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Economic outlook



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The front cover depicts the national motif on the San Marino's 2
cent coin: The Statue of Liberty, a sculpture by Stefano Galletti.

Preface

In recent years, the Finnish economy has gone through a process of structural change that has been reflected in a weakening of the external balance of the economy. In 2011, the current account went into deficit, which means that total expenditure in the economy was larger than total income. Some household, corporate and general government expenditure was, therefore, funded in net terms from abroad. The current account was last in deficit in 1993.

The current account deficit raises the question of the risks attendant on the direction of the economy. Many of the advanced economies now experiencing difficulties rapidly accumulated foreign debt before their situation deteriorated due to the international financial crisis. In the present situation, it is worth while examining the factors behind the decline in Finland's current account, whether there is reason to expect the deficits to grow in the immediate years ahead, and what sort of economic policy would help avoid the greatest risks.

The deterioration in Finland's current account has several causes. One is the weakening cost-competitiveness of Finnish output. Labour costs grew rapidly in 2007 and 2008, and since 2008 labour productivity growth has been sluggish.

Another underlying factor is the weak trend in forest industry and electronics exports since the turn of the millennium, while the increase in the price of oil has inflated the value of imports and thereby weakened the current account.

Unlike most other euro area countries, since the onset of the financial crisis Finnish household consumption and investment in

housing has continued to exceed incomes, and household debt has grown fairly rapidly. This, too, has weakened the current account, as have the general government deficits.

The causes of the current account decline are largely of such a type that there are no grounds to expect they will quickly disappear. The current account deficit is, in fact, forecast to remain close to recent levels over the immediate years ahead.

Finland's mild current account deficit is not in itself an acute problem, at least not yet, as there has for the most part been no difficulty in finding external finance. Unlike some other advanced economies, economic developments in Finland since the turn of the millennium have not been based on the rapid accumulation of foreign debt. Following many years of current account surplus, the net foreign debt of the Finnish economy is not large.

The entry of the current account into deficit and the consequent dependence of the economy on foreign finance will, however, over time increase the level of vulnerability to international disturbances.

At the same time, the current account deficit reflects increasing imbalances in the domestic economy. Recent economic growth has been largely debt-fuelled, with both household and government expenditure exceeding income. Meanwhile, exports have been lower than before the recession, and rapid export growth in the immediate years ahead is unlikely, due in part to the weaker outlook for the forest and electronics industries.

Over the long term, such an economic trend is imbalanced. Household income use could be based on unrealistic expectations regarding the future. Economic growth based on household and general government debt accumulation is not sustainable in a situation where there is a need to save for the future costs of an ageing population.

Imbalanced development can be avoided by the application of economic policies that reduce general government and household deficits, help facilitate economic growth and boost cost-competitiveness.

One plank of such a policy is consolidation of public finances. Another important component is to implement structural changes to augment the labour supply, particularly by extending the length of working life. Economic growth can also be facilitated by measures to improve competition in the different sectors of the economy.

The government decision on spending limits in March included significant steps to consolidate public finances, and the labour market organisations have also accepted a framework agreement that will extend working careers. Balanced economic development and sustainable public finances will require more measures of this sort. Public expenditure has in recent years risen relative to GDP, and the consolidation measures so far decided will not cause a drop in the ratio in the immediate years ahead. At the same time, the outlook for government revenues will be uncertain if the general trajectory of the economy is not sustainable.

We cannot expect Finland's economic problems to be resolved in the immediate years ahead by rapid growth in the economy – at least in the absence of further structural reforms. With domestic demand based on debt and the weakened state of exports, partly for structural reasons, the economy can no longer be considered to be in a cyclical trough.

Avoiding imbalanced development of the economy also requires controls on the level of household debt. Steps to reduce the tax-deductibility of interest on housing loans should be continued. It could also be necessary to steer the functioning of the financial system in this area. Such an eventuality should be prepared for by eg making it possible to place binding limits on the loan-to-value (LTV) ratios of housing loans.

In addition to the above measures, balanced and sustainable development of the economy will also require improvements in the international cost-competitiveness of domestic output. This can be supported by facilitating the coordination of wage formation at the level of the economy as a whole. At the same time, fostering flexibility in wage formation at company and industry level will also support competitiveness and the adjustment of the economy to changing conditions.

11 June 2012



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

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

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 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.

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 Bulletin 3/2011, Economic outlook, p. 58–66.*

Executive summary

Finland's GDP grew by 2.9% in 2011.¹ The pace of growth slowed towards the end of the year, but advance data suggests it picked up again in the first quarter of 2012. The Bank of Finland forecasts GDP growth of 1.5% in 2012, slowing to 1.2% in 2013 and picking up again to 1.6% in 2014.

In the forecast period, GDP growth will be bolstered by growth in private consumption and investment. The increase in households' disposable income is expected to still support growth in consumption in 2012, but in 2013 there will be no improvement at all in purchasing power. The low level of interest rates and the decline in the household savings ratio to close to zero will, however, sustain consumption growth. In 2014, real incomes are expected to return to gentle growth, which will help to fuel the pace of consumption growth. Even so, private consumption growth during the forecast period will be much more subdued than in recent years.

The uncertain economic outlook has slowed the recovery of private investment from the slump caused by the recession. Capital investment is still mainly focused on replacement investment and construction. The structure of private investment will, however, change during the forecast period, with capital investment growth forecast to pick up most clearly in 2013 and 2014, while housing investment will increase only slightly.

The value of Finnish goods exports grew much more slowly than imports in 2011, which has led to a trade and

current account deficit. The volume of exports is forecast to grow slowly in 2012. Domestic demand growth will subside, and imports will grow slightly less than exports. In 2013–2014, imports and exports will both grow at a good 5% per annum. The terms of trade are forecast to stop deteriorating towards the end of the forecast period, when the price of crude oil is expected to decline. The current account is forecast to remain in deficit in the amount of just under 1% of GDP throughout the forecast period. During the forecast period, Finland's exports will continue to lag behind growth in the export markets.

Private consumption has been bolstered by the positive trend in employment. In 2013, employment growth will come to a halt as economic growth slows. The unemployment rate is forecast to fall slightly during the forecast period, to around 7½%. The labour force will not contract during the forecast period despite the strong decline in the size of the working-age population (15–64-year-olds).

The improved central government balance in 2011 reduced the overall general government deficit to 0.9% of GDP. In 2012, the general government deficit will remain almost unchanged, but in 2013 the general government fiscal position will improve when the consolidation measures agreed in the government's decision on spending limits come into effect. In 2014, the pace of growth in general government income will slow and expenditure will increase at almost the same pace as in 2013.

Central government will continue to accumulate debt in 2012–2014, but

¹ This publication is based on the statistical data available on 23 May 2012.

the increase in the debt ratio will come to a halt at slightly around 45½% of GDP in 2014. The tax rate for the economy as a whole will rise substantially during the forecast period, and by the end of the period it will be 1.8 percentage points above the figure for 2010.

In 2012, a rise in the general level of consumer prices will be driven particularly by increases in indirect taxation. The inflation forecast for 2012 is 2.9%. The increase in value-added tax being implemented in 2013 will raise the general level of prices, but at the same time the faltering pace of economic growth is expected to reduce general price pressures in the economy. The forecast for inflation as measured by the harmonised index of consumer prices (HICP inflation) in 2013 is 2.2%, slowing to 1.6% in 2014.

The Bank of Finland forecast is based on the assumption that the euro area debt crisis will not escalate and the measures planned to stabilise the financial markets will prove effective. Under these assumptions, growth in the global economy and international trade

will already gather pace towards the end of 2012. It is, however, difficult to predict the future course of the debt crisis, and there is thus a great deal of uncertainty regarding Finland's external environment. The downside risks to the forecast are, therefore, substantial. Serious disturbances in the global economy would impact strongly on the Finnish economy through the effect on exports.

In the domestic economy, the greatest risks relate to the consumption behaviour and debt trajectory of households. The more subdued income development in the household sector has not significantly affected household consumption and investment. The household savings ratio has declined and the level of debt is still climbing. If the upward trend in household consumption does not ease off, GDP will grow more quickly than forecast in the immediate years ahead. This sort of debt-funded, consumption-driven growth contains considerable risks for the balance of the entire economy. The current account deficit would deepen more than forecast, and households debt could become unsustainable.

Table 1.

Forecast summary						
<i>Supply and demand</i>						
	2011	2010	2011	2012 ^f	2013 ^f	2014 ^f
	<i>At current prices EUR billion</i>	<i>Volume, % change on previous year</i>				
Gross domestic product	191.6	3.7	2.9	1.5	1.2	1.6
Imports	75.9	7.7	0.1	1.8	5.3	5.2
Exports	74.9	7.8	-0.8	2.2	5.1	5.2
Private consumption	105.3	3.0	3.3	1.4	1.3	1.6
Public consumption	45.7	0.2	0.8	1.1	0.2	0.4
Private fixed investment	31.9	4.1	5.0	1.5	3.3	3.5
Public investment	4.8	-6.7	2.4	0.2	0.6	0.6
<i>Key economic indicators</i>						
		2010	2011	2012 ^f	2013 ^f	2014 ^f
<i>% change on previous year</i>						
Harmonised index of consumer prices		1.7	3.3	2.9	2.2	1.6
Consumer price index		1.2	3.5	2.9	2.1	1.7
Wage and salary earnings		2.6	2.7	3.2	2.7	3.2
Labour compensation per employee		3.5	2.8	2.9	2.7	3.1
Productivity per person employed		4.1	1.8	1.0	1.2	1.4
Unit labour costs		-0.6	1.0	1.9	1.5	1.7
Number of employed		-0.4	1.1	0.5	0.0	0.2
Employment rate, 15-64-year-olds, %		67.8	68.6	69.2	69.6	70.1
Unemployment rate, %		8.4	7.8	7.7	7.6	7.5
Export prices of goods and services		3.9	4.7	2.4	1.7	1.8
Terms of trade (goods and services)		-2.3	-2.7	-0.4	0.1	0.2
<i>% of GDP, National Accounts</i>						
Tax ratio		42.2	42.7	43.2	43.9	44.0
General government net lending		-2.8	-0.9	-0.8	-0.2	0.1
General government debt		48.4	48.6	52.4	53.5	54.1
Balance on goods and services		0.9	-0.5	-0.5	-0.6	-0.5
Current account balance		1.4	-0.7	-0.7	-0.9	-0.9
<i>f = forecast</i>						
<i>Sources: Statistics Finland and Bank of Finland.</i>						

Economic outlook

Recent developments

According to preliminary data published by Statistics Finland, GDP growth in Finland in 2011 was 2.9%. Growth came mainly from private consumption, with household consumption expenditure rising by 3.3%. In contrast, there was a decline in exports. The brisk GDP growth largely reflected carry-over effects from 2010. The average quarterly growth rate of the economy was only 0.3% in 2011, much slower than in 2010.

In the first quarter of 2012, quarter-on-quarter GDP growth was 1.3% according to Statistics Finland's flash estimate of the National Accounts (Chart 1).¹ According to the trend indicator on output, services made the strongest contribution to growth, whereas growth has stalled in manufacturing sectors.

Preliminary data point to a decline in Finnish exports of close to 1% in 2011 (Chart 2). The volume of goods exports grew slightly, whereas services exports contracted by almost 9%. Import volumes remained unchanged from the year before, while the terms of trade deteriorated, due particularly to rising energy prices. The balance of trade moved into deficit in 2011. In the first quarter of 2012, the value of exports recovered somewhat from the dip at the end of 2011, climbing back to the level of a year before. As imports were down from the previous quarter, the trade deficit has, for the present, stopped growing.

¹ Preliminary National Accounts data for the first quarter of 2012 is discussed in Box 1.

Manufacturing output has been declining ever since early 2011, and new industrial orders were down in the first quarter of 2012. The business outlook for industry has, nevertheless, improved in the early months of the year, although growth is expected to remain feeble over

Chart 1.

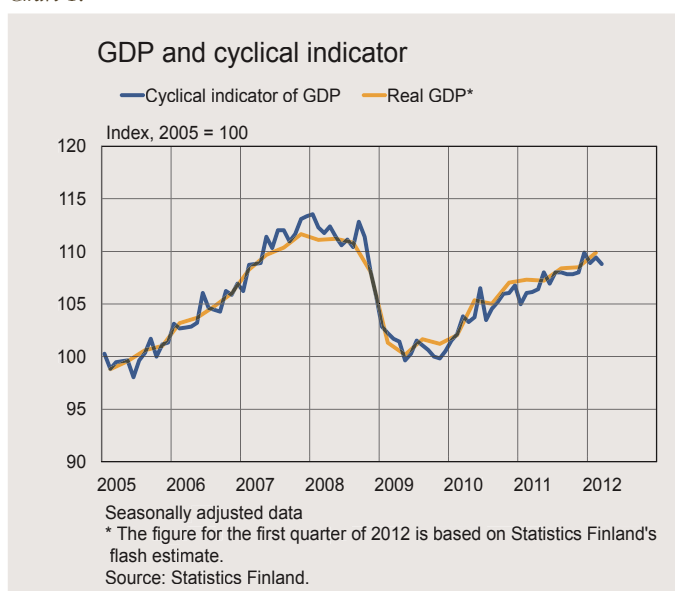
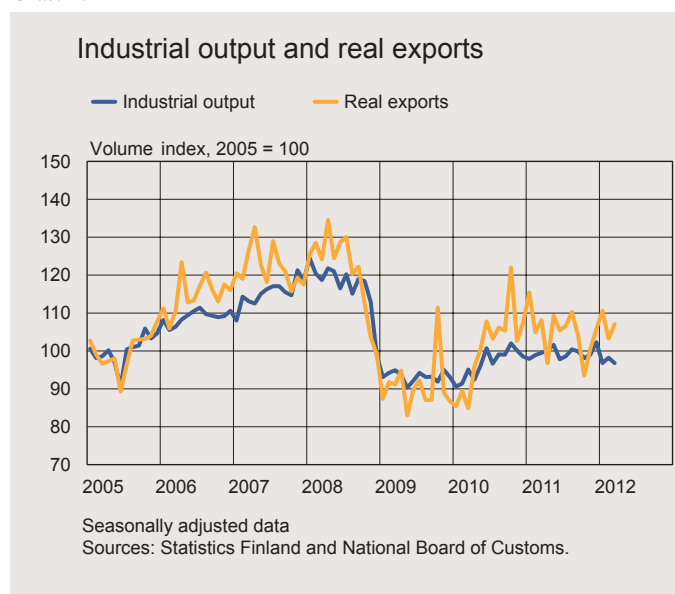


Chart 2.



the next few months. Looking at the key industrial sectors, a marked contraction in output was witnessed in the forest industry during the past year, while the output of electrical engineering and electronics declined slightly. There has also been no expansion in output volumes in the metals and chemical industries in recent months.

Private investment increased by 5% in 2011. Construction also still increased by 4% in 2011, but at the beginning of 2012 the volume of new building began to decline. Having been subdued in 2009–2010, investment in machinery and equipment recovered at a brisk rate of 12% in 2011. However, investment focused on replacement investment, whereas investment on expanding capacity remained modest.

Employment rose by around 25,000 in the course of 2011. The unemployment rate dropped in 2011, being lowest at the turn of the year, at 7.5%.

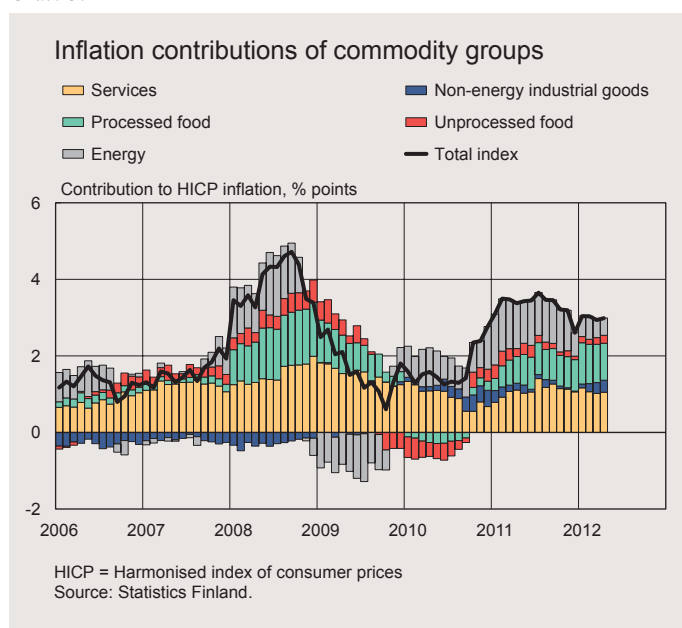
The favourable trend in employment continued in early 2012, when the trend employment rate rose to 69%. Over the past year, new jobs have been mainly concentrated in social welfare and health care services. In spite of the positive employment outlook, unemployment has been growing slightly in the early months of the year, with the trend unemployment rate hitting 7.7% in April 2012. Job vacancy growth also came to a halt in the first quarter of 2012.

Consumer confidence in the performance of the Finnish economy has strengthened markedly since the turn of the year, which is also reflected in the strong expansion of retail trade in the early months of 2012. In addition, car sales picked up considerably in the first quarter of the year as consumers acted in anticipation of the increase in the car tax rate implemented in April. Consumption was also bolstered by relatively strong payroll growth, which reflects both improvements in employment and the pay rises and lump sum payments negotiated under the framework labour market agreement.

Inflation fuelled by indirect taxes

Measured by the harmonised index of consumer prices (HICP), inflation picked up to 3.3 % in 2011, mainly driven by higher energy and food prices (Chart 3), and continued to hover around 3% in early 2012. At the beginning of 2012, several indirect taxes were raised. The related pass-through effects to consumer price inflation are estimated to be in the region of 0.8 of a percentage point in 2012.

Chart 3.



National Accounts for the first quarter of 2012

On 5 June 2012, Statistics Finland published National Accounts data for the first quarter of 2012 and revised quarterly data on developments in 2011.

The Bank of Finland's macroeconomic forecast presented in this publication is based on the preliminary data for 2011 published by Statistics Finland in March, the flash estimate of the national accounts for the first quarter released in May and extensive indicator data on economic developments.

According to the preliminary data, GDP growth in the first quarter of 2012 was 1.7% year-on-year and 0.8% quarter-on-quarter. The quarterly flash estimate of the National Accounts published in May pointed to seasonally adjusted GDP growth rates of 2.4% year-on-year and 1.3% quarter-on-quarter.

Following adjustment, the GDP growth rates for the last quarter of 2011 were revised down by 0.1 of a percentage point from the preliminary estimates. On a quarterly basis, the trajectory of GDP was flat in

the fourth quarter of 2011. Based on seasonally adjusted data, the estimated carry-over effect for 2012 is 0.5%, against 0.6% in the preliminary data released in March.

The rate of private consumption growth in the first quarter of 2012 was 2.7%. Trade in consumer durables was especially brisk, in anticipation of the rise in the car tax implemented in April. Private investment contracted by 0.2% from the previous quarter. Total investment growth was based on public investment, which was 2.1% up from the previous quarter. Overall, the real GDP growth contribution of domestic demand was 1.6 of a percentage point.

In the first quarter of 2012, exports picked up by 3.7% quarter-on-quarter, whereas imports fell back by 1.3%. The contribution to GDP growth from net exports was 2 percentage points in the first quarter.

As the rate of growth in aggregate demand exceeded growth in supply, there was a sharp contraction in the growth contribution of changes in

inventories and statistical discrepancies. In consequence, GDP growth declined by 2.8 percentage points in the first quarter of 2012.

National Accounts data for the first quarter of 2012 points to an increase in the number of employed and hours worked by 1% and 3%, respectively, compared with the corresponding period in the previous year. Given that the volume of total output grew by 1.7%, growth in labour productivity was slow.

The most recent quarterly National Accounts data signal a similar economic development for the early part of 2012 to the indicator data previously published. While domestic demand has expanded rapidly, the strong increase in private consumption has been related to exceptional factors. Similarly, the strong contribution of net exports to output growth may be judged to be temporary in nature, considering the large import content of exports, which will reduce the growth contribution of net exports in the future.

In early 2012, food and alcohol prices made the strongest contribution to inflation, in response to the higher excise duties introduced in January. Food prices were 4½% higher in the first quarter of 2012 than a year earlier. In similar manner to the year before, taxes on sweets and non-alcoholic beverages were raised, but the price increase was also driven by higher commodities prices.

The steep rise in crude oil prices resumed at the turn of the year, and excise duties on transport fuels were raised in January. In the early part of the year, the rise in fuel prices actually accelerated close to 10% on the year before. By contrast, the rise in electricity prices came to a halt and trended slightly down in the first quarter of 2012.

The high energy prices have also exerted upward pressures on services costs. Rents were still growing at a rate of a good 3% in the early part of the year, and the hike in restaurant and cafe service prices continued in the first quarter of the year. At the turn of the year, the prices of social welfare and health services were increased in line with the index clause, while the reversal of the tax cut for labour-intensive industries pushed up prices on the services of eg barbers and hairdressers.

The rise in industrial goods prices picked up slightly at the beginning of 2012. The prices of non-durable goods increased by roughly 2%, whereas the prices of consumer durables, such as entertainment electronics and used cars, declined.

Operating environment

International economy and Finland's export markets

Expectations over the near-term trend in the global economy rose in the early months of 2012 as key confidence indicators improved, share indices climbed and the uncertainty surrounding them faded. During the course of the spring, however, optimism over the near-term trend ebbed once again. The increased uncertainty was reflected in weakening confidence indicators, declining share indices, slower growth in world trade and a drop in the price of crude oil.

The new growth forecasts for the global economy and international trade over the next few years are slightly more downbeat than the international picture on which the Bank of Finland's previous forecast for the Finnish economy, published in December 2011, was based. During the early months of 2012, economic indicators suggested the global economy was stabilising and a gradual improvement was underway. In late spring, industrial and service-sector confidence improved in the major economic regions, with the exception of the euro area. Uncertainty over the direction of the economy does, however, remain substantial, and confidence is fragile.

The picture of global economic trends presented in the forecast is based on an assumption that it will be possible to avoid the sovereign debt crisis in the euro area coming to a head again and confidence will gradually be restored. The substantial government debt in the crisis countries and the problems

regarding the credibility of their budget policies can, however, be corrected only slowly and gradually. The forecast is based on a moderate expectation of improvements in risk sentiment and risk assessments on the markets during the course of 2012.

Fiscal policy adjustment is assumed to weaken the growth outlook of the advanced economies in the immediate years ahead. Securing long-term debt-sustainability is, however, essential in order to hold interest rates in the advanced economies at a generally sustainable level. In the crisis countries, meanwhile, stabilisation of general government finances is vital to enable interest rates to return to a level conducive to favourable developments in the private sector.

Economic outlook for the major economic regions

Euro area GDP showed no quarter-on-quarter growth in the first quarter of 2012. In the final quarter of 2011, the economy contracted 0.3%. The contraction in the economy has, however, been halted by the strong performance of the German economy in the early months of the new year. In 2012, both private consumption and investment will be very weak in the euro area. Export growth, too, will be sluggish on account of fading growth in world trade, deteriorating price-competitiveness and a scarcity of export orders. The tightening of fiscal policy in many members of the euro area combined with measures to improve debt-sustainability will hamper economic growth. Growth is forecast to strengthen again in 2013.

The US economy grew relatively

quickly in the second half of 2011, with the impact of the euro area debt crisis on private consumption and investment turning out to be less severe than expected. In the first quarter of 2012 the pace of US growth eased due to capital and inventory investment developing more weakly than before. The positive confidence indicators and improved situation on the labour market in recent months give grounds to expect the pace of economic growth will accelerate in 2012 relative to the previous year. Substantial unemployment will, however, remain a problem throughout the forecast period.

Emerging economies, particularly China, are forecast to continue growing rapidly, although the pace of growth is expected to slow slightly. Slower growth in China will be mainly a consequence of economic policy, slower growth in construction investment and moderating export growth.

For Japan, 2011 was in many ways an exceptional year. In addition to the earthquake, tsunami and nuclear power plant disaster in March, the country's economy was also tested by problems in the global economy and the costs to Japanese exporters caused by the floods in Thailand. GDP contracted in 2011, and in 2012, too, growth will not be as fast as the brisk pace of reconstruction would give cause to expect, due to the low level of net exports. Although the global economy is set to recover in the second half of the forecast period, Japan's prospects for growth will be smothered by growing pressure to balance the public finances through expenditure cuts and tax increases.

Russia's economic growth gathered pace in the second half of 2011 and also continued strongly in the first quarter of 2012. Growth in industrial output has been supported early in the year by factors such as the recovery in output of petroleum products and crude oil exports. On the other hand, the trend of domestic demand has been weak in the first half of the year, with growth in real household incomes static and investment down, due to the weak performance of the construction sector. The brisk growth in the second half of 2011 pushes the growth forecast for 2012 up to around 4½%. In 2013–2014, the Russian economy is forecast to grow at around 4% per annum.

Global economic growth is forecast to be a good 3% for 2012 as a whole, but the pace of growth is expected to

pick up as soon as the second half of the year. At the end of the forecast period world growth is forecast to accelerate to a little over 4%. The focus will be on the emerging economies, with the advanced economies experiencing fairly slow growth throughout the forecast period. In many advanced economies growth will be restricted by the weakness of the labour and housing markets and the winding down of debt.

