 43–46).
- Alternative scenario: a decline in confidence in Finland's ability to manage its public finances. Bank of Finland Bulletin, Economic outlook 2/2010 (p. 73–75).
- Alternative scenario: strengthening the public finances. Bank of Finland Bulletin, Economic outlook 1/2010 (p. 68–70).

# Forecast tables

## 1. Balance of supply and demand, at reference year 2000 prices

*% change on previous year*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| GDP at market prices | –8.2 | 3.6 | 2.8 | 0.4 | 1.8 |
| Imports of goods and services | –16.1 | 7.4 | –0.7 | 0.0 | 5.6 |
| Exports of goods and services | –21.5 | 8.6 | –3.2 | 0.4 | 6.0 |
| Private consumption | –3.1 | 2.7 | 3.7 | 1.2 | 1.4 |
| Public consumption | 0.9 | 0.6 | 0.1 | 0.4 | 0.7 |
| Private fixed investment | –15.9 | 3.9 | 6.6 | 1.8 | 4.8 |
| Public fixed investment | 4.7 | –3.8 | 2.9 | –0.4 | –1.7 |

## 2. Contributions to growth[1]

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| GDP, % change | –8.2 | 3.6 | 2.8 | 0.4 | 1.8 |
| Net exports | –3.1 | 0.6 | –1.0 | 0.1 | 0.2 |
| Domestic demand excl. inventory change | –4.3 | 2.2 | 3.2 | 1.0 | 1.7 |
| of which Consumption | –1.4 | 1.6 | 2.1 | 0.7 | 0.8 |
| Investment | –2.9 | 0.5 | 1.1 | 0.4 | 0.8 |
| Inventory change + statistical discrepancy | –0.8 | 0.9 | 0.6 | –0.8 | 0.0 |

[1] *Bank of Finland calculations. Annual growth rates using the previous year's GDP shares at current prices as weights.*

## 3. Balance of supply and demand, price deflators

*Index, 2000 = 100, and % change on previous year*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| GDP at market prices | 112.9 | 113.4 | 118.0 | 120.8 | 123.1 |
| | 1.7 | 0.4 | 4.1 | 2.4 | 1.9 |
| Imports of goods and services | 100.7 | 107.1 | 114.7 | 116.2 | 117.8 |
| | –8.3 | 6.4 | 7.0 | 1.3 | 1.4 |
| Exports of goods and services | 92.8 | 96.4 | 101.9 | 104.4 | 105.8 |
| | –5.7 | 3.9 | 5.7 | 2.5 | 1.4 |
| Private consumption | 114.7 | 116.9 | 120.2 | 123.2 | 125.2 |
| | 1.6 | 1.9 | 2.8 | 2.5 | 1.6 |
| Public consumption | 139.4 | 141.5 | 146.5 | 150.7 | 154.8 |
| | 3.0 | 1.5 | 3.5 | 2.9 | 2.7 |
| Private fixed investment | 118.6 | 114.8 | 117.3 | 119.7 | 121.8 |
| | –1.2 | –3.2 | 2.2 | 2.1 | 1.8 |
| Public fixed investment | 127.2 | 125.2 | 129.6 | 130.2 | 132.6 |
| | –1.2 | –1.6 | 3.5 | 0.5 | 1.8 |
| Terms of trade (goods and services) | 92.2 | 90.0 | 88.9 | 89.9 | 89.9 |
| | 2.8 | –2.3 | –1.3 | 1.1 | 0.0 |

