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EDITORIAL

Monetary policy will continue to support price stability and growth

20 DEC 2016 3:45 PM • BANK OF FINLAND BULLETIN 5/2016 • EDITORIAL

Of the various factors of uncertainty surrounding the international economic outlook at the present time, a substantial proportion relates to policy choices. Much expectation focuses on US economic policy in the immediate years ahead, but so far no details are known. Meanwhile, the United Kingdom's new arrangements in respect of its international economic relations remain undecided, while the UK Government's detailed objectives are not entirely clear. Politically motivated uncertainties regarding the economic outlook are also to be found elsewhere in Europe and beyond.

In many countries, the supporters of free trade and other international cooperation have been forced onto the back foot. Voices have been heard demanding national isolation. At the same time there is a great need for international cooperation and joint decision-making if we are to manage the current problems with climate change, the refugee situation and the economy.

Behind the political uncertainties could in part lie the deteriorating financial position of many households in the advanced economies. The sluggishness of the economy in recent years, unemployment and growing financial inequality have led to a sense of betrayal and a lack of opportunities. In such a situation positive attitudes towards, for example, international cooperation could suffer.

In Finland, too, many households are facing tougher times financially. Income differences between households in Finland grew around the turn of the millennium and the years immediately preceding it. Since 2008 unemployment has increased, with a decline in the number of jobs, particularly in industry. Long-term unemployment is more common than before.

Factors underlying the structural changes experienced in the advanced economies in recent decades include technological change and globalisation. These have generated a great deal of economic well-being, and viewed globally income differences have narrowed, as the emerging economies have gained ground on wealthier countries. At the same time, there is a greater need to manage the economic impacts of these trends within the advanced economies.

There is nothing to be gained from attempting to turn back the clock with regard to technological development and globalisation. When the economic environment undergoes rapid change, policy choices should be devoted to supporting the successful adaptation of economies to the new circumstances. At the same time it is important to care for those whose position has been weakened. There is an important role here for social protection and the labour market institutions. The education system has a key role to play in combating inequality, particularly over the longer term. Vital to cushioning the problems relating to unstable economic developments are successful fiscal and monetary policies.

Despite the various factors of uncertainty, economic growth has continued in the advanced economies in 2016, if at a moderate rate. Inflation in these economies has continued to be sluggish. In the euro area, growth has continued to be broadly based and firming, but inflationary pressures are subdued.

The ECB Governing Council decided at its meeting of 8 December 2016 to keep its policy rates unchanged and continue the expanded asset purchase programme (EAPP) until the end of 2017, and beyond if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its inflation aim. These measures have been calibrated to preserve the very substantial degree of monetary accommodation necessary to secure a sustained convergence of inflation rates towards levels below, but close to, 2% over the medium term.

The monetary policy pursued by the European Central Bank has also supported growth in Finland. Growth in the euro area economy boosts Finnish companies' opportunities to increase exports to other euro area countries. The euro area's share of Finnish exports has in fact been growing over the past few years. Moreover, the monetary policy measures have affected financing costs in Finland, and interest rates on, for example, household and corporate loans are low. In this way, monetary policy has bolstered consumption and investment in Finland.

The Finnish economy has begun to recover after a prolonged period of weakness. GDP returned to gentle growth in 2015, and growth has continued through 2016. So far, growth has been largely dependent on household consumption and housing investment. Looking to the immediate years ahead, economic developments in Finland are forecast to

gradually balance out. Exports will recover gradually as growth continues in the export markets and the cost-competitiveness of Finland's exports improves.

The position of Finland's public finances has remained difficult, partly due to the large numbers of unemployed. According to the Bank of Finland forecast, even GDP growth will not bring about a rapid shrinkage in the general government deficit in the immediate years ahead, and there will still be a need for measures to strengthen the public finances.

Such measures are also necessary in view of the longer-term outlook. The long-term sustainability of Finland's public finances has not been secured, which threatens a difficult future for the current generation of young people, who will have to bear not only the costs of caring for the older generation, but also the costs stemming from the now rapidly growing public debt.

Key factors in improving the foundations of economic growth are the operating environment for companies and the constant renewal of Finland's business community. The importance of young companies in advancing the economy is in some ways different to that of established companies. In the former, labour productivity growth is often more rapid than in older companies. On the other hand, the most important source of productivity growth across the economy as a whole is the gradual renewal of established firms, as the largest companies are predominantly old.

Young companies are important to employment development. A large proportion of jobs are created in a very small group of rapidly growing, often young companies. In recent years, the renewal of the stock of businesses in Finland has slowed and less new companies are emerging than in the past. The proportion of young companies is smaller in Finland than in many other countries.

It is hard for government to identify in advance those companies that will grow rapidly, and rapid growth that has already occurred cannot necessarily be used to anticipate the continuation of a similar trend in the future. The role of economic policy is to create equal opportunities for different sorts of companies and a positive environment for the birth of new enterprises and the growth of all sorts of companies.

When the economy develops the capacity to renew itself in such a way that productivity improves and employment opportunities are generated, the growth outlook will improve. At the same time the risk of increasing marginalisation and lack of opportunities will be reduced.

Helsinki, 12 December 2016

Erkki Liikanen
Governor of the Bank of Finland

Tags

- indebtedness
- inequality
- monetary policy

- price stability
- productivity

BANK OF FINLAND FORECAST

Finland has left recession behind

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK

The Finnish economy has returned to growth. During 2016, growth has strengthened particularly on the back of private consumption and investment recovery. GDP will continue to grow in 2017–2019, driven by domestic demand, but will remain subdued, at a good 1% per annum, relative to previous cyclical upswings. The risks to the baseline forecast are tilted on the downside.

The Competitiveness Pact will curb increases in average earnings and unit labour costs in 2017. This will boost growth in investment, exports and GDP. Meanwhile, the outlook for the international economy is weaker than in summer 2016, and demand for Finnish exports will be weaker. However, improved competitiveness will see Finnish exports return to an upward trajectory, thereby supporting favourable GDP performance towards the end of the forecast horizon.

Private consumption will be the main driver of growth, especially in the early part of the forecast period. Growth in real disposable household income will be bolstered by the gradual improvement of the employment situation and low inflation. Growth in disposable income will decelerate only slightly in 2017 because of lower labour taxation.

Investment growth since 2015 has been markedly faster than previously envisaged. On top of very brisk growth in construction investment, corporate fixed investment has moved into growth, which also bodes well for future output potential. Despite this turnaround, the level of corporate fixed investment is only modest. The prolonged weak

condition of Finnish manufacturing is taking a turn for the better. Industrial output in 2016 has recorded year-on-year growth for the first time in four years.

Consumer price increases are set to remain exceptionally subdued during the forecast period, despite a gradual increase in the price of oil. Inflation will not pick up until the end of the forecast horizon, achieving 1%. The Competitiveness Pact will contribute to the sluggish price developments, as the particularly muted trend in labour costs will, in part, be reflected in end-product prices.

Employment has also resumed growth, which is predicted to remain fairly strong in the forecast years, relative to GDP performance. New jobs will be created by more than the employment growth figures on their own would suggest, as the working-age population continues to contract. Increasing employment will be underpinned by higher labour demand against the backdrop of the Competitiveness Pact and by the fact that economic growth will predominantly rest on domestic demand, notably labour-intensive service sectors and construction. On the other hand, obvious mismatch problems and a huge number of long-term unemployed will cause concern on the labour market. Going forward, high long-term unemployment will also begin to hamper the recovery of the economy.

Even modest economic growth will strengthen the general government fiscal position, as will measures to restrict increases in public expenditure. At the same time, growth in pension expenditure will remain rapid. The Competitiveness Pact will make a negative contribution to the public finances over the short-term, meaning that the general government structural budget balance will weaken in 2017. Growth in general government debt will continue towards 70% of GDP. Although halting the rise of the debt ratio over the medium term appears feasible, the long-term sustainability problem in the public finances remains unresolved.

GDP: Domestic demand the engine of growth

According to the Bank of Finland forecast, Finnish GDP will grow by 1.3% in 2017. Domestic demand is functioning as the engine of growth. The economy will continue to grow by 1.2% in 2018 and 2019. In spite of the recovery, growth will, nevertheless, remain slower in Finland than elsewhere in the euro area during the whole period. Finland's GDP will grow by roughly 3½%, overall, over the years 2017–2019, against close to 5% over the same period in the euro area as a whole (Chart 1).

Table 1.

Forecast summary

% change on previous year

	2016[f]	2017[f]	2018[f]	2019[f]
Gross domestic product	1.0	1.3	1.2	1.2
Private consumption	1.9	1.4	1.0	0.9
Public consumption	0.3	0.3	0.3	–0.3
Private fixed investment	5.8	3.4	2.5	2.7
Public fixed investment	3.1	0.6	–0.2	–0.1
Exports	0.7	2.1	2.5	2.6
Imports	1.2	2.0	2.1	1.9
Contributions to growth				
Domestic demand	2.2	1.5	1.1	0.9
Net exports	–0.2	0.0	0.1	0.3
Inventory change + statistical discrepancy	–1.1	–0.2	0.0	0.0
Savings ratio, households, %	–1.0	–1.0	–0.9	–0.3
Current account balance, % of GDP	–0.8	–0.9	–1.0	–0.9
Labour market				
Hours worked	0.9	0.8	0.8	0.7
Number of employed	0.4	0.6	0.6	0.7
Unemployment rate, %	8.8	8.5	8.3	8.2
Unit labour costs	0.5	–1.2	0.0	0.4
Labour compensation per employee	1.1	–0.5	0.6	1.0
Productivity	0.6	0.7	0.7	0.5
GDP, price index	1.2	–0.1	0.3	0.7
Private consumption, price index	0.5	0.6	0.7	0.8

f = forecast

Sources: Statistics Finland and Bank of Finland.

Forecast summary

Harmonised index of consumer prices	0.4	0.8	0.8	1.0
Excl. energy	0.7	0.6	0.7	0.8
Energy	–3.8	3.0	2.5	3.3

f = forecast

Sources: Statistics Finland and Bank of Finland.

Throughout the forecast period, economic growth will be mainly dependent on private consumption and investment (Chart 2). Private consumption will be buoyed by a gradual improvement in employment, growth in purchasing power and accumulation of debt. An exceptionally accommodative monetary policy will keep interest rates low on retail and corporate loans, also supporting consumption and spurring investment. Investment growth will be strongest early in the forecast period, reflecting the revival of new-build construction.

Export growth will finally pick up slightly. The Competitiveness Pact provides for lower unit labour costs, thus underpinning the prospects for export growth. However, due to the weaker-than-expected global outlook, demand for Finnish exports will not be as strong as foreseen. The loss of export markets will continue, but moderately, in response to stronger competitiveness.

The external indebtedness of the Finnish economy continues to grow. Over the years 2010–2015, the current account deficit already climbed to just over EUR 11 billion. The ratio of the current account deficit to GDP will remain in the region of 1% in the forecast period, reflecting deterioration in the terms of trade, as the Competitiveness Pact will keep domestic price developments moderate, while domestic demand will grow.

Chart 1.

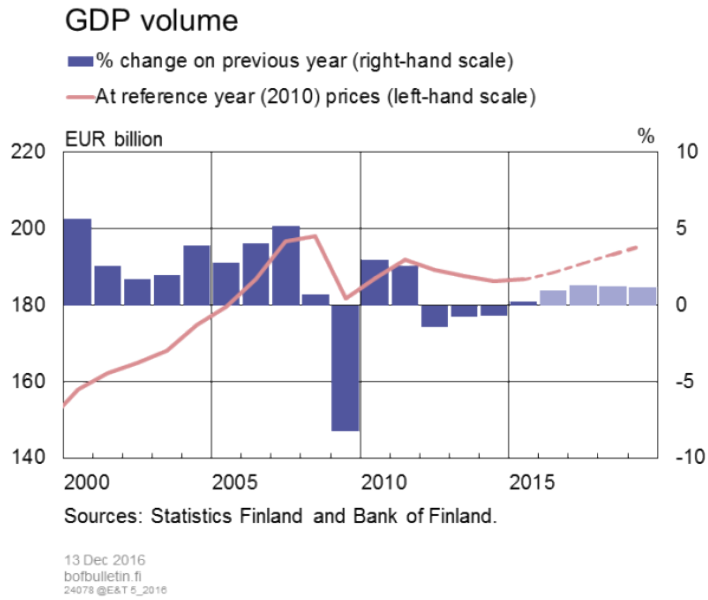
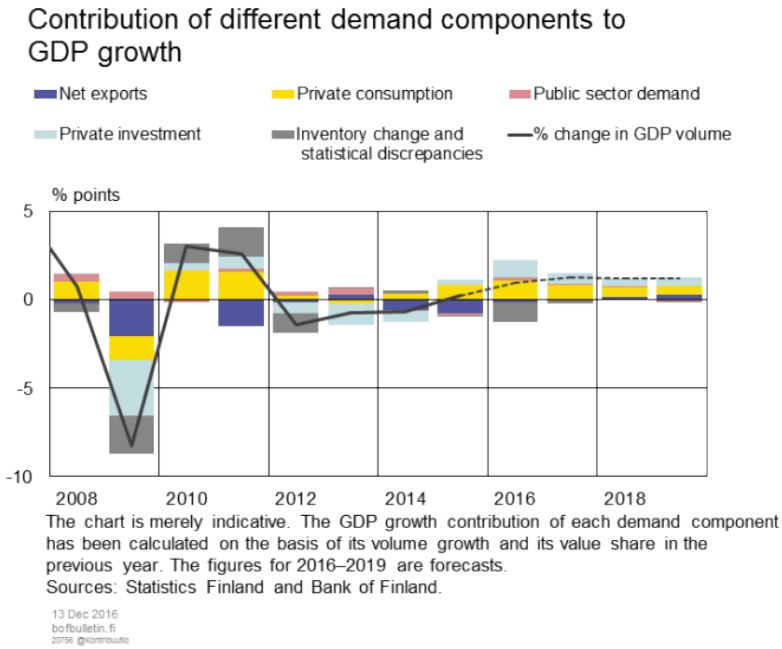


Chart 2.



The forecast takes account of statistical data and other information available on 23 November 2016. On 2 December 2016, Statistics Finland released the latest data on the quarterly national accounts, and these have been discussed in more detail in a separate article (National Accounts for the third quarter of 2016).

Households: Consumers sustain economic growth

The continued accommodative stance of monetary policy and strong consumer confidence will boost private consumption, particularly early in the forecast period.

Indeed, private consumption will remain the major factor contributing to economic growth in Finland. The increase in households' real income will be driven by gradual improvements in employment and low inflation, while growth in nominal earnings will be lacklustre. In the forecast period, consumption growth will mirror developments in households' disposable income, and households will no longer take on debt at the rate they have done in recent years.

Consumption will increase by nearly 2% in 2016 and this growth will slow only slightly in 2017, to around 1½%. With the conclusion of the Competitiveness Pact, the rise in average earnings will moderate, but the stronger employment outlook, together with the continued very low rate of consumer price inflation, will boost the purchasing power of wage earners. The easing of taxes on labour will offset the shift of social security contributions from employers to employees.

The increase in public transfers to households has sustained the purchasing power of households in recent years despite the recession. Notwithstanding the fall in unemployment, public transfers will continue to grow by a full 2% in 2017–2019, as the number of pensioners increases further.

In 2018 and 2019, consumption will grow at around 1% per annum, against a backdrop of continued improvements in employment and sustained low inflation. In 2019, consumer price inflation will pick up to 1%.

Growth in household debt accumulation will moderate over the forecast horizon, reflecting the expected more cautious behaviour of households in the wake of the rapid surge in debt levels witnessed in recent years. The Act on housing loan caps introduced in July 2016, together with lower tax deductibility for housing loans, will also serve to rein in debt accumulation. Under the new Act, housing loans are limited to 90% of collateral value, 95% for first time buyers.

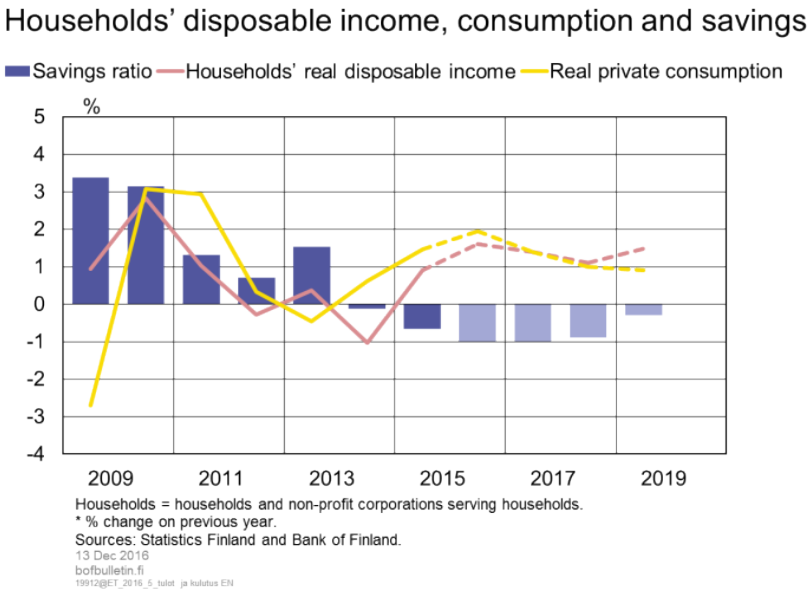
The most highly-indebted households typically represent the highest income brackets, which are better equipped to bear the risks of debt. Their purchasing power is strongly supported by the low level of interest rates. In fact, low-income households in rented accommodation, who are not in a position to benefit from the fall in interest rates but have to pay increasingly higher rents, are a more vulnerable group than mortgage holders.

The pick-up in housing sales will fuel demand for new housing loans, while the growth rate of the housing loan stock will remain moderate. Considering that annuity loans make up a significant proportion of housing loans, amortisations will account for a higher share of loan servicing expenditure in a low interest rate environment, thus holding back growth in the loan stock.[1] As well as growth in the housing loan stock, the continued brisk pace of renovation work will, however, also add to the household debt burden. In fact, the debt burden of households increasingly consists of debt to housing corporations.

1. According to a sample survey conducted by the FIN-FSA, annuity loans accounted for 46% of new housing loans in 2012, against 40% in 2010. The data of the sample survey comprised housing loan awards made in the course of three days.

Internal migration will continue in the forecast years, and regional differences in house prices will increase further in response. House price rises will also be constrained by slower growth in household income and an increased supply of housing.

Chart 3.

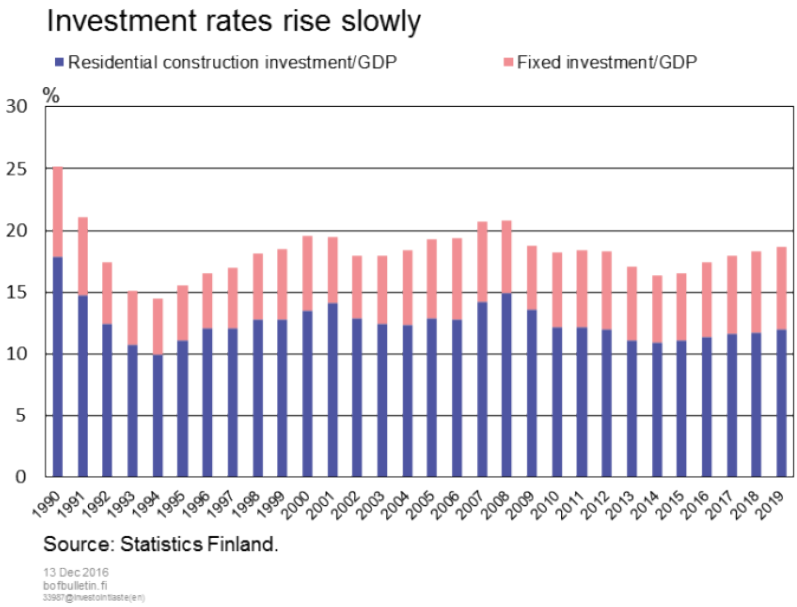


Non-financial corporations: Investments recovering and construction rising from the ashes

A severe contraction in private investment lasting several years ended in 2015, and an upturn in investment began to show. The 2016 growth in private investment has been driven particularly by a recovery in construction. The period of highest investment growth will occur in 2016–2017. In the second half of the forecast period, the growth rate will level out. The GDP share of productive investment will remain lower than usual.

Despite the recent upturn, private investment remains very modest. As a result of several years of investment recession, investments are nearly 6% lower than in 2011. In addition, private investment has declined much more than GDP, which has led to a drop in the total investment ratio (Chart 4). Private investment can be divided into residential construction investment and productive investment. Productive investment's share of GDP has decreased particularly significantly. The growth in total private capital stock will remain subdued in the forecast period.

Chart 4.

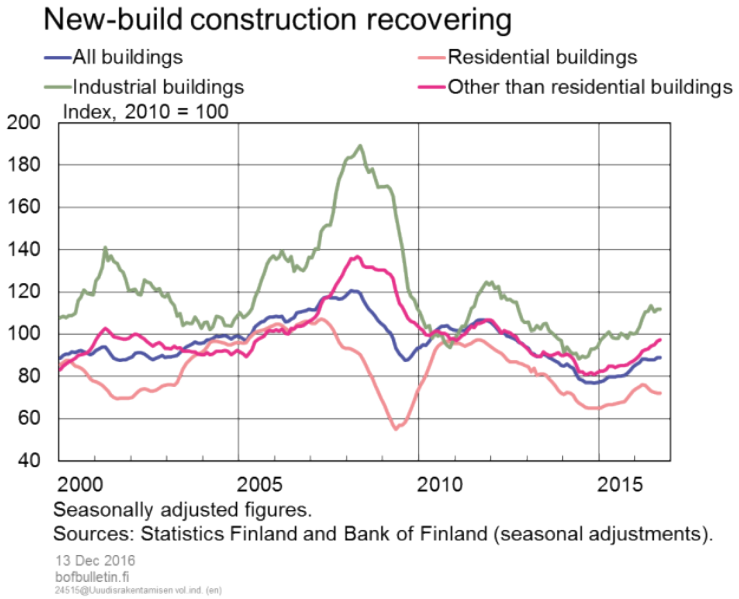


New-build construction has returned to rapid growth after a long period of decline (Chart 5). The number of residential building permits granted started to grow already towards the end of 2015, which shows in the increased residential construction in 2016.

Several factors have favoured the recovery in construction. Labour market recovery and migration to growth centres have supported residential construction. Low interest rates and availability of funding have strengthened the investment environment, and household confidence has also improved. Moreover, the extensive programme for renovation of old residential buildings will sustain investment in the future, too.

The growth in residential construction investment will peter out towards the end of the forecast period. The fastest growth will be at the beginning of the forecast period as investment growth takes off from a low level. Despite slowing growth, residential investment relative to GDP is considerable (Chart 4). There is a risk that the willingness to invest in new housing will cool faster than expected. New-build production may fade rapidly if sales of completed housing do not develop as expected.

Chart 5.