World trade, too, is forecast to grow much more slowly in 2012 than the average for recent years. World trade growth was already clearly slowing at the end of 2011. Although the data on export orders have improved in the early months of 2012, particularly in the United States and to some degree also in China, the prevailing uncertainty and fragile confidence are still visible in household and corporate purchasing decisions for consumer durables and capital goods. The forecast envisages world trade growth in 2012 of around 4½%. According to the forecast, the global economy and world trade will at the end of the forecast period achieve almost the average pace of growth over the years 2003–2010.

Combined imports by Finland's export markets are estimated to grow during the forecast period slightly more slowly than world trade. This is partly because imports by the advanced economies, which are important markets for Finnish exports, will be growing more slowly than average import growth across the world as a whole.

Table 2.

Growth in GDP and in world trade % change on the previous year				
GDP	2011	2012^f	2013^f	2014^f
<i>United States</i>	1.7	2.2	2.2	2.8
<i>Euro area*</i>	1.5	–0.5–0.3	0.0–2.0	
<i>Japan</i>	–0.7	2.2	1.7	1.6
<i>Asia excl. Japan</i>	7.2	6.5	7.3	7.5
<i>World</i>	3.7	3.2	3.8	4.2
<i>World trade</i>	6.1	4.4	6.4	7.2
<i>Finland's export markets**</i>	7.1	4.0	5.8	6.2

* The Eurosystem staff projections for macroeconomic developments in the euro area are prepared for the years 2012–2013. 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 absolute values of these differences, multiplied by two.

** Growth in Finland's export markets is the average growth in imports in the countries Finland exports to weighted according to their share of Finland's exports.

f = forecast

Sources: Eurosystem and Bank of Finland.

Commodity and foreign trade prices

It is assumed that commodity prices (excl. oil) will come down in the immediate quarters ahead and then begin to rise moderately towards the end of 2012. Behind the drop in prices lies slower growth in demand due to a slight moderation in the pace of growth in the global economy. The forecast assumes the price of Brent crude oil will develop in accordance with the futures prices current on 14 May 2012. Under this assumption, the dollar price of crude oil at the end of the forecast period will be approximately 10% lower on average than at the beginning of May 2012.

The drop in commodity prices in the immediate quarters ahead will be reflected in the price of exports to Finland's most important export markets. The depreciation in the euro that has already occurred and the forecast assumption that the external value of the currency will remain unchanged going forwards will, however, mean that the euro-denominated prices

of Finland's export competitors will continue to rise this year at a good 4% annually. Towards the end of the forecast period, the euro-denominated prices of Finland's competitors will rise moderately, by around 2% in 2013 and a good 1½% in 2014. The moderate

Chart 4.

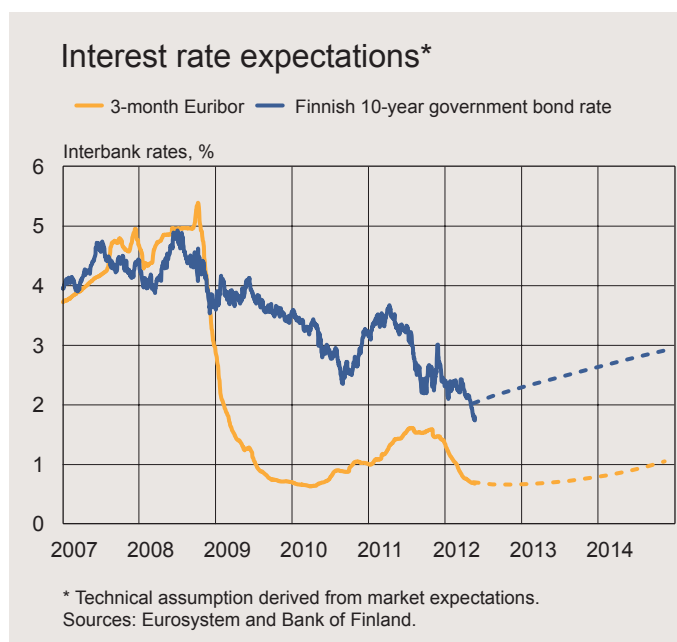


Table 3.

Forecast assumptions					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
Finland's export markets, ¹ % change	13.3	7.1	4.0	5.8	6.2
Oil price, USD/barrel	79.6	110.9	114.5	107.8	101.9
Euro export prices of Finland's trading partners, % change	8.0	4.4	4.2	1.9	1.6
3-month Euribor, %	0.8	1.4	0.8	0.7	0.9
Yield on Finnish 10-year government bonds, %	3.0	3.0	2.2	2.5	2.8
Finland's nominal competitiveness indicator ²	103.6	103.0	100.4	100.3	100.3
US dollar value of one euro	1.33	1.39	1.30	1.30	1.30

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.

development of export prices is due to stiff competition that will give no room for price rises, instead increasing pressures for improvements in productivity.

Interest and exchange rates

According to a forecast assumption based on market expectations, the 3-month Euribor will remain more or less at its current level until the second quarter of 2013. Thereafter it will rise to stand at 1.1% in the final quarter of 2014.

Long-term interest rates, ie the yield on Finnish 10-year government bonds, will rise from an average 1.9% at the beginning of May to around 2.3% in the final quarter of 2012, and thereafter further to around 2.9% at the end of the forecast period, ie the final quarter of 2014. Thus the yield curve will steepen somewhat, meaning the differential between long and short interest rates will grow during the forecast period. 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 current on 14 May 2012. The interest and exchange rate assumptions are purely technical and do not anticipate the monetary policy decisions of the Governing Council of the European Central Bank or estimates of equilibrium exchange rates.

Financial markets

The liquidity crisis threatening the euro area banking system at the end of 2011 eased in the early months of 2012, due

particularly to the ECB's long-term refinancing operations. European financial markets nevertheless remain unstable. The condition of the banking sector in Finland is good, but banks' funding situation could deteriorate if widespread uncertainty were to return to the financial markets. The solvency and profitability of financial institutions in Finland have continued to be on a good level, albeit the capital adequacy of banks has declined somewhat since last year.²

The problems in European financial markets have impacted indirectly on the Finnish financial system via their effects on the availability and costs of funding for Finnish banks. The forecast assumes that the uncertainty on the financial markets will not come to a head again and that the lending capacity of the Finnish banking sector will remain stable.

The acquisition of long-term funding by Finnish banks has since the latter part of 2011 been focused strongly on covered bonds, and the availability of short-term funding has improved slightly since the end of 2011. The maturities of short-term funding have lengthened, and Finnish banks have been able to acquire funding at a reasonable price.

The European Central Bank lowered its key policy rate to 1% in December 2011. In addition, a substantial narrowing of risk premia on the financial markets during the early months of 2012 has supported a drop in short-term market rates, and market expectations over the trends in the

² Bank of Finland Bulletin 2/2012, Financial stability.

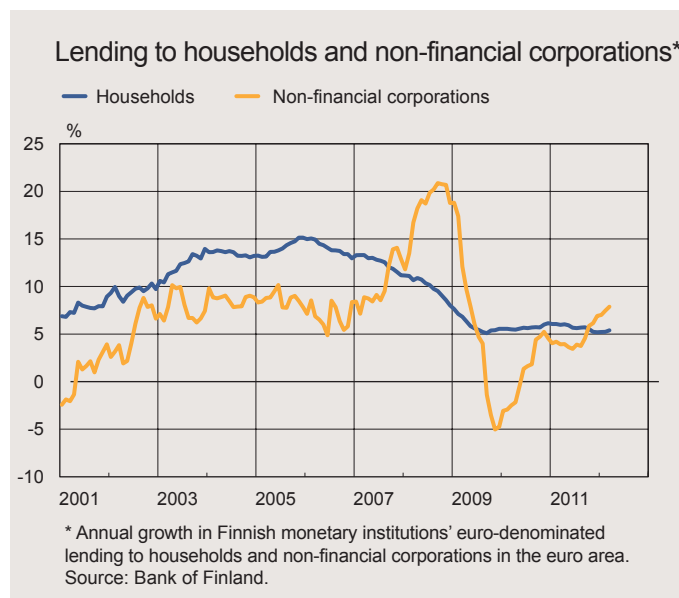
immediate years ahead are very moderate. At the end of the forecast period, which stretches to 2014, the 3-month Euribor is expected to be in the region of 1%.

Corporate demand for external funding has grown slightly in the early months of 2012. The pace of growth in bank lending to non-financial corporations has accelerated, and during the first quarter non-financial corporations' access to funding from the bond markets also improved. Funding demand has focused mainly on working capital investments, financial restructuring and guaranteeing liquidity. During the first quarter of 2012 share indices rose vigorously, but the re-emergence of increased uncertainty around the sovereign debt crisis in the euro area during the second quarter caused a downturn in share prices. The change in sentiment on the stock markets casts a shadow over the funding situation for non-financial corporations.

The sovereign debt crisis in Europe has not significantly hampered access to credit for companies or households in Finland. Growth in the stock of corporate loans has accelerated slightly relative to the end of 2011 (Chart 5). The uncertain economic outlook is causing a postponement of proposed investment, and funding demand in the immediate future is therefore expected to be sluggish.

The stock of household loans has grown steadily during the early part of 2012, at an annual rate of around 6%. The stock of housing loans has also grown steadily, at an annual rate of around 7%. The exceptionally low

Chart 5.



market interest rates have held down the costs of servicing loans, although the interest margins on housing loans issued by the banks have been widening recently.

Fiscal policy assumptions

The Finnish Government has begun a gradual tightening of fiscal policy following the stimulus measures deployed during the recession. Decisions in line with the 2011 Budget brought a considerable improvement to the fiscal position of central government. All told, changes in taxation and earnings-related pension contributions strengthened the general government balance by around 0.6 percentage points relative to GDP.

Fiscal policy tightening will strengthen the general government balance substantially in the years 2012–2014. The Government Programme included agreement on a total of EUR 2.5 billion in central

government stabilisation measures over 2012–2015. Approximately half of this was to be in the form of tax increases, and half by slowing the pace of growth in public expenditure. The consolidation measures to slow growth in central government expenditure will focus both on central government transfers to local government and on expenditure in all branches of central government administration. At the same time, however, there was also agreement on some cuts in taxation, as a result of which the net impact of the agreed measures on central government will be only EUR 1.2 billion, or 0.6% of GDP.

In connection with the autumn 2011 round of pay negotiations, the Government agreed measures to improve unemployment security. Measures related to the framework agreement came into effect at the beginning of 2012, and they will weaken the fiscal position of central government by around 0.2% of GDP.

In connection with the decision on spending limits in April 2012, agreement was reached on significant new consolidation measures in central government. These will be focused on the years 2013–2016; some will be permanent, and some temporary. Agreement was also reached on structural measures aimed at boosting the supply of labour.

The measures agreed in connection with the decision on spending limits will strengthen central government by altogether EUR 2.3 billion, of which approximately EUR 1.2 billion will be in the form of tax increases, and EUR 1.1 billion in expenditure cuts. In regard to central government revenues, the key

changes are increases both in income taxes and in indirect taxation.

Households' income taxation will tighten in 2013–2014, with the normal annual revisions to tax schedules not being implemented. Besides the normal adjustments to take account of inflation, also not implemented will be the revisions envisaged in the Government Programme to compensate for tighter taxation due to the rise in real incomes. This measure, similar to the increases to all value-added tax schedules by 1 percentage point in 2013, are intended as permanent measures to balance general government finances. All told, they will increase central government tax revenues by around 0.5 percentage points relative to GDP annually in the years 2013–2014. In addition, there will be a temporary tightening of taxation on large incomes and an increase in the rate of asset transfer tax, but the impact of these measures on central government finances will be minimal, at around 0.1% of GDP.

The forecast also assumes that local government taxation will continue to be tightened in accordance with the trend of recent years. In the forecast, the average municipal income tax percentage will rise altogether 0.4 percentage points in 2012–2014.

In connection with the decision on spending limits, agreement was also reached on significant cuts to central government expenditure. The largest single cut is to income transfers to local government, which will be around EUR 0.5 billion smaller in 2013–2015. Local government will be compensated for most of this loss, eg by continuing to

allocate the municipalities an enlarged share of the revenues from corporation tax. All in all, the Government is planning to cut central government income transfers and consumption expenditure by stages, such that by 2015 they will have declined by around 0.6% of GDP.

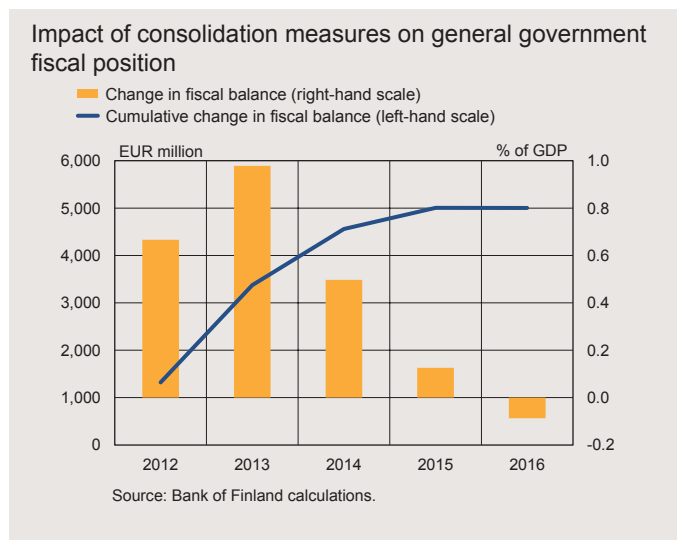
The decision on spending limits also contained agreement on numerous ways to reduce tax revenues so as to support economic growth. These include temporary incentives for investment, product development and investment in growth companies. These measures will weaken central government temporarily by around 0.1% all told.

Increases in earnings-related pension contributions for the forecast years 2012–2014 were already decided at an earlier stage. In their ‘Agreement concerning extension of work careers in Finland’, agreed in March 2012, the labour market confederations agreed to extend the increases in earnings-related pension contributions to also cover the years 2015 and 2016. Altogether, employee and employer pension contributions will grow by 0.9% of GDP over the years 2012–2016.

In addition to the deficits, central government debt will also be increased in 2012–2014 by the capital payable to the European Stability Mechanism (ESM) and the financial support it has already been decided to extend to the crisis countries in the euro area. The forecast does not take into account the introduction of the ‘YLE tax’, which will replace the current television fee from the beginning of 2013.

All in all, the agreed changes in tax legislation and expenditure cuts will

Chart 6.



improve the fiscal balance of general government by around 2.1 percentage points relative to GDP in the years 2012–2014 (Chart 6). In 2013, the consolidation measures will strengthen the general government fiscal position by around 1% of GDP. By 2016, fiscal policy will have been tightened by approximately EUR 5 billion in total relative to 2011, or 2.2 percentage points relative to GDP.

Non-financial corporations

Export growth will slowly accelerate

In 2011, growth in Finnish exports of goods and services lagged substantially behind growth in world trade (Chart 7). The export markets grew by around 7%, while goods and services exports from Finland contracted almost 1%. The weak overall trend in exports was due particularly to services exports, which were down almost 9%. Exports of goods

grew by just 2%. Services exports accounted for approximately a quarter of the value of all Finnish exports in 2011.

The pace of world trade growth is forecast to slow temporarily in 2012. Finland's export markets will grow around 3 percentage points more slowly in 2012 than in 2011. The international business cycle is, however, expected to improve towards the end of 2012, whereupon growth in world trade and in Finland's export markets will also begin to pick up.

Exports are forecast to grow around 2% in 2012. Brisker world trade is forecast to pull Finnish export growth up to around 5% in 2013–2014. Export growth is not expected to match the pace of growth in the export markets during the forecast period. Finland's goods exports are weighted strongly towards capital and intermediate goods and the main export markets are located in the advanced economies, whose

investment rates are expected to increase only slowly.³ Services exports are also narrowly based, as electronics accounts for around two-thirds of services exports (excl. transport and tourism services).⁴ At the end of the forecast period in 2014 the volume of exports is forecast to still be below the heights achieved in 2008.

The rising prices of oil and other commodities were reflected in Finland's export prices during 2011, which rose by almost 5%. The upward trend in export prices is forecast to slow in 2012, with the annual pace of increase below 2% at the end of the forecast period. The deceleration in export price inflation will be partly due to a fall in the price of commodities used as production inputs during 2012 and the expected drop in the price of oil in 2013–2014. Stiff competition in key export sectors will also dampen export price pressures. Finnish export prices are forecast to rise around 1 percentage point more than those of Finland's competitors in 2012, but in the next two years prices are expected to rise at more or less the same pace. From the perspective of stimulating the pace of export growth, it is vital to halt the deterioration in Finland's price competitiveness.

Domestic demand will fade

Domestic demand grew briskly in 2011. Retail trade was lively towards the end of the year and in the early months of 2012, being sustained by strong

Chart 7.



³ Developments in Finland's goods exports are examined in Seppo Orjasniemi and Terhi Ravaska's article 'Market share of Finnish goods exports contracted sharply since 2000' on page 59, below.

⁴ The structure of Finland's services exports is examined in Box 2.

Finnish services exports still narrowly based

Hopes that exports of high-technology services would gradually fill the gap left by the decline in export income from mobile phones and other communication technology have gradually risen in Finland. However, foreign trade in services has in recent years declined somewhat from the heights of 2008. The total value of service exports accounted for a good 11% of GDP in 2008–2010, declining to below 10% in 2011. This halt to growth in services exports is due to a contraction in exports of ‘other services’. This category contains high-added-value services such as consulting, planning and design, expert services, IT services and R&D.

This box draws on data derived from Statistics Finland that facilitates analysis of foreign trade in services sector by sector. The most recent data is from 2010. The estimates for 2011 are

based on a narrow quarterly survey. When examining the figures for 2011, it is good to remember that, in recent years, advance data has generally been revised upwards in the annual survey data published in the summer.¹

In 2011, Finland’s largest export category was IT services

Services exports are concentrated in terms of both type of service and the industry or sector involved. Approximately two-thirds of services exports consist of merchanting services and IT services.² As the share of

merchanting services, has contracted the share of ‘other services’ exports taken by IT services has correspondingly increased. In 2011, IT services were the largest single services category, with an export share of over EUR 4.5 billion. Exporting of R&D services remains marginal, at an average EUR 250 million per annum (in Chart A, R&D services are included under ‘Others, total’). Determining the value of R&D is, however, difficult, particularly as it is typically an intra-group activity.

The most recent statistical data (on 2009 and 2010) indicates that services exports were at that time still dominated by the radio, TV and telecommunications equipment industry (TOL classification 32).³ Despite the halt to growth in the sector, it

¹ Corresponding data was used last time for the chart published in the September 2010 Bank of Finland Bulletin: Economic outlook, Special issue 2/2010, whose key figures are examined here in the light of the most recent data.

² Merchanting services are defined as events in which a company located in Finland purchases goods from a company located in another country and then sells the goods on to a unit located in a third country.

³ The industry breakdown is based on Statistics Finland’s TOL 2002 classifications.

Chart A.

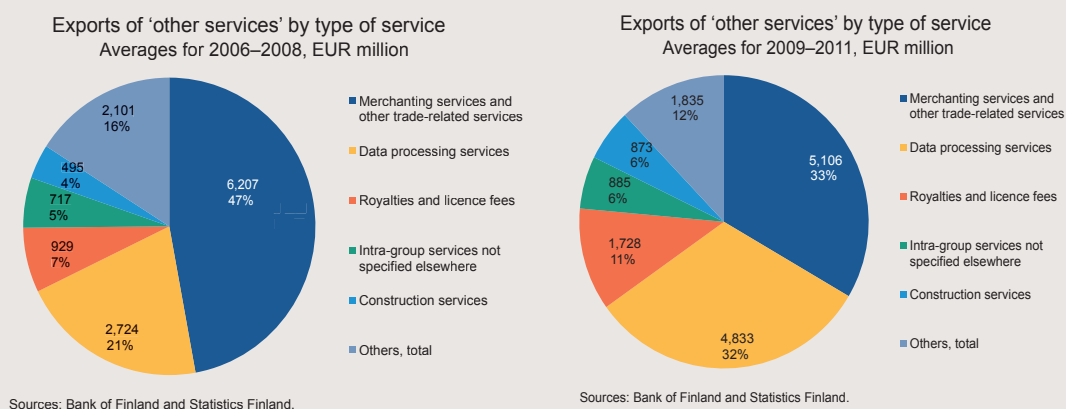
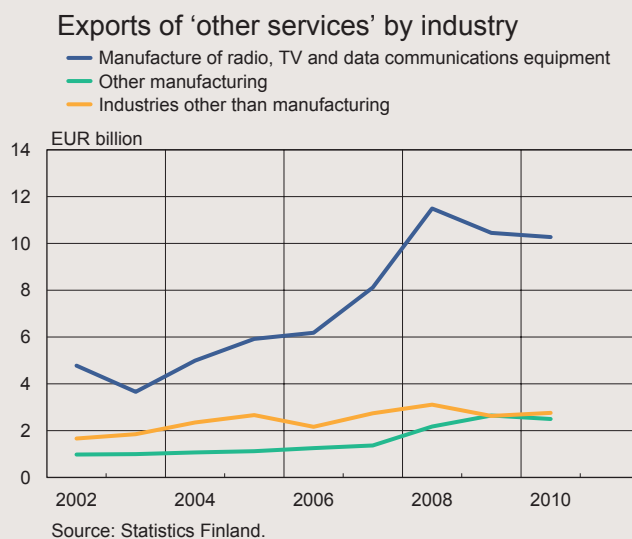


Chart B.



still accounts for two-thirds of exports in the 'other services' category (Chart B). Exports in the 'other manufacturing' category grew by almost 60% in 2008, stabilising at around EUR 2.5 billion. In 2010, approximately 60% of 'other manufacturing' services exports were related to the manufacture of machinery and equipment.

The category 'Industries other than manufacturing' includes, among others, companies offering data processing services, the value of whose services exports has stabilised at around EUR 600 million per annum. The opportunities brought by the Internet are most clearly visible in this industry, which includes new types of companies that operate entirely online and are oriented

towards exporting services globally.

Services exports have grown more slowly in recent years than in competing countries

In 2011, the value of Finnish services exports totalled EUR 5.6 billion to Europe and EUR 4.7 billion to Asia. The value of services exports to Latin America has increased sevenfold over the past 4 years, but still accounts for just 5% of 'other services' exports. The biggest importers of 'other services' from Finland in 2011 were the United States, Sweden, Russia and India. Exports of different service types vary from one country to another. For example, services exports to the United States bring income via royalties and licence fees, to Russia go exports of con-

struction services, and throughout the past decade data processing services have been particularly prominent in exports to India. Finland's 'other services' exports to the BRIC countries (Brazil, Russia, India and China) have grown strongly over the past 4 years.

In recent years, Finland's exports of 'other services' have developed more weakly than those of competing countries. Services exports in different EU countries have responded at a very different pace to the cyclical changes experienced in recent years. While Germany saw its exports of 'other services' grow throughout the financial crisis, both Finland and Sweden experienced a strong decline in services exports. According to advance data on 2011, Finnish services exports have not yet recovered from the recession of 2008–2009, as they have been in unbroken decline since 2009. Despite this, the GDP share of 'other services' exports was a good 9% in Finland in 2010, approximately 3 percentage points above the EU average.

Foreign trade statistics illustrate there is a clear connection between trade in goods and services. The countries to which Finland exports a lot of goods also receive a lot of Finnish services exports. To generate demand for a service, it is often necessary first to sell goods, with sales of instalment, maintenance or programming

services following immediately the goods have been delivered.

Finland's market share of Swedish and German imports of 'other services' is large relative to the size of the Finnish economy. In absolute terms, Finland was the fifth largest exporter of 'other services' to Sweden in 2010. Finland's share of Sweden's services imports has remained stable since the turn of the millennium at around 6%.⁴ Finland's market share of German imports of 'other services' was around 1% for the years 2008–2010, representing an increase from 2004, when it was only around ½%.

⁴ *Developments in Finland's goods exports are examined in Seppo Orjasniemi and Terhi Ravaska's article 'Market share of Finnish goods exports contracted sharply since 2000' on page 59, below.*

household purchasing power, a favourable employment trend and an increase in foreign tourism in Finland. There has also been brisk growth in services output in recent months.

General government consolidation measures, particularly the increases in indirect taxation, will weaken household demand in the immediate future, thereby also weakening the operating environment of companies producing for the domestic market. Households are, however, forecast to reduce their level of savings as the pace of growth in real incomes fades. This will have a positive effect on the demand outlook for companies producing for the domestic market.