## 4. Balance of supply and demand, at current prices

*EUR million and % change on previous year*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| *GDP at market prices* | *173,267* | *180,253* | *192,956* | *198,386* | *205,790* |
| | *–6.7* | *4.0* | *7.0* | *2.8* | *3.7* |
| *Imports of goods and services* | *61,525* | *70,298* | *74,679* | *75,684* | *81,056* |
| | *–23.1* | *14.3* | *6.2* | *1.3* | *7.1* |
| *Total supply* | *234,792* | *250,551* | *267,636* | *274,070* | *286,846* |
| | *–11.6* | *6.7* | *6.8* | *2.4* | *4.7* |
| *Exports of goods and services* | *64,356* | *72,643* | *74,277* | *76,376* | *82,066* |
| | *–26.0* | *12.9* | *2.2* | *2.8* | *7.5* |
| *Consumption* | *137,421* | *142,756* | *150,876* | *156,300* | *161,177* |
| | *0.2* | *3.9* | *5.7* | *3.6* | *3.1* |
| *Private* | *94,060* | *98,480* | *104,990* | *108,879* | *112,136* |
| | *–1.5* | *4.7* | *6.6* | *3.7* | *3.0* |
| *Public* | *43,361* | *44,276* | *45,887* | *47,422* | *49,040* |
| | *3.9* | *2.1* | *3.6* | *3.3* | *3.4* |
| *Fixed investment* | *33,982* | *33,888* | *36,797* | *38,068* | *40,273* |
| | *–14.5* | *–0.3* | *8.6* | *3.5* | *5.8* |
| *Private* | *29,132* | *29,297* | *31,908* | *33,174* | *35,373* |
| | *–16.9* | *0.6* | *8.9* | *4.0* | *6.6* |
| *Public* | *4,850* | *4,591* | *4,889* | *4,894* | *4,900* |
| | *3.4* | *–5.3* | *6.5* | *0.1* | *0.1* |
| *Inventory change + statistical discrepancy* | *–967* | *1,264* | *5,685* | *3,325* | *3,330* |
| *% of previous year's total demand* | *–1.0* | *1.0* | *1.8* | *–0.9* | *0.0* |
| *Total demand* | *234,792* | *250,551* | *267,636* | *274,070* | *286,846* |
| | *–11.6* | *6.7* | *6.8* | *2.4* | *4.7* |
| *Total domestic demand* | *170,436* | *177,908* | *193,358* | *197,694* | *204,779* |
| | *–4.6* | *4.4* | *8.7* | *2.2* | *3.6* |

## 5. Balance of supply and demand

*% of GDP at current prices*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| *GDP at market prices* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* |
| *Imports of goods and services* | *35.5* | *39.0* | *38.7* | *38.1* | *39.4* |
| *Exports of goods and services* | *37.1* | *40.3* | *38.5* | *38.5* | *39.9* |
| *Consumption* | *79.3* | *79.2* | *78.2* | *78.8* | *78.3* |
| *Private* | *54.3* | *54.6* | *54.4* | *54.9* | *54.5* |
| *Public* | *25.0* | *24.6* | *23.8* | *23.9* | *23.8* |
| *Fixed investment* | *19.6* | *18.8* | *19.1* | *19.2* | *19.6* |
| *Private* | *16.8* | *16.3* | *16.5* | *16.7* | *17.2* |
| *Public* | *2.8* | *2.5* | *2.5* | *2.5* | *2.4* |
| *Inventory change + statistical discrepancy* | *–0.6* | *0.7* | *2.9* | *1.7* | *1.6* |
| *Total demand* | *135.5* | *139.0* | *138.7* | *138.1* | *139.4* |
| *Total domestic demand* | *98.4* | *98.7* | *100.2* | *99.7* | *99.5* |

## 6. Prices

*Index, 2000 = 100, and % change on previous year*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| Consumer price index, 2005=100 | 108.4 | 109.7 | 113.5 | 116.4 | 118.6 |
| | 0.0 | 1.2 | 3.5 | 2.6 | 1.9 |
| Harmonised index of consumer prices, 2005=100 | 108.7 | 110.5 | 114.2 | 117.1 | 119.0 |
| | 1.6 | 1.7 | 3.4 | 2.5 | 1.7 |
| Private consumption deflator | 114.7 | 116.9 | 120.2 | 123.2 | 125.2 |
| | 1.6 | 1.9 | 2.8 | 2.5 | 1.6 |
| Private investment deflator | 118.6 | 114.8 | 117.3 | 119.7 | 121.8 |
| | –1.2 | –3.2 | 2.2 | 2.1 | 1.8 |
| Exports of goods and services deflator | 92.8 | 96.4 | 101.9 | 104.4 | 105.8 |
| | –5.7 | 3.9 | 5.7 | 2.5 | 1.4 |
| Imports of goods and services deflator | 100.7 | 107.1 | 114.7 | 116.2 | 117.8 |
| | –8.3 | 6.4 | 7.0 | 1.3 | 1.4 |
| Value added deflators | | | | | |
| Value added, gross at basic prices | 114.4 | 114.8 | 118.7 | 122.0 | 124.8 |
| | 1.6 | 0.4 | 3.4 | 2.7 | 2.3 |
| Private sector | 107.3 | 107.2 | 110.9 | 113.9 | 116.4 |
| | 1.0 | –0.2 | 3.5 | 2.7 | 2.2 |
| Public sector | 153.1 | 157.0 | 161.6 | 166.4 | 171.3 |
| | 4.3 | 2.6 | 2.9 | 3.0 | 2.9 |