Productive investment, such as industrial investment in machinery and equipment and investment in infrastructure, began to grow in 2015 after several years of contraction.

The growth in productive investment will continue in 2017–2019. Productive investment is supported by, among other things, increased industrial capacity utilisation, low interest rates and good availability of funding. Corporate investment is also favoured by the Competitiveness Pact agreed by the social partners and the resulting improved competitiveness. The recovery in exports will raise investment needs. In addition, there are still several significant major individual investment projects currently underway.

In general, confidence has improved slightly in the corporate sector, and in some areas expectations have risen at a rate a little above average. However, expectations of industrial production are still modest in spite of a small improvement. In a questionnaire addressed to non-financial corporations, funding was not seen as a general obstacle to growth.

The profitability of non-financial corporations measured against operating surplus has been weak since the financial crisis (see also 'Winners and losers in industrial profitability'). Corporate profits' share of national income has decreased. In general, economic growth and cuts in employers' social security contributions will improve non-financial corporations' operating surplus.

Foreign trade: Improved competitiveness will strengthen exports

Finnish exports are expected to return to gentle growth after several weak years. In 2016, exports will grow at a rate below 1%, but in 2017–2019 they will notably pick up in line with improved competitiveness and strengthened foreign demand.

In recent years, total Finnish exports have not grown as expected, lagging behind the trend in the export markets. Reduced industrial capacity combined with problems caused by deteriorated cost-competitiveness have kept export growth extremely modest. At the same time, low global investment and uncertainties in the international economy have eroded the export prospects.

Despite lagging total exports, many industries and companies have been able to increase their own exports. Exports of transport equipment, among other things, have picked up in recent years. The downward trend in electrical engineering and electronics seems to be levelling out, but a clear growth is so far hard to distinguish. Although services exports have been growing in the past few years, they are still at the level of 2010 and have not been able to turn around the fragile export performance of recent years. SMEs have lately succeeded better than large companies in increasing their exports, but their share of total exports is much smaller.

Foreign trade still accounts for a very significant share of total output, even if exports have clearly decreased from the peak years. The GDP share of exports increased through the 2000s up to 2008, when it peaked at around 45%. Industrial restructuring, weak global demand for capital goods and competitiveness problems thereafter lowered the share below 40%, after which it has been stable around 40% since 2013. In contrast, the GDP share of imports has continued to grow steadily since 2013, as domestic demand has boosted imports and domestic production has increasingly been replaced by imports (Chart 6).

Chart 6.

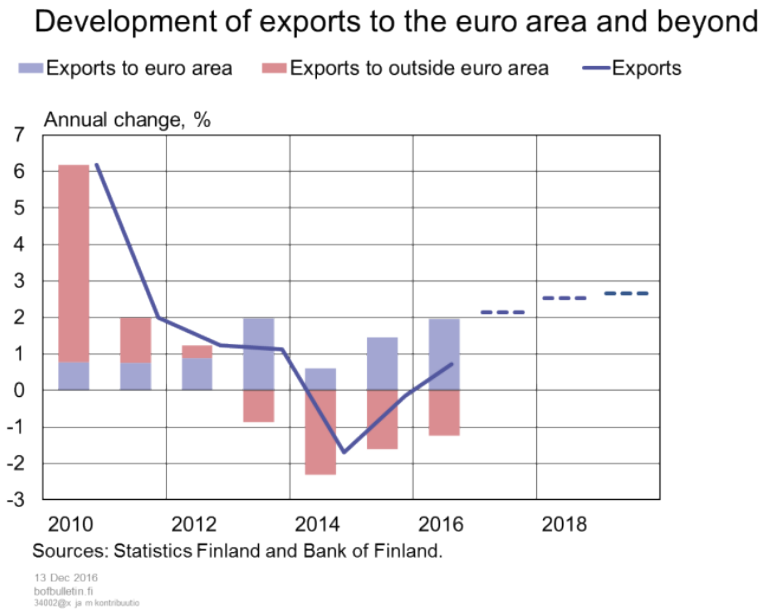
However, the contraction of exports in recent years is expected to end in 2016 and turn into growth over the next few years. The growth in exports will be spurred by the improved cost-competitiveness brought by the Competitiveness Pact, while global investment is also expected to keep growing. The accommodative monetary policy will sustain increased euro area investments and strengthen Finnish exports. In the next few

years, domestic investment will increase export capacity and the preconditions for export growth. In line with the hike in the price of crude oil, a gradual improvement in the Russian economy is also expected.

In Finland, the significance of foreign trade will grow in the next few years. At the same time, the euro area has become an increasingly important export market. Exports' share of total output will gradually increase in the next few years as exports grow faster than GDP.

In 2016, export growth will be below 1% due to the weak early part of the year, but in 2017 it will to accelerate to more than 2%. Export growth will continue to rise in 2018, and at the end of the forecast period will be nearly 3% (Chart 7). However, Finland's most important export markets and global trade will still grow faster than Finnish exports.

Chart 7.

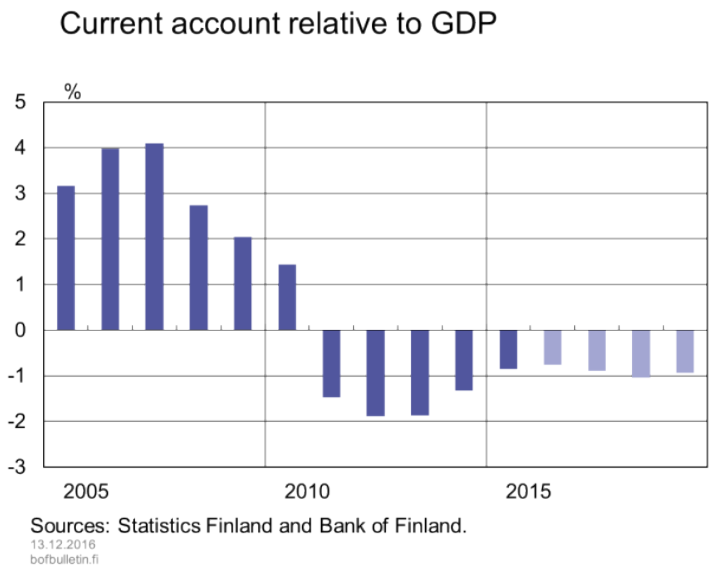


Given the significant import content of exports, the growth of imports will also pick up and their GDP share will keep growing in the forecast period (Chart 6). Import growth will, however, be lower than export growth, as contracted growth in real household incomes will dampen growth in private consumption. There will also be a slowdown in investment growth, which will reduce imports. In addition, imports will be dampened by a higher rise in import prices than in domestic prices. Imports will become increasingly expensive in relative terms, and therefore replaced by domestic production. Net exports will strengthen, but in 2019 will still be substantially negative.

The current account will remain in deficit throughout the forecast period 2016–2019. The steeper rise in import prices than in exports will weigh on the current account in the near future. As the Competitiveness Pact depresses the pace of domestic price rises, the rise in export prices will also be more modest. The current account has been showing a deficit since 2011, and in 2015 the deficit was below, but close to, EUR 1 billion (Chart 8).

In 2017–2018, the current account deficit will deepen, but the increased value of exports will gradually reduce the deficit. However, it will still be more than EUR 2 billion in 2019.

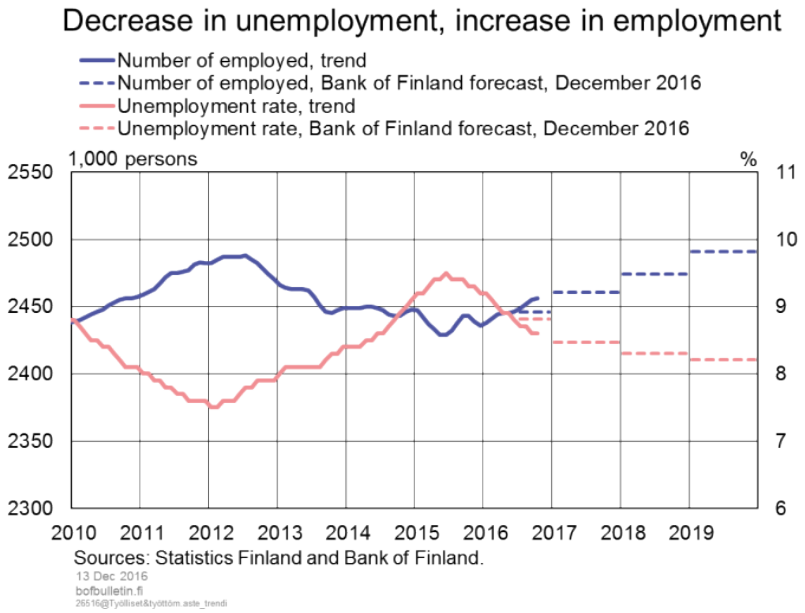
Chart 8.



Labour market: Long-term unemployment slowing general recovery in employment

The improvement in the labour market situation in Finland has been reflected in a rapid decline in unemployment, but the labour market recovery is slowed by structural problems. The unemployment rate has dropped in the past year or so by nearly one percentage point, to around 8.7%, but the improvement in employment has been more difficult. According to the forecast, the number of employed will increase by some 2.2% in 2016-2019 and the employment rate will rise to 70.2%. The unemployment rate will remain close to 8.2% in 2019. The labour force (15–74-year-olds) will grow slightly in the forecast period (Chart 9).

Chart 9.



Domestic demand has supported employment significantly. New jobs have been created in the rapidly-growing construction sector, but also in services and trade. The continued weakness of exports has been reflected in the low level of employment in manufacturing.

As a result of population ageing, the number of employed among 15–64-year olds has not increased as much as suggested by the decline in unemployment. By the third quarter of 2016, the number of unemployed had decreased by 20,000 persons, following the peak in the second quarter of 2015, but the number of people employed had only increased by 15,000 persons. On the other hand, during the same period, 12,000 persons exited the working-age population, and therefore the number of new employed has increased more than suggested based merely on net growth in employment. This trend will continue in the forecast period and shows that employment growth is challenging in a situation in which labour supply is constrained by population ageing.

The decrease in the unemployment rate is, however, partly illusory, and the structure of unemployment has weakened. Unemployment, as measured by the Ministry of Economic Affairs and Employment and including all unemployed persons who receive unemployment benefits, has increased more strongly since 2012 and has not decreased at the same pace as unemployment as measured by the Labour Force Survey of Statistics Finland and including only those unemployed persons who are actively seeking work. This reflects an increase in the number of unemployed who have given up job seeking (Chart 10). The number of long-term unemployed and persons in hidden unemployment is therefore already very high (Chart 11).

Chart 10.

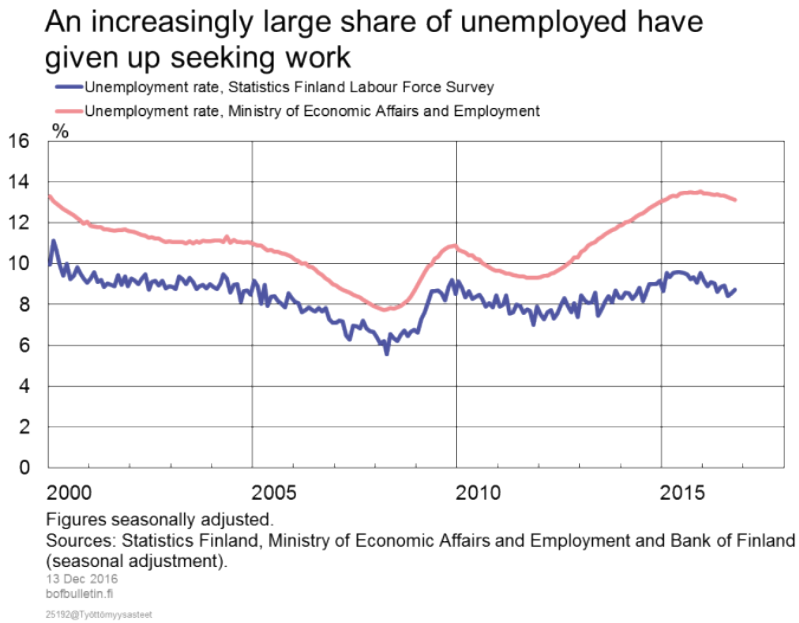
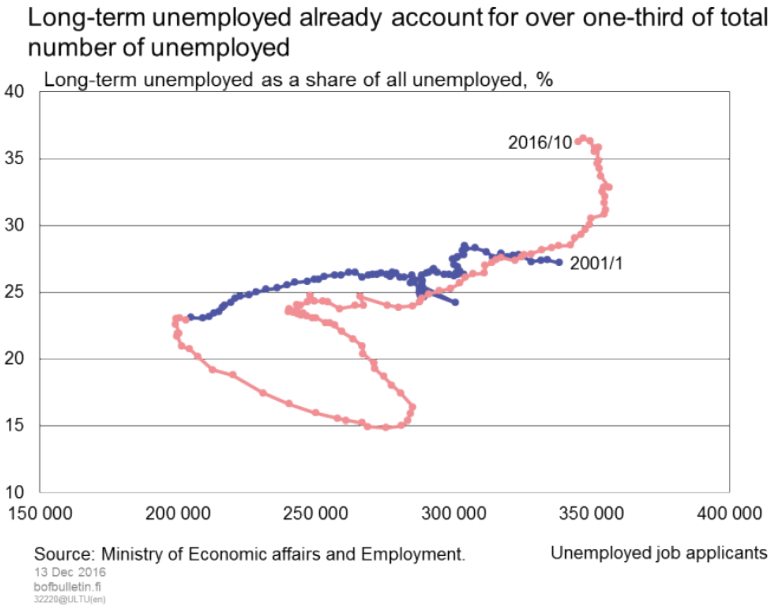


Chart 11.



During the forecast period, improvements in the labour market situation will be subject to both favourable and unfavourable influences. Developments in labour-intensive industries will have a positive impact on the trend in employment, as economic growth will be based on improvements in private consumption as well as dynamic developments in private investment, particularly construction, early in the forecast period.

The Competitiveness Pact concluded by the social partners is expected to have a positive impact on employment during the forecast period. Lower labour costs will strengthen demand for labour, and a decrease in unit labour costs will boost growth in investment, exports and GDP. Tax cuts on earned income will have a positive impact on labour

supply. For employment dynamics, the other positive signs are the strengthening of employment expectations in the corporate sector and a significant increase in job vacancies.

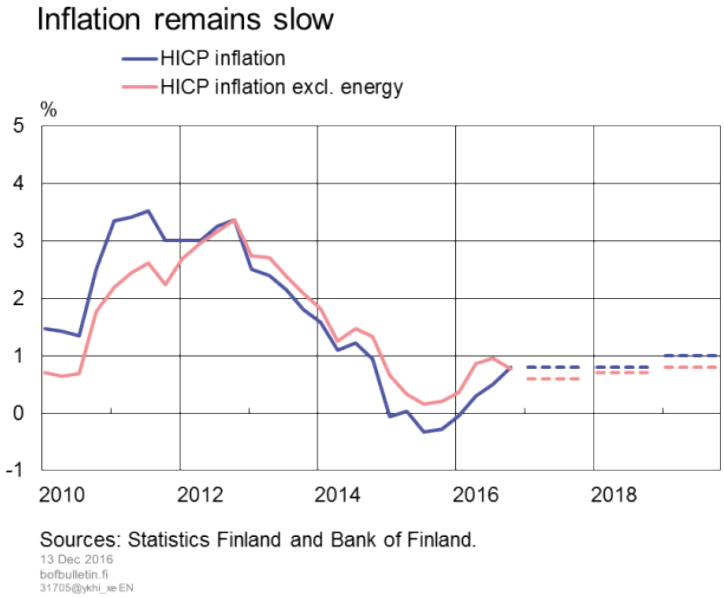
Already over one third of unemployed people have been out of work for more than 12 months. Based on the definition by the Ministry of Economic Affairs and Employment, nearly two thirds of unemployed jobseekers are hard to employ. Particularly for young adults, labour market developments have been weak, and the number of young persons at risk of social exclusion has grown. There is a risk that the Finnish labour market will be characterised by a permanently higher level of unemployment and that the number of persons exiting the labour market will increase.

The high level of long-term unemployment reflects the mismatch and incentive problems on the labour market. In addition to problems of occupational mismatch, the process of reducing unemployment is also slowed by problems of regional mismatch that are affected by e.g. the functioning of the housing market. Employment growth will be constrained by the continued contraction in the working-age population. The high level of long-term unemployment and contraction in the working-age population may in future form a significant bottleneck for economic recovery (see also 'Long-term growth from a productivity and employment perspective').

Wages and prices: Wages and prices will rise slowly

Inflation will remain exceptionally slow in 2017–2019, due to moderate developments in costs. Inflation according to the harmonised index of consumer prices (HICP inflation) will be just 0.4% in 2016, but will rise to 0.8% in 2017, as the impact of the decline in crude oil prices fades (Chart 12). According to Bank of Finland estimates, inflation developments in 2016 would have been significantly weaker still without the impact of non-standard monetary policy measures (ECB's extended asset purchase programme has significantly bolstered Finnish growth). Labour costs will decline, dampening inflationary pressures particularly towards the end of the forecast period. Inflation will be 0.8% in 2018, rising to 1.0% in 2019.

Chart 12.



The fading of the base effect from the decline in crude oil and other commodity prices will fuel inflation in early 2017, but inflation (excl. energy prices) will still be slower than normal in the forecast period. It will be dampened by the Competitiveness Pact, which will reduce wage cost pressures. The net impact on the HICP of changes in indirect taxes will be close to zero, as the removal of excise duties on sweets at the start of 2017 will slow the rise in food prices at the same time as taxes on tobacco products and energy are tightened. The pace of increase in rents will slow further during the forecast period, but the rise in the prices of housing-related services will continue to fuel inflation in the future. The hikes in customer fees on social and welfare services will drive inflation, depending on how extensively the municipalities use the possibility to increase their maximum fees.

Consumer prices will rise in Finland at a slower pace than in the euro area in the forecast period, as economic growth, too, will be more subdued than in the other countries and competitiveness measures will curb price rises. This will shrink the difference in price levels relative to the euro area. In 2014, Finland was still the most expensive country in the euro area, but was in 2015 overtaken by Ireland. In recent years, domestic prices have risen relative to the other euro area countries, due to higher rents and tighter indirect taxes as well as administrative fees. Prices set directly by the authorities, as well as prices on which the government has a significant impact, have risen at a higher pace than other consumer prices (Chart 13).

Chart 13.

Inflation will also be exceptionally slow in 2019, as the decline in labour costs will be reflected in consumer prices with a lag. Due to sluggish economic growth, the output gap will close slowly, but despite its downward trend, unemployment will still be notably high at the end of the forecast period, which will dampen upward pressures on wages, as well as inflation expectations.

Earnings growth will be sluggish in the immediate years ahead. In 2016, nominal earnings will grow by just over 1%. Growth in earnings is determined by the Pact for Employment and Growth concluded earlier by the social partners and based on which the pay rise is some ½%. Growth in earnings will slow temporarily in 2017, because, in accordance with the Competitiveness Pact, the social partners will refrain from negotiated pay rises in 2017. Growth in average hourly wages based on the wage bill will slow in 2017 close to zero, as the rise in hourly wages will be curbed by zero level pay rises as well as longer working hours.

Despite the moderate negotiated pay rises, earnings will improve in real terms in 2016, because the rate of increase in prices will remain lower than normal. In 2017, average hourly earnings will decrease slightly in real terms. For 2018 and 2019, nominal earnings are expected to grow in line with the combined effect of higher productivity and increasing output prices. This assumption is in line with balanced developments on the labour market, where real wages follow productivity growth across the economy as a whole.

Cost-competitiveness, as measured by nominal unit labour costs, will improve during the forecast years relative to the euro area, as a result of a significantly slower rate of increase in compensation per employee in Finland compared with other euro area countries. In addition to the moderate increase in the wage bill, growth in labour costs will be dampened by significant cuts in employers' social security contributions, in accordance with the Competitiveness Pact. Nominal unit labour costs will decrease in Finland by a

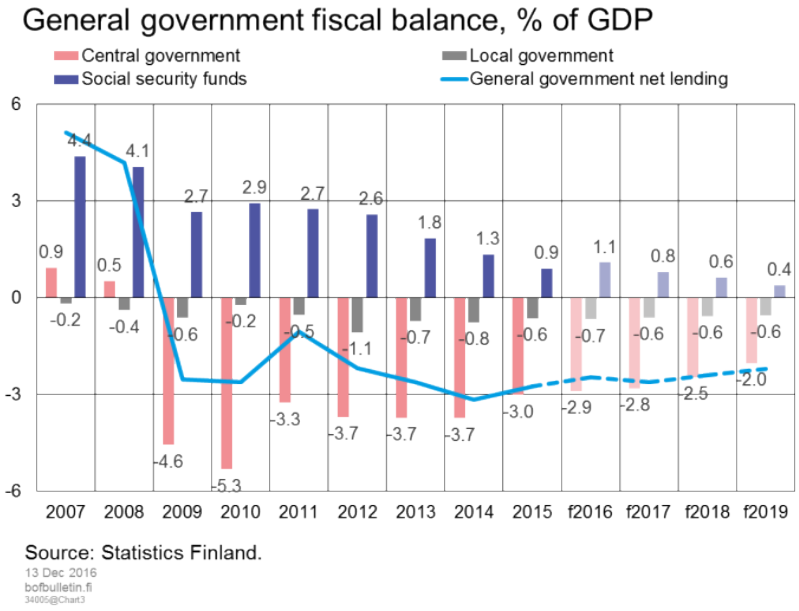
full 1% in 2017, whereas in the euro area as a whole they will increase by 1% per annum over the same period, according to the European Central Bank's December 2016 forecast. Productivity will grow at a very subdued pace both in Finland and in the other euro area countries. Annual productivity growth will remain close to ½% throughout the forecast period. Due to structural changes in the economy, the improvements in productivity will be modest in historical terms.

Public finances: Fiscal policy supports growth

The outlook for the public finances for 2016–2019 is particularly affected by adjustments in government expenditure and the Competitiveness Pact. As a counterbalance to savings, the Government will allocate an additional EUR 1.6 billion to key government projects in 2016–2018. In addition, immigration-related expenditure will grow markedly in 2016, as expenditure relating to asylum seekers is expected to increase to 0.3% of GDP. Therefore, fiscal policy is almost neutral in 2016, in contrast to the notable tightening in 2015. Fiscal policy will ease in 2017, with the implementation of the cuts in taxes and social security contributions decided in connection with the Competitiveness Pact. As a result of these measures, the total tax ratio will decline to 43.7% in 2017.

The Competitiveness Pact's temporary 30% reduction in public sector holiday bonuses and 24-hour extension in annual working time will generate savings that will partly finance the gap in general government revenues. The Competitiveness Pact will strain public finances in the short term by an estimated EUR 1.2 billion in net terms. In the longer term, the impact of the Competitiveness Pact on public finances may be neutral, should it increase employment as envisaged. In 2019, fiscal policy will, for its part, tighten somewhat as the financing of key government projects comes to an end. As a result, the central government deficit will decline to 2% of GDP (Chart 14).