Growth in investment in housing construction slowed to around 4% in 2011 following the exceptionally rapid growth in 2010. New-build construction was lower in 2011, and the number of building permits issued began to decline

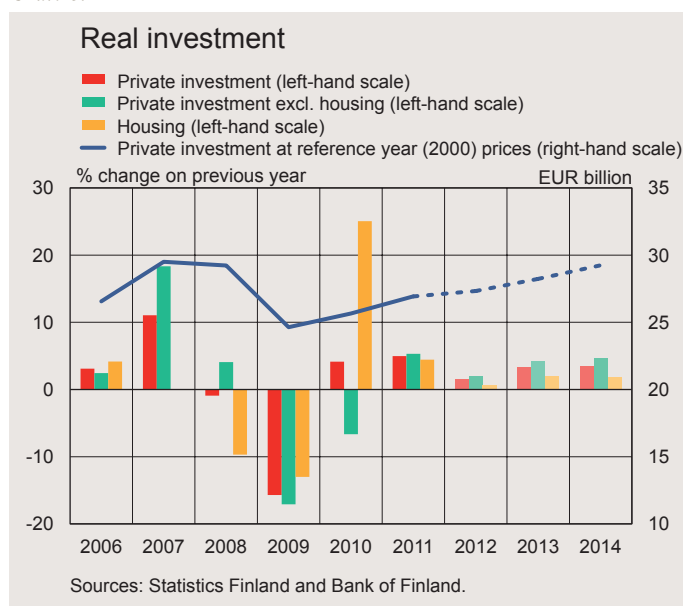
in the autumn. Although interest rates are assumed to continue at their current low level, the prevailing uncertainty and weakening growth in household purchasing power will slow the recovery in housing investment, which is forecast to remain almost unchanged this year, and thereafter to grow slowly, at around 2% annually in 2013–2014. Growth in other construction output is also expected to remain sluggish on account of the lacklustre outlook for the corporate sector. Growth in retail trade and service sector output will be slower than before as household demand growth fades. In contrast, the growth outlook for health and social services is expected to remain stable.

Investment will gradually begin to pick up

The cyclical situation strongly undermined industrial confidence during the second half of 2011 and industrial output has been declining. The capacity utilisation rate in industry has declined since mid-2011 and is currently below its long-term average.

Investment in machinery and equipment grew 12% in 2011, which helped push capital investment growth up to 5% (Chart 8). Capital investment growth is, however, forecast to be weak in 2012. According to an investment survey by the Confederation of Finnish Industries, investment is still weighted predominantly towards repairs and renovations, and investments in manufacturing industry are estimated to grow only slightly in the current year. Capital investment is forecast to gradually gather pace over the next year. A pick-up

Chart 8.



in the pace of investment during the forecast period will be supported by the availability of finance, the low level of interest rates and a gradual strengthening of external demand. The private sector investment ratio should remain around 17% during the forecast period, which is a much lower figure than before the financial crisis.

Growth in labour demand sluggish

The number of people employed increased by around 25,000 in 2011. Employment improved in the trade and construction sectors, and particularly publicly funded services. As the pace of output growth slowed, there was no increase in the need for labour in industrial concerns. The sluggish pace of economic growth means there will be no growth in labour demand during the forecast period.

Measured by GDP per person employed, productivity grew more slowly in 2012 than in 2011. In the forecast period, productivity growth will be lacklustre due to the slow pace of growth in output. The pace of rise in labour costs will clearly exceed productivity growth, and unit labour costs will grow by almost 2% in the current year. Faster productivity growth will push the rise in unit labour costs down to around 1½% in the subsequent years. An annual rise in unit labour costs of almost 2% means that the cost competitiveness of Finnish companies will not improve during the forecast period. Unit labour costs in many of Finland's competitors will grow at the same pace or slower than in Finland during the forecast period.

Households

Increased uncertainty in the international economy and on the financial markets in the second half of 2011 weakened household expectations on the future direction of the Finnish economy. According to Statistics Finland's consumer survey, consumer confidence in the Finnish economy has in 2012 returned to its long-term average level (Chart 9). The strengthening of consumer expectations was reflected early in the year in retail trade, which despite the rapid pace of inflation grew strongly in the first quarter. Consumption has been sustained by the positive employment trend and the low level of interest rates.

The favourable employment trend continued throughout 2011. The number of employed is expected to still grow moderately in 2012, but the growth trend is forecast to come to a halt in 2013. The slowing of

Chart 9.

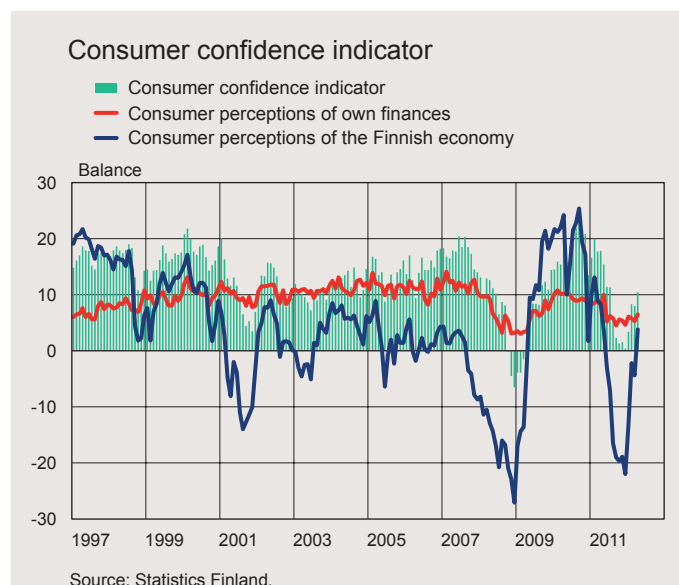
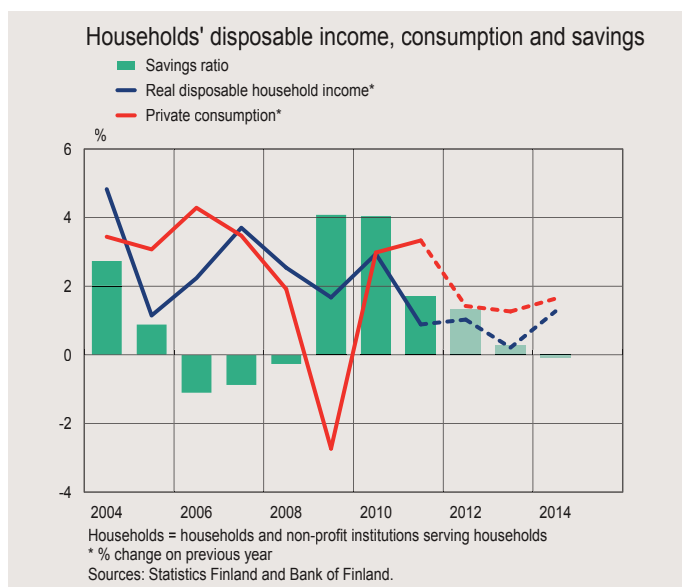


Chart 10.



employment growth will place more emphasis on wages growth in nominal income developments. Average wages are expected to rise by just under 3% per annum on average throughout the forecast period. Of the other sources of household income, pension income, in particular, will grow briskly in 2012 on account of an index-linked cost of living increase of over 3½% and a rise in the number of pension recipients.

In 2012, nominal growth in disposable household income will be 4%, but the pace of growth will ease in 2013, when the halt to the upward trend in employment will put a brake on growth in earned income, labour taxes will be tightened and the pace of growth in pension income will slow. In 2014, earned income growth will accelerate slightly and disposable income will grow more quickly than the previous year.

The rapid rise in consumer prices will cut household purchasing power,

particularly in 2012 and 2013. Inflation according to the harmonised index of consumer prices (HICP inflation) is forecast to be almost 3% this year, and to remain above 2% in 2013 on account of the increases in value-added taxation. Real disposable household income will increase by around 1% this year, but real income growth will almost come to a complete standstill in 2013 (Chart 10). In 2014, inflation is forecast to slow to under 2%, which, together with the slightly faster pace of rise in earned incomes, will substantially increase the pace of growth in real household income.

In 2011, private consumption grew 3.3%. Growth focused on consumer durables, the consumption of which increased by almost 10%. Consumption of services also increased briskly, by over 4%.

Growth in household consumption expenditure is forecast to slow this year to around 1½%. In 2013, consumption is forecast to grow almost at the same pace as this year, with households compensating the temporary pause in purchasing power growth by reducing their level of savings. At the end of the forecast period, in 2014, consumption growth will accelerate slightly as disposable income increases and inflation slows. Private consumption will, however, grow throughout the forecast period at a faster pace than disposable household income, pushing the savings ratio down to close to zero by 2014.⁵

⁵ The alternative forecast scenario presented in Box 5 examines macroeconomic developments in a situation where the household savings ratio rises during the forecast period to its long-term average level.

The low level of interest rates, improved employment and households' continued confidence in their own economic situation have sustained credit demand despite the uncertainty caused by the sovereign debt crisis. In 2011, the Finnish household loan stock grew by close to EUR 5 billion, approaching close to EUR 110 billion in total, or approximately 107% of disposable income. If we also include households' estimated share of housing company loans, the debt ratio is around 114%.

The household debt ratio has been rising ever since the turn of the millennium. In international comparison, the indebtedness of Finnish households is on an average level. The increased level of debt nevertheless increases the household sector's sensitivity to economic disturbances and could in future increase the entire economy's sensitivity to cyclical fluctuations.

The pace of rise in house prices in Finland has slowed noticeably over the past year. The slow pace of growth in disposable household income is subduing housing demand and putting a brake on the rise in house prices. On the other hand, the low level of interest rates and the sluggishness of new-build construction are supporting the upward trend in prices. On the whole, housing prices are expected to rise very moderately during the forecast period.⁶

⁶ Housing price developments are examined in more detail in Jarkko Kivistö's article 'An assessment of housing price developments against various measures' on p. 49, below.

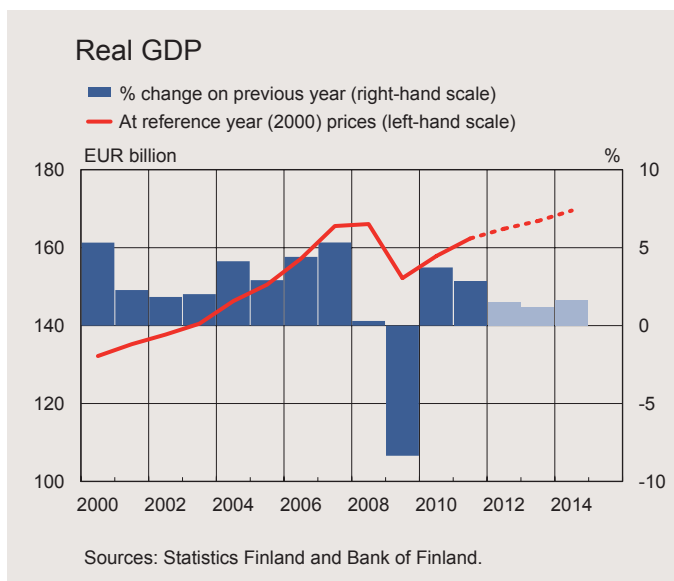
GDP and employment

Private consumption bolsters economic growth

In 2011, Finland's GDP grew by 2.9%. The figure for growth was inflated by a rapid expansion in output in 2010, whereas output growth in 2011 was more moderate. GDP growth in the immediate years ahead is expected to be significantly slower than in 2010 and 2011, slowing to 1.5% in 2012, and further to 1.2% in 2013. In 2014, growth will pick up to 1.6%. GDP is forecast to reach the pre-recession record levels only at the end of 2013 (Chart 11).

Recently, economic growth has been sustained mainly by private demand. Household consumption has grown at a rapid pace, despite subdued developments in incomes. During the forecast period, growth in household consumption is expected to decline

Chart 11.



significantly. This will be accompanied by subdued developments in public consumption, due to fiscal consolidation measures. Growth in housing investment will be slow throughout the forecast period, accompanied by moderate growth in fixed investment.

Industrial output is flat and the trend in Finnish exports has been subdued. Export growth is forecast to remain slow in 2012. In 2013–2014, the gradual pick-up in world trade will pull export growth up to approximately 5%. It will nevertheless lag behind growth in Finland’s export markets. Import volumes will increase at the same pace as export volumes, as a result of which the contribution of net imports to GDP growth will be close to zero throughout the forecast period (Chart 12).

The structure of the Finnish economy has since the financial crisis been slanted more towards consumption. This is due to difficulties

in export markets and the rapid growth in household consumption. The GDP share of private and public consumption will grow in 2012 to nearly 80%.

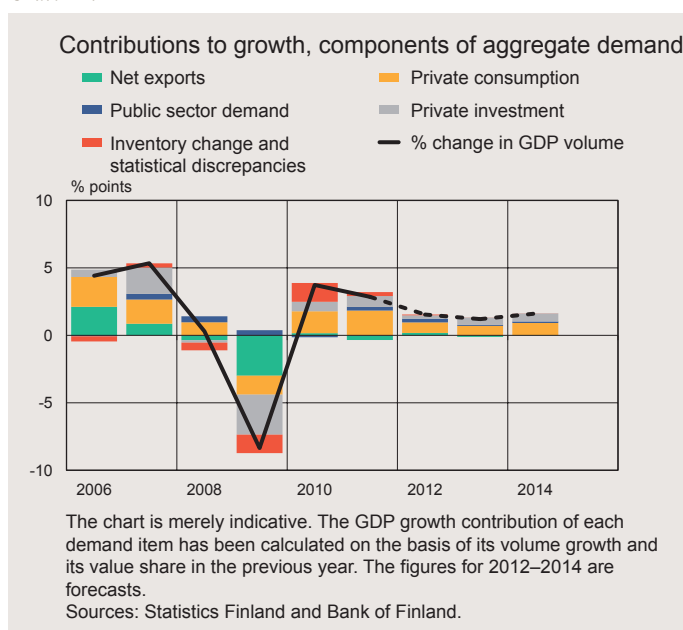
Employment growth will come to a halt

The number of employed has increased since autumn 2009 by some 60,000 persons. The improvement in employment will, however, come to a halt during the forecast period as economic growth slows. The number of employed will continue to grow in 2012 compared with the previous year, but in 2013 and 2014 employment is expected to remain virtually unchanged. Thus the pre-crisis number of employed and employment rate will not be reached during the forecast period (Chart 13).

The unemployment rate is expected to decline only slightly during the forecast period, to approximately 7½%. The number of unemployed will remain more or less unchanged. The size of the working-age population (15–64-year-olds) will shrink strongly during the forecast period. This will, however, be accompanied by an improvement in the labour force participation rate among those approaching retirement age, as a result of which labour supply will not decline during the forecast period.

The structure of employment is undergoing a change, mirrored by structural changes in output. During the recession, the biggest job losses were in industrial production and construction. Since the recession, new jobs have come mainly in services, particularly social and healthcare services (Chart 14). These services are produced not only in the

Chart 12.



public sector but also in the private sector, funded out of the public purse. In 2011, the number of hours worked in social and healthcare services increased at a slower pace than the number of employed, but in early 2012 the number of hours worked has also increased.

As employment will not improve during the forecast period, part of the labour force faces the risk of dropping out of the labour market altogether. Those out of work for more than two years now account for approximately half of the number of long-term unemployed (60,000), and this group continues to grow. Youth unemployment has declined only slowly since the recession. The trend unemployment rate among the under-25s was in April over 19%, ie the unemployment rate has declined by approximately 1 percentage point over the past year.

Productivity growth will settle on a slower growth trajectory

A slowdown in GDP growth is typically reflected in productivity developments after a time lag. The downswing in the business cycle will slow labour productivity growth to close to 1%.⁷ The rate will pick up slightly in 2012–2014, with productivity settling onto an estimated long-term growth trajectory in which productivity growth will be slower than during recent decades in Finland (Chart 15).⁸

In the long term, labour productivity growth will depend fundamentally on

⁷ The factors lying behind productivity developments are examined in Box 3, below.

⁸ Labour productivity developments in the decades ahead are estimated in the article 'The long-term growth forecast for the Finnish economy' on p. 69 below.

Chart 13.

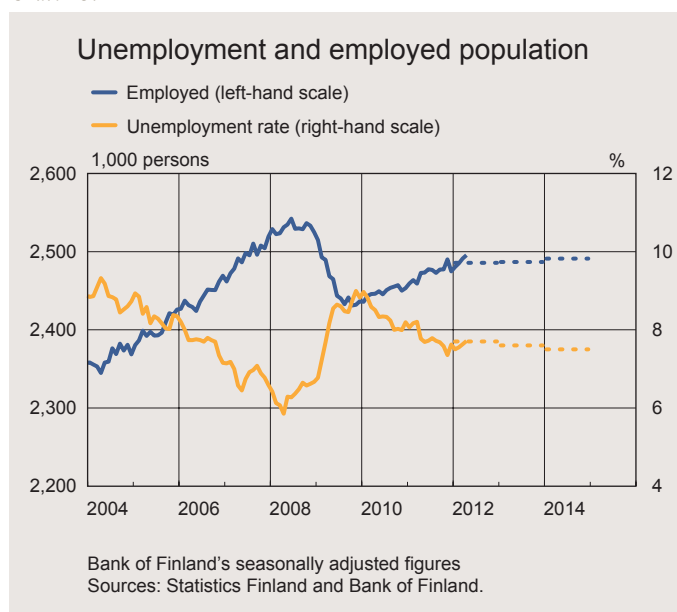
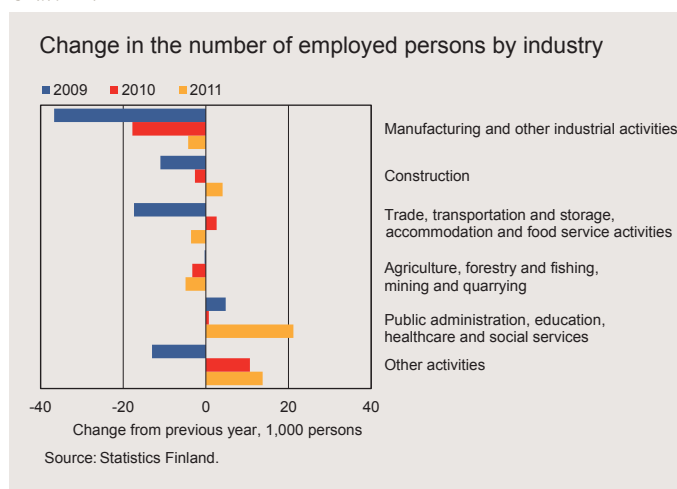


Chart 14.



the pace of growth in total factor productivity. Investment in tangible capital has not been a significant source of productivity growth since the late 1980s.

Developments in labour productivity will thus depend on what happens in the production structure of the Finnish economy in the years ahead. In previous decades, the pace of growth in total

Productivity developments reflect sectoral, structural and cyclical factors

Labour productivity developments in Finland have been affected by several factors. The recent trend reflects the improvement in productivity resulting from the general improvement in production technology and product innovations, but also the impact on average productivity of structural changes in the economy. The productivity figures of recent years also strongly reflect the structural contribution of the recent deep economic recession.

The exceptionally strong growth in the information and communications sector and the restructuring of business activities considerably accelerated improvements in labour productivity in the late 1990s. After the

turn of the millennium, the pace of productivity growth slowed, but productivity nevertheless continued to improve steadily until the financial crisis and the subsequent recession. In 2007, labour productivity was approximately one-third higher than in the mid-1990s (Chart A). Over the same period, productivity in manufacturing increased at an annual rate of approximately 7%, ie it more than doubled over the period as a whole.

In contrast, in activities funded mainly out of the public purse – which in this review include the sectors ‘public administration, education, and human health and social work activities’ – productivity has been declining since the turn of the millennium. In the other sectors – private

services, construction and energy supply – productivity has improved by a fifth on average.

For the total economy, productivity growth in 2011 was still lagging behind pre-recession levels. The recession caused a collapse in industrial productivity, and data for 2011 suggest that industrial productivity is still below pre-recession levels.

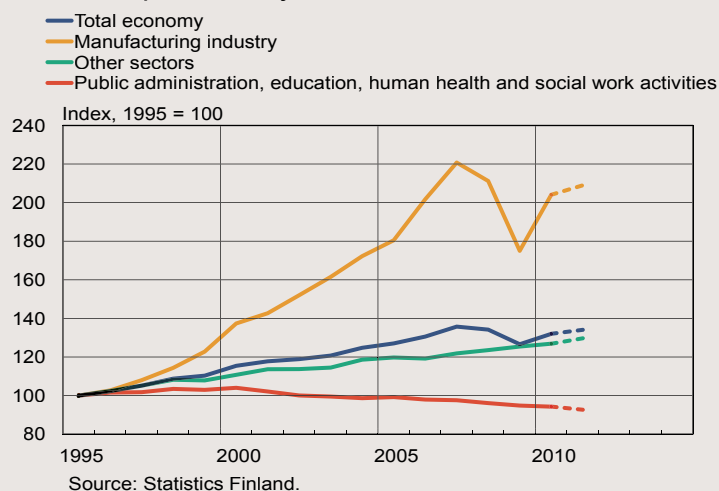
Of the industrial sectors, productivity growth in the manufacture of electrical and electronic products has been unparalleled. As a result of strong technological advances, the sector’s productivity increased more than eightfold in the period between the late 1990s and 2008 (Chart B). Other engineering sectors have seen significant improvements in productivity only since 2004. In the forest industry, productivity improved at an exceptionally rapid pace in the pre-recession period.

The recession has reflected strongly on industrial productivity. The collapse of demand led to a drastic decline in the volume of output, but the adjustment of labour input has been slow. The response of output to the recession has, however, varied significantly across sectors.

In the forest industry, productivity declined strongly in 2009, followed by a rapid recovery (Chart B). Forest industry value added grew in

Chart A.

Labour productivity



2010 by nearly 50%; at the same time, the number of hours worked continued to decline slightly. Labour productivity collapsed during the recession, both in the manufacture of electrical and electronic products and in other engineering sectors, and still in 2010 productivity improved only slightly. In the chemical industry, productivity did not decline in 2009, in contrast with other sectors. Output decreased less than in the other industrial sectors, and the number of hours worked has been falling since 2008.

Statistics Finland's Labour Force Survey and preliminary data on sectoral value added show that labour productivity in manufacturing continued to improve in 2011. Productivity per hour worked improved by some 2½%. Forest industry productivity did not grow. Metal industry productivity improved by some 8% in 2011, ie at the same average pace of growth as in the post-millennium pre-recession years.

Productivity developments in the Finnish economy have been strongly defined by developments in individual sectors. But changes in production structures have also had a considerable impact on productivity. An examination of the main sectors of the economy shows that structural realignment in the economy was still supporting average growth in labour pro-

Chart B.

Labour productivity in main industrial sectors

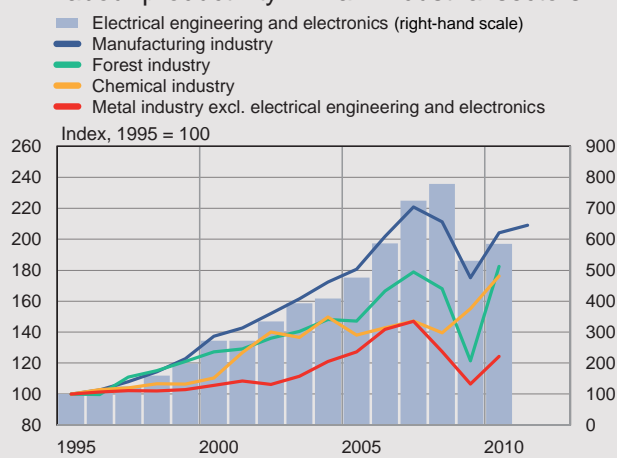


Table A.

Productivity growth compared to the previous average 5-year period, %

	2001–2005 / 1995–2000	2006–2010 / 2001–2005
<i>Manufacturing</i>	37.9	25.5
<i>Construction</i>	-6.4	1.8
<i>Public administration, education, human health and social work activities</i>	-2.8	-3.8
<i>Private sector services</i>	8.5	6.3
<i>Sectors total</i>	12.4	8.2
<i>Sectors total excl. structural contribution</i>	9.7	9.9
<i>Structural contribution</i>	2.7	-1.7

Table B.

Productivity growth compared to the previous average 5-year period, %

	2001–2005 / 1995–2000	2006–2010 / 2001–2005
<i>Forest industry</i>	21.9	16.8
<i>Chemical industry</i>	30.2	10.2
<i>Metal industry excl. manufacture of electrical and electronic products</i>	11.6	12.7
<i>Manufacture of electrical and electronic products</i>	117.6	70.6
<i>Manufacturing</i>	37.9	25.5
<i>Manufacturing excl. structural contribution</i>	28.7	28.1
<i>Structural contribution</i>	9.2	-2.6

ductivity in 2000–2005: in that period, the share of sectors with above average productivity grew compared with the second half of the 1990s. Without this structural contribution, the improvement in productivity in 2000–2005 would have been 2.7% smaller than in the preceding five-year period (Table A). In 2006–2010, the situation had already reversed. The growing share of general government and private services slowed productivity growth in 2006–2010 by 1.7% compared to the first half of the decade.

In the main industrial sectors, the structural contribu-

tion has been particularly clear. The increase in the share of total output attributable to the manufacture of electrical and electronic products in the early years of the new millennium boosted productivity by 9% on average compared with the average productivity level in the late 1990s (Table B). Correspondingly, in 2006–2010, the decline in the sector's share of total output reduced industrial productivity.

The recent trend in labour productivity and indicator data for 2011 give cause for both concern and optimism. Industrial productivity is approaching levels

prior to the dip caused by the recession. In the forest and chemical industries, productivity levels in 2010 already exceeded previous record levels. It is, however, clear that the industrial sector and particularly the main sectors of the economy are undergoing change that will slow the average growth in productivity much more than witnessed thus far. The ongoing fundamental change in the industrial sector and the growing demand for services caused by population ageing will boost output in sectors with lower than average productivity growth.