## 7. Wages and productivity

*% change on previous year*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| Whole economy | | | | | |
| Index of wage and salary earnings | 4.0 | 2.6 | 2.7 | 3.0 | 2.8 |
| Compensation per employee | 2.3 | 3.5 | 3.4 | 2.8 | 3.0 |
| Unit labour costs | 8.2 | –0.5 | 1.6 | 2.3 | 1.3 |
| Labour productivity per employed person | –5.5 | 4.1 | 1.8 | 0.5 | 1.7 |

## 8. Labour market

*1000 persons and % change on previous year*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| Labour force survey (15–74-year-olds) | | | | | |
| Employed persons | 2,457 | 2,447 | 2,472 | 2,469 | 2,473 |
| | –2.9 | –0.4 | 1.0 | –0.1 | 0.2 |
| Unemployed persons | 221 | 224 | 210 | 212 | 211 |
| | 28.3 | 1.5 | –6.3 | 1.0 | –0.5 |
| Labour force | 2,678 | 2,671 | 2,682 | 2,681 | 2,684 |
| | –0.9 | –0.2 | 0.4 | 0.0 | 0.1 |
| Working-age population (15–64-year-olds) | 3,547 | 3,555 | 3,538 | 3,520 | 3,500 |
| | 0.3 | 0.2 | –0.5 | –0.5 | –0.6 |
| Labour force participation rate, % | 66.5 | 66.1 | 66.1 | 65.8 | 65.7 |
| Unemployment rate, % | 8.2 | 8.4 | 7.8 | 7.9 | 7.9 |
| Employment rate (15–64-year-olds), % | 68.3 | 67.8 | 68.6 | 68.9 | 69.4 |

## 9. General government revenue, expenditure, balance and debt

*% of GDP*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| General government revenue | 53.2 | 52.5 | 52.0 | 52.8 | 52.9 |
| General government expenditure | 55.9 | 55.3 | 53.4 | 54.0 | 54.0 |
| General government primary expenditure | 54.5 | 53.9 | 52.2 | 52.7 | 52.6 |
| General government interest expenditure | 1.4 | 1.4 | 1.2 | 1.3 | 1.5 |
| | | | | | |
| General government net lending | –2.7 | –2.8 | –1.3 | –1.2 | –1.2 |
| Central government | –4.8 | –5.5 | –4.2 | –3.7 | –3.7 |
| Local government | –0.6 | –0.3 | –0.1 | –0.3 | –0.3 |
| Social security funds | 2.7 | 3.0 | 3.0 | 2.9 | 2.8 |
| General government primary balance | –1.3 | –1.5 | –0.1 | 0.1 | 0.3 |
| | | | | | |
| General government debt | 43.3 | 48.3 | 50.0 | 53.1 | 55.9 |
| Central government debt | 37.1 | 41.7 | 43.7 | 46.7 | 49.5 |
| Tax ratio | 42.5 | 42.1 | 41.9 | 42.6 | 42.7 |

## 10. Balance of payments

*EUR million*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| Exports of goods and services | 64,356 | 72,643 | 74,277 | 76,376 | 82,066 |
| Imports of goods and services | 61,525 | 70,298 | 74,679 | 75,684 | 81,056 |
| Goods and services account (SNA) | 2,831 | 2,345 | –402 | 692 | 1,010 |
| % of GDP | 1.6 | 1.3 | –0.2 | 0.3 | 0.5 |
| | | | | | |
| Investment income and other items, net (+ statistical discrepancy) | 2,241 | 2,739 | 2,390 | 1,788 | 1,754 |
| Current transfers, net | –1,901 | –1,832 | –1,981 | –2,044 | –2,098 |
| Current account, net | 3,171 | 3,252 | 7 | 437 | 666 |
| | | | | | |
| Net lending, % of GDP | | | | | |
| Private sector | 4.5 | 4.6 | 1.4 | 1.4 | 1.5 |
| Public sector | –2.7 | –2.8 | –1.3 | –1.2 | –1.2 |
| | | | | | |
| Current account, % of GDP | 1.8 | 1.8 | 0.0 | 0.2 | 0.3 |