Chart 14.



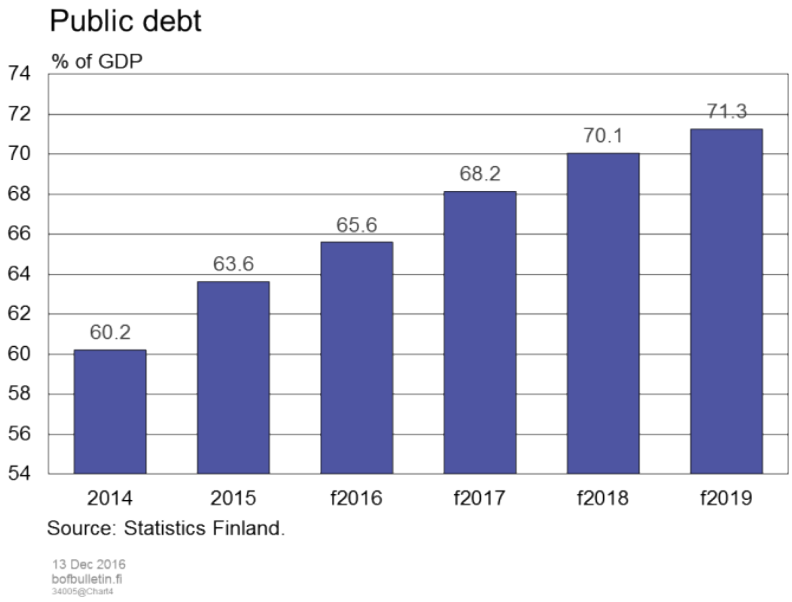
The local government deficit will remain almost unchanged at around 0.6% during the forecast years 2016–2019. Growth in local government expenditure has slowed over the past two years, and the subdued trend is projected to continue. Local government finances will gain from the Competitiveness Pact's cuts in public sector holiday bonuses and the working-time extension, but the tax reductions included in the Pact will reduce local government revenues. Central government will take account of these effects in deciding on local government transfers, and so the impact of the Competitiveness Pact on local government finances will be relatively neutral. A considerable change for local government will be the social and health service (SOTE) reform to be launched towards the end of the forecast period, which will transfer these services away from municipalities and cut municipal tax rates by 12.3 percentage points. Local government social and health care investments have been limited by law already since summer 2016, and after the SOTE reform increases in municipal taxes will be temporarily restricted to 0.5 of a percentage point per annum. This forecast does not include an assessment of the direct effects of the SOTE reform.

The surplus on the earnings-related pension funds will decrease in the years ahead on the back of a continued rapid growth in pension expenditure. This will grow from 2015 to 2019 by about EUR 4 billion, which is roughly equal in size to the fiscal adjustment measures planned by the Government. This shows how difficult it is to take measures to improve the budget balance at the level of general government as a whole in an environment of rapid population ageing. Pension insurance contributions will be increased in 2017 in accordance with the pension reform agreement, while the financial burden will increasingly be shifted from employers to employees in 2017–2020.

The budgets of other social security funds will move closer to balance. The national pension index fell in 2016, and this was allowed to affect index-linked benefits. In 2017, the index will be cut by 0.85%, because the freezing of index increases decided on earlier is not expected to bring about the targeted savings in an environment of subdued inflation. The index cut will impact on e.g. national pensions, guarantee pensions, labour market subsidies and child allowances. The increase in unemployment insurance contributions in 2016 will strengthen the unemployment insurance fund's budgetary balance. The burden of unemployment insurance contributions will also shift towards employees in 2017–2018. Without government compensation, lowering the employers' health insurance contribution in accordance with the Competitiveness Pact in 2017–2019 would create a gap in the health insurance fund's income. Health insurance expenditure will also contract, due to the savings measures that entered into force at the beginning of 2016, such as patients' increased personal responsibility for the costs of medicines.

Finland's general government debt grew to 63.6% of GDP in 2015 (Chart 15). The consolidated general government debt, calculated by deducting liabilities between general government sub-sectors from the gross debt, was higher than previously estimated, since the earnings-related pension funds reduced their investments in government bonds. The improved coverage of debt statistics also contributed slightly to the rise in the consolidated gross debt. The debt will continue to grow at a rapid pace in 2016–2019, and in 2019 the debt ratio will already exceed 71%, reaching the peak levels of the 1940s and the 1990s. The level of public debt is affected by sales of central government assets, which are planned to be increased in 2017. The proceeds from these sales have not been taken into account in the forecast.

Chart 15.



Risk assessment: Uncertainty over global economy also affects Finland

The Finnish economy has returned to growth. For the immediate years ahead, however, there is a considerable risk that developments will be more unfavourable than expected. Uncertainty surrounding the global economy has grown exceptionally high, and economic growth in Finland will continue to rest mainly on domestic demand.

The United Kingdom's Brexit decision is reflected in the forecast as weakening growth prospects in both the United Kingdom and other EU countries. However, estimates of the effects of Brexit are still subject to a high degree of uncertainty, particularly in the medium term. If the exit negotiations turn out to be longer and more difficult than anticipated, the impacts on trade, investments and corporate confidence in EU countries may be more negative than expected.

Growth in the euro area may also be dampened by internal problems, especially in the event of an exacerbation of banking sector difficulties. The concentration of the Nordic banking sector and its large size relative to the Nordic economies amplifies the risks of the banks operating in Finland. In particular, overheating on the Swedish housing market also amplifies the macroeconomic risks for Finland. These risks are discussed in more detail in the financial stability assessment (Financial stability assessment: Finland alerted to household debt).

Political uncertainties have also increased outside Europe. The outcome of the US presidential election increases the probability of a rise in protectionism and a moderation of world trade growth over the medium term. Unexpected changes in the direction of US fiscal policy may be quickly reflected on the foreign exchange and sovereign bond markets. In particular, faster-than-expected debt accumulation and higher inflation in

the United States may push up interest rates on sovereign bonds further, also outside the United States.

Geopolitical uncertainty increases the risks of oil supply shortages which, if realised, could lead to a considerable rise in oil prices. On the other hand, markedly higher oil prices would boost recovery in the Russian economy and stimulate Finnish exports to Russia.

The risk of slower economic growth in China has increased further. Private real investment has continued to grow at a subdued pace, and investment growth hinges increasingly on the Chinese government. At the same time, high corporate indebtedness has increased the vulnerability of the Chinese financial sector.

The alternative scenario estimates the effects of the realisation of these global economic risks on the Finnish economy. According to our calculation, halving the growth rate of Finnish export markets from the assumed 4% to 2% would cut GDP by about 1.2% in cumulative terms during the forecast period. This means that government revenue and expenditure would require a total adjustment of around EUR 1.5 billion in 2018 and 2019 for growth in the government debt-to-GDP ratio to remain at the same level as in the baseline scenario.

Order books and investments have developed more favourably than expected in recent months in certain export industries, such as the car, shipbuilding and forest industries. Despite these individual positive signs, Finnish economic growth will continue to rest mainly on domestic demand during the forecast period.

The effects of the Competitiveness Pact may turn out to be temporary and smaller than expected. Inflation expectations in the euro area will remain low, which may lead to moderate wage increase demands in other euro area countries, too. In addition, it is possible that, after the current wage settlement period ending in 2018, wage and salary earners in Finland will require compensation for previous years' low pay rises.

On the other hand, the effects of the Competitiveness Pact may turn out to be more positive than expected. Low wage increases may pass through to product prices more strongly than expected and, in addition, export demand may respond to improved competitiveness more quickly than expected. The effects of the Competitiveness Pact may be greater than expected in the domestic market, too. This would rapidly improve employment, particularly in labour-intensive service sectors.

As for domestic demand, housing construction is fairly cyclical by nature, and new housing starts can decline rapidly if the demand for new housing does not meet the increased supply. At present, the demand for new housing is mainly concentrated on the Helsinki area and other growth centres, and the majority of the demand is investor demand focused on new rental housing.

If the pick-up in economic growth remains temporary or weaker than expected, this would also be quickly reflected in central and local government finances. In such a case, stabilisation of the public finances may be significantly delayed without additional adjustment measures.

The household savings ratio will remain slightly negative through the forecast years 2017–2019. Even if further household debt accumulation relative to disposable income moderates, the level of debt will remain at a record high. Backed by the low level of interest rates, the price of owner occupation relative to rented occupation has declined, the housing market has picked up and the number of new housing loans has increased.

Some new housing loans, particularly loans for first-time buyers, have been quite large relative to housing values. Large housing loans relative to housing values (i.e. a small self-financing share) increases the risks relating to falling house prices. At the same time, house price developments have begun to diverge regionally, and housing in declining regions, in particular, has lost value. A fall in house prices could particularly reduce consumption by heavily indebted households with a weak net financial position.

Tags

- Finland
- forecast
- economic situation

FORECAST ASSUMPTIONS

Political changes increase uncertainty surrounding global economic outlook

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK

The global economy is envisaged to grow at a pace of well over 3% in 2017–2019, i.e. slightly faster than in 2016. World trade growth will accelerate during the forecast period, but will remain slow relative to GDP, as in recent years. The markets' first impressions of the future stance of US economic policy have strengthened the dollar, reinforced inflation expectations and raised long-term interest rates especially in the United States, but also in Europe. Overall, estimates of forthcoming US economic policy are still on shaky ground. Brexit will cloud the growth outlook for the United Kingdom, in particular, but also for the rest of Europe. Euro area growth is expected to continue at a fairly brisk pace, driven by domestic demand. Chinese growth will remain strong, sustaining recovery in the global economy.

During the past half year, the uncertainty surrounding the outlook for the global economy has been increased by political events. It is hard to assess the economic impact of the outcome of the Brexit vote in the United Kingdom and the upcoming economic policy changes led by the new US president. Political uncertainty increased in the euro area when the Italian prime minister resigned at the beginning of December as a result of the negative outcome of a referendum on constitutional reform.

The markets' first impressions of the future stance of US economic policy, particularly the expected fiscal stimulus, have strengthened the dollar, reinforced inflation

expectations and raised long-term interest rates especially in the United States, but also in Europe. On the other hand, potential revisions to US trade policy and the growth of protectionism may dampen economic prospects. Overall, estimates of forthcoming US economic policy are still on shaky ground.

In the ECB's projections, the euro area is expected to grow smoothly at a pace of approximately 1.6% in 2017–2019, driven by domestic demand. Growth will be supported by an accommodative monetary policy, and over the forecast horizon by a broadly neutral fiscal policy. Ongoing growth during the forecast period will contribute to improvements in the employment situation and fuel inflation, which will edge up to 1.7% at the end of the forecast horizon. Brexit will cloud the growth outlook for the United Kingdom, in particular, but also to some extent for the rest of Europe. UK growth is expected to slow markedly for the next couple of years, compared with 2016.

The emerging economies will continue to recover during the forecast period. However, following the US presidential election, the currencies of many emerging economies depreciated relative to the US dollar, which may add to concerns about an expanding debt burden in domestic currency of the emerging economies' non-financial corporations that have taken out US dollar loans. Chinese growth will slow slightly from about 6.5% in 2016 to 6%, amid the transition of the economy from one driven by investment to one driven by private consumption. The mild increase in the price of oil will bolster the gradual rebound of the Russian economy. Over the forecast horizon, the oil price is assumed to rise from about USD 43 per barrel in 2016 to USD 55 in 2019. The oil price will reach a level a little higher than envisaged by the Bank of Finland in our previous forecast for the Finnish economy.

The ECB projects global economic growth of well over 3% in 2017–2019, i.e. slightly faster than in 2016. World trade growth will accelerate to just under 4% in 2018–2019. Even so, it will remain slow relative to GDP growth, as seen in recent years. Growth in Finland's export markets will gradually gain momentum over the forecast horizon, from 1.8% in the current year to 3.7% in 2019.

According to market expectations, major central banks will keep their respective monetary policies accommodative for a prolonged period, although interest rates in the United States are expected to rise moderately. The euro area price outlook remains subdued. In December, the European Central Bank decided to maintain the accommodative stance of monetary policy by extending the duration of the asset purchase programme from March until the end of December 2017. Asset purchases will be made at a monthly pace of EUR 80 billion until the end of March, after which they will continue at a monthly pace of EUR 60 billion.

The interest and exchange rate assumptions in the forecast have been derived from financial market prices and will remain almost unchanged over the forecast horizon. According to market expectations, the 3-month Euribor will remain exceptionally low, i.e. slightly negative almost throughout the forecast period. The yield on Finnish 10-year government bonds will also remain unusually low, rising only slowly to around 1% in 2018–2019. The exchange rate of the euro relative to the US dollar will be somewhat weaker than previously predicted. Finland's nominal competitiveness indicator, i.e. the trade-weighted exchange rate, will be stable throughout the forecast period, albeit a bit

stronger than in 2016. This will be reflected in the elevation of export prices of countries to which Finland exports, as measured in euro terms, in such a way that export price increases will be muted in 2017, but will speed up to some 3% in 2018–2019.

Forecast assumptions

	2015	2016[f]	2017[f]	2018[f]	2019[f]
Finland's export markets[1], % change	0.1	1.8	2.8	3.6	3.7
Oil price, USD/barrel	52.4	43.1	49.3	52.6	54.6
Euro export prices of Finland's trading partners, % change	-0.3	3.9	-1.2	3	2.5
3-month Euribor, %	0	-0.3	-0.3	-0.2	0
Yield on Finnish 10-year government bonds, %	0.7	0.4	0.7	0.9	1.1
Finland's nominal competitiveness indicator[2]	97.8	99.1	100.5	100.5	100.5
US dollar value of one euro	1.11	1.11	1.09	1.09	1.09

[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.

Tags

- economic situation
- economic development
- Finland
- forecast

ALTERNATIVE SCENARIO

Weaker global economic activity one of the key risks

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK

Exports will finally begin to grow in response to export demand, with net exports gradually beginning to support growth alongside domestic demand. However, one of the key risks to the forecast is a weaker-than-forecast performance in the international economy. Global trade growth is muted relative to global GDP growth, and economic growth in the emerging economies may sag by more than anticipated. Hence developments in the global economy are exceptionally uncertain.

In this alternative scenario to the forecast, growth in Finland's export markets remains much slower than predicted. In 2008–2015, the export markets grew by an average of 2% annually. The scenario assumes growth in the export markets to remain at only 2% in 2018 and 2019, instead of the envisaged level of just under 4% in the baseline forecast.

In addition, the scenario includes the following assumptions:

- Given that increases in nominal wages and prices are very muted even in the baseline forecast, the alternative scenario assumes no additional adjustment from this source. Consequently, wages and prices will not fall further if a new shock were to hit the Finnish economy, and thus Finland would not benefit from a decline in relative prices compared with the prices of competitor countries.

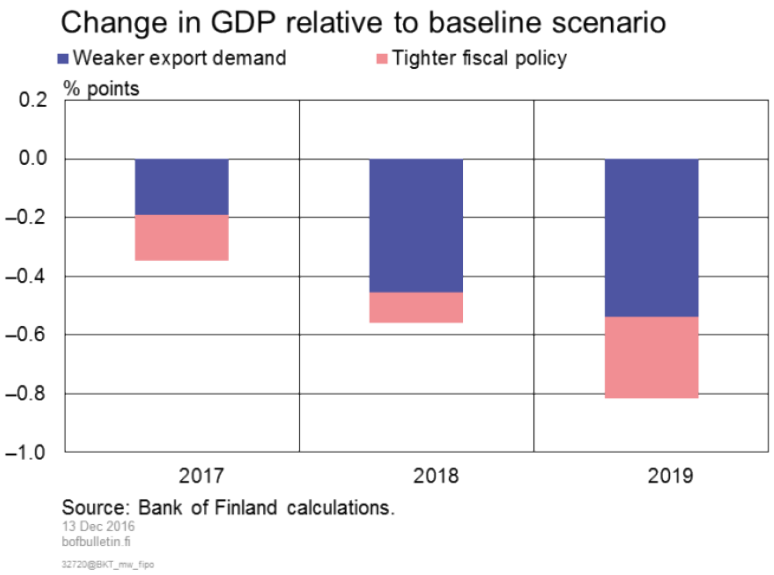
- The scenario also assumes policy rates remaining in line with the baseline. In the baseline forecast, interest rates are already at their lower bound and the scope for conventional monetary policy to provide further accommodation via interest rates is very limited.
- Another assumption is that fiscal space has already been exhausted. Despite the Government's consolidation measures, the ratio of public debt to GDP has been growing at an alarming pace, and the European Commission ranks Finland among the group of countries that are risking a breach of the provisions of the Stability and Growth Pact. Moreover, the alternative scenario assumes that, in order to attain its objectives for the public finances, the Government is able to carry out further consolidation, despite the weak performance of the export markets. On account of the consolidation measures, the debt ratio in 2019 remains broadly the same in size as in the baseline forecast.

If export market growth falls below the predicted path, demand for Finnish exports weakens, thus directly cutting aggregate demand. The resultant over-supply is balanced in a normal situation, at least in part, via reductions in wages and prices. As the scenario assumes no adjustment in wages and prices, output volumes need to adapt to the prevailing situation.

Lower demand for end products leads to a contraction in demand for domestic intermediate goods and factors of production used in their manufacture. Working hours diminish and investment is scaled down. However, Finnish export prices do not decline relative to the prices of competing countries. Exports contract sharply, as export prices are rigid and therefore do not cushion the impact of lower export demand. In 2019, real GDP is a good 1% below the baseline figure. In the absence of new fiscal measures, general government debt to GDP rises to a level around ½ a percentage point higher than in the baseline (Table).

If the general government debt ratio is to be brought back onto the baseline path, additional consolidation of well over EUR 1.5 billion is required. Such additional adjustment further slows growth in the real economy over the short term. Chart 1 shows the effects of a combination of export demand and fiscal tightening on the growth rate of GDP.

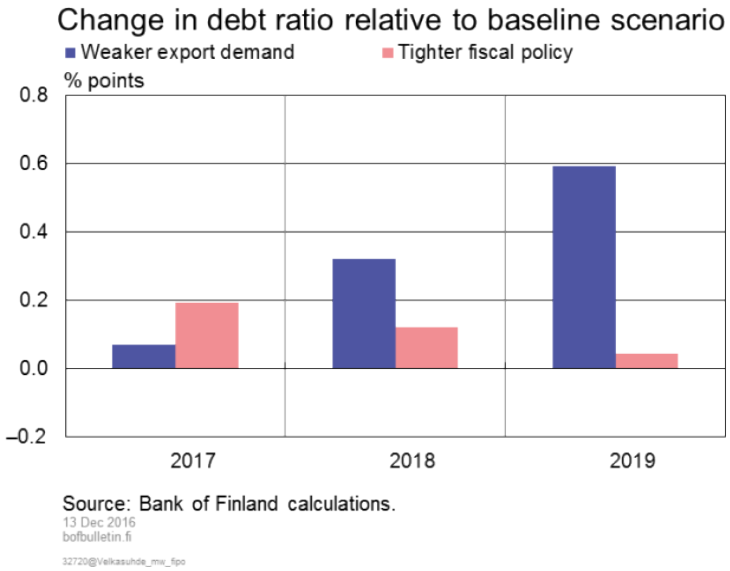
Chart 1.



In order for the general government debt ratio to return close to the baseline path, the scenario assumes the following breakdown for the Government's adjustment measures of well over EUR 1.5 billion, implemented mainly in 2018 and 2019: an increase of EUR 500 million in value added tax revenue, cuts of EUR 500 million in central government expenditure, cuts of EUR 500 million in benefits and subsidies and cuts of EUR 200 million in government transfers. Cutting public expenditure further reduces aggregate demand and – with prices remaining unchanged – output volumes.

Chart 2 indicates the general government debt ratio, impaired by export demand, as a deviation from the baseline, without fiscal tightening. The chart also presents how fiscal policy responds, with additional adjustments, in order to bring the public finances back close to the baseline path by 2019.

Chart 2.



The alternative scenario shows how much global economic activity affects a small and open economy such as Finland's. The results also indicate how difficult it is to adjust the public finances if there are stronger headwinds blowing in the international economy. On the other hand, preventing a rise in the debt ratio reduces future public expenditure. From this it follows that it is advisable to create sufficient fiscal space in the public finances even in a slightly more favourable economic environment, so as to ensure that such space will be available in more adverse circumstances. This enables avoidance of procyclical economic policies.

Supply and demand in 2016-2019 at 2010 prices

		2016	2017	2018	2019	2019 deviation, %
% change on previous year						
GDP	Baseline forecast	1.0	1.3	1.2	1.2	195,637
	Alternative scenario	1.0	1.1	0.8	0.6	193,352
	Difference	**0.0**	**-0.2**	**-0.5**	**-0.5**	**-1.2**
Imports	Baseline forecast	1.2	2.0	2.1	1.9	82,729
	Alternative scenario	1.2	1.5	1.1	0.7	80,619
	Difference	**0.0**	**-0.5**	**-1.0**	**-1.1**	**-2.6**
Exports	Baseline forecast	0.7	2.1	2.5	2.6	80,289
	Alternative scenario	0.7	1.4	1.0	1.0	77,253
	Difference	**0.0**	**-0.8**	**-1.5**	**-1.6**	**-3.8**
Private consumption	Baseline forecast	1.9	1.4	1.0	0.9	110,033
	Alternative scenario	1.9	1.3	0.8	0.7	109,480
	Difference	**0.0**	**-0.1**	**-0.2**	**-0.2**	**-0.5**
Private investment	Baseline forecast	5.8	3.4	2.5	2.7	36,360
	Alternative scenario	5.8	3.2	1.6	1.3	35,483
	Difference	**0.0**	**-0.2**	**-0.9**	**-1.3**	**-2.4**
Export markets	Baseline forecast	1.8	2.8	3.6	3.7	127.2

Source: Bank of Finland calculations.

Supply and demand in 2016-2019 at 2010 prices						
	Alternative scenario	1.8	2.0	2.0	2.0	122.3
	Difference	**0.0**	**-0.8**	**-1.6**	**-1.6**	**-3.8**
Hours worked	Baseline forecast	0.9	0.8	0.8	0.7	4,232
	Alternative scenario	0.9	0.5	0.0	-0.2	4,148
	Difference	**0.0**	**-0.3**	**-0.8**	**-0.9**	**-2.0**
Current account	Baseline forecast	-0.8	-0.9	-1.0	-0.9	-2,100
	Alternative scenario	-0.8	-1.0	-1.8	-1.8	-3,905
	Difference	**0.0**	**-0.1**	**-0.7**	**-0.8**	
General government debt	Baseline forecast	65.6	68.2	70.1	71.3	71.3
	Alternative scenario	65.6	68.3	70.4	71.9	71.9
	Difference	**0.0**	**0.1**	**0.3**	**0.6**	**0.6**
Household savings ratio	Baseline forecast	-1.0	-1.0	-0.9	-0.3	-0.3
	Alternative scenario	-1.0	-1.2	-1.6	-1.5	-1.5
	Difference	**0.0**	**-0.2**	**-0.7**	**-1.2**	**-1.2**

Source: Bank of Finland calculations.