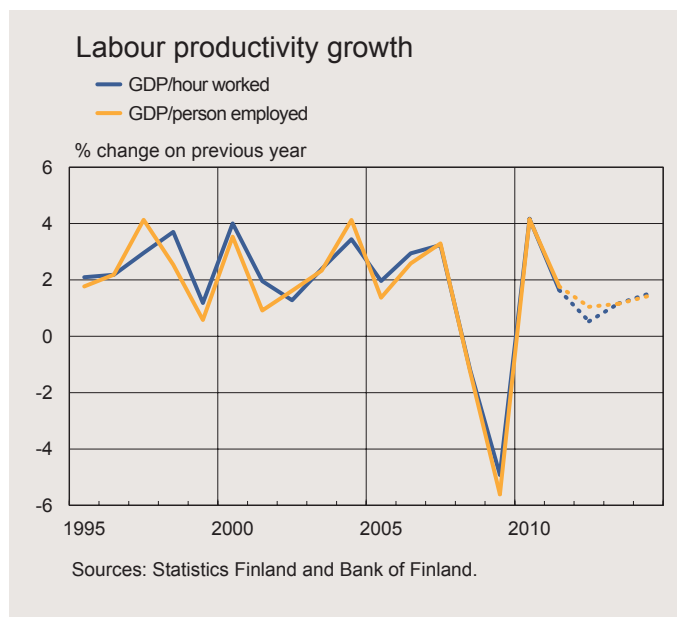
factor productivity was highest in manufacturing, and particularly in the ICT sector. If the decrease in the weight of this sector in the production structure of the Finnish economy is more permanent in nature, the strong growth in productivity witnessed in the second half of the 1990s will remain a temporary phenomenon. As a result, industrial output will remain permanently on a more moderate growth trend. The share of output contributed by public services or those funded out of the public purse will grow as the population ages.

Public finances

The general government deficit contracted more strongly than expected in 2011, to below 1% of GDP. During the recession years the deficit had increased to close to 3% of GDP. The strengthening of the general government fiscal position was due entirely to contraction in the central government deficit.

Central government tax revenues on earnings and capital income grew exceptionally strongly relative to the economic situation as a whole. Increases in indirect taxes also contributed to tax revenue growth. The local government fiscal balance in turn weakened slightly, following sluggish tax revenue growth and, in particular, increased consumption expenditure. The surplus on the social security funds also contracted slightly, but remained nevertheless at around 3% of GDP, as increases in pension contributions compensated growth in pension expenditure.

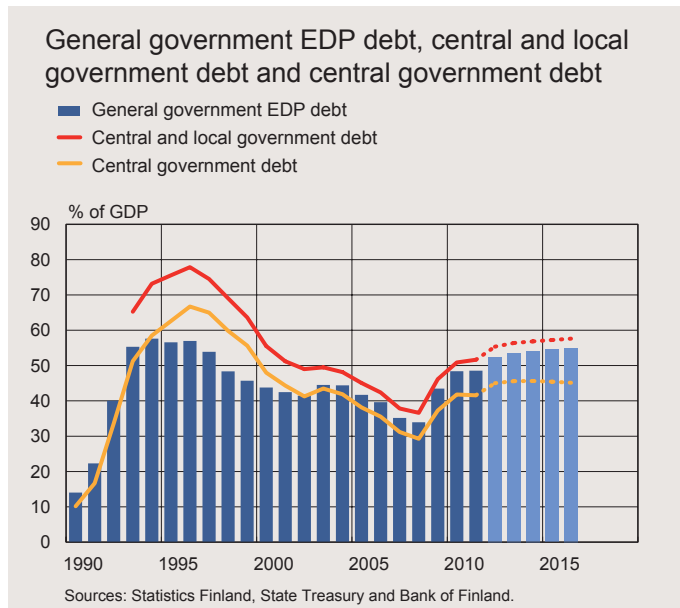
Chart 15.



Tightening fiscal policy will strengthen the general government fiscal balance during the forecast period. In 2012, the general government fiscal position will still remain broadly unchanged from 2011 (Table 4). By contrast, in 2013 the general government deficit will contract considerably, as measures to bolster central government finances, approved in connection with the decision on spending limits, come into effect. In 2014, the general government fiscal balance will continue to improve slightly. The general government structural balance is expected to enter surplus in 2013 and improve further in 2014, to close to 0.5%, which is set as the medium-term objective for public finances in Finland's stability programme.

The central government deficit will remain around 3% in 2012, on the back of the declining cyclical situation and

Chart 16.



slower growth in tax revenue. Growth in corporate tax income is also forecast to slow noticeably from 2011. Government expenditure growth will gain momentum, but will remain much slower than in the recession years. In 2013, the central government fiscal balance will improve by almost 1 percentage point relative to GDP, in response to increased revenue due to changes in tax legislation combined with a gradual moderation of expenditure growth on account of expenditure cuts. Further fiscal tightening in 2014 will bring the central government deficit down to 1½%.

The local government fiscal balance will deteriorate over the forecast horizon. Growth in consumption expenditure will remain high, as no changes are assumed in the municipal service supply during the forecast period. Together with cuts in central government transfers and a smaller proportion of revenue from corporate income tax

going to local government, this will deepen the local government fiscal deficit, especially in 2012. Even though the average income tax rate for the municipalities is assumed to rise, the local government fiscal deficit will also grow slightly in 2013–2014.

The surplus on the social security funds will contract to around 2½% of GDP in the forecast period. Substantial index increments to pensions will boost earnings-related pension expenditure, particularly in 2012. With the baby-boomers retiring, the size of the retired population will also grow during the forecast period. Although a substantial increase in pension contributions in 2012–2014 will partly compensate for the higher pension expenditure, the surplus on the earnings-related pension funds will contract. This is partly due to the fact that, due to the low level of interest rates, the rate of return on the money invested in the funds is assumed to remain below the long-term average in the forecast period.

The central government debt-to-GDP ratio will rise in 2012 and 2013, but it will level off at about 45½% in 2014 (Chart 16). The substantial increase in debt results from the financing needs associated with the European crisis management mechanisms. These include loans granted to countries under the EU/IMF support programme (Greece, Ireland and Portugal) via the European Financial Stability Facility (EFSF) and the capitalisation of the European Stability Mechanism (ESM). The combined central and local government debt-to-GDP ratio will continue to rise throughout the forecast period, with the general

Table 4.

General government fiscal balance and debt, % GDP							
% of GDP	2010	2011	2012 ^f	2013 ^f	2014 ^f	2015 ^f	2016 ^f
General government net lending	-2.8	-0.9	-0.8	-0.2	0.1	0.0	-0.2
Central government	-5.6	-3.2	-2.8	-1.9	-1.5	-1.4	-1.4
Local government	-0.2	-0.4	-0.7	-0.8	-0.8	-1.0	-1.2
Social security funds	3.0	2.8	2.7	2.5	2.4	2.4	2.4
General government debt	48.4	48.6	52.4	53.5	54.1	54.6	55.1
Central and local government	50.9	51.6	55.4	56.4	56.8	57.2	57.6
Central government	41.8	41.6	45.0	45.6	45.6	45.5	45.1
GDP, percentage change	3.7	2.9	1.5	1.2	1.6	1.5	1.8

f = forecast

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

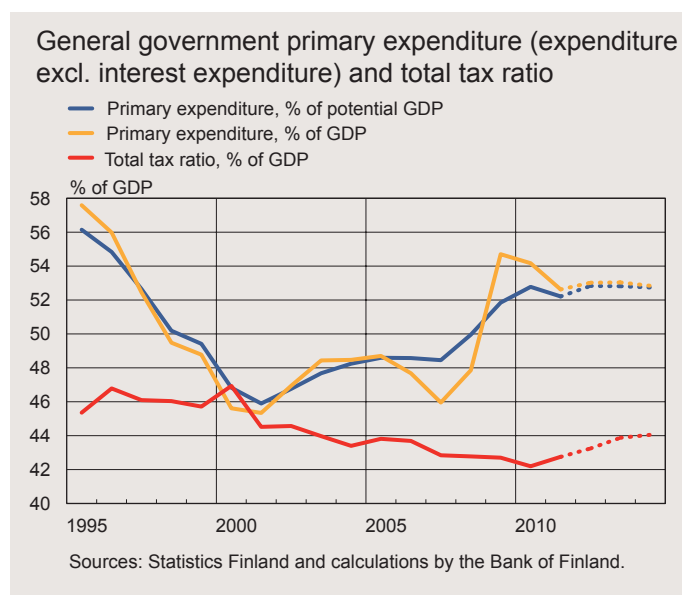
government debt-to-GDP ratio rising by 5½ percentage points.

Measures agreed by the Finnish Government to strengthen central government finances have significantly improved the general government fiscal position, which had deteriorated due to the recession. Nevertheless, the public finances are still on a much weaker footing than prior to the recession. According to the forecast, the GDP ratio of public expenditure will remain almost as high as the level reached during the recession years. Central government expenditure savings will be insufficient to reduce the ratio, since GDP growth will remain relatively subdued (Chart 17). From the perspective of general government, the strengthening fiscal position will be almost solely attributable to an increase in the overall tax rate. Including social insurance contributions, at the end of the forecast period the tax rate will be 1.8 percentage points higher than in 2010.

After the forecast period, in 2015–2016, the central government

deficit will stabilise at around 1½% and the combined central and local government deficit at around 2½% of GDP (Table 4). Thus, the central government deficit will remain slightly higher than envisaged in the Government Programme. By contrast, central government debt will decrease slightly in 2015 and 2016. Hence,

Chart 17.



according to the forecast, it would appear that the Government Programme's key objective of bringing central government indebtedness to a halt by the end of the parliamentary term will be met (Chart 16). However, the ongoing sluggish pace of economic growth will strongly increase local government debt, and the debt-to-GDP ratio will rise to levels last observed during the years after the recession of the 1990s. General government debt will equal about 55% of GDP in 2016.

The outlook for the public finances is surrounded by many uncertainties and developments may turn out to be weaker than foreseen. The most significant uncertainties relate to near-term economic growth and its sustainability. If economic growth is markedly slower than forecast, general government income will remain more modest than estimated and, correspondingly, expenditure growth will be stronger. The measures to consolidate government finances may, therefore, remain less efficient than estimated.⁹

Improving the productivity of public service production is one of the key long-term factors in slowing growth in general government expenditure. If productivity does not improve, expenditure growth may, as the population ages, accelerate considerably from the present, assuming that the objective is to maintain the level of services already achieved. In order to curb expenditure growth, increased

⁹ An alternative forecast scenario presented in Box 5 shows a calculation in which slower economic growth than that assumed in the baseline scenario will lead to a substantial deterioration in the general government fiscal balance.

efficiency in service production will be crucial in the years ahead.

External balance

In 2011, Finland's current account entered deficit for the first time since 1993. The deficit of EUR 1.3 billion was equivalent to 0.7% of GDP. The deficit on the goods and services account was almost the same size.¹⁰

The current account will remain in deficit to the tune of almost 1% of GDP throughout the forecast period. The downward trend will come to a halt during the forecast period, when fading domestic demand and falling prices for energy commodities will halt growth in the deficit on the goods and services account.

Private consumption and investment will grow only slowly in the forecast period, which will moderate the pace of growth in imports. The economic growth impact of net exports will be no worse than zero, despite lacklustre export development. The weakening trend in the terms of trade will also come to a halt. A drop in the world market price of oil will slow growth in import prices during the forecast period. Correspondingly, a rise in other commodity prices will sustain the upward trend in export prices.

The impact of the other current account items – the income account and current transfers – on the external balance of the economy during the forecast period will be marginal. No significant difference in earnings

¹⁰ Current account developments in recent years are described in more detail in Box 4 opposite.

Current account decline based on several factors

Finland's current account went into deficit in 2011 after a long period of surplus (Chart A). The deficit was equal to 0.6% of GDP, while at its height in 2002 the surplus was 8.5% of GDP. The last time the current account ran a deficit was in 1993.

The deterioration in the current account between 2002 and 2011 was due particularly to a weakening in the goods account. In contrast, the other current account items (services account, income account and current transfers account) showed no significant changes over this period.

The deterioration in the goods account between 2002 and 2011 was due to developments in both foreign trade volumes and prices. For the most part, export volumes grew more slowly than import volumes, in addition to which import prices rose relative to export prices. The rise in import prices was due particularly to the upsurge in the world market price of oil. Meanwhile, export prices were affected by a sluggish price trend for forest industry exports and a drop in export prices for the electronics industry. The last-mentioned is a consequence of the fact that the quality-adjusted prices in the statistics for electronics tend to come down quickly although unit prices can be simultaneously rising. There is therefore no reason to interpret the drop in

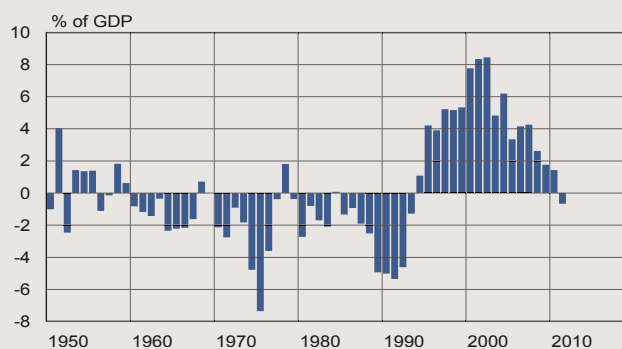
electronics export prices and the consequent deterioration in the balance of trade as a straightforward sign of a weakening economy.

The deterioration in the goods account has been brought about by problems in certain manufacturing industries of key

importance to the export sector. The forest industries and electronics and electrical engineering have been performing particularly weakly in respect of their goods exports. If we take the total exports of an industry and then subtract the value of the input from imports in their

Chart A.

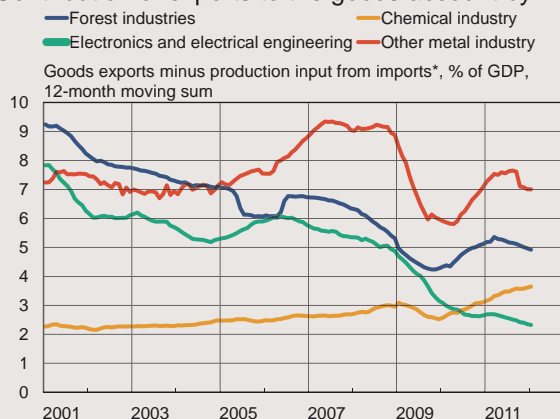
Finland's current account



Sources: Bank of Finland and Statistics Finland.

Chart B.

Contribution of exports to the goods account by industry



*) Import inputs – exports times the import share of production inputs. 2008 import shares of production inputs have been used for 2009–2011. Sources: National Board of Customs, Statistics Finland and calculations by the Bank of Finland.

production, this gives us an indication of the direct impact of the industry on the goods account (Chart B). Measured thus, only a small part of the direct impact on the trade account from the deterioration in the forest industries and electronics and electrical engineering has been compensated by growth in the direct impact from the chemical industry.

Finland's export problems since 2007 cannot be directly explained by the product and geographical composition of Finnish exports. Statistics indicate that these structural factors did not contribute substantially to the weak trend of the past few years, and since the turn of the millennium structural factors have on the whole supported Finnish exports. This is the impression gained if we examine whether Finnish exporters have focused on production for those countries whose imports have grown more than average, and on those products for which trade growth has been above average.¹

Since the turn of the millennium, services exports have grown relative to goods exports. In international comparison, services exports play a fairly significant role in the Finnish economy, if we examine categories of services exports

other than tourism and transport.² 'Other services' exports are, however, narrowly based, as, according to statistics covering up to 2010, the electronics industry has accounted in recent years for around two thirds of 'other services' exports. Thus, the outlook for services exports is uncertain. It is also worth noting that, in addition to services exports, services imports have also been growing since the turn of the millennium, in consequence of which the services account has remained more or less in balance.

One key factor underlying the current account trend is cost-competitiveness. Since the turn of the millennium, wages and salaries have risen faster in Finland than the euro area average. Moreover, unit labour costs rose exceptionally quickly in 2008 and 2009, due to both the rapid rise in wages and salaries and a decline in productivity during the recession. As a consequence, cost-competitiveness has in recent years contributed to the decline in Finland's current account.

The recent high level of activity in household consumption and housing investment is another important cause of the declining current account. With the exception of 2009, net household lending in

Finland has been clearly negative. Viewed internationally, this is exceptional.

Finland's demographic structure has not impacted negatively on the current account; on the contrary, based purely on demographic structure, the current account would have been expected to continue in surplus. In contrast, in the immediate years ahead the approaching retirement of the baby-boom generation will serve to weaken the current account.

All in all, the decline in the current account since the turn of the millennium has resulted from several underlying causes that have been to a significant degree mutually independent.

According to most of the latest economic forecasts, Finland's current account will not weaken further to any significant degree in the immediate years ahead, instead remaining around the level of 2011. Of the factors that have weakened the current account, the more rapid pace of growth in labour costs compared with many other countries will continue to weigh on the current account in the immediate years ahead. Another factor pushing in the same direction will be the continued negative net household lending. In contrast, tighter fiscal policy will serve to bolster the current account, even if the contraction in the general government deficit is less than the average consensus forecast for EU countries.

¹ For more on this, see the article by Seppo Orjasniemi and Terhi Ravaska on p. 59, below.

² For more on services exports see Box 2 on p. 21, above.

development is expected between the foreign subsidiaries of Finnish companies and the subsidiaries of international companies located in Finland. The surplus on the income account is, therefore, expected to be almost the same as in recent years.

The current account deficit means that the Finnish economy as a whole is becoming indebted to other economies. If we examine the financial position of the economy as a whole as the sum of the financial positions of the different sectors, we observe that only in the corporate sector does net lending remain positive throughout the forecast period (Chart 18). The financial position of households is negative and continuing to deteriorate, reflecting households' readiness to consume and invest in housing partly on the basis of debt financing. General government consolidation will considerably boost the fiscal position of general government, and at the end of the forecast period it will be almost in balance. The changes in the financial positions of the public and private sectors in the forecast period will cancel each other out, and the accumulation of foreign debt will therefore continue.

Wage and price trends

Steady rise in wages

Negotiated wages will rise in 2012–2013 in line with the framework agreement concluded between the labour market organisations in autumn 2011. The cost implication of pay rises and other changes in terms and conditions of employment contracts

Chart 18.

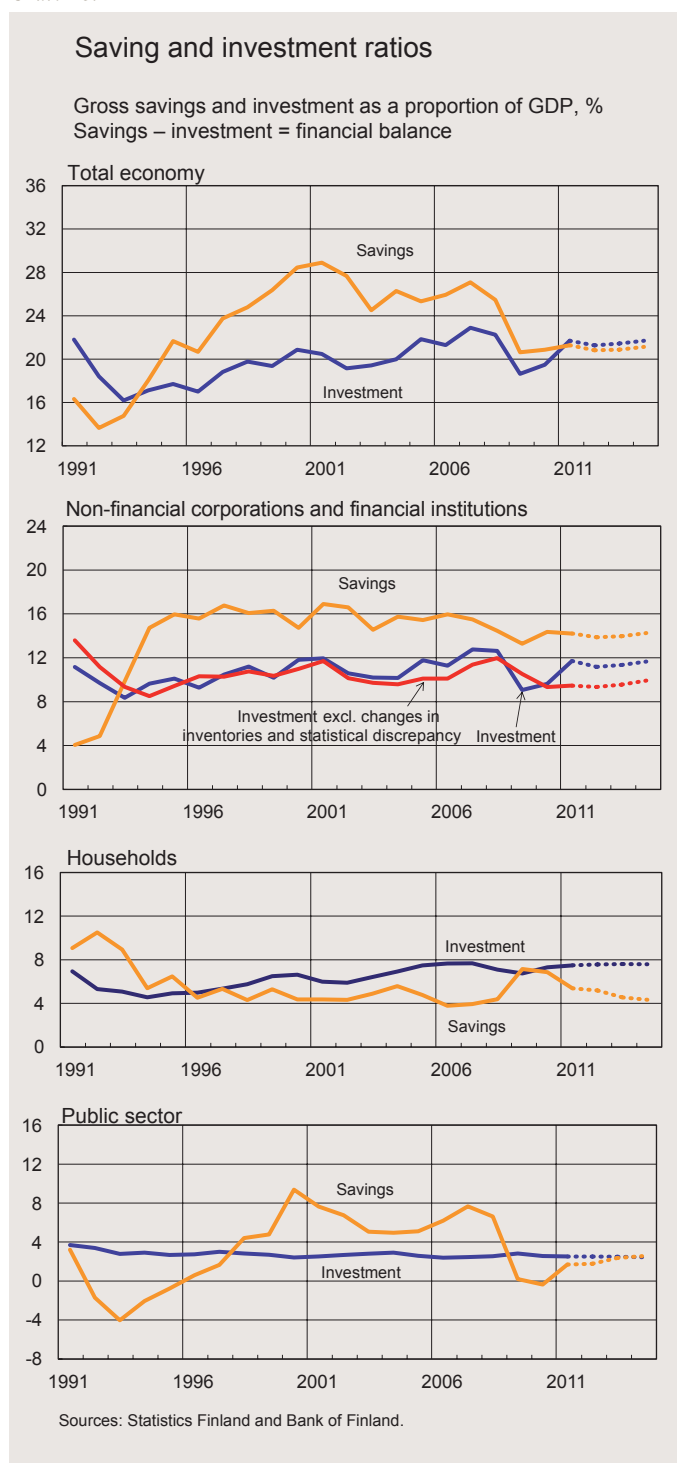


Chart 19.

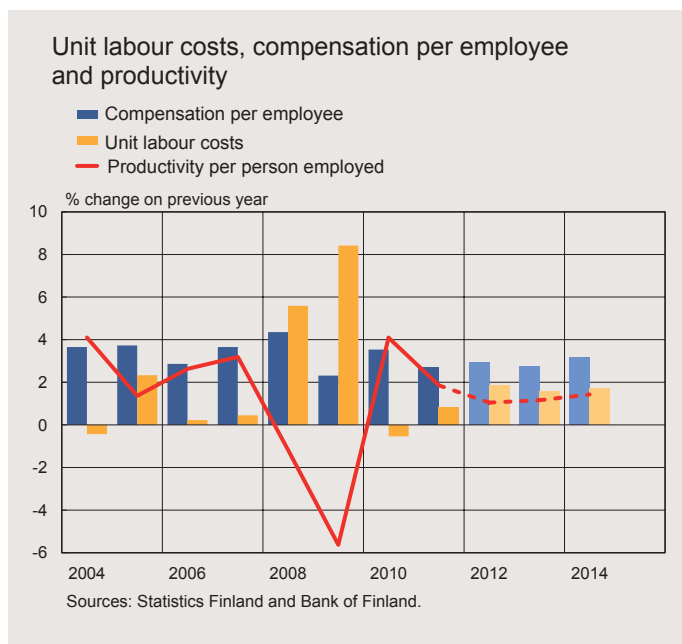
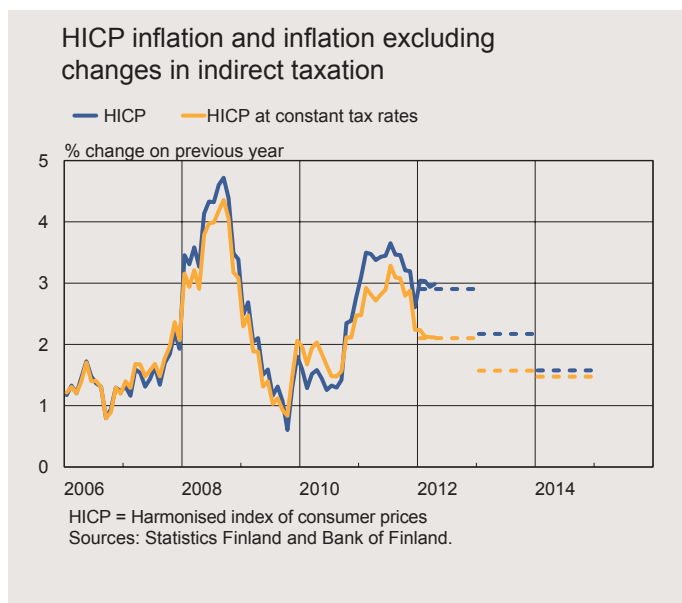


Chart 20.



will be 2.4% in 2012 and 1.9% in 2013. Following the expiry of the agreement, negotiated wage increases in 2014 are expected to be a full 2½%. The contribution of other factors – for example merit pay, one-off payments

and structural changes – on wage increases is expected to be 0.6–0.8% percentage point throughout the forecast period.

In 2012, nominal earnings will grow by 3.2% per annum, and in 2013 by 2.7%, but due to rapid inflation, real earnings will remain more or less unchanged. In 2014, growth in nominal earnings will pick up slightly, to 3.2%, and, due to the deceleration in inflation, growth in real earnings will accelerate to 1.3%.

Growth in labour productivity per person employed is expected to slow to 1% in 2012 and pick up slightly, to 1.4%, in 2014 (Chart 19). Consequently, growth in unit labour costs will pick up in 2012, to 1.9%, and, with the improvement in productivity growth, unit labour cost growth will slow in 2013–2014 to 1.6% on average.