## 11. Interest rates

*%*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| 3-month Euribor[1] | 1.2 | 0.8 | 1.4 | 1.2 | 1.4 |
| Average interest rate on new loans | 3.6 | 2.9 | 3.3 | 3.1 | 3.3 |
| Average rate of interest on deposits | 1.2 | 0.7 | 1.0 | 0.8 | 0.8 |
| Bank lending rate, average | 3.1 | 2.3 | 2.6 | 2.4 | 2.5 |
| Yield on Finnish 10-year government bonds[1] | 3.7 | 3.0 | 3.0 | 2.9 | 3.2 |

[1] *Technical assumption derived from market expectations*

## 12. International environment

*The Eurosystem staff projections*

| | 2009 | 2010 | 2011[f] | 2012[f] | 2013[f] |
|---|---|---|---|---|---|
| **GDP, % change on previous year** | | | | | |
| *Whole world* | –0.7 | 5.1 | 3.7 | 3.6 | 4.1 |
| *USA* | –3.5 | 3.0 | 1.8 | 1.8 | 2.5 |
| *Euro area*[1] | –4.2 | 1.8 | 1.5–1.7 | –0.4–1.0 | 0.3–2.3 |
| *Japan* | –6.3 | 4.1 | –0.3 | 1.9 | 1.7 |
| **Imports, % change on previous year** | | | | | |
| *Whole world* | –10.7 | 12.4 | 6.9 | 5.6 | 7.1 |
| *USA* | –13.6 | 12.5 | 5.0 | 3.1 | 4.7 |
| *Euro area*[1] | –11.7 | 9.3 | 4.0–5.4 | –0.5–5.1 | 1.7–8.1 |
| *Japan* | –15.4 | 9.8 | 5.7 | 4.6 | 4.5 |
| **Index, 2000 = 100, and % change on previous year** | | | | | |
| *Import volume in Finnish export markets* | 145.5 | 164.4 | 176.2 | 184.2 | 195.9 |
| | –13.3 | 13.0 | 7.2 | 4.6 | 6.4 |
| *Export prices (excl. oil) of Finland's trading partners, national currencies* | 112.9 | 115.0 | 119.1 | 121.3 | 123.2 |
| | –1.3 | 1.8 | 3.6 | 1.9 | 1.6 |
| *Export prices (excl. oil) of Finland's trading partners, in euro* | 91.6 | 98.5 | 102.7 | 104.9 | 106.5 |
| | –4.6 | 7.5 | 4.3 | 2.2 | 1.6 |
| *Industrial raw materials (excl. energy), HWWA index, in US dollars* | 153.5 | 212.9 | 247.9 | 230.9 | 242.6 |
| | –27.0 | 38.7 | 16.4 | –6.8 | 5.1 |
| *Oil price, USD per barrel*[2] | 61.9 | 79.6 | 111.5 | 109.3 | 104.0 |
| | –36.6 | 28.7 | 40.0 | –1.9 | –4.9 |
| *Finland's nominal competitiveness indicator*[2, 3] | 107.6 | 103.6 | 102.9 | 102.5 | 102.5 |
| | 0.6 | –3.8 | –0.7 | –0.3 | 0.0 |
| *US dollar value of one euro*[2] | 1.39 | 1.33 | 1.40 | 1.36 | 1.36 |
| | –5.2 | –5.0 | 5.3 | –2.3 | 0.0 |

[1] *The Eurosystem staff projections for macroeconomic developments in the euro area. The uncertainty related to the estimates is illustrated by presenting them as ranges. The ranges are based on differences between estimates made in previous years and actual developments. The breadth of the ranges is the mean of the absolute values of these differences, multiplied by two.*
[2] *Technical assumption derived from market expectations.*
[3] *Narrow plus euro area, 1999 Q1 = 100.*

# Organisation of the Bank of Finland

5 July 2011

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