Tags

- public finances
- gross domestic product
- alternative scenario

National Accounts for the third quarter of 2016

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK

On 2 December 2016, Statistics Finland published preliminary quarterly national accounts containing the latest statistical data on Finnish economic developments in the third quarter of 2016.

The Bank of Finland's macroeconomic forecast presented in this publication was prepared before the release of Statistics Finland's data for the third quarter. The forecast is based on the quarterly national accounts published by Statistics Finland in September, a flash estimate for the third quarter released in November and extensive indicator data on economic developments.

According to the flash estimate published in November, GDP in the third quarter of 2016 was 1.6% higher year on year and 0.4% higher quarter on quarter.

The most recent quarterly national accounts data signal a more favourable development in GDP for 2016 than the data previously published. Economic growth has picked up notably during the year. However, growth relies increasingly on domestic demand. Exports have continued to perform sluggishly, without showing any notable change for the better.

According to the most recent quarterly national accounts, GDP in the third quarter of 2016 grew 1.6% year on year and 0.4% quarter on quarter. At the same time, GDP growth for the second quarter was revised slightly downwards (–0.1%). For the first quarter, in turn, GDP growth was revised 0.5% up compared with the previous data release. This has a significant upward impact on annual GDP growth.

Of demand components, lower exports and a contraction in investment eroded GDP growth in the third quarter. Exports were 3.4% down on the previous quarter, but 1.4% up on a year earlier. Goods exports increased, but services exports declined. Imports, in turn, contracted 3.3% quarter on quarter.

The volume of private consumption grew in the third quarter of 2016 by 0.5% quarter on quarter, up 0.1 compared with the previous data release. Year on year, private consumption grew 2.1%. Consumption of consumer durables increased in particular. Consumption of services increased as well.

Private investment contracted 1.2% quarter on quarter, but grew 1.3% year on year. Gross fixed capital formation, i.e. investments, fell in the third quarter of 2016 by 0.3 on the previous quarter, but increased by 3.1% on the previous year. Investment in housing construction was 4.0% higher year on year, other building construction investment was 9.4% up and investment in civil engineering projects was 4.3% up. By contrast, the volume of investment in machinery, equipment and transport equipment contracted 3.7%.

The manufacturing situation has become brighter. Manufacturing value added in the third quarter of 2016 increased 1.0% quarter on quarter and 3.7% year on year. The volume of output in the forest industries was 5.5% up and the volume of the chemical industry was 7.6% up on the previous year.

The volume of the metal industry (excl. electrical engineering and electronics) was 4.2% up and the volume of electrical engineering and electronics was 4.6% up, year on year. Services sectors grew, too.

Work input, i.e. the number of people in employment, rose in the third quarter of 2016 by 0.3% quarter on quarter and 0.9% year on year. The number of hours worked increased 0.6 % quarter on quarter and 0.8% year on year. The improvement in the labour market is consistent with the improved GDP estimates.

According to the Labour Force Survey, the unemployment rate was 7.6% in the third quarter of 2016, falling by 0.8 of a percentage point from a year earlier. The wage bill was 1.1% up on the previous quarter and 3.1% up on the previous year. Employers' social security contributions were 4.2% higher year on year.

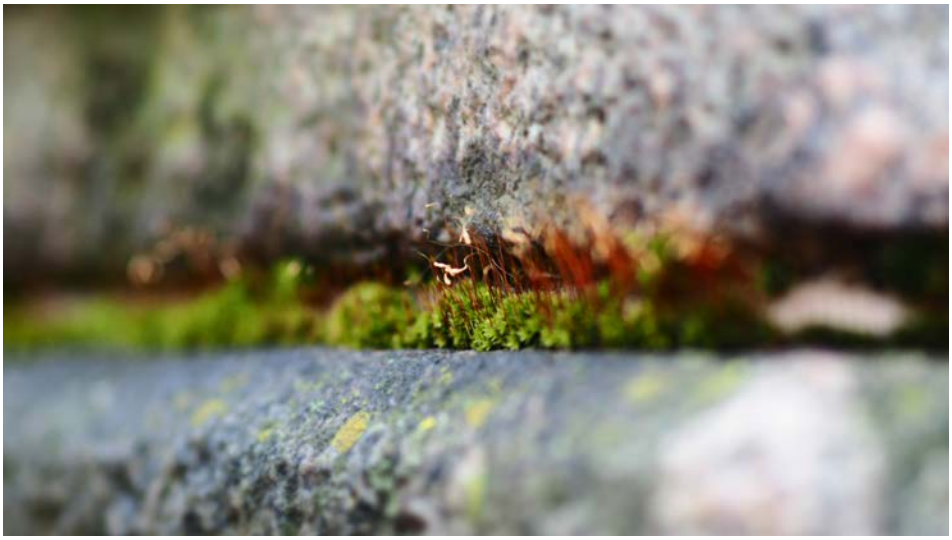
Tags

- quarterly national accounts
- private consumption
- gross domestic product
- exports

Assessment of public finances in December 2016

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK

Finland's fiscal situation is challenging. The general government deficit is still high, and public debt is on an upward trend. Attainment of more balanced public finances is hampered not only by high unemployment-related and other social security expenditure but also by rapid growth in age-related spending and low economic growth. Therefore, the problems with public finances cannot be explained by cyclical factors alone. Rather, there is a significant and long-term structural problem with Finland's public finances. The public debt problem makes the Finnish economy more vulnerable to global economic disruptions.



The structural balance will not improve in the next few years

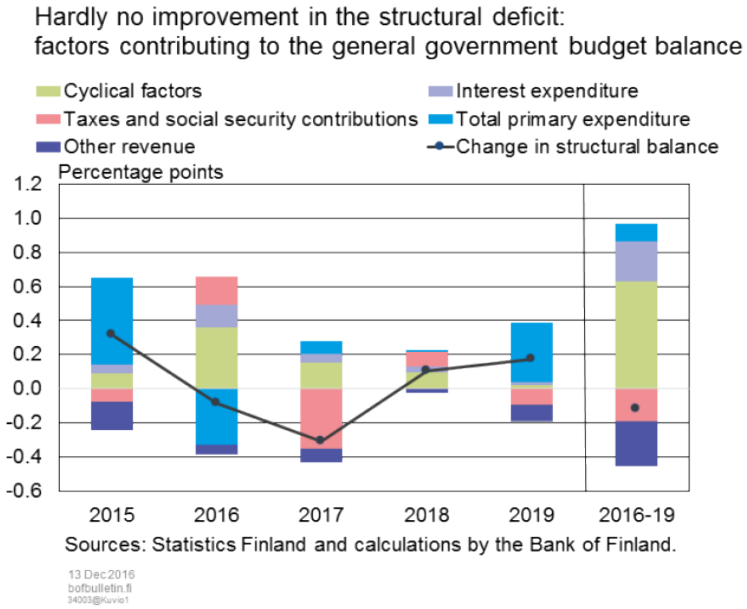
Finland's general government structural balance[1] deteriorated significantly in 2009, when fiscal policy was used to smooth the deep economic recession. As economic growth picked up in 2011, fiscal policy was tightened and the general government budget balance improved substantially. The following year, however, the Finnish economy drifted into a

1. The European System of Central Banks (ESCB) estimates structural budget balances adjusted for cyclical factors using a statistical methodology based on the Hodrick-Prescott (HP) filter. The European Commission estimates structural developments on the basis of the production function approach related to the modelling of economic activity. See Bouthevillain, C. – Cour-Thimann, P. – Van den Dool, G. – Hernández de Cos, P. – Langenus, G. – Mohr, M. – Momigliano, S. – Tujula, M. "Cyclically adjusted budget balances: an alternative approach", ECB Working Paper Series No 77, September 2001. For a structural analysis of revenue and expenditure, see Kremer, J. – Rodrigues Braz, C. – Brosens, T. – Langenus, G. – Momigliano, S. – Spolander, M. "A disaggregated framework for the analysis of structural developments in public finances", ECB Working Paper Series No 579, January 2006.

new three-year downturn. In the last year of the downturn, in 2014, Finland's general government deficit temporarily exceeded the 3% reference value set for deficit in the EU's Stability and Growth Pact.

In 2015, the deficit declined in response to expenditure adjustments (Chart 1). The number of public sector employees contracted and public investment was reduced. Growth in pensions and other social benefits slowed notably, as index increments were restricted to accord with the centralised wage agreement. In 2016, economic growth is already contributing more strongly to improving the nominal budget balance. Increases in social insurance contributions are also having a positive impact on public finances. In addition, interest payments on public debt are declining further. Growth in primary expenditure, however, is weakening the structural balance. The impact of expenditure adjustments is compensated by the Government's investment in its key projects and spending allocated to managing the refugee situation.

Chart 1.



In 2017, the general government structural balance will weaken due to lower taxes and social security contributions related to the Competitiveness Pact. The Competitiveness Pact will weaken the general government budget balance by around EUR 1.2 billion in 2017. In addition to income tax cuts of over EUR 500 million promised in the Pact, tax revenue will be affected by the tax-deductibility of social security contributions and structural changes to employees' health insurance contributions.

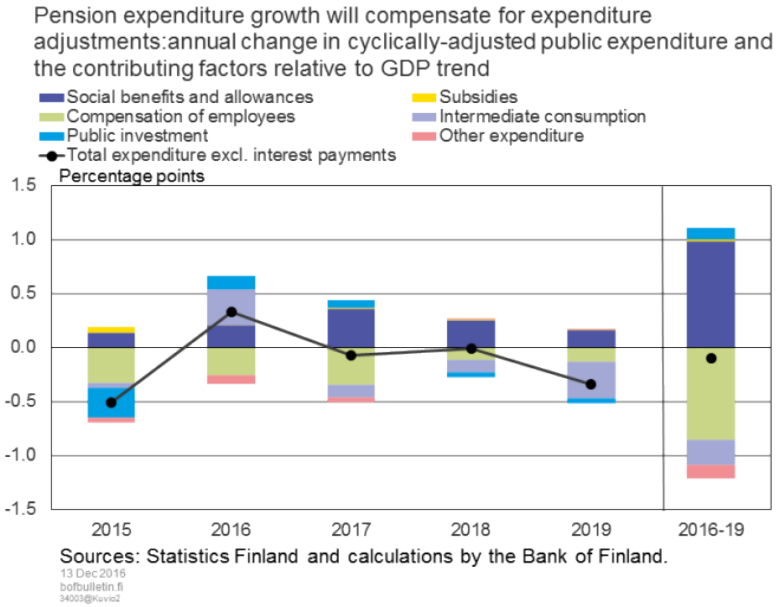
Ministry of Finance calculations show that over the longer term, however, the Competitiveness Pact will have a neutral impact on the general government budget balance if it results in an increase in the number of employees by 40,000. The employment effect is uncertain, however. A strong one-off tax reduction therefore poses a risk to public finances, even though the tax measures are justified from the perspective of lending support to household purchasing power and economic growth.

Since the forecast period extends to 2019, it is possible to make a preliminary analysis of fiscal policy for the whole parliamentary term (2016–2019 in Chart 1). According to the Bank of Finland forecast, fiscal policy appears to be neutral or to ease slightly during the parliamentary term, because expenditure savings taken into the forecast to date are insufficient to reduce the structural deficit close to the level necessitated by longer-term sustainability.

Expenditure growth is particularly fuelled by continued brisk growth in social benefits – mainly pensions – during the forecast period on the back of an increase in the number of pension recipients (Chart 2). Population ageing in years of subdued economic growth has increased the challenges relating to the adjustment of Finland's public finances. The contribution of pension expenditure to the weakening of the budget balance in 2008–2015 totals 2.8 percentage points. In 2016–2019, the contribution is 1.1 percentage points in cumulative terms. This would require a corresponding increase in revenue or cuts in other expenditure to maintain the structural deficit at its current level. Growth in social benefits has partly been cyclical, due to increased reliance on unemployment benefits and social assistance following the economic downturn. Even though the forecast points to a decline in unemployment in the years ahead, it is again likely that some of the unemployed will be faced with long-term or permanent unemployment. This is also problematic for public finances.

Public expenditure cuts will focus in the coming years on public labour costs, in particular. The number of public sector employees has declined since 2014, and this trend is also projected to continue in future. In addition, the reduction in employers' social security contributions agreed in the Competitiveness Pact will be financed by a temporary reduction in public sector holiday bonuses in 2017–2019, and the impact on labour force requirements of the agreed extension of working time will be taken into account in budget appropriations. To contain public expenditure growth, it is important to improve public sector productivity. In this respect, the social and health services (SOTE) reform is subject to high expectations.

Chart 2.



The Bank of Finland forecast does not take into account the impact of the SOTE reform on the general government fiscal balance for 2019; the impact is assumed to be neutral. The SOTE reform seeks to permanently strengthen public finances by EUR 3 billion. The target is intended to be attained by reducing annual growth in public expenditure to below 1% in 2019–2029. The average annual real growth in health care expenditure was around 5% in 2000–2009, and since 2010 the annual growth rate has still been 2%. Over time, the target will become increasingly difficult to achieve, taking into consideration ageing baby-boomers and increasing demand for health care services.

In the shorter term, there is a risk that public expenditure will increase due to the fully new governmental level (counties) to be created in the SOTE reform on the basis of the existing division into regions. Centralising the organisation of services at a level above municipalities may improve governance and enable better control of funding. Stronger participation of the private sector in the provision of services and competition between private and public services provision could improve operational efficiency. Competition is intended to focus on the quality of services, and government would set the prices of services. This enables better cost control, although there are also problems relating to quality control. Expenditure growth could also be restricted by scrutinising the content of the service pledge.

The EU's model student at risk of failing

Except for 2014, Finland has been in compliance with the reference value of 3% set for nominal deficit in the corrective arm of the Stability and Growth Pact (SGP). According to the SGP's debt criterion, public debt should not exceed 60% of GDP. Even though the debt ratio exceeded the reference value in 2014, Finland was deemed not to be in breach of the criterion due to weak cyclical conditions. According to the European Commission, cyclically-adjusted, the debt criterion will, however, be breached in 2016. If the reference values are breached, then an overall assessment is made, after which an excessive deficit

procedure (EDP) can be launched for the country in question. In an EDP launched due to a breach of the debt criterion, an annual target is set for returning the debt ratio to below 60% of GDP. The annual reduction target is 1/20 of the part of the debt exceeding the reference value.

The aim of the preventive arm of the SGP is to steer general government finances towards a sustainable balance by setting a medium-term budgetary objective (MTO), in structural terms, and an adjustment path towards that objective if it is has not yet been achieved. The MTO set for Finland's structural balance is –0.5% of GDP. As the Finnish economy has begun to grow, the required annual adjustment towards the MTO has been tightened.

The required progress towards the MTO can be postponed during an economic downturn, but in times of normal economic growth the structural balance should improve by at least 0.5 percentage point per annum. If the required improvement is not achieved or a country deviates from it by more than 0.5 percentage point[2], a Significant Deviation Procedure (SDP) may be launched. The adjustment targets set for Finland's structural balance is 0.5 percentage point in 2016 and 0.6 percentage point in 2017. Considering the Government's budget proposal and the current economic situation, it is very likely that Finland will not meet the targets as such. This does not, however, automatically trigger the SDP.

In addition to the structural budget balance, the preventive arm of the SGP also examines public expenditure growth relative to potential output growth. Expenditure growth in Finland has remained below the reference value in the past few years, but for 2017 it is uncertain whether this criterion can be fulfilled, either.

On 16 November 2016, the Commission issued an opinion on Finland's draft budgetary plan. The Commission was of the opinion that the 2017 budget is at risk of non-compliance with regulations. Structural reforms implemented by the Government were not regarded as allowing flexibility as regards the adjustment path towards the MTO. Hence, the structural balance would need to be improved by at least 0.6 percentage point relative to GDP in 2017. The achievement of the target set for 2016 will be assessed in spring 2017. For 2016, the Commission will take into consideration the unexpected expenditure related to the refugee situation, which for Finland amount to 0.3% of GDP.

On the basis of forecasts, it would appear that the target for 2017 will not be reached without additional measures. The tax reduction related to the Competitiveness Pact and the other tax-reducing effects of the Pact will be focused on 2017. Even though allocation of tax reductions to the beginning of the Pact will support economic growth, the employment effects of the Pact will mainly materialise later.

The reduction of public sector holiday bonuses, which finances part of the fiscal losses arising from the Competitiveness Pact, will be temporary in 2017–2019. Savings in public finances stemming from the extension of employee working time will also be uncertain, even though they will already be taken into account notionally by cutting budget appropriations for 2017. Therefore, the Competitiveness Pact entails risks for public

2. Or 0.25 percentage point on average in two years.

finances. However, the Government is committed to agreeing in the spring 2017 spending limits negotiations the measures required to return public finances to the adjustment path towards the MTO.

The General Government Fiscal Plan in light of the forecast

The Government's objective is to rebalance public finances and bring growth in the debt-to-GDP ratio to a halt during the parliamentary term. The Government has set sector-specific budgetary targets for rebalancing public finances, which are deficits of 0.5% for central and local government finances and a surplus of 1.0% for earnings-related pension funds. In addition, the Government Programme states that living on debt will be brought to an end by 2021, which can be interpreted to mean rebalancing of central and local government finances.

A fairly detailed adjustment programme was already drafted as an annex to the Government Programme. On the other hand, the Government will allocate additional funds to key government projects, which will increase public spending and investment in 2016–2018. Additional funds for public investment, particularly to reduce the infrastructure-related repair debt, are justified from the perspective of subdued economic growth, favourable cost level and efficiency. The temporary investment in key government projects will no longer affect public expenditure in 2019, which means automatic tightening of fiscal policy.

The General Government Fiscal Plan 2017–2020 is based on the Ministry of Finance's macroeconomic forecast for Finland. The spring Fiscal Plan states that Finland does not appear to be meeting the targets set for the general government budget balance. On the basis of the Bank of Finland's most recent forecast, too, it is unlikely that the targets will be met without additional savings measures. Even though it is possible to reach the target for local government finances, the central government budget balance does not appear to be improving sufficiently. In addition, the Bank of Finland forecast estimates that the surplus on the earnings-related pension funds will decline to 0.4% of GDP in 2019, which hampers the attainment of the structural deficit target, in particular. In practice, the Government has limited scope to influence the balance of earnings-related pension funds. The Government's measures to boost employment growth are therefore important.

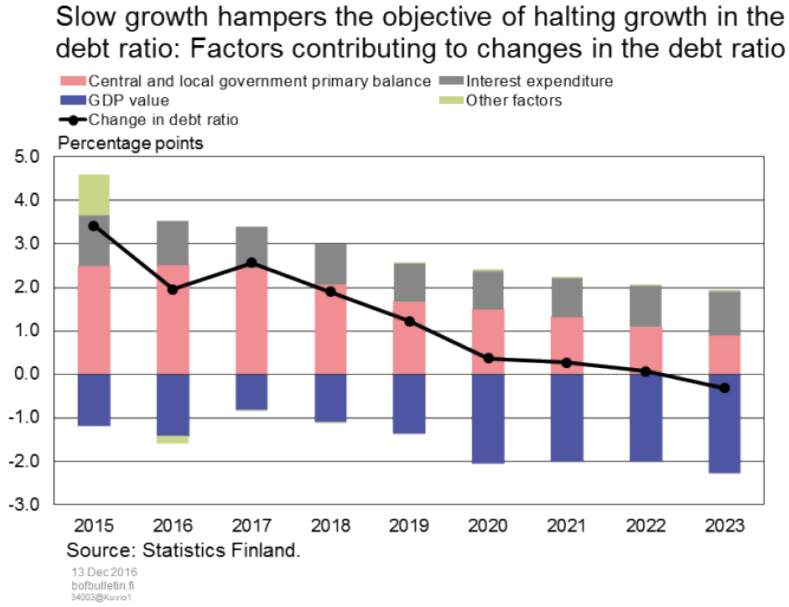
Sustainability of public finances

Finland's public debt has increased by around EUR 90 billion from 2009 to 2015. According to the Bank of Finland forecast, public debt will continue to grow throughout the parliamentary term. Based on a medium-term forecast, growth in the debt-to-GDP ratio will not come to a halt until 2022–2023 (Chart 3). Debt will accumulate during the forecast years as a result of persistent deficits in central and local government finances.

Interest payments on public debt are so far estimated to remain relatively low, i.e. at around 1% of GDP. Other factors contributing to the debt are changes in the consolidation item and asset sales. The consolidation item consists largely of government

bonds held by earnings-related pension funds. Pension funds sold a significant amount of bonds in 2015 in the context of the launch of the ECB's public sector purchase programme, which was one of the factors increasing the consolidated general government debt by EUR 1.2 billion in debt statistics. The forecast assumes the consolidation item to remain unchanged relative to the stock of debt, but there is no estimate for asset sales except for 2016.

Chart 3.



Growth in the debt ratio will only come to a temporary halt. Public debt will already continue to grow in the 2030s if the pressures relating to public expenditure remain unchanged. Therefore, the problem with the sustainability gap in Finland's public finances has not yet been resolved. The Bank of Finland's new assessment for the sustainability gap is around 3% of GDP. The assessment has improved slightly on the previous year, due to a fall in the public deficit estimate in the first year of the projection in 2020 and a decline in the present value of interest expenditure on public debt.

The return on pension funds and the interest rate on public debt are assumed in the calculation to grow from the current level, to 5% in nominal terms by the mid-2030s. The demand for social and health care services is assumed to grow in response to the ageing population. As a result, public expenditure is assumed to grow to nearly 3% of GDP by 2060.

The SOTE reform seeks to create permanent savings of EUR 3 billion in public finances, which corresponds to around 1.5% of GDP. The aim is to slow real growth in social and health expenditure to 0.9% in 2019–29. For health care spending, this means halving real growth in costs, but for long-term care the target is more challenging. Expenditure on long-term care is assumed to grow in the baseline scenario by an average annual rate of nearly 4% in real terms in 2019–29. If the target is achieved, the sustainability gap would decline by nearly the targeted 1.5 percentage points.

There are no buffers against weaker developments

Finland's public debt has doubled relative to total output over the past seven years. On the basis of the Bank of Finland forecast and sustainability gap assessment, a mere stabilisation of the debt ratio necessitates significant fiscal consolidation.