Consumer price inflation remains fairly brisk

Inflation was 3.3% in 2011, as measured by the harmonised index of consumer prices (HICP). In January–April 2012, inflation was 3.0% on average.

Recently, inflation has been pushed up significantly by increases in indirect taxation, the impact of which was 0.5 of a percentage point in 2011. In 2012, increases in indirect taxation are expected to push up inflation by 0.8 of a percentage point (Chart 20). In addition, the rapid rise in crude oil prices continued in early 2012, and its impact on consumer prices has been boosted by the depreciation of the euro against the US dollar.

Consumer price inflation is expected to be 2.9% in 2012. Inflation will slow to 2.2% in 2013, despite the fact that the 1 percentage point hike in VAT at the start of 2013 will push up inflation by 0.6 of a percentage point. A decline in energy commodity prices is expected to slow inflation in 2014, and the HICP is forecast to rise by 1.6%.

Food prices (incl. alcoholic beverages and tobacco) rose by 4.3% in 2011, and the upward trend is expected to pick up still further in 2012. The hikes in excise duties on food and the rise in commodity prices in 2011 will push up food price inflation to a full 5% in 2012. The pace of rise in food prices is, however, expected to gradually level off, as the upward trend in agricultural producer prices has slowed significantly and commodity prices are expected to remain at their current levels. Consumer prices for food are forecast to rise at a slightly faster pace than average inflation in 2013.

Service prices are expected to rise by 2.6% in 2012, ie almost the same pace as in 2011. Pay rises and the upward trend in energy prices will gradually pass through into service prices. The rise in service prices in early 2012 was also boosted by index-linked rises in the prices of social and welfare services and the ending of the trial period of lower VAT rates in labour-intensive services. Service prices will continue to rise in 2013 and 2014 at a significantly higher pace than average inflation.

Energy prices rose by 15% on average in 2011, and the upward trend will continue in early 2012, albeit at a slower pace. The increase in the prices

of liquid fuels has been boosted by changes in excise duties and rising crude oil prices as well as higher refining margins. Consumer prices of energy began to decline in March, as weaker demand for electricity has pushed down electricity prices at the power exchange. Energy prices are expected to decline slightly throughout the forecast period.

The upward trend in non-energy industrial goods prices accelerated slightly in 2012, partly due to the changes in indirect taxation. Industrial goods prices have also been affected by the rise in import prices of consumer goods and increases in transportation costs. The rise in prices will pick up further in 2013, due to the VAT hike.

National consumer price inflation (CPI) in 2011 averaged 3.5%, and in recent months it has continued to be slightly higher than HICP inflation. The difference in the inflation measures is due in particular to the rise in house prices and developments in interest rates on housing loans and consumer credit. In April 2012, the difference was boosted by a rise in the vehicle tax, which pushed up national CPI by 0.2 of a percentage point. In contrast, the annual change in house prices has slowed, to below 1%.

Inflation risks continue to be on the upside. Higher energy costs, in particular, will continue to be passed through into consumer prices, eg via production and transportation costs. Market expectations for crude oil prices have been dampened by the weakening global economy, but a pick-up in demand or geopolitical tensions could quickly reverse the trend in prices. Inflation may accelerate more than

forecast due to the impact of domestic factors if stronger-than-expected consumer demand pushes up the pace of price rises.

Risk assessment

Sovereign debt crisis could lead to a renewed worsening of the situation in the banking sector

A key assumption behind predicted economic developments is that measures to stabilise the financial markets will take hold and the European debt crisis will remain under control. International trade and growth in Finland's export markets are assumed to pick up as early as the latter half of 2012. The forecast foresees a relatively rapid rebound in world economic growth, although recovery in the euro area will be slow, with clearly divergent growth prospects across countries.

Owing to the debt crisis, however, the predictability of Finland's external environment is exceptionally unsure even in the short term, with downside risks looming large. In addition to the financing of the public sector and the related problems, European banks' funding costs have taken centre stage in the crisis. In many crisis countries, bank funding still relies heavily on the central banks. At the same time, the capital adequacy requirements on banks are being tightened. If the debt crisis fails to cool down as assumed in the forecast, the risks related to banks' loan portfolios will also increase. These factors threaten to impair euro area banks' provision of credit, raising the

cost of finance. This sort of development would dampen euro area economic growth and impair Finland's export outlook compared with what is estimated in the forecast.

Household consumption and indebtedness could become unsustainable

According to the forecast, GDP growth mainly hinges on domestic demand, meaning that the forecast is particularly sensitive to household consumption and savings decisions. Recent indicators point to ongoing strong consumption growth despite increasing uncertainty. Households still have good access to housing and consumer credit, as the financial crisis has not much impeded bank lending to households in Finland. Exceptionally low interest rates lend further support to household demand for credit. These factors would also suggest continued brisk consumption growth in the immediate years ahead.

On the other hand, more muted developments in real wages and fiscal consolidation measures will dampen growth in household purchasing power over the forecast horizon, which can be expected to constrain consumption growth. The forecast seeks to find a balance between these two factors. The household savings ratio will decline, which will help provide a buffer against consumption reactions to weakening purchasing power in 2013 and 2014. Even so, there will be a marked deceleration in private consumption growth.

If households' eagerness to consume does not subside as projected,

Alternative scenario: Households strengthen their financial position by adjusting demand

According to the baseline forecast, the household savings ratio will decline by nearly 2 percentage points in 2012–2014 and housing investment, supported by the low level of interest rates, will grow, albeit much more slowly than in recent years. The declining savings ratio and high household investment ratio mean a substantial upsurge in the household sector's financial deficit (Chart A)¹. Economic growth over the forecast horizon will therefore be increasingly based on private sector debt.

High taxation will be a major constraint on growth in purchasing power in 2013–2014, hence households will seek to maintain their consumption levels by temporarily adjusting their savings. The savings ratio will, however, fall to a very low level relative to average savings towards the end of the forecast period (Chart B). The household savings ratio will be low especially in view of the fact that

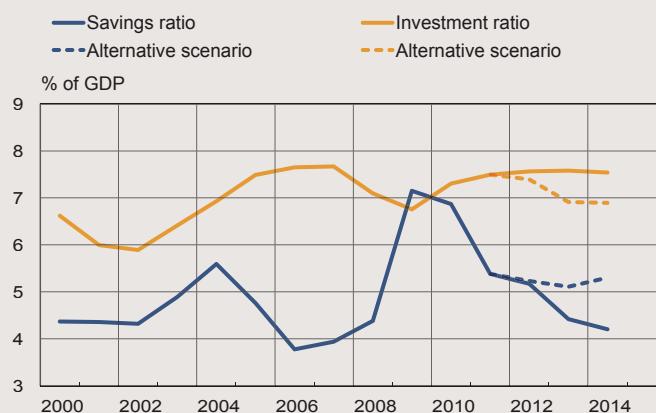
a significant proportion of the population will be in the phase of their life cycles where the savings ratio should peak, ie close to retirement age. In addition, the ongoing need for substantial

fiscal adjustment would require that households prepare for lower earnings in the future.

Developments according to the baseline forecast suggest that household consumption

Chart A.

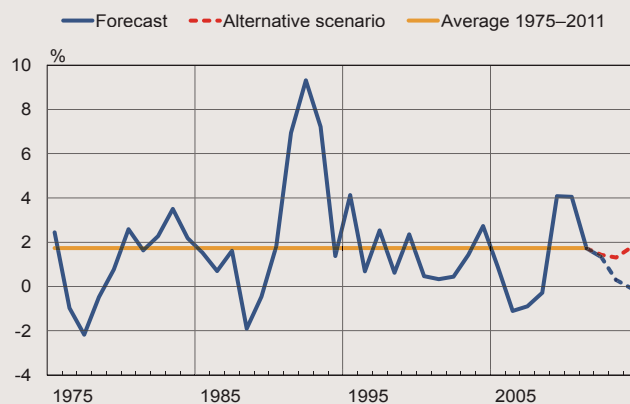
Households' gross savings and investment ratios*



*Households and non-profit institutions serving households
Sources: Statistics Finland and calculations by the Bank of Finland.

Chart B.

Household savings ratio 1975–2014*



*Households and non-profit institutions serving households
Sources: Statistics Finland and calculations by the Bank of Finland.

¹ Chart A shows the gross savings ratio without taking into account consumption of fixed capital. This is justified in a savings-investment analysis, as investments are also expressed in gross terms. Gross savings in Chart A are calculated relative to GDP. In the net savings ratio, consumption of fixed capital is deducted, and net figures are therefore lower than gross figures. The term 'savings ratio' in this scenario refers to the net savings ratio, which is a normal way of analysing household savings. The net savings ratio is obtained by deducting households' nominal consumption expenditure from their annual nominal disposable income and dividing the annual savings thus obtained by the nominal disposable income (Chart B).

and investment demand will, in fact, continue to be based on debt. Consequently, we can note that household consumption and savings behaviour according to the forecast is justified only if households expect their incomes to increase considerably in the years ahead. This alternative scenario looks at a situation where households adjust their demand in the immediate years ahead to make it better correspond to future earnings developments.

Reversing household debt accumulation would require a rising savings ratio, a falling household investment ratio (mainly for housing investment) or a simultaneous occurrence of both. Using the general equilibrium model developed at the Bank of Finland, an alternative scenario to the baseline forecast was produced where households prepare for lower future incomes by reducing both their consumption and their housing investment. This change in behaviour was technically accomplished in the model by increasing households' rate of time preference. This means that consumers' willingness to cut back debt growth has more weight in their choices than in the baseline forecast.

The alternative scenario is formulated to bring the household savings ratio by the end of the forecast horizon to its long-term average, ie about 2%

relative to disposable income. This is a moderate point of departure, as it barely takes the savings ratio above its 2011 level.

The rise of about 2 percentage points in the savings ratio, modelled in the scenario, and the resultant dynamic effects on macroeconomic developments mean that nominal private consumption in 2014 will be 4% lower than the baseline. Real consumption will be 2.5% lower, as the increase in consumer prices will also decelerate. The alternative scenario foresees average annual private consumption growth of ½% in the forecast period, ie almost 1 percentage point lower than the baseline forecast (Table A). Households' housing investment will decline in real terms by more than 7%. With a higher savings ratio and lower investment, households' net borrowing will decrease and the pace of growth in indebtedness will slacken. A change of this size, however, would not be enough to take the financial position of the household sector into surplus (Chart A).

Adjustment of household demand will constrain annual GDP growth over the forecast horizon by a third of a percentage point, on average. Import growth will decline by even more, and the current account deficit will vanish. Households' improving financial

position will also slightly erode the corporate sector's financial surplus, and this will impair the general government fiscal balance. Lower consumption in nominal terms and more sluggish payroll growth will reduce central and local government tax receipts to such an extent that the scenario expects no improvement at all in the general government fiscal balance over the forecast horizon. The general government debt ratio will rise to 56% of GDP in 2014, ie a good 2 percentage points higher than the baseline ratio.

The alternative scenario shows how strongly the improvement of Finland's public finances is based on growth in household debt. Such a basis for public finances is fragile. Even the mere stabilisation of the household savings ratio at its current, historically average level would halt the correction of the fiscal deficit and leave general government debt on an upward trajectory. Experience has shown that still sharper changes are possible. With economic expectations fading, household caution may suddenly increase, thereby possibly provoking a much steeper fall in tax receipts than discussed in this scenario.

Table A.
Alternative scenario: Household savings increase

	2011	2012	2013	2014
<i>GDP, % change</i>				
Baseline forecast	2.9	1.5	1.2	1.6
Alternative scenario		1.3	0.5	1.5
Difference		-0.2	-0.7	-0.1
<i>Private consumption, % change</i>				
Baseline forecast	3.3	1.4	1.3	1.6
Alternative scenario		1.0	-0.2	0.8
Difference		-0.4	-1.5	-0.8
<i>Household savings ratio, % of disposable income</i>				
Baseline forecast	1.7	1.3	0.3	-0.1
Alternative scenario		1.5	1.6	2.0
Difference		0.2	1.3	2.1
<i>Housing investment, % change</i>				
Baseline forecast	4.4	0.7	2.0	1.8
Alternative scenario		-1.5	-4.4	2.8
Difference		-2.2	-6.4	1.0
<i>Current account, % of GDP</i>				
Baseline forecast	-0.7	-0.7	-0.9	-0.9
Alternative scenario		-0.6	-0.3	0.1
Difference		0.1	0.6	1.0
<i>Private consumption deflator, % change</i>				
Baseline forecast	3.0	2.8	2.2	1.8
Alternative scenario		2.7	1.8	0.9
Difference		-0.1	-0.4	-0.9
<i>General government net lending, % GDP</i>				
Baseline forecast	-0.9	-0.8	-0.2	0.1
Alternative scenario		-1.0	-0.7	-0.8
Difference		-0.2	-0.5	-0.9
<i>General government debt, % GDP</i>				
Baseline forecast	48.6	52.4	53.5	54.1
Alternative scenario		52.8	54.7	56.3
Difference		0.4	1.2	2.2

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

GDP will grow faster than forecast in the near term. At the same time, the Finnish economy would head for worsening imbalances, facing weaker competitiveness and going deeper into debt. Domestic price increases would probably accelerate, passing on to wages before long.

There would be a threat of a price-wage spiral, which would further erode the price competitiveness of exports. Exports would increasingly lag behind growth in the export markets. In conjunction with accelerating growth in domestic demand, this would lead to an expanding current account deficit. Domestic inflation pressures and strong demand would raise asset prices, which would further add to the risk of excessive household indebtedness. If consumption were to evolve as predicted, even that would erode households' financial position and maintain their ongoing indebtedness, thus putting long-term economic growth on an unsustainable footing. Against the backdrop of faster-than-forecast consumption growth, household indebtedness would face its limits sooner and the risk of the economy as a whole suddenly grinding to a halt would increase.

Reining in household indebtedness is key to maintaining stable economic activity. The alternative scenario to the forecast (see Box 5) illustrates in greater detail the near-term economic developments if households were to reduce their financial deficit towards a more sustainable level.

Changes from the previous forecast

The overall picture provided by the present Bank of Finland forecast for the performance of the Finnish economy in the next few years has not changed markedly from the forecast released in December 2011. The economy is still expected to grow much more slowly than prior to the recession. However, the growth trajectory of GDP has changed, so that GDP growth is now 1 percentage point faster in 2012 than in the December forecast. On the other hand, in 2013 GDP growth will be 0.6 of a percentage point lower than forecast in December. GDP will reach its pre-recession level at the end of 2013, largely as envisaged in December.

The change towards a more positive outlook stems from the surprisingly robust domestic demand in the early part of the year and revisions to statistical data for 2011. Growth has been

supported by better-than-expected employment developments and the lower level of interest rates as well as corporate and household confidence, which has improved from the historically low levels recorded in the latter part of 2011.

In 2013, however, growth will be weaker than in the December forecast. Exports are forecast to increase about 1 percentage point less than in the December forecast. Domestic demand will be curtailed by the substantial general government consolidation measures agreed in March 2012. Household purchasing power will be dampened by stiffer taxation on earned income, higher indirect taxes and price increases.

In comparison with the previous forecast, consumer prices are expected to rise 0.4 of a percentage point faster in 2012, and 0.5 of a percentage point

faster in 2013. In connection with the decision on central government spending limits in March, it was decided that the standard rate of VAT would be increased by 1 percentage point. The impact of this decision on the inflation rate for 2013 will be 0.6 of a percentage point.

Due to the protraction of the European debt crisis, market expectations concerning euro area interest rates have declined further. Markets are expecting the 3-month Euribor to remain 0.5 of a percentage point lower in 2012 than projected in the December 2011 forecast, ie at 0.8%. In 2013 the Euribor is expected to stand at 0.7%, ie 0.7 of a percentage point lower than in the previous forecast. However, the low level of interest rates will not boost private investment, since investments are predicted to grow at a slower pace than forecast in December

Table A.
Current and December 2011 forecast

	2011	2012	2013	2014
<i>GDP, % change</i>	2.9	1.5	1.2	1.6
<i>December 2011</i>	2.8	0.4	1.8	
<i>Inflation (HICP), %</i>	3.3	2.9	2.2	1.6
<i>December 2011</i>	3.4	2.5	1.7	
<i>Finland's export markets, % change</i>	7.1	4.0	5.8	6.2
<i>December 2011</i>	7.2	4.6	6.4	
<i>Current account, % of GDP</i>	-0.7	-0.7	-0.9	-0.9
<i>December 2011</i>	0.0	0.2	0.3	
<i>General government net lending, % of GDP</i>	-0.9	-0.8	-0.2	0.1
<i>December 2011</i>	-1.3	-1.2	-1.2	

due to increasing uncertainty. Housing investment will also grow more slowly than anticipated in December.

The cyclical situation is expected to dampen demand in Finland's export markets. Compared with the December forecast, export demand will grow 0.5 of a percentage point slower in 2012 and 0.6 of a percentage point slower in 2013. According to the December forecast the current account would have posted a deficit only in 2011, but the present forecast is for the current account to remain in deficit throughout the forecast period. The value of goods and services imports will be 3.3 percentage points higher in 2012 than assumed in the December forecast. By contrast,

in 2013 the value of exports will remain weaker than in the December forecast.

In comparison with the previous forecast the general government fiscal position will be much better. According to preliminary statistical data for 2011, the general government fiscal balance was stronger than forecast already in 2011, and the fiscal tightening in the forecast period will improve the fiscal balance further. The measures to consolidate central government finances, agreed on in connection with the decision on spending limits, will reduce the deficit to 0.2% of GDP in 2013. Hence, the general government deficit relative to GDP will be 1 percentage point smaller than in the December forecast.

An assessment of housing price developments against various measures

This article discusses the development of housing prices in Finland, with a special focus on the relationship between rents and housing purchase prices (rent-to-price ratio), which is analysed against a constructed benchmark of the user costs of investors or homeowners. A comparison of the rent-to-price ratio and time series of user costs indicates that the development of housing prices relative to rents has been broadly consistent with the fall in housing user costs. The key determinants of user cost dynamics are house price expectations and level of interest rates. The interest rate fall, in particular, has had a significant impact on the reduction in user costs and, hence, housing prices. However, the increase in housing prices relative to developments in household income has been fairly moderate.

Housing price developments in Finland

Before the financial crisis, housing prices were rising rapidly in several countries. During the crisis, many – but not all – of these countries have witnessed a steep fall in housing prices. Finland has been among those countries where the fall was only moderate, and prices have already moved back to pre-crisis levels and beyond. The household debt ratio has at the same time hit an all time high. The growth in household indebtedness has been fuelled by historically low interest rates and the stability of the banking system, which has provided scope for a growth in lending. In this article, various indicators are employed to explore whether the level of housing prices in Finland is sustainable.

In Finland, owner occupation is by far the most widespread form of housing, and it has once again begun to gain in popularity since the turn of the millennium: in 2009, 66% of Finnish housing units were owner occupied. The rate of rental occupation has dropped from 32% to 30% in the 2000s, while the proportion of right-of-occupancy dwellings has hovered around 1%. The owner-occupation rate for Finland is close to the Western Europe average, and occupation density (occupant per m²) has also reached a good European standard, although homes are still more densely occupied in Finland than in the other Nordic countries.¹

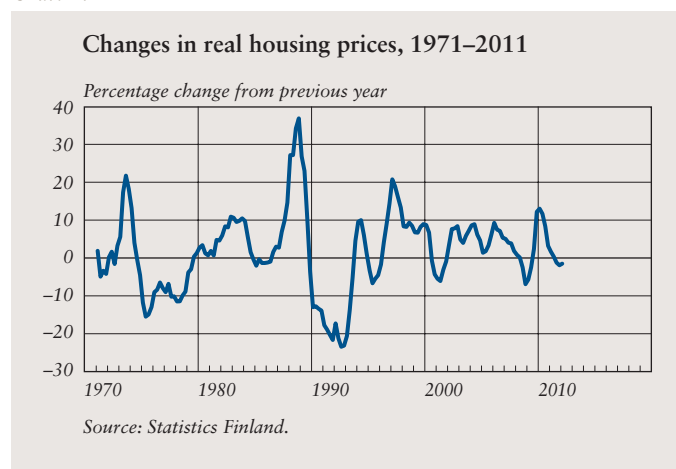
The development of housing prices in Finland from the 1970s to the present has featured some major upturns and downturns (Chart 1). With the baby-boom generation in the early 1970s, the demand for housing increased, while the supply of private



Jarkko Kivistö
Economist
Monetary Policy and
Research

¹ Schauman (2012).

Chart 1.



rented housing declined in response to rent regulation. During the construction frenzy of the boom years in 1972–1974, real housing prices surged and the rate of housing construction climbed to more than 70,000 dwellings per year, at its height. In the aftermath of the oil crisis, inflation gathered pace and real housing prices took a protracted downturn. A fall in nominal housing prices has occurred only rarely.

The most striking feature of housing price developments over the past 40 years or so is the housing bubble that emerged in 1987–1989, pushing up real prices by more than 60% in a little over two years. The bursting of the bubble forced prices onto a steep downward trend that continued for almost four years. One explanation offered for the housing bubble has been the structural change in housing demand following the deregulation of financial markets. The availability of mortgages improved and the

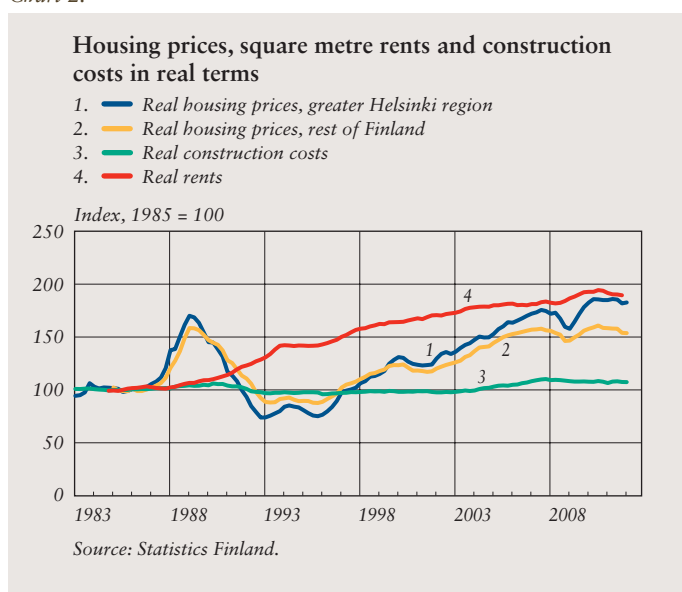
required down payment was reduced. Housing market developments were also an expression of the general overheating of the economy.

It was only in 1996 that housing prices entered a more permanent growth path. This coincided with a drop in inflation following Finland's accession to EU membership. This upward trend in prices was broken only for one year by the deflation of the IT bubble in the stock market in 2001, after which the brisk growth in real housing prices was resumed and sustained until 2008. The recession triggered by the financial crisis turned prices down, but the downturn did not last even one year. Since then, housing prices have risen above pre-crisis levels, but the rate of rise has clearly moderated. In the long term (1971–2011), the appreciation of real housing prices stood at 1.9%, on average, while the increase in real wages averaged 2.3%.²

Assessment of housing market prices

Housing prices are influenced by changes in the supply and demand for residential services, but housing may also be conceived of as an investment, the value of which depends on the discounted present value of the net income stream it provides. The income from housing represents either the rent received from it or the benefit of owner occupation over rental occupation. Changes in the discount rate may, therefore, also be reflected in housing

Chart 2.



² This is based on data from the manufacturing industry. Available data on the general earnings index refers to a shorter historical period, and points to an annual increase in real earnings by 1.6%, on average, over 1976–2011. Housing prices increased by 2.1% over the same period.

prices. With equilibrium interest rate, demand and supply unchanged, housing prices can be expected to move in line with construction input costs. In the long term, housing price developments may be consistent with changes in income, assuming that households are always willing to devote a certain share of their income to housing.³ The fall in occupation density indicates that part of the earnings growth has been channelled into quality improvement.

Construction costs have moved more or less in step with consumer price inflation, whereas the increase in the price of construction land has been well above the rate of inflation. Movements in lot prices have been broadly in line with changes in housing prices. We will now take a closer look at the rent-to-price and price-to-income ratios.

Housing prices have increased more than rents in recent years

Households make their choice between owner occupation and rental occupation at least partly on economic grounds. If rents rise relative to housing prices, the demand for owner-occupied housing will increase, which tends to exert upward pressure on housing prices. Similarly, if housing prices increase, demand for rental housing will grow stronger, pushing up rents. This illustrates the close correlation which typically exists between housing prices and rents.⁴ Deviations of the rent-

³ Kajanoja (2012).

⁴ The same correlation may also be derived from the residential investor's perspective. Rent may be conceived as a return on housing assets in a similar manner to dividends being a return on stock market assets. In the same way as share prices can be analysed by the P/E ratio, the price of housing can be analysed in relation to rents.

to-price ratio from its long-term average may be an indication of a pricing anomaly and the existence of a price bubble.