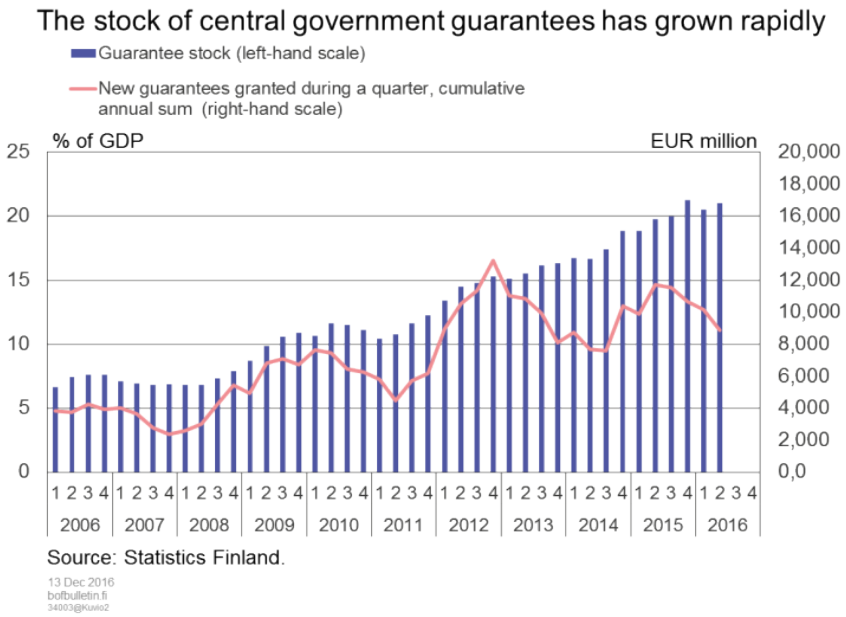
Long-term estimates about debt sustainability are based on the assumption that economic growth is stable on average and in line with productivity and employment growth. Both the recession of the 1990s and the downturn of the past years show that it cannot be ruled out that a similar downturn having a lasting effect on total output occurs during the next 50 years. In such a case, public debt would probably grow again to new and considerably higher figures.

Interest payments on public debt relative to GDP have declined over the past years, despite debt growth. The low level of interest rates cannot be considered to be a lasting phenomenon. With rising interest rates and debt, interest expenditure is estimated to grow to over 4% of GDP in the 2030s, meaning that debt would exceed the value of annual total output. In such a situation, fiscal balance would necessitate a primary surplus that is equal in size, and controlling the debt ratio would be considerably more challenging.

Central government liabilities are growing rapidly

In addition to debt, other general government liabilities have increased, too. The use of general government guarantees is relatively high in Finland. The majority of government guarantees are guarantees granted to Finnvera and housing loan guarantees. The stock of guarantees has doubled since the end of 2011 and amounts currently to around EUR 45 billion (Chart 4). The Government has decided to expand further the export guarantee powers granted to Finnvera and the Finnish Export Credit Ltd. Guarantees may be an inexpensive way to promote exports, but they also entail risks. Finland has begun to report the amount of guarantees and other general government liabilities in the General Government Fiscal Plan. In the same context, it would be advisable to also estimate future developments in the guarantee stock: how large the stock is intended to be increased and when it is planned to decline.

Chart 4.



Tags

- debt accumalation
- forecast
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- government debp

ECB's expanded asset purchase programme has supported growth in Finland

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The expanded asset purchase programme (EAPP) has had a significant positive impact on macroeconomic developments in Finland. The ECB's decisions of December 2015 and March 2016 are forecast to boost Finland's GDP by approximately 0.5%. The EAPP has also had a significant impact on price developments: without the purchase programme, inflation in 2016 would have been around 0.3 of a percentage point slower. The programme has also substantially increased both corporate and household credit demand.

Impact of the monetary policy stimulus on Finland

During the international financial crisis and the subsequent period of prolonged slow inflation most central banks have lowered their key policy rates to around zero or even lower. The scope for supporting economic growth and accelerating inflation through interest rate policy has been narrowed by the steep fall in short-term nominal interest

rates. The set of monetary policy instruments available to central banks has therefore been augmented to also cover extensive asset purchase programmes and the provision of long-term financing for banks. The effectiveness of monetary policy has also been enhanced by the use forward guidance, whereby central banks communicate the future path of their interest rates to the public.

This article presents an assessment of the impact of the Eurosystem's expanded asset purchase programme (EAPP) on the Finnish economy. At the beginning of 2015, the ECB Governing Council decided to extend the asset purchase programme launched in October 2014 to also cover debt instruments meeting the eligibility criteria issued by euro area governments. Under the purchase programme, debt instruments to the value of EUR 1,740 billion were to be purchased by March 2017, and if the inflation outlook then did not match the monetary policy objective, the programme could be extended beyond that date.[1]

The extensive securities purchases are strongly expanding the Eurosystem's aggregate balance sheet and relaxing financial conditions, but how much the stimulus is visible in Finland's real economy and inflation is a difficult question. In this article, we assess the impacts using an empirical model for a small open economy developed at the Bank of Finland. We use the model to estimate the impacts of the purchase programme for both the euro area economy and the Finnish economy.[2]

Our results indicate that the EAPP has had a significant positive impact on developments in Finland's macro economy. The ECB's decisions of December 2015 and March 2016 are estimated to boost Finland's GDP by approximately 0.5%. At the same time, the volume of corporate and household loans will grow by slightly under 1%. According to our model simulations, the EAPP has also had a significant impact on price developments: without the programme, inflation in 2016 would have been around 0.3 of a percentage point lower.

Based on other analyses conducted within the Eurosystem, the EAPP is estimated to accelerate euro area inflation by around ½ a percentage point in 2016–2017, and to boost GDP growth cumulatively by around 1.5 percentage points over the years 2015–2018.[3] A recent publication by the Banque de France summarizes recent studies of the effects of non-standard monetary policy measures.[4]

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1. March 2015 saw the commencement of securities purchases of around EUR 60 billion per month on the secondary markets, to continue until the end of September 2016. The Governing Council also indicated that purchases would continue beyond this date if the pace of inflation did not accelerate towards the ECB's inflation target. In December 2015, the Governing Council decided to further extend the purchases, until at least the end of March 2017; it was also decided to reinvest both the capital and yields on maturing bonds. In March 2016, the purchase programme was further extended to also cover private sector (excl. banking sector) bonds. At the same time, monthly purchases were increased to EUR 80 billion from the beginning of April 2016.
2. The EAPP's impact on the Finnish economy was previously analysed in the Bank of Finland Bulletin (3/2015) article 'Finland benefits from Eurosystem's asset purchases' (http://www.bofbulletin.fi/en/2015/3/finland-benefits-from-eurosystem-s-securities-purchases/).
3. Andrade, P. – Breckenfelder, J. – De Fiore, F. – Karadi, P. – Tristani, O. (2016) The ECB's Asset Purchase Programme: an Early Assessment. ECB Working Paper 1956; Wiedelak, T. – Pascual, A. G. (2016) The European Central Bank's QE: A New Hope. CEPR DP 11309.

How is non-standard monetary policy transmitted in theory?

Securities purchases conducted by the Eurosystem – in other words, quantitative easing as a monetary policy tool – expand the central bank balance sheet and the amount of central bank money. When the Eurosystem purchases a bond from a commercial bank (increases central bank claims), the central bank augments the balance on said bank's settlement account at the central bank with a sum equivalent to the purchase (increases central bank liabilities).

The purchase programme also affects the price differentials between short and long-term bonds or, viewed from the opposite end, the yield differentials of the bonds.

When the Eurosystem purchases longer-term bonds (average maturity 8 years), the amount of these bonds available on the markets declines and the price rises (yield declines).

Meanwhile a decline in the yields of short-term bonds is constrained by the central bank's key interest rates. So the yield differential between long-term and short-term debt instruments narrows, which provides investors an incentive to purchase further longer-term bonds, causing their price to rise and their yield to decline further.

The latter transmission mechanism is referred to as the portfolio channel.[5] This mechanism means that the asset purchase programme will most probably flatten the yield curve. Standard monetary policy and quantitative easing thus affect the yield curve in different ways. This observation is also one of the key factors enabling us to distinguish an interest rate shock caused by standard monetary policy from one caused by quantitative easing.

The Eurosystem has amplified the effectiveness of the purchase programme with forward guidance, i.e. indicating in advance the monetary policy it will pursue in the near future. Forward guidance allows economic agents to assess in particular coming interest rate decisions and reduces the uncertainty surrounding interest rate developments.[6]

The effects on the real economy of the non-standard monetary policy are transmitted largely in the same manner as the effects of standard monetary policy. When the central bank lowers its key policy rate, the effects are seen as follows:

1. Money market interest rates decline, while households decrease their savings and increase their uptake of debt. This leads to an acceleration of growth in consumption.

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4. Marx, M. – Nguyen, B. – Sahuc, J. (2016) Monetary policy measures in the euro area and their effects since 2014. Banque de France Economics Letters 32.

5. Krishnamurthy and Vissing-Jorgensen's study 'The Ins and Outs of Large Scale Asset Purchases' (2013) supports the idea of the effects of the portfolio channel in the United States.

6. For a more complete description of this channel, see e.g. Suvanto, A. – Kontulainen, J. (2016) The ECB announced today – Monetary policy in the calm and the storm. Docendo.

2. The decline in interest rates also reduces corporate funding costs and boosts private investment.

3. The decline in interest rates weakens the nominal exchange rate and strengthens the price-competitiveness of exports.

The relevant factor in this transmission mechanism is how quickly the changes in long market interest rates feed through into the interest rates on household and corporate loans. In Finland, the transmission of interest rate changes has been rather rapid, as most household and corporate loans in Finland have variable interest rates. Another key factor in monetary policy transmission is how quickly in general households and companies react to changes in interest rates.

In addition to above mentioned intertemporal channel, interest rate changes also feed into the macro economy indirectly, through the general equilibrium effect.[7] The interest rate fall will boost domestic demand, in turn boosting labour demand in the private sector and households' disposable income. This will further increase consumption.[8]

Non-standard monetary policy is also transmitted into the economy via the wealth effect, as the asset purchase programmes push up securities prices, thereby boosting household and corporate wealth.

Long-term refinancing operations can also boost bank-lending, which in turn can support macroeconomic developments, particularly when the economy has been suffering from a credit slump.

In an open economy like Finland's, the monetary policy pursued by the ECB also transmits to the economy by another indirect channel: the relaxation of monetary policy within the Eurosystem boosts aggregate demand across the euro area as a whole. Part of this growth in demand feeds through to Finland by increasing exports. Moreover, depreciation of the external value of the euro boosts Finnish exports to outside the euro area.

Via accelerated growth, monetary policy eventually feeds through into price developments, i.e. inflation. In modern macroeconomic models, the link between growth and inflation is modelled with the help of an expectations-augmented Phillips curve. This describes the relationship between inflation and aggregate demand, in which growth in aggregate demand speeds up inflation.

7. See e.g. Kaplan, G. – Moll, B. – Violante, G. (2016) Monetary Policy According to HANK. NBER Working Paper No. 21897.

8. According to recent theoretical research, the significance of the indirect channel is the greater, the more households retain possession of slowly realisable financial assets, such as housing, or the more significant the share of households that are financially challenged.

Modelling the effects of non-standard monetary policy

Next we turn to empirical results We use a vector autoregressive model (VAR).[9] In VARs, the variables depend on both their own and other variables' time lags. The set of variables is supplemented with error terms that describe that part of the variables' variation that is not explained by their own time lags or by other variables. Our model comprises of both the euro area and variables relating to the Finnish economy, as detailed below.

Variables relating to the euro area:

> GDP, consumer prices, the balance sheet corresponding to ECB monetary policy measures, interest rate yield differentials (= difference between long and short-term market rates) and the interest rate on the ECB's main refinancing operations (MRO interest rate).

Variables relating to the Finnish economy:

> GDP, consumer prices, differential between loan interest rates and short-term market rates, loan volumes and corporate bankruptcies.

The estimates draw on quarterly data from the period 2000/I–2016/I.[10]

The key problem is how to identify a non-standard monetary policy shock in distinction from other internal and external factors that influence developments in the economy. In this article, identification of non-standard monetary policy shocks draws on a common method in which sign restrictions based on economic theory are set for the responses of the model's variables (Table 1). If the sign restriction is positive (negative), the shock is assumed to affect the relevant variable positively (negatively) during the first two periods. A question mark indicates that the response of the variable in question can be positive or negative.

Table.

9. Sims, Christopher (1980) Macroeconomics and Reality. Econometrica 48 (1), p. 1–48.
10. The estimation has been carried out for the logarithms of the afore-mentioned variables plus logarithmic changes excluding interest rates, which in both cases are level. In estimating the models we have applied both one and two-period delays. The results are presented as averages of the results yielded by these four estimated models.

Identifying a monetary policy shock with the help of sign restrictions on impulse response functions

Identification of monetary policy shock

+/- and zero restrictions

	Non-standard monetary policy	Non-standard monetary policy
Variables		
GDP, euro area	+	+
HICP, euro area	+	+
Key policy rate[1)]	0	-
Yield curve[2)]	-	+
ECB balance sheet	+	?

[1)] Interest on the Eurosystem's main refinancing operations (MRO).

[2)] Euro area's 10-year interest rate – Eonia.

Source: Bank of Finland.

The securities purchases can thus be expected to expand the central bank balance sheet and producing a flatter yield curve (–) through the portfolio effect. As an additional assumption, we also use a zero restriction according to which the ECB's expanded asset purchases will not impact immediately on its key policy interest rate (0). It is also assumed that the central bank's expanded asset purchases will boost euro area GDP and accelerate inflation (+).

We should note that under normal cyclical conditions the flattening of the yield curve reflects weakening expectations over future GDP and inflation. Therefore, it is very likely that the attributed sign restrictions will efficiently identify the non-standard monetary policy shocks, as these have a very distinct effect on the macro economy.

In the case of a standard accommodative monetary policy shock (policy rate lowered) it would be assumed that GDP would grow and inflation accelerate as above, but the yield curve would steepen, as short market rates would react more than long ones. Hence the sign restriction relating to the yield curve is also key in distinguishing between unanticipated standard and non-standard monetary policy shocks.

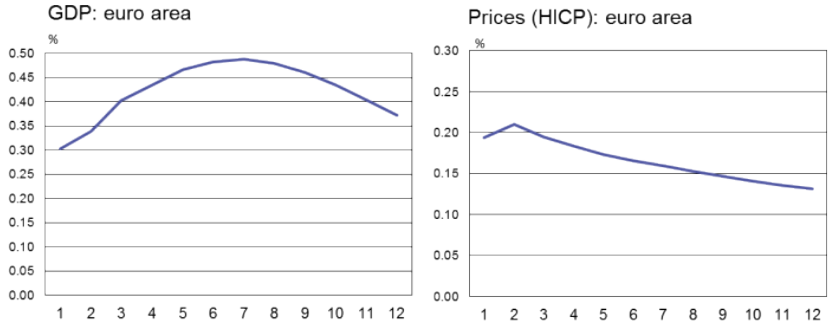
Despite this strong identification, a general challenge for estimating the effects is that during the estimation period non-standard monetary policy has only been pursued for part of the time and the purchase programme is still ongoing.

EAPP's effects in euro area and Finland

Taking into account the caveats and limitations discussed above, the dynamic effects of a non-standard monetary policy shock on the euro area economy can be described with the help of average impulse responses (Chart 1).

Chart 1.

Non-standard monetary policy boosts GDP and raises prices in the euro area



Source: Bank of Finland calculations.

The horizontal axis depicts annual quarters, the vertical axis percentage deviations from the level at the outset. All variables relate to the euro area. A non-standard monetary policy shock is dimensioned in the chart so that it lowers the euro area yield curve by 0.20 of a percentage point in the first quarter and thereafter adjusts to a new balance in accordance with the dynamic of the models. Average results from four estimated models.

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Based on the impulse responses, the 0.20 of a percentage point decline in the euro area yield curve due to the quantitative easing

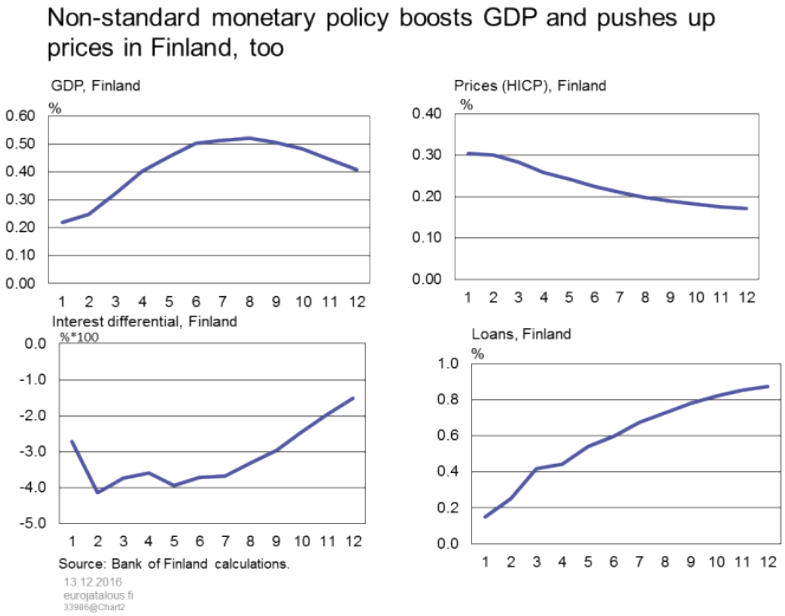
- increases GDP by a maximum of just under 0.50% and
- increases prices by around 0.20% in the euro area.

Above, we used sign restrictions on impulse responses to analyse the effects on the euro area of an identified non-standard monetary policy shock. Next we shall analyse specifically the effects of the EAPP on the Finnish economy. The estimated model's yield curve is assumed to drop 0.20 of a percentage point in response to the non-standard monetary policy shock (as in Chart 1) and to return thereafter in accordance with the dynamics of the model towards its initial level at the outset. The 0.20 of a percentage point drop in the yield curve corresponds to ECB experts' estimates of how much the yield curve fell as a consequence of the Governing Council's decisions in December 2015 and March 2016.

The signs of the impulse response thus correspond to the limits imposed in the first period, but the shock's size, effects and time-lag on the economy are determined based on the model's estimated parameters. With regard to the impulse responses, we also observe that the maximum impact of the non-standard monetary policy shock on

developments in the real economy in the euro area becomes visible after a considerable time-lag, particularly in respect of GDP. With regard to inflation the effect is faster. These results correspond fairly well to other similar studies conducted by the Eurosystem experts.

Chart 2.



In respect of GDP and prices the results (Chart 2) are congruent with those for the euro area (Chart 1). The gentle flattening of the euro area yield curve by 0.20 of a percentage point

- increases GDP by up to approximately 0.50% and
- pushes up prices by around 0.30%.

We also observe that once economic activity has increased and loan interest margins contracted the volume of loans increases significantly during the period under review. The dynamics of the impact of extensive asset purchases on Finland's GDP and prices is also very similar to the impact on the euro area. This also reflects the close connection between the economic cycles in Finland and the euro area.

The estimates presented above are thus based on the average results of the models. We can approximate the uncertainty around the results by reviewing the minimum and maximum results yielded by the different models. Based on these estimates, the minimum impact of the purchase programme on GDP is in the range of 0.4–0.8%. With prices, rather than the scale of the impact, the uncertainty is more about how long-lasting the effect of the purchase programme is on prices.

Impact of non-standard monetary policy

This article has studied the transmission of the Eurosystem's non-standard monetary policy to the Finnish economy. Based on our analysis, the impact has been significant. The use of quantitative easing as a monetary policy tool has prevented substantially

weaker economic developments in both the euro area and Finland. It has also had an positive impact on inflation. Our results are, however, still preliminary and surrounded by a substantial degree of uncertainty. It should also be noted that the EAPP has been running for only a year and a half, and, at best, the macroeconomic variables can only reveal a partial impact of the programme. These results can therefore not be interpreted as an overall assessment of the impacts of the programme.

Tags

- expanded asset purchase programme (EAPP)
- Finnish economy
- gross domestic product
- monetary policy

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Winners and losers in industrial profitability

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK • PETRI MÄKI-FRÄNTI

- Petri Mäki-Fränti
  Senior Economist

Despite the recent weakness in profitability, operating profits in Finnish manufacturing have generally developed steadily. After the electronic and electrical industry, the chemical industry, particularly the pharmaceutical industry, has become the sector with the second highest profitability. In the short-term, industrial profitability has reflected fluctuations in export demand but, in the long-term, it has also tracked the development of relative wages.

Antti Suutari also contributed to this article.

On the measuring of industrial profitability

The profitability of Finnish manufacturing has been weak in recent years, but to what extent do the difficulties of the export industry reflect the subdued developments in export markets, and to what extent are they the result of competitiveness problems that are domestic in nature?

The profitability of manufacturing over the longer-term (1975–2015) can be examined on the basis of national accounts statistics. Due to differences between sectors, in terms of capital intensity for example, no single indicator of profitability can provide a full picture of profitability levels in a sector, nor make sectors comparable with each other. Consequently, this article examines profitability using two indicators. They are the ratio of operating surplus to output, which is a measure of operating profit, and the ratio of

operating surplus to net capital stock, which describes capital productivity. Of the measures of profitability, operating profit reflects more clearly than capital productivity the developments in Finland's export markets and cost-competitiveness.

Of the industrial sectors, this article separately examines the following: the chemical industry, metal industry, electronic and electrical industry, forest industry, and other manufacturing sectors. In most of the sectors, the two indicators of profitability provide a broadly similar picture of profitability developments, although the indicator of return on capital typically fluctuates more strongly than operating profit. In many industrial sectors, profitability has developed fairly steadily, but there have also been winners and losers.

In the short term, growth in Finland's export markets has fluctuated more strongly than cost-competitiveness as measured by relative labour costs. Volatility in export markets has also sometimes been rapidly reflected in industrial profits. Relative to the magnitude of the shock to export markets, the decline in manufacturing sector operating profits after the financial crisis was, however, significantly smaller than during the 1990s' recession. The link between cost-competitiveness and profitability is more clearly observable in the long term than in the short term.

How has profitability developed in different sub-sectors of manufacturing?

Average operating profits in the manufacturing sector in the period 1975–2015 have varied between 5% in the forest industry and 13% in the electronic and electrical industry. Return on capital, however, has exhibited slightly stronger fluctuations than operating profits. Based on both indicators, manufacturing sector profitability has been exceptionally weak particularly in recent years, i.e. after the financial crisis. In 2009–2015, operating profits in the manufacturing sector were just under 5% and return on capital was just over 8%. Manufacturing sector profitability was also weak in the late 1970s/early 1980s, but even then operating profits reached some 8% and return on capital was just over 10%. Return on capital reached peak levels at the turn of the millennium, when it was just under 20%. Until the global financial crisis in 2008, the sector with the strongest profitability by far was the electronic and electrical industry. During this period, the ratio of operating surplus to output was some 16% and the ratio of operating surplus to net capital stock was 30%. The second highest levels of profitability are found in the chemical industry, where profitability relative to output has been close to 10%.

As in the electronic and electrical industry, profitability levels in the forest industry have also fluctuated over time. Profitability increased temporarily in the 1990s, and was significantly higher than the long-term average (5%/7%), but it started to decrease in the new millennium. In the remaining sectors of manufacturing ('Other manufacturing sectors' in Chart 1), profitability has developed fairly steadily in the period under review and has remained close to 7–8% of output and 12–14% of net capital. In metal industry sectors other than the electronic and electrical industry, profitability relative to output has remained stable and at average levels. In the years preceding the financial crisis,

however, the profitability of the metal industry relative to capital stock grew temporarily to over 30%.

Chart 1.

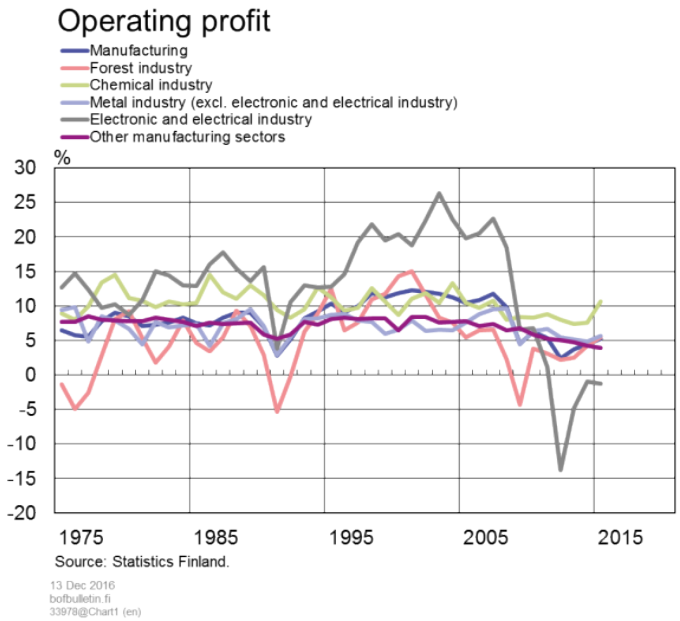
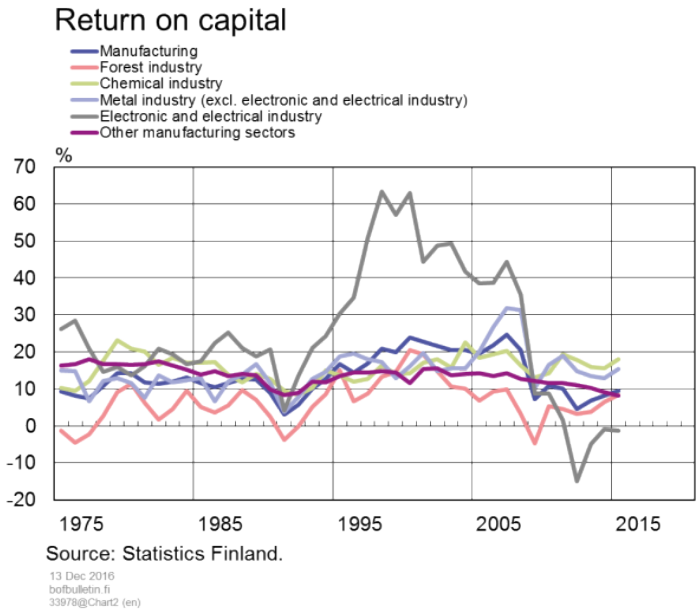


Chart 2.



Since the early 1990s, operating profits in the electronic and electrical industry have closely tracked profitability in electrical industry. Profitability levels in the electrical industry have fluctuated, but mainly remained very good until 2008. Thereafter, profitability collapsed and continued to decline until 2015. In the electronic industry, on the other hand, profitability has developed very steadily throughout the period under review, and did not weaken significantly during the financial crisis. The electronic

industry has recorded relatively strong profitability figures and close to those in the chemical industry, i.e. at slightly over 10%, in recent years.

In terms of operating profit, the pharmaceutical industry has clearly been the most profitable sub-sector of the chemical industry throughout the review period. In terms of return on capital, however, pharmaceutical industry profitability has exceeded that of the other sub-sectors of the chemical industry only since 2003. The profitability of the other sub-sectors of the chemical industry has developed favourably, even though profitability has been slightly weaker since the turn of the millennium than in the earlier years of the review period.

In oil refining, profits have been low, on average, compared with the other sub-sectors of the chemical industry, and in some years, profitability has even decreased. Due to the strong volatility in oil prices, fluctuations in profitability have also been significantly stronger than in the other sub-sectors.

Oil refining has witnessed considerable fluctuations in return on capital. With the exception of the peak in the early 2000s and the period between the late 1970s and the mid-1980s, return on capital in oil refining has not typically been higher than in the other sub-sectors of the chemical industry.

The financial crisis weakened profitability significantly in most sub-sectors of the metal industry. Of these, repair and installation of machinery and equipment did not suffer from the financial crisis in terms of profitability; profitability levels have even increased in the aftermath of the economic crisis as a result of the accumulation of postponed investment. During the financial crisis, the largest collapse in profitability was witnessed in the manufacture of basic metals but even in this sub-sector, developments have been positive in recent years. In terms of value added in the metal industry, the most important sub-sector is the manufacture of other machinery and equipment. Profitability levels have not, however, improved in parallel with the increased importance of this sub-sector.

Return on capital has increased slightly, on average, in the metal industry since the 1990s' recession, but volatility in this indicator has also intensified. In 2009, return on capital weakened significantly, however, in nearly all the sub-sectors of the metal industry, and it has still not recovered to pre-crisis levels. The biggest exception is again the repair and installation of machinery and equipment. In this sub-sector, return on capital has followed the ratio of operating surplus to output and has improved since 2006, and particularly strongly in recent years.

The share of forest industry value added accounted for by wood and paper has remained fairly stable, and the paper industry's share of value added has been approximately 70%. Volatility in profitability has been higher in the paper industry than in the wood industry, but otherwise developments have been fairly similar. The 1990s' recession and the financial crisis clearly stand out as periods when profitability turned negative, whereas in the early 2000s paper industry profitability reached peak levels. In recent years, too, the trend in profitability has been positive.

In the forest industry, developments in capital productivity have been very similar to those in operating profits. Profitability turned negative in the late 1970s, the early 1990s and after the financial crisis. In recent years, both the paper industry and the wood industry have succeeded in improving their return on capital.

Corporate profitability sensitive to fluctuations in export demand

The Finnish manufacturing sector is focused mainly on exports. Of the factors affecting profitability developments in the corporate sector, we focus below on two key factors impacting export demand, namely export market development and the cost-competitiveness of exports. Profitability developments in the export industry depend on many factors that affect each other and are often determined simultaneously in the global economy. Explaining the profitability of the export industry using individual variables is also more difficult than explaining export demand, for example, and therefore the following examinations are only indicative.

The profitability of export companies depends first and foremost on developments in Finland's export markets. The pace of growth in the world markets fluctuates quite considerably from year to year, and these fluctuations are often difficult to anticipate. Unexpected growth in demand boosts corporate profitability particularly in the short term if companies are able to temporarily improve their margins by increasing prices before competition forces prices down again to normal levels. An increase in demand also boosts the return on capital employed, even if the profit margin remains unchanged.

Correspondingly, an unexpected decrease in demand erodes corporate profitability more in the short than in the long term. In the short-term, a company's capital stock is fixed and capital costs must be covered, despite fluctuations in demand. If the demand for a company's products weakens for a prolonged period, the company can, however, make a downward adjustment in its capital stock or divest its unprofitable businesses.

In addition to the development of export markets, industrial profitability depends on the cost-competitiveness of Finnish companies. Competitiveness can be measured with several statistics-based indicators. This article examines the development of Finnish labour costs relative to other countries of broadly similar level of economic development. A decrease in relative labour costs improves the profitability of Finnish companies relative to production by foreign companies, not only in export production but also in production that competes with imports.

The cost-competitiveness of industry reflects not only labour costs but also the trend in labour productivity. Instead of relative labour costs, cost-competitiveness is thus measured in terms of unit labour costs, which are defined as the ratio of labour costs to labour productivity. In the short-term, however, productivity growth depends partly on

developments in export demand.[1] Relative labour costs therefore describe the impact of purely domestic factors on competitiveness better than unit labour costs.[2]

In the following, we examine the importance of improvements in export markets on manufacturing sector profits (Chart 3). Developments in export markets are described by the trade-weighted growth in Finland's export markets. Finland's export markets grew in 1975–2015 on average by 5% per annum. The growth trend accelerated significantly in the 1990s, as the importance of the emerging economies in the global economy increased. As a result of the financial crisis, growth in export markets has slowed, however.

Despite the trend growth in the global economy, the pace of growth has fluctuated considerably in the short term. During the financial crisis, the global economy even contracted in 2009. Instead of the size of the export markets, we should examine (Chart 3) the growth rate in export markets, which reflects the short-term volatility of export demand around its long-time trend.

The trend in manufacturing sector operating profit has tracked developments in the export markets more closely than return on capital. The period between the 1970s and the early 1990s is not fully comparable with the post-recession years, however, because before the recession, export industry profitability was boosted by occasional devaluations. Following developments in export markets, operating profits dipped initially at the turn of the 1990s as exports to the Soviet Union collapsed. A significant dip in export market growth was also experienced at the beginning of the millennium in the wake of the bursting of the IT bubble and a 'mini recession', but this was not reflected in the profits of Finnish manufacturing. The financial crisis turned the trend in the export markets temporarily downwards, but the largest collapse in the export markets proved to be short-lived, however.

Since 2011, export market growth has again started to slow. Relative to the size of the shock to the export markets, the dip in manufacturing sector profits was smaller, however, than the corresponding reaction during the 1990s recession, and in recent years profitability as measured by operating profits has started to recover.

1. Fluctuations in demand are reflected in productivity for the same reason as in profitability. When demand increases (decreases) and the capital stock is fixed in the short term, companies can increase (decrease) the capacity utilisation rate, which results in a temporary improvement in productivity.
2. Kajanoja (2016) has compared various cost and price-competitiveness indicators. See http://www.eurojatalous.fi/fi/2016/artikkelit/suomen-kustannuskilpailukyky--lisaa-hyodyllisia-mittareita-ja-vastauksia-kysymyksiin/ (in Finnish only).

Chart 3.

Of the individual sectors, the trend in operating profits in the forest and metal industries has generally tracked most closely the cyclical turns in the export market (Charts 4 and 5). During the financial crisis, the strongest decline in operating profits was, however, experienced in the electronic and electrical industry. The considerable weakening of profitability is probably explained by the stage of the global business cycle and Nokia's difficulties in maintaining market shares. In the chemical industry and other sectors of manufacturing, the link between global economic growth and profitability is slightly weaker than in the other sectors, however.

Chart 4.

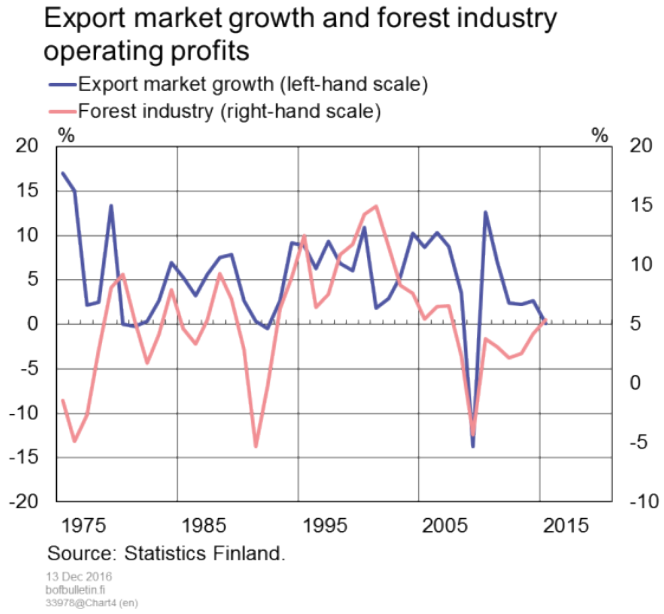


Chart 5.

The profitability of export companies also reflects their cost-competitiveness. There is no unambiguous definition of cost-competitiveness. Various indicators take into account in different ways changes in input prices, productivity, exchange rates and terms of trade. One possible indicator is that of export industry wage costs, which describes Finnish export industry's labour costs relative to those of our trading partners in a common currency. An improvement in cost-competitiveness is therefore an indication of a decline in wages relative to the competitor countries, which boosts corporate profitability. In such a situation, a company can cut its prices without having to lower its profit margins.

The developments in relative labour costs are compared to the trend in manufacturing sector operating profits (Chart 6). Overall, relative labour costs have developed fairly steadily in the period 1975–2015. Cost-competitiveness is characterised by long trend changes, and even of the devaluations in the early part of the review period, only the devaluations conducted during the recession are observable.

Short-term fluctuations in relative labour costs have thus been significantly smaller than those in export markets. In simple charts, the short-term impact of cost-competitiveness on demand and thereby profitability is therefore easily masked by the impact of export market shocks. Manufacturing sector productivity has tracked fairly well the long-term developments in competitiveness. An exception is the period which starts from the devaluations conducted during the 1990s recession and ends in the financial crisis. In that period, industrial profitability remained good for a long time, despite the gradual weakening of competitiveness, and it turned sharply down only in the wake of the financial crisis.

Chart 6.

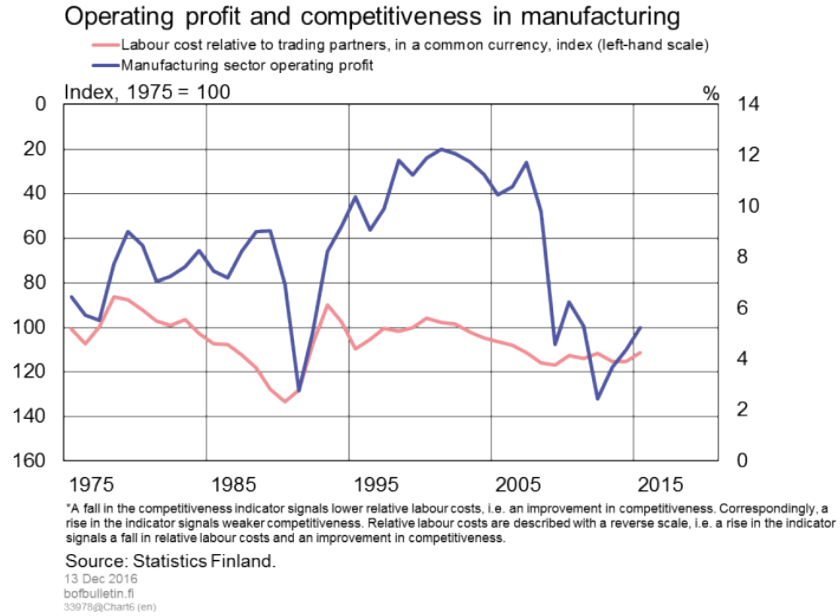
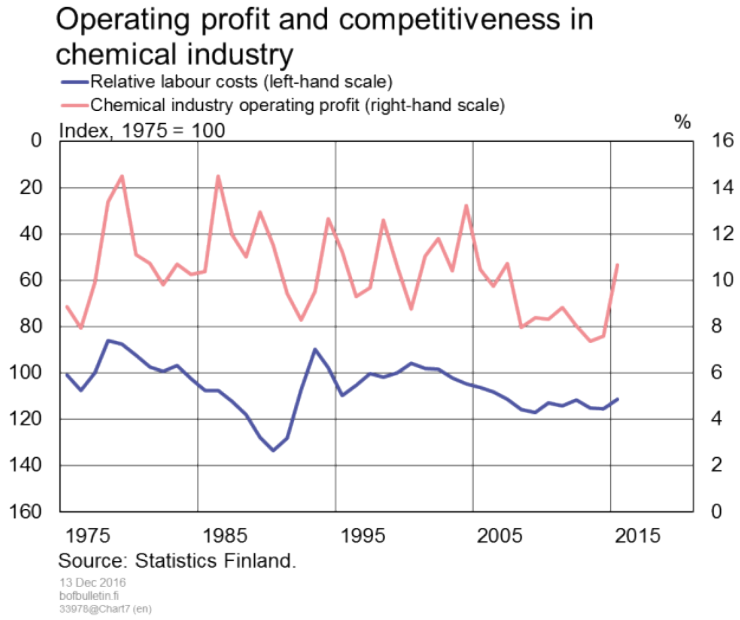
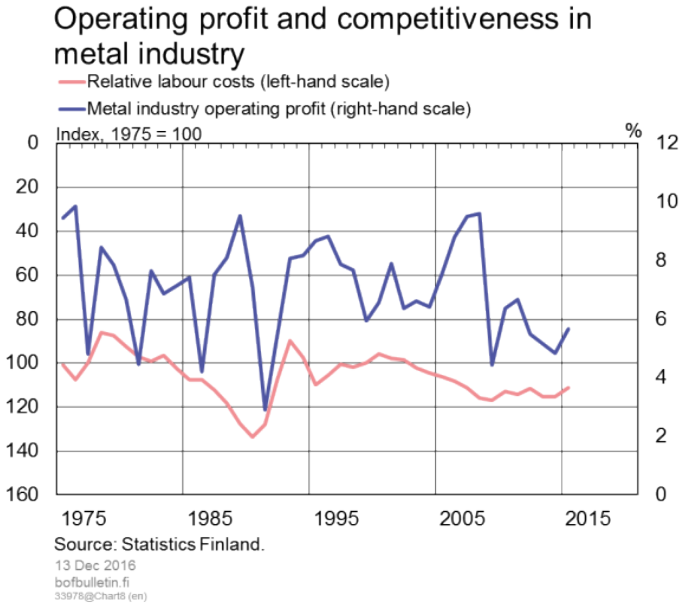


Chart 7.



In the years before and after the turn of the millennium, operating profit figures in manufacturing are dominated by high levels of profitability in the electrical industry, which has been affected more by other factors than domestic labour costs. Particularly in the metal and chemical industry, operating profits have, in contrast, also moved more or less in parallel with the trend in competitiveness in the early years of the millennium. In the metal industry, profitability peaked temporarily, however, just before the financial crisis (Charts 7 and 8).

Chart 8.



Long-term developments in profitability fairly steady

In many industrial sectors, profitability has developed fairly steadily over the past 40 years. In the years following the financial crisis, however, profitability developments have been exceptionally weak. Of the sub-sectors of industry, the highest profitability levels are nowadays recorded in the chemical industry, following the collapse in profitability in the electronic and electrical industry during the financial crisis.

In most of the sectors, the two indicators of profitability, i.e. operating profit and return on capital, provide a similar picture of developments in the sectors. Return on capital has exhibited much stronger fluctuations than operating profit, however. In the short term, it has been difficult for companies to adjust the amount of capital employed when the business cycle deteriorates. During upswings, return on capital has been correspondingly higher.

In the short term, growth in Finland's export markets has fluctuated more strongly than cost-competitiveness, and industrial profitability has weakened when export markets have collapsed, mainly in connection with the 1990s recession and the financial crisis. Relative to the magnitude of the shock to the export markets, the decline in manufacturing sector operating profits was significantly smaller, however, than during the 1990s recession.

Relative labour costs in the industrial sector have developed steadily, and even all the devaluations of the 1970s and 1980s are not clearly observable in the trend in competitiveness. There seems, however, to have been a link between industrial profitability and the trend in cost-competitiveness over the longer term. This has been most clearly observable in the metal and chemical industries. In the forest industry and in the electronic and electrical industry, profitability has more often diverged from the development of competitiveness than in the other industrial sectors.

Tags

- cost-competitiveness
- export markets
- profitability by sector

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Long-term growth from a productivity and employment perspective

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK • JUHA ITKONEN, MERI OBSTBAUM

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In developed economies, the recovery from the financial crisis has been exceptionally arduous and productivity development in particular has been very subdued. Speculation has abounded as to whether economic growth will stay low on a more permanent basis. At the same time, global trends in international trade and technological development are reshaping production and employment structures. Accelerated automation and a decline in labour income share have raised concerns about decreasing employment, contracting wages and increasing inequality in the long term.

What do we know about preconditions for economic growth in the long term? Long-term productivity growth is created by technological development, but anticipating new ideas and assessing their benefits are inevitably largely guesswork. Development of employment can be estimated more precisely with respect to ageing, for example, but the impact of technological development on labour markets is harder to predict.

Improved living standards dependent on productivity growth

Development of productivity and employment can be analysed through so-called growth accounting, which examines the impact on economic growth of production factors used in the economy and the development of production technology. In the short term, the rate of return in the economy may increase in line with raised labour input, accumulated production capital and larger commodity volumes. In the long term, however, economic growth is underpinned by technological development. Production technology refers to the way different production factors can be combined to produce goods and services. Technological development means that new ways of combining production factors are created in the economy in order to achieve gains.

Economic growth can also be achieved by moving resources to more productive activities, without increasing total input. Such growth can arise when, for example, the labour input structure in terms of industry, education or age changes towards supporting growth.

Technological development can be measured by productivity. Increased productivity means that commodities of increased quantity and quality can be produced using the given production factors. Increased productivity also means learning to produce the same quantity of commodities with smaller input.

Either labour productivity or total factor productivity is often used as a measure of productivity development. In sectoral analyses, labour productivity refers to value added per hours worked. As regards the economy as a whole, GDP per hours worked can also be measured. Total factor productivity, in turn, refers to productivity that is not explicable by development of labour or capital input.

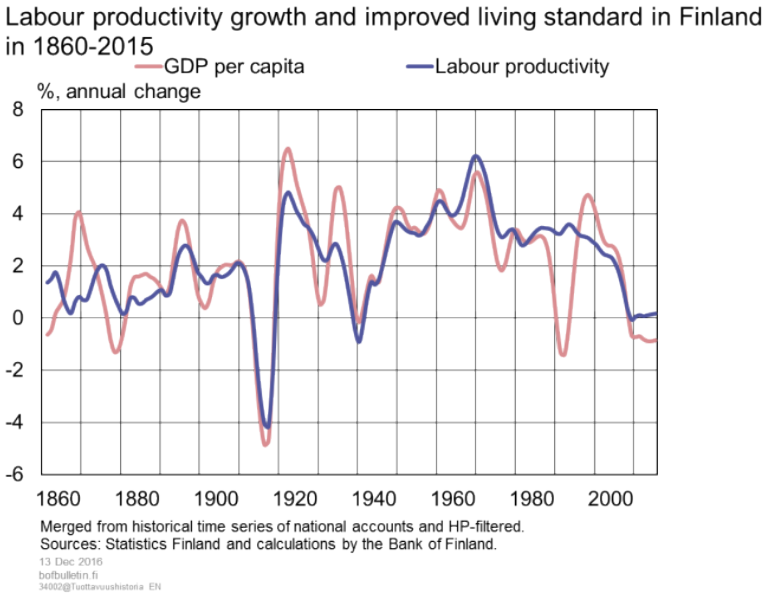
In economics, improvements in the standard of living, in turn, are generally measured by GDP calculated per capita. The standard of living can also be measured by different measures related to, among other things, health, mortality and education. An improved standard of living means that more and better goods and services are available for people to consume.

The significance of technological development is emphasised over time, because growth in the standard of living cannot deviate for long from growth in labour productivity. This is due to the fact that an indefinitely raised labour input per capita is not possible and not even desirable. The standard of living and labour productivity have developed more or less hand in hand, with a few occasional exceptions (Chart 1).