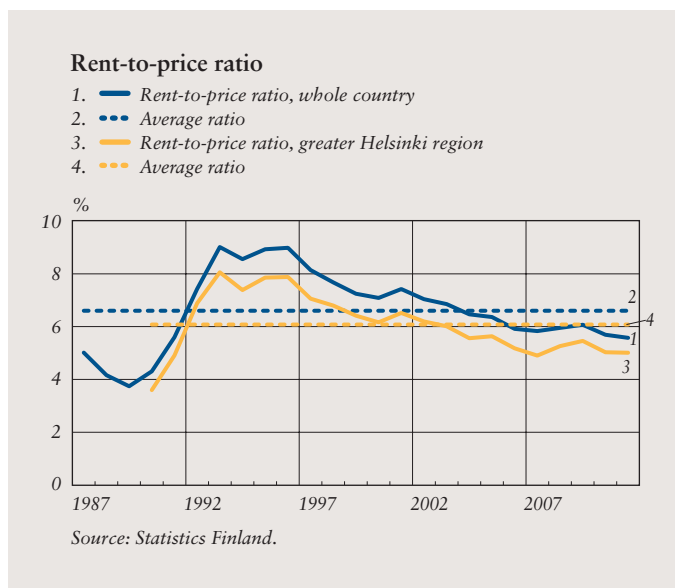
In the Finnish housing market, the rent-to-price ratio⁵ (Chart 3) has shown a declining trend ever since 1997, as housing prices have increased more rapidly than rents. The rent-to-price ratio for the greater Helsinki area is smaller than for the country overall, but largely follows the same pattern, which partly reflects the high statistical weight of this area. In recent years, both ratios have fallen below the average for the past 20 odd years.

Movements in housing user costs consistent with housing price developments

The average rent-to-price ratio for a given period is a somewhat arbitrary

⁵ Annual average rent/m² of freely financed housing divided by the average square metre price of a block of flats. In actual fact, most rental housing is in old blocks of flats, which makes this comparison feasible.

Chart 3.



benchmark. Parallel to the analysis of investment yield, a better benchmark for the rent-to-price ratio is the user cost of housing (capital).

Investors' presence in the housing market is motivated by the pursuit of a rental yield once expenses have been deducted comparable to the yield on competing assets. Consumers are in the market to purchase residential services either through rental or owner occupation. From the consumer perspective, in a housing market equilibrium, the costs of owning a house should equal the costs of renting. On the basis of these premises, a condition⁶ of market equilibrium may be inferred, where rental yield must cover ownership expenses:

$$R = ((1-t)i + t_k + d + \alpha - \pi)P \quad (1)$$

Here R is the rent or, in the case of owner occupation, the net worth of the residential service provided by home ownership. t is the capital gains tax rate and i is the nominal interest rate on the capital employed, which gives $(1-t)i$ as the after-tax interest expense. The variable d is the maintenance cost, which may include the housing service charge and depreciation costs. t_k is the effective property tax rate, ie the ratio of the taxable value of the property times the property tax rate to the market value of the property. α is the residential investor's required risk premium relative to the return on risk-free assets. π is the expected house price appreciation and P is the housing price.

⁶ Poterba (1984).

Rearranging equation 1 gives the following expression of the correlation between the rent-to-price ratio and user costs:

$$\frac{R}{P} = i_t + t_k + d + \alpha - \pi \quad (2)$$

Here i_t is the after-tax interest expense. Assuming that the rental market is fully functional and rental occupation makes a feasible alternative (close substitute) to owner occupation, the values of rents and homeowners' residential services should move closely in parallel.⁷

In the following analysis, we will apply equation 2 to Finnish data for 1989–2011.⁸ The tax variable used is the capital gains tax rate from 1993 onwards, while the annual housing loan rate derived from Bank of Finland's statistical data is used as the nominal interest rate. The property tax rate for permanent housing varies between 0.22% and 0.5% over the reference period.⁹ The effective property tax rate depends on the ratio of the taxable value of the property to its market value. The taxable value is set at the target of 73.5% of market value, but the taxable value, in practice, varies across municipalities. The assessment of housing maintenance costs is based on data from Statistics Finland on annual property maintenance expenses.

⁷ Englund (2011).

⁸ Results for 1989–1992 have been obtained by assuming that the tax rates were the same as in 1993. The assumptions incorporate a slight increase in the property tax rate after 2007.

⁹ The time series ranging from 1993, when the tax was introduced, to 2007 used in this calculation is taken from Helin (2007). Data for 2008–2011 have been obtained from the Finnish tax administration.

In the analysis of user costs, the variable of expected house price appreciation is difficult to measure. It is not directly observable, and indirect methods must be relied upon to impute the estimates. Methods employed in similar analyses include average inflation over the past five years and consumer expectations of future inflation. This study is based on the five-year average inflation approach. Expectations of house price appreciation have a relatively large impact on developments in user costs. These calculations should therefore be complemented with an analysis of user costs which does not control for price appreciation expectations (Chart 4).

Similarly to other competing assets, housing assets are also subject to risks related to future (rental) yields and capital gains or losses. The calculation may also capture the required risk premium on residential investment relative to risk-free investment assets. However, finding the correct value for the risk premium on residential investment is a challenging exercise. In similar analyses, a 2% risk premium has been commonly used.¹⁰ In this respect, the perspectives of investors and homeowners diverge. To homeowners, owning their house may be taken as protection against insecurity for which they are willing to pay, and, hence, the risk premium could even be negative. To investors, in turn, housing is generally a less liquid asset than for example equities and deposits, which sets the required risk premium well

¹⁰ Oikarinen (2010).

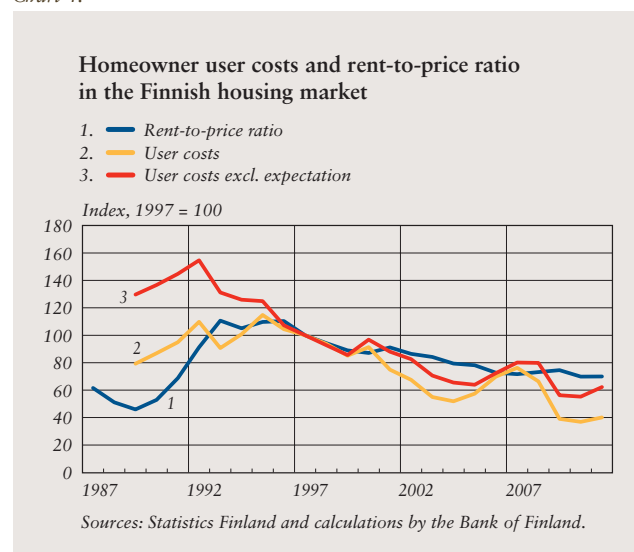
above zero. The risk premium may also vary over time. In this analysis, the risk premium is first set at zero, as a constant-value risk premium does not interfere with user cost dynamics.

First, the development of user costs and the rent-to-price ratio is analysed in comparison to the base year 1997.¹¹ The analysis (Chart 4) suggests that housing prices were overvalued relative to rents before 1993.¹² Over 1995–2000, housing prices (rent-to-price ratio) seem to have developed in line with user costs, whereas user costs

¹¹ Deciding on the fixture point for the comparison of user costs and the rent-to-price ratio is a complex exercise, as it is very difficult to assess when the rental market is in equilibrium. In addition, the underlying assumption of a fully functional rental market in practice provides a challenge. When the correct level of housing prices is analysed on the basis of the comparison, it is assumed that rents provide an accurate reflection of future return expectations at any given moment in the absence of any supply constraints. In practice, rental occupation is not always a feasible alternative to owner occupation in the Finnish housing market due to the regional and qualitative restrictions present in the market.

¹² It should be mentioned that rent controls were completely abolished only in 1995. Rents may have been below the 'correct' level due to the controls.

Chart 4.



declined much more rapidly than the rent-to-price ratio over 2000–2003, when housing prices were undervalued relative to rents. In 2005–2007, user costs surged and developments in the rent-to-price ratio stabilised, albeit after a small lag (rents continued to rise, while housing prices turned down). The steep decline in the level of interest rates in the wake of the financial crisis reduced user costs until 2009. Data for 2010 and preliminary data for 2011 suggest that the fall in user costs has come to a halt. The level of the rent-to-price ratio has again remained unchanged since 2006.

Irrespective of the approach taken to measuring user costs, we may draw the conclusion that the decline in the rent-to-price ratio from 1997 onwards (the stronger increase in housing prices) is largely consistent with the reduction in user costs. User cost developments would actually have justified a higher increase in housing prices in Finland in

recent years. However, the assumption of market equilibrium for rented housing must be borne in mind. The deregulation of rental markets, together with stiff competition for rented accommodation in growth centres, may also have boosted a stronger increase in rents, which means that the rent-to-price ratio may not reflect developments adequately.

The OECD¹³ user cost analysis for 1995–2004 produced a similar result for Finland. In his regional analysis of Finnish housing prices until 2008, Oikarinen (2010), in turn, did not find any evidence in support of a significant overvaluation of housing prices. A similar analysis of housing prices in Sweden conducted at the Swedish Riksbank¹⁴ also established that housing price developments have been consistent with the reduction in user costs.

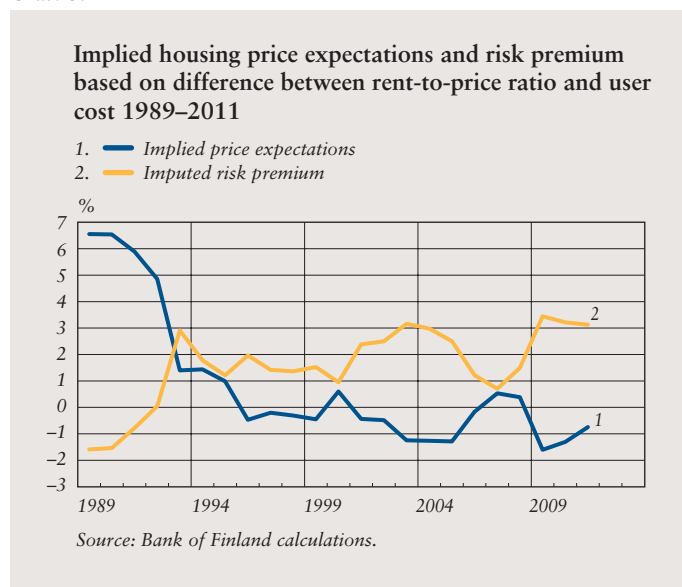
What do user costs tell us about house price expectations?

User cost analysis also offers another approach to analysing the determinants of housing market behaviour. Assuming that rents and housing prices are in equilibrium, the difference between user costs and the rent-to-price ratio may be found to indicate price expectations.¹⁵

$$\pi = (i_t + t_k + d + a) - \frac{R}{P} \quad (3)$$

This analysis shows that expectations of nominal housing prices have been moderate, even slightly negative over several years since 2001 (Chart 5, blue

Chart 5.



¹³ Girouard et al. (2006).

¹⁴ Englund (2011).

¹⁵ McCarthy – Peach (2004).

line). In other words, at this point there are no signs of a price bubble fuelled by expectations.

However, assuming again, as in the earlier analysis, that the expected price appreciation is equal to the average rate of consumer price inflation over the past five years and that the difference between rent-to-price ratio and user costs reflects the required risk premium on residential investment, the observation is made that the risk premium has reached its peak for the reference period during the past three years (Chart 5, yellow line).

Interest rate fall the key influence behind the decline in user costs

The strong decline in user costs witnessed in the early 2000s is above all related to the fall in nominal housing loan interest rates (Chart 6). The average rate on outstanding housing loans has fallen markedly since 1992, when it was over 12%, hitting the lowest value of 1.9% in mid-2010. The average rate on outstanding housing loans again turned down in early 2012. In real terms, the rate on outstanding housing loans has been negative for several months in a row.

The stock of outstanding housing loans began to expand only in the early part of 1996, after which it has been growing at an average pace of 11% per year. During the financial crisis the growth rate slowed but still remained in the region of 6% annually.

A decomposition of the user costs shows that the decline in housing loan interest rates and the fall in house price expectations exerted an almost equal

but opposite influence on changes in user costs over 1989–1996, as measured by average consumer price inflation (Chart 7). As inflation slowed, expectations lost their importance. Therefore, the proportional influence of the housing loan interest rate on changes in user costs has grown since the turn of the millennium.

Chart 6.

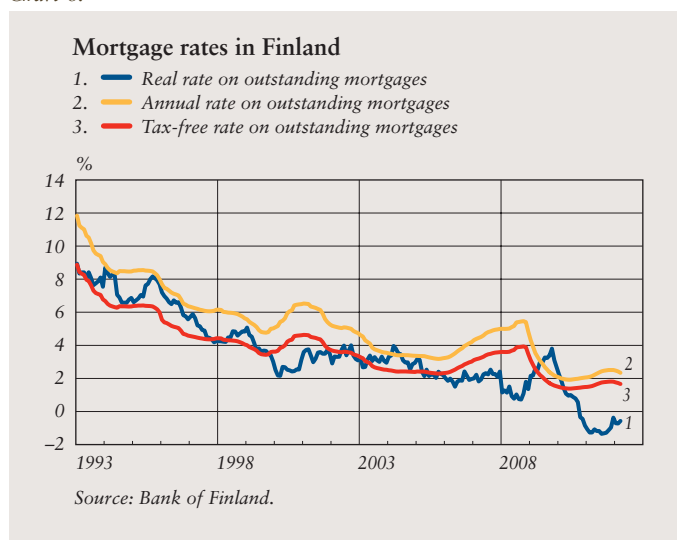
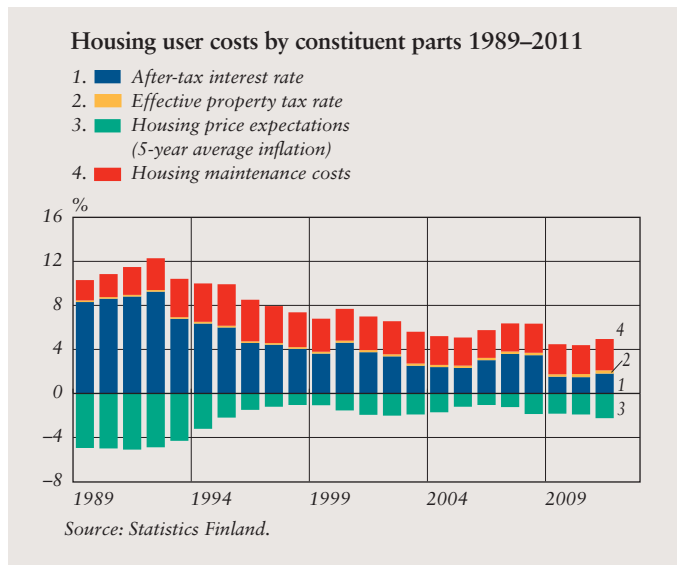


Chart 7.



Housing prices relative to household solvency

Alongside with the fall in the level of interest rates, housing loan maturities have been extended, which reduces the monthly debt service burden of the borrower, provided that the loan interest rate remains unchanged. In

1998, the average maturity of outstanding housing loans was 11 years, against 18 years today. The record level of 19 years was reached in 2008–2009. This trend has, nevertheless, paved the way for larger housing loans. Whereas in 1999 the average size of loan, as calculated on the outstanding stock, was roughly EUR 20,000 per borrower, by 2011 it had climbed to EUR 82,000 (EUR 102,000 in the greater Helsinki area).¹⁶ The size has increased 2.7-fold in real terms and 2.3-fold relative to housing prices. The ratio of the size of the housing loan relative to per capita household disposable income has risen from 1.7 to 4.5.

Housing price developments should also be analysed against income developments, as the price-to-income ratio illustrates the solvency of households. This analysis is based on the ratio of the square metre price of old blocks of flats to disposable income per capita (Chart 8). The nationwide ratio peaked in 1989, after which it has declined in step with the fall in housing prices until the mid-1990s. Thereafter, the price-to-income ratio has risen, however only slightly above the average for the period under review. The price-to-income ratio for the greater Helsinki area is higher than for the country as a whole, and the growth rate is also slightly stronger.

The increase in housing prices relative to the earnings index has been constant since 1985 (Chart 9). The

Chart 8.

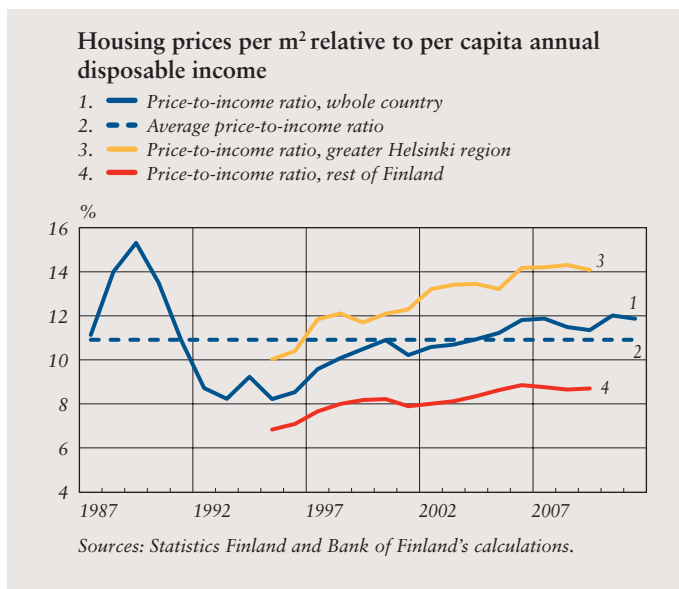
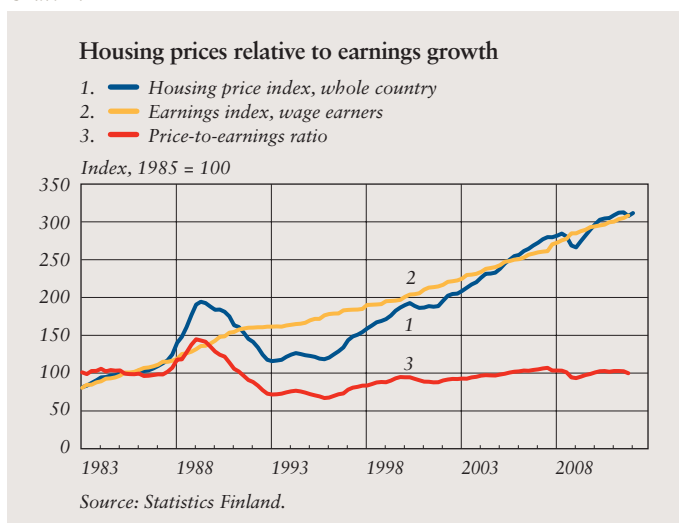


Chart 9.



¹⁶ Federation of Finnish Financial Services (spring 2011) *Säästäminen, luotonkäyttö ja maksaminen* ('Savings, credit and payments'; in Finnish only). Research report.

earnings index does not account for the effect of unemployment, taxes, income transfers and capital gains on disposable income, but captures the changes in the income of working households.

Other supply and demand factors also behind the housing price increase

During the housing price boom witnessed in both the 1970s and the 1980s, there was a strong expansion in the construction of housing. In spite of this responsiveness of supply, housing prices rose rapidly. During the past few years, the rate of housing construction has remained in the region of 30,000 dwellings annually. The supply of new housing has not increased since the turn of the millennium, which may have contributed to housing price developments.

Demand for housing has, however, increased both in response to population growth and in response to growth in the number of housing units due to a reduction in their average size. Migration has also contributed to the increased demand in growth centres. In Helsinki, the construction of new housing has not kept pace with the increase in the number of households,

which has resulted in a tightening of the housing market. In these ways, housing demand and supply trends have fed the increase in housing prices.

A reduction in the user costs of housing explains the rise in housing prices in relation to rents in the new millennium. The decline in housing loan interest rates, in particular, has reduced the costs of owner occupation. At the same time, factors external to the user cost analysis, such as the extension of housing loan maturities, have left some scope for an increase in the size of housing loans. Furthermore, the rise in housing prices relative to income developments has been moderate. Consequently, the house price increase relative to economic fundamentals cannot be considered excessive. The downside risk is that economic developments will turn out to be much weaker than expected.

The gradual cutback in tax subsidies for owner occupation over the next few years, together with an expected increase in the level of interest rates, will push up the user costs of housing. With other factors unchanged, this trend will contain the increase in housing prices.

Keywords: housing prices, rents, user costs

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Market share of Finnish goods exports contracted sharply since 2000

Finnish goods exports' share of world trade contracted by almost a third in the first decade of the new millennium. Market share was down across all Finland's most important export countries and product groups. One reason for the shrinking market share is the changing structure of world trade in response to the growing role of emerging economies. The declining market share cannot be explained by reference to the product and geographical breakdown of Finnish exports. Exports have been directed, particularly in regard to neighbouring countries, to markets where import demand has grown faster than import demand globally. According to the results of the present analysis, the diminishing market share is due not to an unfavourable export market and product composition, but to other factors such as weaker competitiveness.

Finland's goods exports grew at a brisk pace in the early years of the new millennium until the onset of the financial crisis. In 2009, goods exports were down 25% on the previous year, with no subsequent return of export volumes to the pre-crisis level. The crisis has thus reduced the market share of Finnish exports in world trade.

This article considers the factors that led to changes in the market share of Finnish exports in the 2000s. We approach the subject using the methodology of constant market share analysis.¹ This seeks to evaluate the extent to which market share changes

¹ For a description of constant market share analysis, see ECB (2005). For analyses regarding other countries, see Finicelli et al. (2008) and Amador & Cabral (2008).

can be explained by structural factors, ie the product and geographical breakdown of exports. The part of market share developments that is not explicable by structural factors can be interpreted as broadly relating to changes in competitiveness.

The data used in the article consists of trade flows for Finland and its export markets in 1999–2010, compiled from the United Nations' Comtrade database. Highly volatile items, such as fuels, lubricants and electricity, are excluded from the review. These goods accounted for about 10% of Finnish exports in 2010. The data used in the analysis covers more than 70% of Finland's goods exports. Trade flow data is expressed in terms of the US dollar, which exposes the analysis to effects arising from exchange rate movements.

World trade structure changed post-2000

Advanced economies saw their market shares contract

The market shares of advanced economies in the value of world trade contracted in the first post-millennium decade at the same time as emerging market economies increased their respective shares. For example, based on Comtrade data, China's market share grew by more than 10 percentage points in the 2000s. By contrast, the United States' market share dropped from nearly 30% in the early years of the decade to around 20%.

Advanced economies' declining market shares and emerging economies'



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growing markets point over the long term to an expansion in world trade and the entry of new countries into the sphere of international exchange of goods and services.² One reason for the shrinking market shares of advanced economies is that the structure of world trade has changed. An ever larger part of advanced economies' production has migrated to Asia or emerging economies in other parts of the world, which reduces the goods exports of the advanced economies but increases e.g. profits repatriated from abroad. On the other hand, demand from Asia has grown so rapidly that a small country like Finland has not had the production potential in place to meet such growing demand.

² Riad et al. (2012) includes a description of the change in the structure of world trade in recent decades.

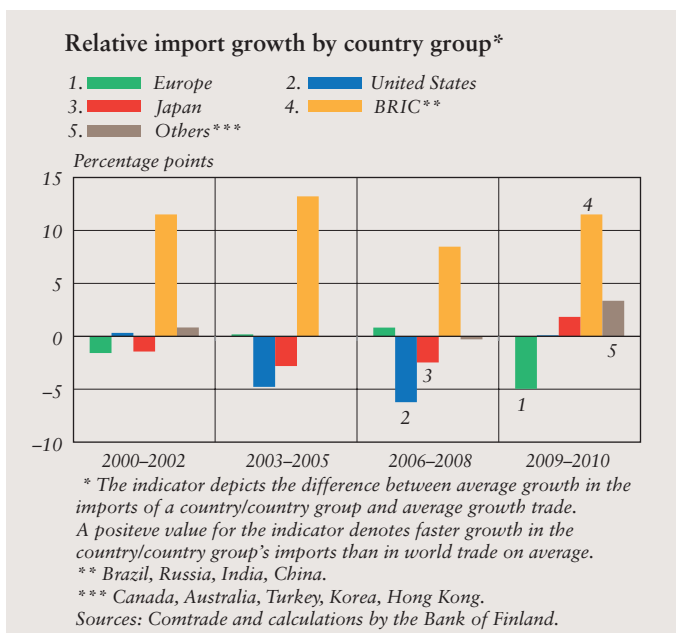
There are a number of natural reasons for the declining market shares of the advanced economies in international trade. From the viewpoint of an individual country's market share, however, it is important to explore the goods exported by that country and the geographical areas to which it exports. A country's market share typically declines in a situation where its exports are directed towards contracting markets or where the competitiveness of its products weakens relative to those of its competitors. In the 2000s, the growing market areas were in the emerging economies, whereas growth in import demand in the advanced economies lagged behind world trade growth (Chart 1).

Demand for high-tech products grew faster than world trade

The market share of exports is affected by their product structure as well as the destination markets. Exports typically grow apace if growth in demand for the products exported is strong. To conduct a product group-based analysis, products can be grouped according to their technology intensity into low, medium and high technology categories.³

In the first post-millennium decade, growth in the value of demand for low technology products was slower than world trade growth throughout the entire decade, whereas demand for

Chart 1.