Capital accumulation, moreover, cannot explain long-term growth if production technology does not develop. Increased use of tools in production improves labour productivity, but the benefit achieved from an increased number of the same old machines and devices decreases, when equipment is sufficiently available. For example, an additional computer increases the productivity of an IT employee less than the first one.

In the short term, living standards are affected by changes related to labour supply, capital accumulation and economic structures, and these can have a major impact. For example, women's increased employment rate, increased life expectancy, higher retirement age, industrialisation and service domination as well as longer vacation and shortened working hours have significantly affected living standards.

Chart 1.

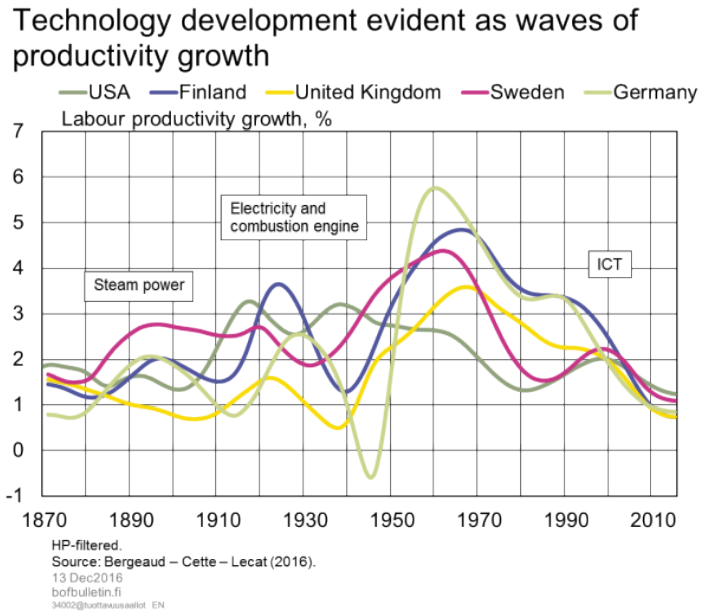


Digitalisation, the fourth technological revolution?

Economists largely agree that if a sufficiently long period is analysed, the most important factor for economic growth, and rising living standards in particular, is technological development, which improves labour productivity. As regards the whole national economy, the most important impact on productivity growth arises from so-called general purpose technologies. The steam engine, electricity and computers are inventions that society has been able to utilise very widely across different sectors of the economy. They have enabled a reorganisation of production and accelerated the growth rate of productivity.

In history, introduction of new general purpose technologies has been evident as waves of productivity growth. Broad-based introduction of technology takes time, and faster productivity growth has often followed inventions after a considerable delay. Productivity growth picks up as useful usages for the technology are found in different sectors of the economy. When the most significant benefits of new technology have been harnessed, productivity growth fades. Once again, something new must be invented.

Chart 2.



Many have predicted that digitalisation will give rise to the next technological revolution, which will bring a new wave of productivity growth (Brynjolfsson – McAfee 2011, 2014, Pohjola 2014). Digitalisation as a term refers to a process of economic and social change resulting from the development of the information and communications technology (ICT). Computers and telecommunication networks are general purpose technologies whose impact is evident in all sectors of the economy.

In recent years, only a few major upheavals have occurred in the development of basic digital technology, but many digital commodity components have gradually become more affordable, their performance has improved and their size has decreased. Combining components into new devices and services has become technically feasible and economically profitable.

Individual basic technologies in themselves are not yet capable of achieving productivity growth at a national level; they must first be linked to other existing production. Technology development can be analysed using, for example, the recombinant growth model (Weitzmann 1998), where innovations are created by combining old ideas in new ways. Innovations in turn enable combinations of new types of ideas. Some of the combinations succeed in improving productivity efficiency, some do not.

New useful ideas accumulate intellectual capital in the economy, enable productivity growth and recreate space for innovations. In the industrial internet, for example, traditional production equipment is combined with new micro sensors, mobile devices, IT networks and cloud services. Correspondingly, the smart phone is an innovation in which numerous smaller innovations are combined. Each smart phone component is the result of numerous earlier innovations. The smart phone in turn serves as an essential part of many future innovations.

Digital commodities have characteristics that influence the nature and productivity development of the markets surrounding those commodities. Firstly, it is typical of

digital commodities that they are easily duplicatable and distributable, so that the best products can rapidly capture a large share of global markets. Secondly, digital commodities are typically part of a larger ecosystem, i.e. an infrastructure of compatible devices, programs and services, which complicates consumers' switch to competing products due to compatibility issues. Thirdly, the attraction of digital commodities is based on so-called network effects, i.e. their usefulness to consumers and producers grows in line with the number of users. For example, consumers benefit more from social media in which all their friends participate, and from digital marketplaces that have a lot of vendors.

The duplicatability, complementarity and network effects of digital commodities easily lead to a final result where the winner takes it all. Success in such markets is evident as strong productivity growth, but success may be fragile. In a small open economy, rapid changes in market position may lead to increased volatility of productivity development.

Assessment of long-term economic prospects is probably most challenging precisely with respect to technological development, as predicting new ideas and assessing their usefulness are inevitably a matter of guesswork. We cannot with certainty say what impact, for example, self-driven cars, drones, 3D printers or the industrial internet will have on the development of productivity in future decades.

Recession only partly explains weak productivity

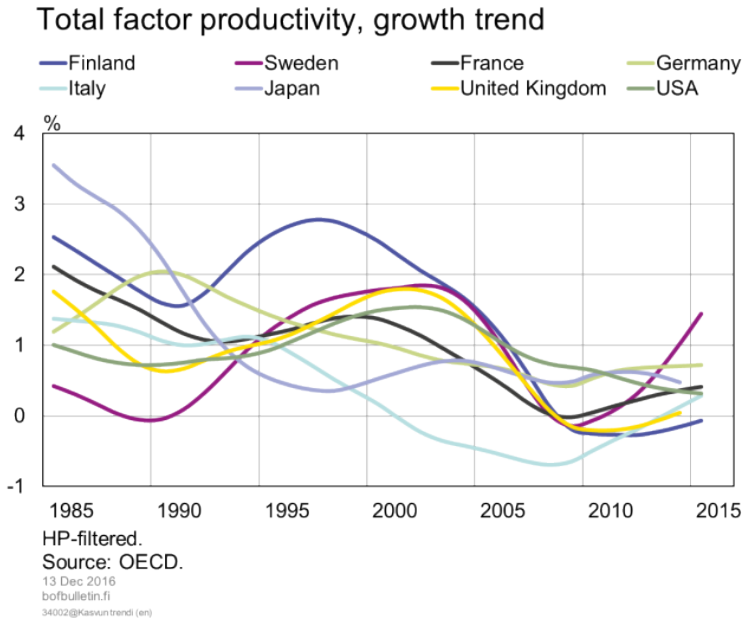
Despite the tremendous development of digital technology, productivity growth in most Western countries has slowed down significantly in recent decades and particularly after the financial crisis. In Finland, the slowdown of productivity growth has been particularly sharp.

The global recession only partly explains the slowdown of productivity growth. Cette et al. (2016) state that the slowdown in productivity already started in the US and Europe prior to the recession following the financial crisis, when the impact of the ICT had faded. In Europe, the productivity growth has, furthermore, been slowed down by structural rigidities in labour and product markets.

Barro (2016) deliberates whether policy choices after or prior to the financial crisis might have contributed to the productivity slowdown. In his view, increasingly ineffective regulation and deteriorating infrastructure as well as increased public debt could be possible explanations. The growth of public sector debt increases uncertainty about future financing of deficits, although accumulation of debt in the present environment of exceptionally low interest rates hardly burdens the short-term management of public debt. This growing uncertainty is likely to lead to lower investment.

In recent years, the possibility of an enduring slowdown in economic growth (secular stagnation) has again been raised in the international economic debate and in economics literature (e.g. Summers 2013, Baldwin – Teulings 2014). One of the models explaining slowing growth is based on total supply and long-term growth factors. The population is ageing and technological development is possibly also slowing down, which is reflected in a fading productivity growth (Gordon 2016).

Chart 3.



Finnish slowdown in productivity growth steeper than in other countries

In Finland, growth in labour productivity has come to a halt after the recession that followed the global financial crisis, and total factor productivity has even weakened. Except for war-time conditions, the situation is unparalleled in Finnish economic history.

The weaker Finnish productivity growth compared to other countries is predominantly due to poor industrial performance, but productivity growth in the service sectors has also been relatively sluggish. The economic shock in Finland is emphasised by the fact that productivity growth was exceptionally buoyant in the inter-recession period and the slowdown sudden. In 2008–2015, industrial productivity in EU countries has only been weaker in Greece.

Chart 4.

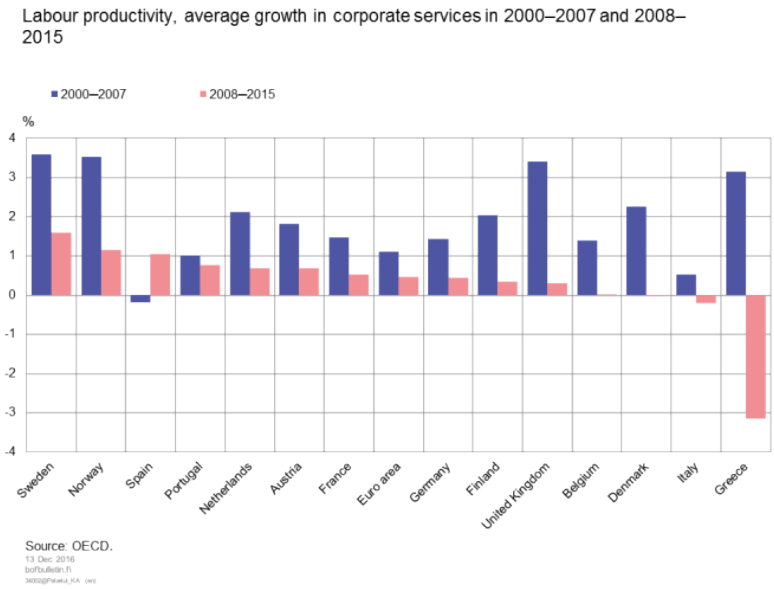
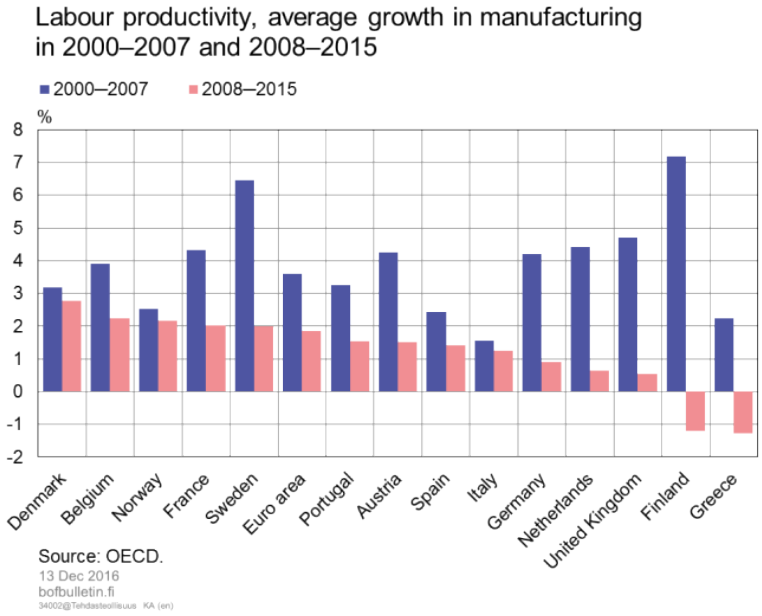


Chart 5.

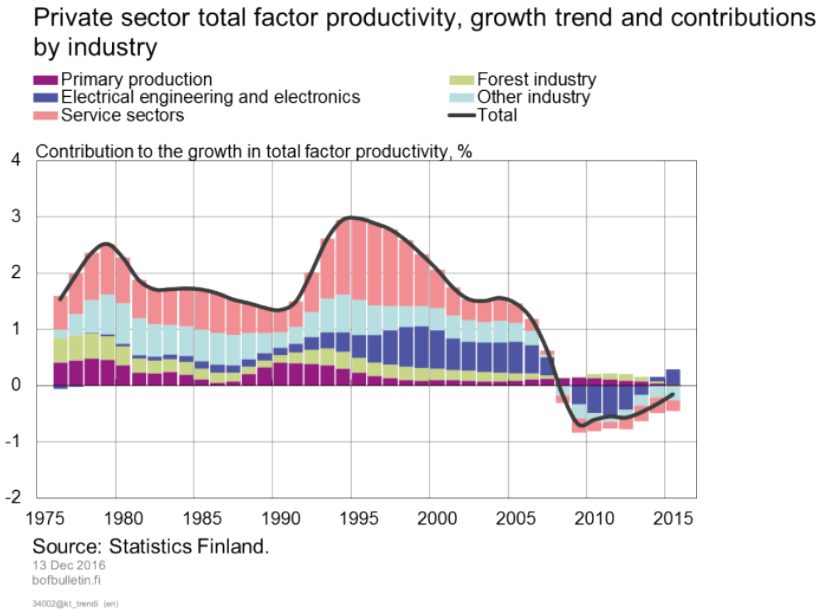


Prior to the financial crisis, Finnish service-sector labour productivity growth was slightly higher than average in the euro countries, although slower than in the other Nordic countries. In the post financial crisis period, labour productivity development has also been slower than in the euro countries.

In the three decades prior to the international financial crisis, the total factor productivity of the Finnish private sector improved at an annual rate of about 2% (Chart 6). Productivity growth was high in primary production and industry as well as in the service sectors. In the period between the recession of the 1990s and the financial crisis, the growth of total factor productivity was particularly affected by the sharp upswing in

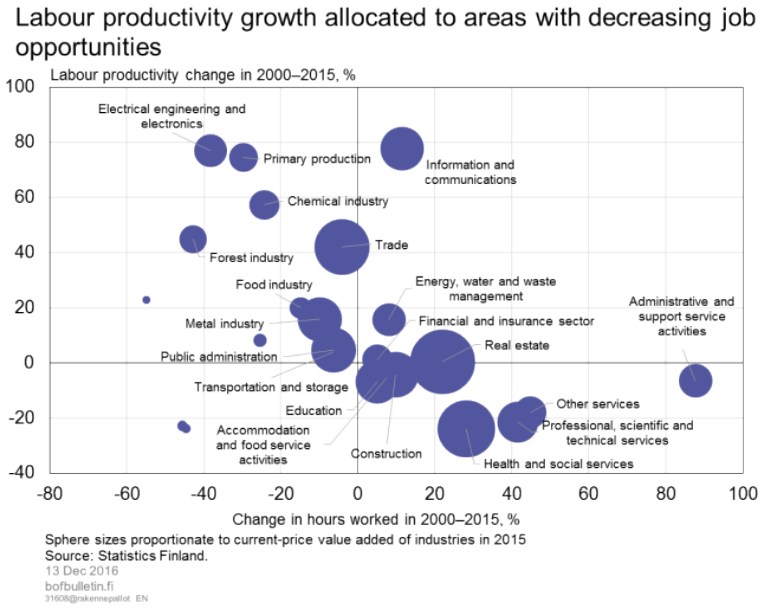
the electrical engineering and electronics industry. Although the impact of other industrial sectors on the growth rate of the economy as a whole decreased, the impact of service sector productivity strengthened. After the financial crisis, average private sector productivity growth has been negative both in industry and in service sectors. Due to its small size, the rapid productivity growth in agriculture and forestry has only been able to provide slight support to the economy as a whole.

Chart 6.



The weak development in productivity is partly explained by a change in labour structure between the main industry categories. In the 2000s, the number of hours worked has primarily increased in industries where productivity growth is slow, while, at the same time, the number of hours worked has contracted in sectors with fast productivity growth (Chart 7). Among the exceptions are information and communications as well as energy, water and waste management, where both labour input and labour productivity have increased.

Chart 7.



The productivity paradox – weak productivity and massive ICT investments

The conflict between weak productivity development and massive ICT investments is referred to as the productivity paradox. Robert Solow noticed the problem already in 1987 and polemically wrote that you can see the computer era everywhere but in the productivity statistics.

Brynjolfsson (1993) made the productivity paradox concept better known and argued that IT in reality improves productivity. At the turn of the 2000s, productivity development slightly accelerated, and the productivity paradox was generally considered to be solved. After the financial crisis, productivity growth has again faded and in many countries it has even slowed to an extent that is hard to explain as being due to the economic cycle. The productivity paradox concept has again resurfaced as one theme of the digitalisation debate.

The weak development of productivity may partly be explained by measurement errors relating to, for example, the assessment of service-sector productivity and distinguishing ICT investment effects from other factors affecting productivity (Bean 2016). Often, digitalisation affects the quality of products, but measuring the development of quality in national accounts is methodologically very challenging.

Free commodities are not recorded in GDP, and thus many new digital services, such as social media, search and map services as well as cloud services partly remain unnoticed in statistics. GDP does not, moreover, show the widening range of digital services nor the increase in spare time. If new commodities brought about by digitalisation mostly go unnoticed in national accounts, traditional growth indicators may underestimate the improvement in wellbeing.

Recent research has shown that the slowdown in labour productivity or total factor productivity growth cannot be explained by growing ICT measurement errors alone. There were already considerable measurement errors prior to the recent slowdown in productivity growth, and after the contraction of the ICT industry's share of production the significance of the errors has decreased (Byrne et al. 2016). Productivity growth has also slowed down in a similar way in countries where consumption and production of ICT commodities are lower. The output gap due to the productivity slowdown is so large that it cannot exclusively be accounted for by ICT factors (Syverson 2016).

The productivity paradox can also be due to the fact that restructuring caused by digitalisation may have negative growth effects in the short term. Newcomers may weaken the position of competing companies, which slows down growth on a national level. Correspondingly, technological unemployment and reassignment of staff may temporarily weaken the development of productivity in the economy. If the benefits of the new technology are realised after a delay and the negative impacts of restructuring are strong to begin with, digitalisation will not be reflected immediately in productivity statistics. It should be noticed that use of mobile equipment and services, in particular, has not increased until the last few years. As competition and technology have developed, prices for communication services have plummeted and consumer habits and requirements have changed.

Weak productivity development has also been attributed to various factors that hold back change, such as poor ICT management, limited digital expertise and regulation. The general view is that the benefits of digitalisation derive from the fact that digitalisation enables a total restructuring of production processes instead of carrying out the old processes with new equipment (so-called digitising or pseudo digitalisation). Many also emphasise the significance of management and a willingness to change in the realisation of productivity benefits. Many businesses have complained, in particular, about a lack of top ICT experts. The slow pace of change may, in turn, also partly be explained by regulation that hinders the entry of new operators into the market and the adoption of new technology. On the other hand, functioning regulation may also protect consumers from the side effects of the new technology, such as possible health problems. Regulation may also increase competition through standardisation, for example, and thus promote productivity growth.

The question as to whether digitalisation can accelerate productivity growth has divided economists into optimists and pessimists. The so-called techno-optimists believe that the best is still ahead and a new wave of productivity growth can be expected (Brynjolfsson – McAfee 2014, Mokyr 2014, Pohjola 2014). Techno-optimists have predicted that, compared to earlier corresponding technological advances, the latest wave will affect several sectors and that change will be faster. On the other hand, techno-optimists often take a pessimistic view of the economy's and society's capacity to adapt to change.

Economists representing the techno-pessimists have, in turn, estimated that productivity growth is genuinely slow and that digitalisation's accelerating effect on economic growth is already fading. Gordon (2016) has argued that ICT development has not been able to improve the wellbeing of people in the same way as the large technological revolutions of past centuries. Technological development has been striking, but its benefits have been limited to a narrow sub-area, primarily to entertainment, communication and data

processing. It is possible that a large part of the easy and obvious applications of digitalisation have already been utilised, that is the low hanging fruit has already been picked (Cowen 2011).

Productivity growth underpinned by innovations and international trade

Due to insufficient incentives, the private sector tends to invest less in research and development than would be favourable for society. On the other hand, the traditional view is that the public sector is not so good at selecting products or sectors prone to growth. Takalo (2014) has listed recommendations for innovation policy based on economic research. Growth can be supported by, for example, public sector investment in education, basic university research, and funding for the private sector's early-stage research and development activity.

The traditional view in economics is that protection of intangible rights (e.g. patents) encourages innovation, but this view has been questioned in recent empirical research. In practice, the impact of strong patent rights on productivity growth may also be negative due to various efficiency losses (Boldrin – Levine 2013).

A policy aimed at productivity growth typically emphasises the significance of creating innovations, but productivity growth does not necessarily require new inventions. Often, solutions that would facilitate an improvement in productivity already exist and are deployed elsewhere. Holmström et al. (2014) have highlighted the imitation of ideas that have already proved to be successful as a means of raising productivity. Schumpeterian growth models, in particular, have emphasised imitation as a method of approaching the technological forefront. In the same way as today's emerging economies, Finland became prosperous in the first half of the 1900s by copying ideas and solutions from other, more advanced countries. Even in the 2000s, Finland has to bridge the gap to the technological forefront (Berghäll 2016).

A small country cannot possibly develop all the technology it needs itself. The Finnish share of R&D expenditure in the OECD countries is only 0.6%. Most of the available technology is developed outside Finland, so the productivity of domestic production is essentially dependent on how well the country succeeds in utilising foreign technology.

Investment policy may also have a bearing on productivity development. The recent weak development of investments and capital stock has been elaborated on in reports[1] published earlier by the Bank of Finland. Digitalisation can bring greater efficiency to the utilisation of traditional capital and thus decrease the need for new investments. The industrial internet can enhance the performance of production processes and also improve the functioning of traditional machinery. Improved performance means that production is carried out with a smaller quantity of capital and investments than before. Correspondingly, platform and sharing economy applications may decrease investment purchases, when, for example, apartments and cars are put to more efficient use.

1. See http://www.suomenpankki.fi/fi/suomen_pankki/ajankohtaista/muut_uutiset/Documents/mista-investointien-vaimeus-johtuu.pdf. http://www.eurojatalous.fi/fi/2016/artikkelit/kuihtuva-paaoma/.

Competition encourages businesses to improve productivity and create new products for the market, but a strong competitive position brought about by innovations is temporary. Aghion et al. (2005) have pointed out that too much market competition may weaken incentives to innovate. If the competitive edge brought about by new and better products quickly vanishes due to competition, businesses do not have time to cover their product development costs through momentary peaks in revenue. Competition policy has traditionally been aimed at preventing the market from focusing on a limited number of participants, but a new challenge is that in digital markets there is a strong tendency to focus on only a few participants. Consumer benefits from services may genuinely grow as market shares increase.

In a digitalising world, an increasing share of the production has to compete in international markets. For a small country, this means that changes in market position may be rapid and success may be profitable but fragile, as seen in cases such as Nokia and the video game industry. Rapid changes shake the structures of a small economy, and pose challenges for the economy's capacity to adjust. On the other hand, international digital marketplaces may provide new opportunities for more remote areas and smaller businesses, when the threshold to move into international markets gets lower and lower.