³ High technology products include pharmaceuticals, medical instruments, communications equipment and arms. Medium technology products include machinery and equipment, transport equipment, chemicals, metal and plastics products. Low technology products include paper, pulp, wood, food products and clothing.

high technology products grew more quickly, except for 2005–2008 (Chart 2). Demand for medium technology products grew faster than world trade until the onset of the financial crisis. Demand for these products is strong during periods of economic upswing, as they are largely capital goods. In contrast, during the economic crisis, demand for medium technology products contracted more in relative terms.

Geographical and product structure supported Finnish exports

Export performance can be examined via changes in market share. A constant market share (CMS) analysis enables assessment of Finland’s export performance by decomposing variations in market share measured in terms of export value into two effects: a structure effect, caused by the destination market and product composition of exports, and a competitiveness effect.

Under this methodology, the structure effect measures the hypothetical change in market share by fixing the shares of various product groups and export markets in Finnish exports at the level of the base year, in this case 1999. The impact of the structure effect of exports on market share is positive if a country exports products for which demand increases faster than world trade, or if exports are directed towards countries whose imports grow faster than world trade.

A CMS analysis defines competitiveness in broader terms than ordinary price competitiveness. The competitive-

ness effect is calculated as the difference between the actual change in the market share and the hypothetical change caused by the structure effect and thus includes all effects that cannot be derived from the geographical and product structures of exports.

In 1999–2010, the value of world trade more than doubled. Simultaneously, Finland lost market share in almost all its export countries and Finland’s global market share contracted by nearly a third.⁴ The strongest market share losses were recorded in 2009 and 2010. In 2009, Finnish exports underwent considerably larger drops than world trade, and in 2010 export growth fell well behind

⁴ OECD (2012) provides a highly similar picture of the evolution of the market share of Finnish goods and services exports in volume terms. In 2005–2011, Finnish exports performed over 20% weaker than Finland’s export markets.

Chart 2.

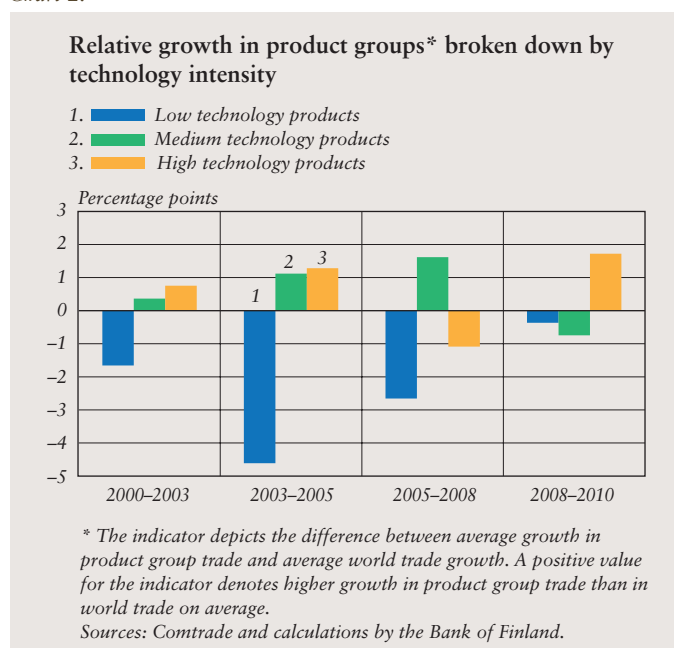
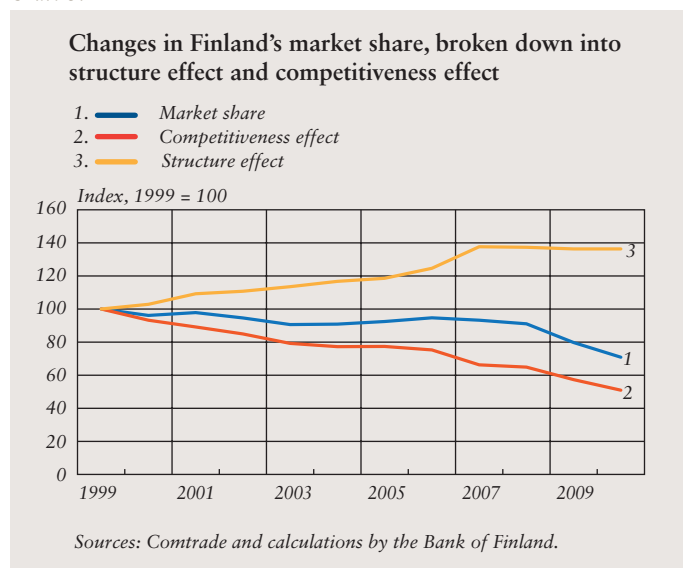


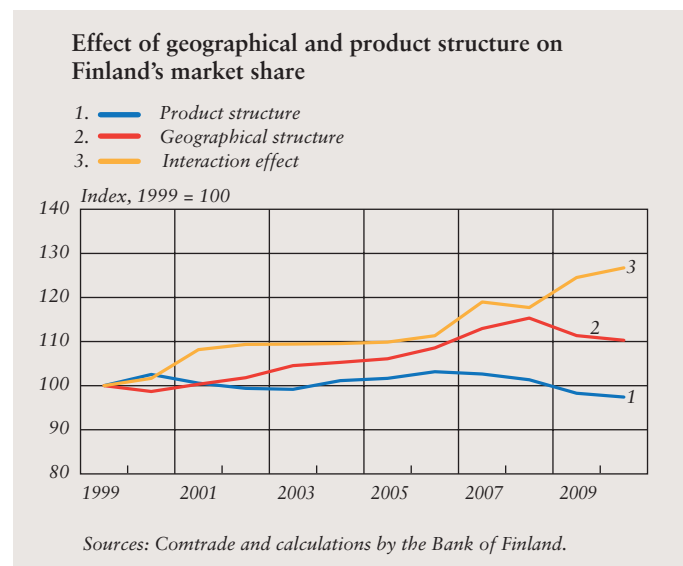
Chart 3.



product and destination market composition – of Finnish exports has been supportive of exports. Accordingly, the sharp fall in market share is not ascribable to the structure of exports; the underlying cause is weakening competitiveness (Chart 3).

The structure effect can be decomposed further into a change in the hypothetical market share caused by the destination market and product structure and that caused by their interaction (Chart 4). The effect of the geographical breakdown on Finland's market share has been positive, i.e. Finnish exports have focused more on growing markets and, correspondingly, less on shrinking markets than world trade on average.

Chart 4.



The product effect on Finland's market share is positive if Finland exports more products for which demand increases faster than world trade, or if the weight of products with sagging demand in Finnish exports is small. The product effect on the hypothetical market share remained almost unchanged until 2006. Subsequently, it turned distinctly negative. The interaction component includes structural factors that are driven by both the product effect and the destination market effect.⁵ The interaction between product and geographical market structure has had a significant positive effect on Finland's market share.

The fading destination market effect during the financial crisis was due

export market growth. By 2010, the value of Finnish exports had grown cumulatively by about 60 percentage points less than Finland's export markets. Our review based on a CMS analysis shows that the structure – the

⁵ The interaction effect relates to correlations between product and market structures. The interaction effect operates, for example, if Finland exports products that rapidly increase their trade shares and to countries whose imports grow faster than average.

in part to Finnish exports focusing on markets in which import demand diminished. The product effect began to peter out as early as 2007, which is explained by lower demand for capital goods during the recession.

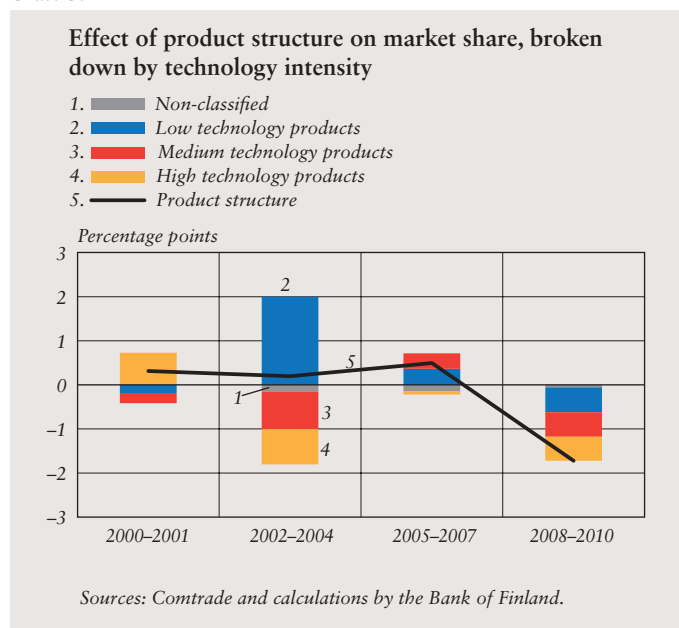
Finnish exports declined by more than world trade during the economic crisis

As approximately 40% of Finnish goods exports are classified as capital goods, world market demand for these products exerts a significant impact on Finland's export performance. The global economic crisis in 2009–2010 sharply cut capital goods demand relative to other products at the same time as Finland's market share in world trade was weakening. The importance of capital goods for market share can be roughly explored according to technology intensity, as a large part of medium or high technology products are capital goods.

The share of high technology products in Finnish exports decreased in the first post-millennium decade. At the beginning of the decade, they still accounted for nearly 30% of Finland's total export value, compared to only about 20% towards the end of the decade. Medium technology products increased their share in the value of Finnish goods exports from 35% at the beginning of the new millennium to 50% by 2010. Low technology products accounted for approximately 30% of Finland's export value in the first post-millennium decade.

Overall, on the basis of the results of the constant market share analysis, the product composition of exports has

Chart 5.



had no significant impact on Finland's market share. There are, however, important differences within the product composition. In 2009, global demand contraction focused in particular on the medium technology product category, which includes machinery and equipment, transport equipment and fabricated metal products. Lower demand for products in this category led to Finland's weakening market share via the product effect (Chart 5).

Prior to the crisis, Finland's market share was buttressed in particular by the concentration of exports on high technology and low technology products. The effect of high technology products on Finland's market share was substantial in 2000–2001. In 1999–2001, Finland's high technology exports grew by about 10 percentage points faster than total world trade in

these products. During that period, the share of high technology in Finnish exports was broadly the same as that of this product group in total world trade. Subsequently, however, the share of high technology products in world trade has increased rapidly, with the share of this product group in Finnish exports dropping drastically. In 2002–2010, high technology exports from Finland grew by about 30 percentage points less than in world trade on average.

Finland's export performance is dependent on developments in neighbouring areas

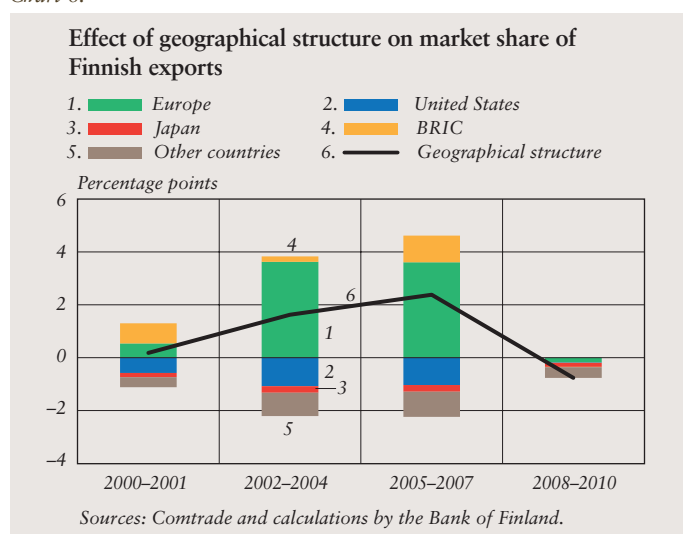
With world trade growing rapidly in the early 2000s, Finland's market share was favourably affected by the direction of its exports towards the growing markets of neighbouring areas, such as Russia and the Nordic countries (Chart 6). Europe accounted for approximately 70% of Finnish goods exports in the first post-millennium decade, with an average of 25% allocated to Russia and

the Nordic countries. On the other hand, China and 'other Asia' had a negative impact on Finland's market share, as these regions' share in Finnish exports throughout the review period was smaller than their share of global import demand. Given that Asia and especially China grew very quickly in the 2000s, a stronger export focus on these regions would have improved Finland's export performance.

The effect of the geographical breakdown on Finland's market share weakened after the onset of the financial crisis. In 2008–2010, exports contracted on average on all continents, except for Asia. Finnish exports lagged well behind world trade growth during this period. At the same time, import demand from neighbouring areas important for Finland declined or slowed significantly (Chart 1). Consequently, the Nordic countries and Russia made a negative contribution to Finland's market share.

Growth in Chinese and other Asian import demand dipped in 2009; however, return to brisk growth rates was prompt, with a pace of growth in 2010 of about 10% faster than average world trade growth. In 2010, import demand from other Asian countries also grew markedly more rapidly than world trade. Owing to these countries' under-representation in Finnish exports throughout the first post-millennium decade, these regions contributed negatively to Finland's export performance, in the light of the CMS analysis.

Chart 6.



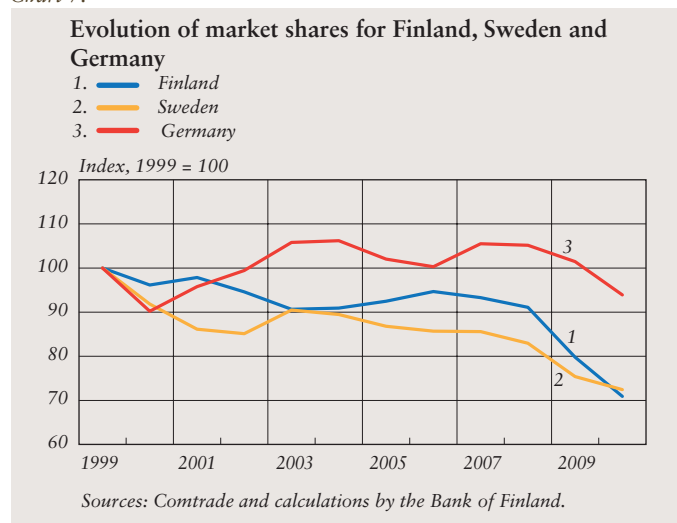
Sweden's market share also declined in the 2000s

Developments in the market share of Finnish exports relative to those in Sweden's and Germany's corresponding shares can be examined using CMS analysis. Finland and Sweden witnessed very similar market share changes in 1999–2010. Both countries' exports failed to match the pace of world trade growth (Chart 7). Sweden's market share contracted at an even pace throughout the decade, thus differing from the evolution of Finnish exports, as Finland's market share began to shrink more pronouncedly after 2008.

German exports are both geographically and in terms of product structure more widely distributed than Finnish and Swedish exports. The geographical position of Germany in the vicinity of the growing economies of Eastern Europe, in particular, has improved the country's export performance. German exports expanded more rapidly than world trade in 2003–2008. Against the backdrop of the crisis, German exports, too, have fallen behind world trade growth.

In Sweden, the effect of the geographical and product structure on its market share began to fade after 2008 and has continued to do so since. The structure effect is still positive, however. The product structure of Swedish exports has been particularly beneficial, whereas the effect of the geographical breakdown has been only slightly positive. As the positive destination market and product effect on exports has not been able to offset weakening competitiveness, Sweden – like Finland – has failed to keep

Chart 7.



pace with global trade growth. This can be explained partly by the same reasons as Finland's poor export performance. Sweden's production capacity could not respond to rapidly increasing import demand worldwide.

In Germany, the effect of geographical and product structure on the country's market share has been considerably smaller than in Finland. Germany's export performance mainly comes through the competitiveness factor. Unit labour cost trends in Germany in the 2000s were much more moderate than in Finland, resulting in a distinct improvement in the price competitiveness of German exports.

The positive structure effect in Germany came almost entirely through the destination market effect, with the product effect remaining almost unchanged until 2008 and turning negative thereafter, as in Finland. The positive destination market effect was particularly large just ahead of the crisis, with Germany succeeding in

allocating its exports to markets that grew faster than world trade, such as Eastern Europe.

Finnish exports failed to keep pace with world trade growth

Factors underlying export dynamics may include causes related to competitiveness or export structures. This article has looked at Finland's export performance in goods trade via structural factors. Export structure in this article is understood to mean the geographical and product breakdown of Finnish exports and the structure of global import demand.

Based on the results of the constant market share analysis, the structure of Finnish goods exports has bolstered the market share of Finland's exports on world markets. In the first post-millennium decade, Finland exported products for which there was brisk demand, and exports were directed towards growing markets. Following the financial crisis, however, the structure of exports eroded Finland's market share.

The results of the analysis suggest that high technology exports increased Finland's market share only around the turn of the millennium, with the country's high technology export performance subsequently falling behind the evolution of world trade in these products. On the other hand, in the early years of the millennium, exports of low technology products had a large positive effect on the market share. The effect of this product group has, however, turned negative in response to changes in the demand structure of world trade.

Finland's goods exports are geographically directed towards neighbouring areas. The country's location in the vicinity of the growing Russian and strong European economies boosted Finnish goods exports in the 2000s. By contrast, emerging Asian economies have had a negative impact on Finland's market share because of their under-representation in Finnish exports. Finnish exports have not been able to reap full benefits from the rapid growth in Chinese and other Asian import demand.

The results of the CMS analysis suggest that the contraction in Finland's market shares was due to other factors rather than the structure of exports. Despite a positive export structure effect, Finland has failed to match the pace of world trade growth. This is, by definition, not exceptional: the evolution of market shares has been similar in all the main advanced economic regions worldwide.⁶

Keywords: international trade, exports, market share, constant market share analysis (CMS analysis)

⁶ Riad et al. (2012) found that the market shares of the United States and Japan in the 2000s contracted by roughly as much as Finland's. The euro area, too, has seen almost as large contractions in market share.

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Long-term growth forecast for the Finnish economy

To make the correct economic policy choices one must have a view of the long-term growth prospects for the economy, as these policy choices will have implications for decades ahead. Of the factors that will influence economic growth in the decades ahead, the easiest to anticipate is population ageing, which will depress labour supply and hence reduce the economy's growth potential. In contrast, it is much harder to estimate future trends in productivity. The slower productivity growth since 2008 could be viewed as a temporary phenomenon that will be followed by a return to the earlier trend of rapid productivity growth, but it could also be a more permanent change. In any case, the share of output taken by services, with their slower productivity growth, will grow in the immediate decades ahead as the population ages, which foretells much more sluggish GDP over the next few decades.

To make the correct economic policy choices one must have a view of the long-term growth prospects for the economy. This is particularly important in the area of fiscal policy. Assessments of the long-term sustainability of the public finances have to take a position on economic developments decades into the future. Securing the sustainability of general government finances has become one of the key challenges for the immediate years ahead.

Estimates of long-term economic growth are generally based on developments in the available labour resources and a view of the likely developments in labour productivity. The estimation of labour input is generally straightforward, as it is based on the long-term

population forecast published by Statistics Finland. Productivity developments are much harder to foresee. In Finland, estimating average productivity across the economy as a whole is particularly difficult, due to both the heterogeneous and strongly fluctuating productivity trends in different industries and the recession experienced in recent years.

Estimates of the growth outlook are fundamentally affected by whether the slowdown in productivity growth since 2008 is seen as a transitory phenomenon to be followed by a return to the earlier trend of rapid productivity growth, or whether it represents a more lasting slowdown. The slower productivity development may be thought of as demand-led, ie a consequence of the recession that began in autumn 2008, whereupon it is natural to assume productivity growth will in future return to the figures recorded prior to the financial crisis. On the other hand, the slower productivity growth may also be interpreted as a consequence of the receding of factors that temporarily boosted productivity, and that it is therefore structural and permanent in nature. Such temporary factors were the general closing of the industrial productivity gap in the 1970s and 1980s and the strong Nokia-led growth in ICT-sector productivity in the wake of the 1990s recession.

Of the factors that will influence economic growth in the decades ahead, the easiest to anticipate is population ageing. This will impact on the productivity of the Finnish economy as a whole through the change it brings to the structure of output in the economy. The share of output contributed by social and



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healthcare services and other personal services will grow. This will mean output being slanted more towards sectors with low productivity growth, which will inevitably reduce average productivity growth across the economy.

This article examines possible developments in the Finnish economy over the next 20 years from the perspectives outlined above. It presents estimates of the pace of GDP growth during the next two 10-year periods and breaks growth down into its constituent components of labour force growth, capital deepening and growth in total factor productivity.

From an economic policy perspective, the growth estimates set out in the economic stabilisation programme play a key role. These are based on assessment principles agreed jointly at EU level.¹ Long-term growth estimates have also been produced sporadically by domestic Finnish forecasting agencies. At

¹ For the latest growth assumptions of the European Commission's Ageing Working Group (AWP), see European Commission (2011).

the summer seminar for economic researchers in Jyväskylä in 2008, the Research Institute of the Finnish Economy (ETLA), the Labour Institute for Economic Research (PT) and Pellervo Economic Research (PTT) in conjunction with the Ministry of Finance published economic forecasts stretching as far ahead as 2028. In spring 2012, leading economic forecasters were requested to make similar long-term estimates. The present article serves as an introduction to that by the Bank of Finland.

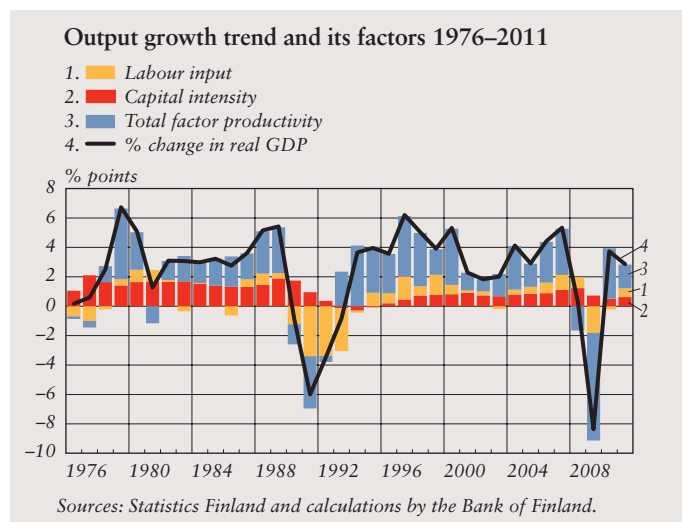
Sources of economic growth

A breakdown of output growth between the growth contributions of labour productivity and labour and capital inputs effectively illustrates the development phases of the Finnish economy and also the direction of growth policy.² From the mid-1970s through to the recession in the early 1990s, growth in both GDP and labour productivity was largely a consequence of growth in the capital stock (Chart 1). The high investment ratio in the economy was supported by the initial low level of the capital stock and economic policies that favoured investment. The roots of these pro-investment policies stretch back to the 1950s and the drive to accelerate our country's industrialisation.

In addition to growth in the capital stock, productivity also gained from the catching-up effect, i.e. the possibility of

² According to Matti Pohjola, who has examined the factors contributing to growth in the Finnish economy, Finland for a long time lagged behind the rest of Europe in labour productivity, but has in recent years closed the gap. Even so, labour productivity in Finland remains weaker than in the United States. In recent years, a strength of the Finnish economy relative to other European countries has been the favourable trend in labour supply. (Pohjola 2011)

Chart 1.



narrowing the productivity gap relative to more advanced economies by adopting technical innovations developed elsewhere. A strong input into raising the educational level of the population can also be considered as part of growth policy, as the ability to exploit technical advances depends on the educational level of the labour force. Since the mid-1990s, growth in total factor productivity has replaced investment as the source of growth. In the post-recession years, one of the tools of active growth policy has been the provision of support for R&D investment. Since the end of the 1990s, economic growth has also gained from an increase in the size of the labour force.

The global financial crisis that began in autumn 2008 and the deep recession that followed it accelerated the restructuring of the Finnish economy. Before the economic crisis, industrial output was already moving from Finland to the emerging economies close to the rapidly expanding markets in eg China and India. However, the crisis caused a stiffening of global competition and forced Finnish companies to seek out more cost-effective production processes. The volume of industrial output in Finland, as in many other advanced economies, has contracted substantially in just a short period, and industrial employment has declined.

The restructuring of the economy was still bolstering labour productivity growth in the early years of the new millennium.³ Since then the situation has changed radically. Before the recession, the growth in the share of the

³ See Box 3, above.

economy attributable to general government and private services was already beginning to weaken improvements in productivity. At the same time, the decline in the output share of electronics and electrical engineering depressed average productivity growth in industry.

In considering the possible developments in the various factors that contribute to economic growth over the next two decades, we have drawn on a calculation framework in which the economy is divided into three sectors: general government, manufacturing industry and private economic activities other than manufacturing. This division allows us to take account of the different paces of productivity growth in the different sectors of the economy. It also allows us to examine how population ageing impacts on labour supply, the distribution of output between sectors and productivity.

Output in each sector (Y) is determined by a neo-classical Cobb-Douglas production function that takes the form $Y=AK^\alpha L^{1-\alpha}$. Parameter α indicates the weight of capital (K), and $(1-\alpha)$ correspondingly the weight of labour (L) in output, and its value in each sector is set at 0.5. The levels of output calculated for each sector are finally aggregated to produce the total output for the economy as a whole.⁴

⁴ In calculating total output for the economy as a whole, account is taken of changes in relative prices between sectors, which are estimated as following developments in sector-specific labour inputs.

Development of labour force, capital stock and productivity

Labour force

The development of labour supply is decisively affected by demographic trends. However, in an ageing economy another important factor is the choices made by workers approaching retirement age. The forecast for labour supply for the years 2013–2032 has drawn on Statistics Finland’s most recent (published in 2009) population forecast for age groups 15–74 and a model for forecasting cohort-specific labour force shares developed at the Bank of Finland^{5,6} (Chart 2).

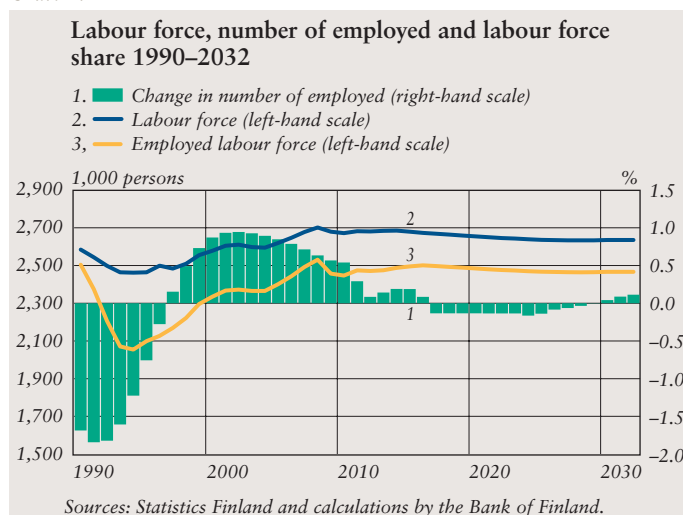
⁵ Kinnunen & Mäki-Fränti (2011).

⁶ The cohort-specific labour supply forecast was based on an econometric model in which the labour force participation rates of 21–64-year-olds born in different years were explained on the basis of age and year of birth. In accordance with the estimated results, the calculation assumes that cohort-specific participation rates were rising until the beginning of the 1970s. Thus, as older cohorts made way for younger ones, these higher participation rates compensated for the fact that the new cohorts entering the labour market were smaller than the preceding cohorts. The present calculation differs from the calculation of labour force contained in the forecast by examining 15–74-year-olds instead of 21–64-year-olds. The labour force shares of 15–20-year-olds and 65–74-year-olds are assumed to be unchanged from 2012 onwards.

Estimated on the basis of the population forecast and the cohort-specific labour force share model, the labour force (15–74-year-olds) would be almost 60,000 persons fewer at the start of the 2030s than it is now. A higher employment rate would compensate for much of the labour force reduction, such that labour input would decline altogether by around just 23,000 persons over the period 2013–2032. According to this calculation, the size of the labour force would have a small negative impact on growth during the next two decades.

As well as the overall size of the labour force, economic growth is also influenced by how the labour force is distributed between the different sectors of the economy. In the three-sector calculation framework, public sector labour demand is determined by output growth in public services, as the calculation assumes no rise in public sector productivity. Growth in public services output is based on the increased need for services as the population ages. The volume of services output other than age-related services output is assumed to persist at the level of the initial year, 2012.⁷ Industrial and other private production are left with the remaining portion of the total labour input. Under these assumptions, over the years 2013–2032 the labour force will grow around 9% in the public sector and around 3% in manufacturing industry and other private production.

Chart 2.



⁷ See Kinnunen & Kostiaainen (2010).

Capital stock

The capital stock in manufacturing industry has been growing at approximately 0.4% per annum since 1995. A shortage of investment has led to fears that Finland's industrial base is being eroded. The slowing pace of tangible investments has, however, been compensated by a growth in intangible investments. R&D expenditure has also been growing, but as this is entered in the National Accounts as consumption rather than investment, it is not visible as growth in the capital stock.

Elsewhere in the private sector, growth in the capital stock accelerated until the middle of the first post-millennium decade, easing off thereafter.

The estimate for growth in the capital stock of manufacturing industry over the years 2013–2032 is based as far as 2014 on the Bank of Finland's short-term forecast published in the forecast article in this issue of the Bank of Finland Bulletin. From 2015 onwards, the pace of growth in the manufacturing capital stock is expected to gradually ease. From 2017 it will grow 0.2%, and from the mid-point of the forecast period (2013–2032) just 0.15% per annum. The assumption regarding the slow pace of capital stock growth is based on recent years' low rate of investment in manufacturing. In the calculation, the capital stock of other private production grows at an average 1.3–1.5% per annum. The public sector capital stock has grown around ½% per annum since 1995. The pace has not been even, as public investment has typically been employed as an instrument to smooth out the ups

and downs of the economic cycle, most recently in the last recession. Public sector investment is, in fact, expected to slow during the years 2013–2032 and grow more slowly than employment, whereupon the impact of capital formation on growth will be mildly negative.

Total factor productivity

Growth in total factor productivity will in the coming years be slowed most strongly by the ongoing change in the production structure of the economy. Total factor productivity growth has until now been primarily a feature of manufacturing industry. Manufacturing's share of GDP is, however, shrinking, while the share of services is growing. Population ageing is increasing demand above all for health and care services. In these, it is hard – or often not expedient – to replace labour input with other inputs, which is why productivity growth in these services is below average.⁸

Improvements in total factor productivity were at their fastest over the years 1995–2001, when it is estimated to have grown over 6% per annum. Thereafter, the pace has been slower even in manufacturing. The average annual rate over the past decade has been 4%. Total factor productivity

⁸ Growth in the share of services output, and particularly output in social and health care services (due primarily to an ageing population), serves to reduce average productivity growth across the economy as a whole. As estimated using a general equilibrium model, growth in the number of pension recipients and growth in public consumption together cause a loss in productivity that affects labour productivity growth by an estimated average of 0.2% per annum. Here, the point of comparison is the baseline scenario, in which population growth remains even and the age structure remains unchanged. See Kinnunen & Railavo (2011).

Over the years 2013–2032 total factor productivity in the Finnish economy as a whole is forecast to grow at an average rate of less than 1 percentage point per annum.

growth in the rest of the private sector has been slower than in manufacturing, barely exceeding 2% per annum.

Over the years 2013–2032 total factor productivity in the Finnish economy as a whole is forecast to grow at an average rate of less than 1 percentage point per annum. This is considerably slower than during the past 40 years, when total factor productivity growth averaged over 3% per annum. As in previous decades, total factor productivity is expected to grow by far the fastest in manufacturing industry, at 2.7% per annum. Of all the sectors in the economy, industry has been able to exploit new technology most effectively, and the technological intensity of industry has grown rapidly. Industrial productivity has also been boosted by specialisation, but it is

assumed this will be slower in the future.

The average pace of growth in total factor productivity in other private production is forecast at 0.9% per annum, with the annual pace expected to slow somewhat as we enter the 2020s. Total factor productivity in general government is assumed to grow at a pace that will compensate the growth-slowing impact of the low level of investment. This means it is assumed that developments in ICT could over the long term give more support than before to productivity growth in both public sector and private services production. Public sector services production in particular has room to more fully exploit the potential benefits of ICT. Exploitation of these benefits is assumed to be slightly front-weighted.

Table 1.

Average growth sector by sector			
	2003–2012	2013–2022	2023–2032
Total economy			
GDP, %	1.9	1.5	1.3
Labour input, %	0.4	0.0	0.0
Labour productivity, %	1.5	1.5	1.3
Total factor productivity, %	0.9	1.0	0.7
Capital intensity, %	0.6	0.5	0.6
Private sector			
Output, %	2.3	1.7	1.5
Labour input, %	0.4	-0.2	-0.2
Labour productivity, %	1.8	1.9	1.7
Total factor productivity, %	1.1	1.2	0.9
Capital intensity, %	0.7	0.7	0.8
Public sector			
Output, %	-0.6	0.4	0.4
Labour input, %	0.2	0.4	0.4
Labour productivity, %	-0.8	0.0	0.0
Total factor productivity, %	-0.9	0.1	0.1
Capital intensity, %	0.1	-0.1	-0.1

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

Growth forecast to the year 2032

Finnish GDP is estimated to grow on average 1.5% per annum over the years 2013–2022, and 1.3% per annum in 2023–2032 (Table 1). Thus, the pace of growth will slow somewhat from that experienced in the past ten years. At the level of the total economy, economic growth in both ten-year periods will come from labour productivity growth in the private sector.⁹ Labour input is expected to grow in the public sector, but at the level of the total economy the impact on growth will be around zero. The growth impact of labour productivity in the private sector will be 1.9% in the first ten-year period, and 1.7% in

⁹ Manufacturing industry and other private production, which are distinguished in the three-sector model, have been combined in the table to constitute a single private sector.

the next ten years, and labour productivity itself will be increased mainly by growth in total factor productivity. A slight improvement in total factor productivity is also expected in the public sector, but this will only suffice to compensate the slower pace of public investment.

Increasing the level of productivity in public service production and extending the length of working careers have been key goals of economic policy in recent years. The impact of these factors on average economic growth can be illustrated by the use of sensitivity analyses.

Such an approach is complicated by the fact that the National Accounts do not genuinely measure the volume of public service production, with output

Table 2.

Alternative scenario in respect of long-term economic growth: general government productivity grows ½% per annum			
Total economy	2003–2012	2013–2022	2023–2032
GDP, %	1.9	2.0	1.9
Labour input, %	0.4	0.0	0.0
Labour productivity, %	1.5	2.0	1.9
Total factor productivity, %	0.9	1.5	1.3
Capital intensity, %	0.6	0.5	0.6

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

Table 3.

Alternative scenario in respect of long-term economic growth: labour input growth accelerates			
Total economy	2003–2012	2013–2022	2023–2032
GDP, %	1.9	1.7	1.5
Labour input, %	0.4	0.1	0.1
Labour productivity, %	1.5	1.6	1.5
Total factor productivity, %	0.9	1.1	0.9
Capital intensity, %	0.6	0.5	0.6

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

The main sources of economic growth will be the developments in labour productivity via growth in total factor productivity.

being calculated on the basis of labour input. Thus, even if faster productivity growth in public service production were in reality to increase economic wellbeing, this would not be directly seen as a quantified growth in output.

The first sensitivity analysis contains the assumption that public sector productivity will grow annually by ½%. It is also assumed that the volume of public service production will remain unchanged, whereupon the improved productivity will free up labour resources for use in the private sector, with its faster productivity growth. This would accelerate the pace of economic growth and rising living standards across the whole economy. If productivity in the public services were to grow ½% per annum, economic growth in the years 2013–2032 would rise to around 1.9–2.0% (Table 2). In this case, GDP in 2032 would be around 10% higher than in the baseline scenario.

In the second sensitivity analysis the assumption is that the pace of labour input growth is 0.1% per annum faster than in the baseline scenario. This would raise output growth to 1.5–1.7% (Table 3). This is under the assumption that public sector labour input would remain unchanged and the increase in labour input would focus entirely on the private sector. Growth in the private sector's share of GDP would also mean growth in average labour productivity. Under this scenario, GDP in 2032 would be around 4% higher than in the baseline scenario.

Thus, increased public sector efficiency or labour input growth as

envisaged in the calculation would speed up economic growth only slightly. However, more efficient public sector output, in particular, would ease the problem of general government sustainability, thereby reducing the need to tighten taxation and also contributing in this way to economic growth.

Future trend in public finances of key importance

The long-term growth outlook for the economy sets the context for economic policy decisions such as the fiscal policy stance. The estimates presented in this article regarding available labour resources, growth in the relative share of the service sector and the currently observable sectoral productivity trends presage much slower GDP growth over the next few decades. Neither labour supply nor investments in physical capital will any longer support growth to the extent of recent years. Hence the main sources of economic growth will be the developments in labour productivity via growth in total factor productivity.

Over the next 20 years, total factor productivity growth will come primarily from general technological development and investments in intangible assets. The pace of total factor productivity growth will be limited by the currently ongoing change in the production structure of the economy. The GDP share of services will grow in the forecast period in proportion as the population ages and the demand for services increases. The declining GDP share of industrial output will also be partly due to changes in the global distribution of

labour. The deep recession in the wake of the financial crisis already accelerated the shift of industrial output from Finland to closer to the final product markets. The GDP share of industrial output would appear to be settling permanently on a more moderate growth path than even in the middle of the last decade. Although the greatest scope for improvement in total factor productivity lies in both privately and publicly produced services, productivity growth in service sectors will be much lower than what has been seen in industrial output in Finland in recent years.

As the population ages, a growing proportion of Finland's labour resources will be engaged in tax-funded activities. If productivity development in public services continues to be sluggish, as assumed in the estimates presented here, the costs of public services will also rise strongly relative to the general trend in prices. If the rise in prices is taken into account, public services will bind even more economic resources than the volume development of public output would suggest. When, further, pension expenditure growth will be at its height over the next 15 years or so, there is a considerable risk that general government debt will become unsustainable. If we want to get a grip on the accumulation of debt under the present calibration of public services and current productivity trends, taxes will have to be raised, which will in turn reduce labour supply and further dampen growth in output.

From the perspective of economic growth, the most effective policy will

involve measures that boost labour supply and increase general government productivity. If economic restructuring is successful, the economy may grow faster than estimated here. The growth figures could also be boosted by unexpected technical innovations that would cause a leap in productivity in individual sectors. Economic policy cannot, however, be formulated on the basis of hoping for the best.

Keywords: forecasts, economic growth, productivity, restructuring

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Forecast tables

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

<i>% change on previous year</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
GDP at market prices	3.7	2.9	1.5	1.2	1.6
Imports of goods and services	7.7	0.1	1.8	5.3	5.2
Exports of goods and services	7.8	-0.8	2.2	5.1	5.2
Private consumption	3.0	3.3	1.4	1.3	1.6
Public consumption	0.2	0.8	1.1	0.2	0.4
Private fixed investment	4.1	5.0	1.5	3.3	3.5
Public fixed investment	-6.7	2.4	0.2	0.6	0.6

2. Contributions to growth¹

	2010	2011	2012 ^f	2013 ^f	2014 ^f
GDP, % change	3.7	2.9	1.5	1.2	1.6
Net exports	0.2	-0.3	0.2	-0.1	0.0
Domestic demand excl. inventory change of which	2.2	2.9	1.3	1.3	1.6
– Consumption	1.7	2.0	1.1	1.0	1.0
– Investment	0.5	0.9	0.3	0.6	0.6
Inventory change + statistical discrepancy	1.4	0.3	0.1	0.0	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

<i>Index, 2000 = 100, and % change on previous year</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
GDP at market prices	113.9	118.0	120.3	123.0	125.6
	0.4	3.6	2.0	2.2	2.1
Imports of goods and services	107.3	115.5	118.8	120.6	122.7
	6.4	7.6	2.9	1.6	1.7
Exports of goods and services	96.5	101.1	103.5	105.2	107.2
	3.9	4.7	2.4	1.7	1.8
Private consumption	116.6	120.1	123.5	126.2	128.5
	2.0	3.0	2.8	2.2	1.8
Public consumption	141.2	144.9	148.5	152.5	156.5
	1.8	2.6	2.5	2.7	2.6
Private fixed investment	114.6	118.4	120.4	122.5	125.4
	-3.1	3.3	1.7	1.8	2.3
Public fixed investment	124.6	130.0	133.5	135.9	138.3
	-1.3	4.3	2.7	1.8	1.8
Terms of trade (goods and services)	89.9	87.5	87.2	87.2	87.4
	-2.3	-2.7	-0.4	0.1	0.2

4. Balance of supply and demand, at current prices

<i>EUR million and % change on previous year</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
<i>GDP at market prices</i>	179,721	191,571	198,334	205,173	212,893
	4.2	6.6	3.5	3.4	3.8
<i>Imports of goods and services</i>	70,526	75,892	79,444	84,993	90,897
	14.6	7.6	4.7	7.0	6.9
<i>Total supply</i>	250,247	267,463	277,778	290,166	303,790
	6.9	6.9	3.9	4.5	4.7
<i>Exports of goods and services</i>	72,099	74,870	78,414	83,747	89,734
	12.0	3.8	4.7	6.8	7.1
<i>Consumption</i>	143,121	151,011	157,192	162,424	167,875
	4.1	5.5	4.1	3.3	3.4
<i>Private</i>	98,942	105,292	109,784	113,627	117,608
	5.0	6.4	4.3	3.5	3.5
<i>Public</i>	44,179	45,719	47,408	48,796	50,267
	2.0	3.5	3.7	2.9	3.0
<i>Fixed investment</i>	33,901	36,687	37,838	39,657	41,836
	-0.3	8.2	3.1	4.8	5.5
<i>Private</i>	29,410	31,891	32,902	34,600	36,657
	1.0	8.4	3.2	5.2	5.9
<i>Public</i>	4,491	4,796	4,936	5,056	5,180
	-7.8	6.8	2.9	2.4	2.4
<i>Inventory change + statistical discrepancy</i>	1,126	4,895	4,334	4,339	4,344
<i>% of previous year's total demand</i>	1.3	1.5	-0.2	0.0	0.0
<i>Total demand</i>	250,247	267,463	277,778	290,166	303,790
	6.9	6.9	3.9	4.5	4.7
<i>Total domestic demand</i>	178,148	192,593	199,365	206,419	214,056
	5.0	8.1	3.5	3.5	3.7

5. Balance of supply and demand

<i>% of GDP at current prices</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
<i>GDP at market prices</i>	100.0	100.0	100.0	100.0	100.0
<i>Imports of goods and services</i>	39.2	39.6	40.1	41.4	42.7
<i>Exports of goods and services</i>	40.1	39.1	39.5	40.8	42.1
<i>Consumption</i>	79.6	78.8	79.3	79.2	78.9
<i>Private</i>	55.1	55.0	55.4	55.4	55.2
<i>Public</i>	24.6	23.9	23.9	23.8	23.6
<i>Fixed investment</i>	18.9	19.2	19.1	19.3	19.7
<i>Private</i>	16.4	16.6	16.6	16.9	17.2
<i>Public</i>	2.5	2.5	2.5	2.5	2.4
<i>Inventory change + statistical discrepancy</i>	0.6	2.6	2.2	2.1	2.0
<i>Total demand</i>	139.2	139.6	140.1	141.4	142.7
<i>Total domestic demand</i>	99.1	100.5	100.5	100.6	100.5

6. Prices

<i>Index, 2000 = 100, and % change on previous year</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
<i>Harmonised index of consumer prices, 2005 = 100</i>	110.5	114.2	117.5	120.0	121.9
	1.7	3.3	2.9	2.2	1.6
<i>Consumer price index, 2005 = 100</i>	109.7	113.5	116.7	119.2	121.3
	1.2	3.5	2.9	2.1	1.7
<i>Private consumption deflator</i>	116.6	120.1	123.5	126.2	128.5
	2.0	3.0	2.8	2.2	1.8
<i>Private investment deflator</i>	114.6	118.4	120.4	122.5	125.4
	-3.1	3.3	1.7	1.8	2.3
<i>Exports of goods and services deflator</i>	96.5	101.1	103.5	105.2	107.2
	3.9	4.7	2.4	1.7	1.8
<i>Imports of goods and services deflator</i>	107.3	115.5	118.8	120.6	122.7
	6.4	7.6	2.9	1.6	1.7
<i>Value added deflators</i>					
<i>Value added, gross at basic prices</i>	115.5	119.1	122.4	125.3	128.3
	0.5	3.1	2.8	2.4	2.3
<i>Private sector</i>	107.8	111.1	114.0	116.6	119.2
	-0.1	3.0	2.6	2.3	2.2
<i>Public sector</i>	157.7	163.2	168.9	173.9	178.6
	3.2	3.5	3.5	2.9	2.7

7. Wages and productivity

<i>% change on previous year</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
<i>Whole economy</i>					
<i>Index of wage and salary earnings</i>	2,6	2,7	3,2	2,7	3,2
<i>Compensation per employee</i>	3,5	2,8	2,9	2,7	3,1
<i>Unit labour costs</i>	-0,6	1,0	1,9	1,5	1,7
<i>Labour productivity per employed person</i>	4,1	1,8	1,0	1,2	1,4

8. Labour market

<i>1,000 persons and % change on previous year</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
<i>Labour force survey (15–74-year-olds)</i>					
<i>Employed persons</i>	2,447	2,474	2,486	2,487	2,491
	-0.4	1.1	0.5	0.0	0.2
<i>Unemployed persons</i>	224	209	207	205	203
	1.5	-6.9	-0.9	-1.0	-0.7
<i>Labour force</i>	2,671	2,682	2,692	2,691	2,694
	-0.2	0.4	0.4	0.0	0.1
<i>Working-age population (15–64-year-olds)</i>	3,555	3,539	3,523	3,503	3,486
	0.2	-0.4	-0.4	-0.6	-0.5
<i>Labour force participation rate, %</i>	66.1	66.1	66.1	65.8	65.7
<i>Unemployment rate, %</i>	8.4	7.8	7.7	7.6	7.5
<i>Employment rate (15–64-year-olds), %</i>	67.8	68.6	69.2	69.6	70.1

9. General government revenue, expenditure, balance and debt

% of GDP					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
General government revenue	52.7	53.2	53.6	54.2	54.4
General government expenditure	55.5	54.0	54.4	54.4	54.3
General government primary expenditure	54.2	52.6	53.0	53.0	52.8
General government interest expenditure	1.4	1.4	1.4	1.4	1.5
General government net lending	-2.8	-0.9	-0.8	-0.2	0.1
Central government	-5.6	-3.2	-2.8	-1.9	-1.5
Local government	-0.2	-0.4	-0.7	-0.8	-0.8
Social security funds	3.0	2.8	2.7	2.5	2.4
General government primary balance	-1.5	0.6	0.6	1.2	1.5
General government debt	48.4	48.6	52.4	53.5	54.1
Central government debt	41.8	41.6	45.0	45.6	45.6
Tax ratio	42.2	42.7	43.2	43.9	44.0

10. Balance of payments

EUR million					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
Exports of goods and services	72,099	74,870	78,414	83,747	89,734
Imports of goods and services	70,526	75,892	79,444	84,993	90,897
Goods and services account (SNA)	1,573	-1,022	-1,030	-1,247	-1,163
% of GDP	0.9	-0.5	-0.5	-0.6	-0.5
Investment income and other items, net (+ statistical discrepancy)	2,661	1,385	1,304	1,138	1,089
Current transfers, net	-1,660	-1,636	-1,699	-1,741	-1,788
Current account, net	2,574	-1,272	-1,425	-1,849	-1,862
Net lending, % of GDP					
Private sector	4.3	0.2	0.1	-0.7	-0.9
Public sector	-2.8	-0.9	-0.8	-0.2	0.1
Current account, % of GDP	1.4	-0.7	-0.7	-0.9	-0.9

11. Interest rates

%					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
3-month Euribor ¹	0,8	1,4	0,8	0,7	0,9
Average interest rate on new loans	2,9	3,3	2,6	2,6	2,8
Average rate of interest on deposits	0,7	1,0	0,7	0,6	0,6
Bank lending rate, average	2,3	2,6	2,1	1,9	2,0
Yield on Finnish 10-year government bonds ¹	3,0	3,0	2,2	2,5	2,8

¹ Technical assumption derived from market expectations.

12. International environment

<i>The Eurosystem staff projections</i>					
	2010	2011	2012 ^f	2013 ^f	2014 ^f
GDP, % change on previous year					
Whole world	5.2	3.7	3.2	3.8	4.2
USA	3.0	1.7	2.2	2.2	2.8
Euro area ¹	1.9	1.5	-0.5-0.3	0.0-2.0	
Japan	4.5	-0.7	2.2	1.7	1.6
Imports, % change on previous year					
Whole world	12.9	6.1	4.4	6.4	7.2
USA	12.5	4.9	4.1	4.9	5.9
Euro area ¹	9.6	3.8	-0.7-2.9	0.9-7.9	
Japan	11.1	5.8	4.9	4.7	4.9
Index, 2000=100, and % change on previous year					
<i>Import volume in Finnish export markets</i>					
	164.9	176.6	183.7	194.3	206.4
	13.3	7.1	4.0	5.8	6.2
<i>Export prices (excl. oil) of Finland's trading partners, national currencies</i>					
	112.8	115.5	117.3	119.4	121.3
	2.3	2.4	1.6	1.8	1.6
<i>Export prices (excl. oil) of Finland's trading partners, in euro</i>					
	96.6	100.9	105.1	107.1	108.8
	8.0	4.4	4.2	1.9	1.6
<i>Industrial raw materials (excl. energy), HWWA index, in US dollars</i>					
	212.7	243.4	214.6	218.7	230.1
	38.7	14.4	-11.8	1.9	5.2
<i>Oil price, USD per barrel²</i>					
	79.6	110.9	114.5	107.8	101.9
	28.7	39.3	3.3	-5.9	-5.4
<i>Finland's nominal competitiveness indicator^{2,3}</i>					
	103.6	103.0	100.4	100.3	100.3
	-3.8	-0.5	-2.5	-0.1	0.0
<i>US dollar value of one euro²</i>					
	1.33	1.39	1.30	1.30	1.30
	-5.0	5.0	-6.3	-0.3	0.0

¹ The Eurosystem staff projections for macroeconomic developments in the euro area are prepared for the years 2012–2013. 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 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

15 June 2012

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