There is a high consensus among economists about free trade's positive impact on overall wellbeing. When all actors concentrate on their own areas of expertise, productivity and GDP increase and all of the participants benefit. However, the consensus is almost as large on the fact that the benefits of free trade are unequally distributed. The benefit to some participants may even decrease as a result of free trade.

Limitations set for free trade may therefore dampen productivity growth, as they can be compared to restrictions on technological development. According to economics, free trade affects innovations through two channels. Improved market access increases corporate profits and may thus lead to increased innovation. On the other hand, tightening competition threatens the profits of established businesses when new participants join the market, which may encourage established businesses to innovate in order to fare well in this competitive environment (Aghion 1997, 2005).

Reduced profit margins due to increased business competition may also, however, lead to opposite effects. Furthermore, they may cause a reduction in income from innovations, so innovations may decline as a result. Whether extended free trade will have a positive or negative effect on innovations, technological development and productivity, is ultimately an empirical question.

According to Coelli et al. (2016), trade liberalisation has a large positive net effect on innovations. They argue that both market access and harder competition have a positive effect on increasing innovations, which suggests that trade policy has a very large impact on long-term corporate development, productivity and economic growth.

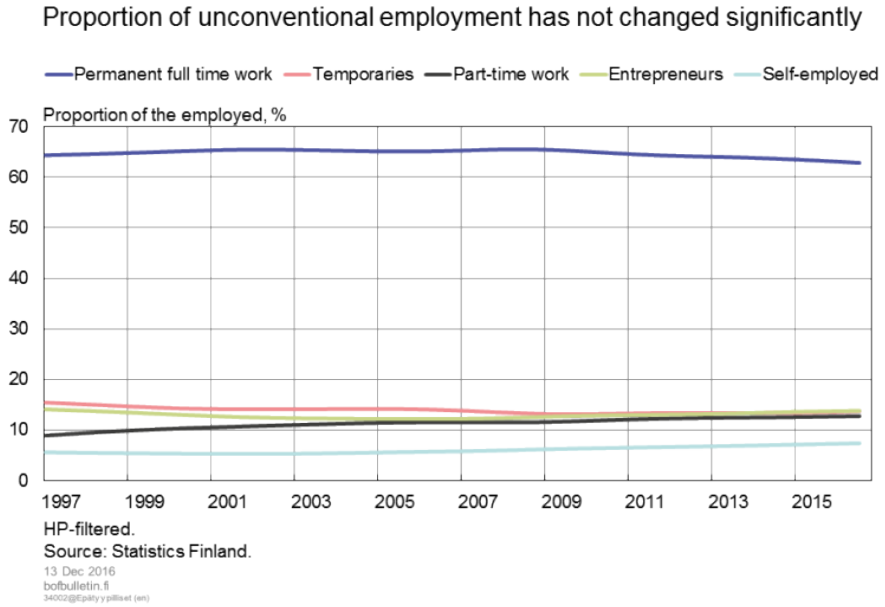
Unemployment caused by technological development

Ever since the outset of the industrial revolution, technological evolution has been associated with the concern that new machines and equipment would lead to a permanent deterioration of employment and increase in unemployment. Keynes called this phenomenon technological unemployment and he established the concept already in the 1930s.

In recent decades, technological development and globalisation have continued to reshape forcefully the labour markets of developed economies. Labour markets have become polarised, both in Finland and generally in developed economies. Jobs of an average wage and routine nature, which are easy to outsource, have decreased, while the proportion of high and low wage work has increased (see also the Bank of Finland article Polarisaatio Suomen työmarkkinoilla (Polarisation in the Finnish labour market)). The acceleration of structural change in the labour market has intensified fears of technological unemployment.

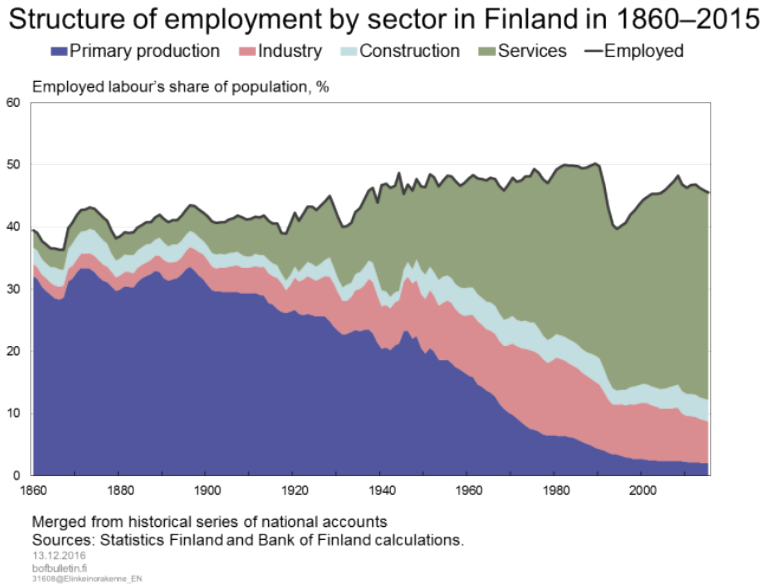
Technological unemployment has already been a theoretical threat for a long time, but it has not materialised at the level of the whole economy, even though there has been an extended period of rapid technological development. The quantity of work has not decreased in the long term, although the nature of the tasks performed has certainly changed. In Finland, too, the rate of job creation has in the long term been higher, on average, than the destruction rate, although that is not the case at present owing to the protracted recession. It has also been postulated that structural change leads to increased uncertainty in labour markets and to an increase in unconventional employment. According to Pyöriä – Ojala (2016), there is, however, little empirical evidence of work precarisation. Part-time or temporary work, at least, has not increased dramatically since the mid-1990s (Chart 8).

Chart 8.



Although the production structures of the economy have undergone immense change over the past decades, the employed as a proportion of the entire population have remained relatively stable. In Finland, the deep recession of the early 1990s caused an exceptionally deep reduction in employment (Chart 9), and since then the proportion of the employed has not fully recovered to the level preceding that recession. This reflects both the recent recession emanating from the financial crisis and also the steep decline of the working-age population since 2011. Due to these special factors, looking at the development of employment in recent years, it is difficult to distinguish, on the one hand, the impact of international trends and supply factors and, on the other hand, the impact of country-specific cyclical factors.

Chart 9.



Why has the threat of technological unemployment not materialised?

Autor (2015) identifies three mechanisms that explain why the threat of technological unemployment has not materialised. First, new technologies replacing manual labour often require new types of workers. If work and capital complement each other, technological development creates new, more productive jobs for those capable of operating new machines. For example, in expert work, computers facilitate work and improve the employee's productivity. On the other hand, the demand for labour may be reduced where technology is a substitute for work. For example, the digitalisation reform of the tax administration rendered the work of tax return inspectors largely unnecessary by automating the tasks. Historically, technological innovations have largely been complementary to labour, which has shown as an increase in the capital intensity of production, i.e. the increased use of capital per employee (Jalava et al. 2006).

Secondly, elasticity of wages may mitigate the increase in unemployment as the demand for labour ousted by new technology decreases. If labour market institutions allow for

wage elasticity, it may help preserve the jobs concerned by slowing down the growth of labour costs.

Thirdly, the impact of new technology on employment is largely dependent on the price elasticity in the demand for the goods concerned. For example, the demand for smart phones is largely dependent on their price. Therefore, the decrease in prices during Nokia's peak years caused by an improvement in productivity increased the demand for phones to such an extent that more personnel than previously were employed in their production. On the other hand, if the demand for a good does not increase when the price falls, improvements in productivity mean that a good can be produced with a lower number of employees. This has been the case in, for example, agriculture, since the demand for food has not increased as rapidly as agricultural productivity. Also in this case, however, the improvement in productivity has enabled an increase in consumption and employment in other parts of the economy.

In addition, Acemoglu – Restrepo (2016) point out that automation has an impact on the incentives of businesses to develop technologies and more complex working tasks than before. Where automation replaces workers and lowers labour costs, further increases in automation become less attractive from a business perspective. At the same time, incentives to develop new and more complex working tasks for employees are strengthened. In the Acemoglu – Restrepo model, these mechanisms restore the proportion of labour to the previous equilibrium, although inequality increases due to the shift.

Technological development and decrease of labour income share

In addition to the threat of technological unemployment, there have been concerns that the new technology would lead, at the level of the whole economy, to an increase in income differentials and in the capital income share, with labour being replaced by robots and computers. In the digital economy, differences in productivity may be exceptionally large, and the number of employees has decreased rapidly in many sectors. If technological development is very fast and weighted towards innovations replacing labour by machines, it is plausible that the change would lead to a decrease in the labour income share.

In the OECD countries as a whole, it has been found that the labour income share has contracted in recent decades while income differentials have widened[2] (OECD 2016), although there are large differences across countries. Finland belongs to the minority among the OECD countries where the labour income share has increased. In practice, the entire contraction of labour income share in other OECD countries occurred already before 2005, and therefore the phenomenon would seem to be structural. In the recession following the financial crisis, the labour income share partly recovered as corporate profits steeply declined.

2. Increase in income differentials is here measured as the difference between average and median earnings.

According to the OECD, some of the decrease in the labour income share is explained by an increase in housing or other asset prices. Another underlying factor is the entry of medium and low wage countries, China in particular, into the international markets. The increased income differentials are mainly explained by the very rapid expansion of the income of the highest-earning 1% of the population.

The contraction of the labour income share is a global phenomenon that has continued since the 1980s. Neiman (2014) noticed this contraction in the majority of the 59 countries he reviewed, and in most sectors. Neiman demonstrated that the decrease in the relative prices of investment goods, which is often associated with the advancement of information technology and computerisation, has incentivised companies to shift to more capital-intensive production. According to Neiman, this explains approximately half of the decrease in the labour income share, even taking into account the increase in profit shares, capital-saving technological development and the changing skill structure of the labour force.

Professions jeopardised by technological development

Recent studies in Finland and globally have aimed to estimate which professions are most likely to disappear as a result of technological development and how high a proportion of jobs is threatened. Frey – Osborne (2013) estimate that in the United States, 47% of present jobs are at risk of extinction. Using the same methodology, Pajarinen – Rouvinen (2014) in turn estimate that in Finland, 36% of jobs are at great risk of being replaced. The proportion is high, but it should be noted that the risk may not necessarily materialise with respect to all of the jobs. Neither do the above-mentioned studies take into account new, replacement jobs emerging in other sections.

Autor et al. (2013) have categorised jobs with the aid of two dimensions, on the one hand into routine and non-routine tasks and on the other hand into manual and cognitive tasks. The polarisation of the labour markets observed in recent decades is characterised as a non-routine-biased technological change. In contrast with the skill-biased technological change that preceded the polarisation, the polarisation has led to a reduction in jobs with medium wages.

The ICT development enables the transfer of many tasks that traditionally required human work to computers and robots. In particular, computers are capable of fast and cost-effective performing of tasks requiring simple calculations, data processing and the application of mechanical decision rules. The jobs in peril are therefore those based on routine execution, regardless of whether the work is cognitive or physical.

Technological change also enables automation increasingly in non-routine tasks. Artificial intelligence, big data, development of algorithms, machine vision and other new technologies are leading to the possibility that many non-routine tasks will also be performed by computers and robots in the future. Tasks that can be shifted to machines have increased while the relative advantage of human labour has narrowed.

In terms of long-term employment prospects, it is crucial how successfully new meaningful work can be found for the employees made redundant by technological development. From the perspective of productivity, the kind of new work that emerges to replace the obsolete tasks is also important.

What kind of work is needed in the future?

New jobs have appeared in sectors that have emerged as a result of technological development. In recent decades, technological development has increased the demand of labour in tasks requiring a high level of education as well as complex communications and problem-solving, in addition to low wage manual tasks that cannot be transferred to machines. It is by no means certain, however, that development will continue exactly like this into the future.

In tasks where automation cannot entirely replace the labour input of the employee, development typically increases the productivity of the employees. There has been discussion about a new division of labour between computers and humans (Levy – Murnane 2004). The irreplaceability of human labour can be explained by two paradoxes illustrating the challenges relating to the development of computers and robots.

The so-called Moravec's paradox refers to the observation that while many tasks requiring high intelligence are easy for computers, simple tasks relating to observation and motorics are difficult for them. For example, computers are good at playing chess but lousy at football. There are many tasks that have proven impossible to transfer to a computer, but more and more tasks are being performed by machines as development moves ahead.

Meanwhile, Polanyi's paradox postulates that we know more than we can tell (Autor 2015). People are capable of performing multi-phase tasks and complex deductions without being able to describe in detail how they do it. At the same time, the programming of computers and robots requires that data processing and functions are described in detail and written as a programme which is executed precisely and without exceptions by a machine.

Both Moravec's and Polanyi's paradoxes help understand what types of labour are also likely to be in demand in the future, but as technology evolves, the limits set by the paradoxes will be tested. With the help of developments in artificial intelligence and of different kinds of learning algorithms, more and more functions can be performed where the programmer does not explicitly describe the operating mode to the machine.

In the wake of technological development, the cooperation and complementarity of employees and computers are also highlighted. Digitalisation can be seen as part of the increasing capital-intensity of production, where the amount of ICT capital at the disposal of the employees increases and the productivity of labour improves.

It has been observed in many working tasks that a combination of computers and teams results in the best productivity. As the extent of information and complexity relating to the task increases, expertise will often have to be split into mutually independent parts, or modules, and the parts allocated to a larger team than before. For example, as regards

scientific publications and patents, a trend has been found that individual studies are focused on ever narrower topics while the average number of researchers per study has increased (Wuchty et al. 2007). Besides potentially leading to increased complexity of work, digitalisation also offers new tools to support team work (Jones 2009).

In terms of the development of productivity, it is important how many cognitive jobs with high productivity are created in Finland as opposed to manual jobs with low productivity. In this respect, the education structure of the population and the supply of labour for jobs requiring a high level of expertise are key factors.

Limitations of labour supply

Labour input is one of the cornerstones of economic growth in addition to capital formation and productivity, and therefore labour supply and factors affecting it are material for long-term growth. The number of the working population relative to those not working is the most important indicator of the potential to fund the welfare state.

In most developed economies, the ageing of the population has begun to limit the supply of labour, and this trend will continue for quite some time. In Finland, the contraction of the working-age population has been particularly fast and it began earlier than in most other countries (see also Demographic change reduces labour force and number of employed).

Another factor with a major impact on the development of labour supply is whether recessions leave a permanent mark on the labour participation rate. According to Jaimovich – Siu (2015), employment in the United States has been found to continue to develop weakly following the recessions of 1991, 2001 and 2009 for a protracted period, even after the economic recovery had started. According to them, jobs in the middle ground of the distribution of wages, in particular, have disappeared in connection with the recessions. This jobless recovery phenomenon is specifically related to a reduction in jobs based on routine tasks. The recovery from the post-financial crisis recession in developed economies has been largely different, however, from the recovery after previous recessions. It has been characterised by clearly lower growth of productivity as well as surprisingly solid employment growth. Barro (2016) describes this period as job-filled non-recovery.

In Finland, part of the working-age population ended up outside the labour force permanently as a consequence of the recession of the 1990s. With a view to longer-term development, the present employment situation exhibits some features meriting concern. The participation of young people in the labour market has been clearly weaker than average, and the growth of long-term unemployment in recent years has been concentrated increasingly on young age cohorts. Labour market development has been weakest for those aged 25–34 but the participation rate of 35–39 year-olds has also decreased since 2008. The proportion of youth not in employment, education or training has also shown an alarming increase.

Thirdly, particularly in the United States, there has been debate about the decrease in the participation rates and the underlying reasons (Eberstadt 2016). Particularly, there has been a trendlike decline in the labour participation rate of low education males at their

best working age (25–54 years) (Council of Economic Advisers, CEA, 2016). The participation rate of such employees has declined since the mid-1960s, especially in the context of recessions, and it has not recovered in the subsequent economic upswings.

The participation rate of each new age cohort is lower compared to the previous cohort, which rather points to a lower labour participation rate for all age groups than any shocks met at a certain age or the characteristics of any given cohort. The Council of Economic Advisers (CEA) has argued that changes in social security do not explain the weak labour market performance of males with low education. Similarly, the decline in labour participation probably does not reflect any increased valuation of leisure time, since a considerable proportion of the group outside the labour force are living below the poverty threshold. In contrast, according to the CEA, changes in the demand for labour are an important explanation of the weak labour market performance of males with low education. The changes may reflect technological development, automation and globalisation, since technological development and international competition decrease the demand for low education labour.

A similar trend cannot be observed in Finland, as the proportion of non-employed males at their best working age has declined since the deep recession of the 1990s and remained relatively stable in the 21st century hovering around 15%. At present, the proportion of unemployed males in Finland is roughly at the same level as in the United States. The trend has been very similar for Finnish women, although the proportion of non-employed women has been about 5 percentage points higher than non-employed males throughout the period.

Policy options supporting long-term growth

There is solid consensus among economists that when a sufficiently long period is being reviewed, the most important factor for economic growth and the improvement of the standard of living in particular, is technological development, which improves the productivity of labour.

Despite the stunning development of digital technology, productivity growth has slowed down considerably in recent decades and particularly in the period following the financial crisis. In Finland, this slowdown has been particularly abrupt. The international recession only partly explains the slower productivity growth.

In international economic debate and economics literature, it has been suggested that economic growth may have slowed down permanently because long-term growth factors have weakened. The population is ageing and technological development may also be slowing down, which is reflected as a deceleration of productivity growth. The combination of weak productivity performance and major ICT investments is paradoxical. The era of computers is seen everywhere else except in the statistics on productivity. This could be explained by measurement issues, short-term negative growth impacts of digitalisation or factors slowing down the spread of technological development. According to the pessimistic view, technological advancements in recent decades have been limited to areas that do not contribute to long-term growth, such as entertainment.

The views of economists on the potential of digitalisation to speed up the growth of productivity in the future are sharply divided, however. Technology optimists believe that the best is yet to come, and a new wave of productivity growth can be expected. The assessment of long-term economic prospects may be most challenging precisely with respect to technological development, since the prediction of new ideas and their usefulness is inevitably based on guesswork.

Ever since the outset of the industrial revolution, technological development has been associated with concerns that new machines and equipment lead to a permanent decrease in employment and an increase in unemployment. In the long term, however, the total population share of the employed has not declined significantly, although the tasks performed have certainly changed. In addition, a concern has been voiced that new technology leads to an increase at the level of the entire economy in income differentials and in the capital income share, as labour is being replaced by robots in the digital economy and differences in productivity are exceptionally large. In the OECD countries as a whole, the labour income share has indeed been observed to have contracted and the income of the richest 1% of the population to have grown more than that of the others.

In terms of long-term employment prospects, it is crucial how successfully new meaningful work can be found for employees made redundant by technological development. At the same time, in terms of the development of productivity, it is important how many cognitive jobs with high productivity are created in Finland as opposed to manual jobs with low productivity. In this respect, the key factor is the education structure of the population and the supply of labour for jobs requiring a high level of expertise.

Characteristics limiting the potential of labour input to contribute to long-term growth are associated with development in the next few decades. The ageing of the population in developed countries is one such limitation. There has also been discussion about whether the recent recession may leave a permanent mark on the labour participation rate. In addition, it has been postulated that the trendlike decline in the participation rate observed in the United States reflects more generally technological development, automation and globalisation. It is not feasible to create endless economic growth by increasing the labour input, but this limit has not been reached yet in Finland. Therefore, increasing the participation rate through reforms that improve supply should continue to be one the key objectives of labour policy.

The government can support productivity growth through successful innovation, investment, competition, education and structural policy. As a rule, the public sector can sway the development of productivity only indirectly and over the longer term. The active innovation policy of the public sector is justified by the positive externalities of innovation activities and by the imperfections of the financial markets. The public sector is bad at selecting products or sectors prone to growth, but it should create an environment that is favourable for innovation activity. In addition, innovation policy may have an impact on productivity development, since the adoption of new technologies often becomes tangible through investment.

The streamlining of regulation and promotion of competition incentivises companies to innovate, but the competitive edge gained by innovation is only a temporary one.

Competition policy has traditionally been used so as to prevent markets from being controlled by few participants. However, in the digital economy, natural monopolies emerge easily, and they should be allowed to exist from the viewpoint of economic efficiency.

Technological advancement and globalisation lead to faster evolution of economic structures than before. Rapid changes shake the structures of a small economy, posing challenges to the economy's capacity to adjust. As technological development shifts demand for labour from one sector to another, supply of labour should be able to shift with it. Lifelong learning and retraining of those losing their jobs may facilitate the shift of labour into tasks for which there is demand in the new technological environment. Change in the structures of professions and tasks is an inevitable result of technological development and rising living standards, but the human costs of change may be mitigated by improving the adaptability of labour markets and ensuring the existence of adequate social safety nets.

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Tags

- economic growth
- employment
- productivity

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Finland alerted to household debt

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 5/2016 • FINANCIAL STABILITY

The European Systemic Risk Board (ESRB), which is responsible for macroprudential oversight of the EU's financial system, has issued a warning to Finland concerning the medium-term vulnerabilities related to household indebtedness and lending for house purchase. For purposes of risk mitigation, more efficient instruments should be made available to the Finnish authorities to limit the maximum size of new housing loans relative to the loan applicant's debt-servicing capacity. There are, however, no threats to the stability of the Finnish financial system in the short term.

The European Systemic Risk Board (ESRB)[1], which is responsible for macroprudential oversight of the EU's financial system, has drawn attention to the vulnerabilities related to the Finnish housing market and to the inadequacy of the powers available to the Finnish authorities to address such risks. According to the ESRB warning to Finland, published at the end of November 2016, the vulnerabilities arising from high household indebtedness in particular may, in the medium term, jeopardise financial and macroeconomic stability in Finland.[2]

The Bank of Finland has in recent years repeatedly drawn attention to the structural vulnerabilities inherent in household indebtedness and lending for house purchase.[3]

1. See appendix: What is the European Systemic Risk Board and how does it operate?
2. The ESRB conducted an assessment of the housing market risks of all EU Member States and issued a warning to seven other Member States in addition to Finland. See the ESRB's press releases.
3. Bank of Finland Bulletin 2/2015, 5/2015 and 2/2016.

The Bank has also underscored the need to expand the macroprudential toolkit available, in order to contain an increase in such risks and vulnerabilities.

The Bank of Finland concurs with the ESRB's assessment of the risks involved in the high and increasing level of household indebtedness, which is unevenly distributed among households. Sustainable economic recovery in Finland cannot permanently rest on growing household debt, which erodes the ability of both households and the overall economy to adjust to future disruptions. For example in the face of rising unemployment or falling house prices, there may be a sudden contraction in the consumption of highly-indebted households, in particular, which would put the stability of the financial system and the economy at peril.

The vulnerability of the Finnish financial system is further increased by the special structural features of the banking sector, such as a high level of concentration and close interlinkages with the banking systems of the Nordic countries. Notwithstanding this, the Finnish banking sector has remained well capitalised and profitable amidst a difficult operating environment.

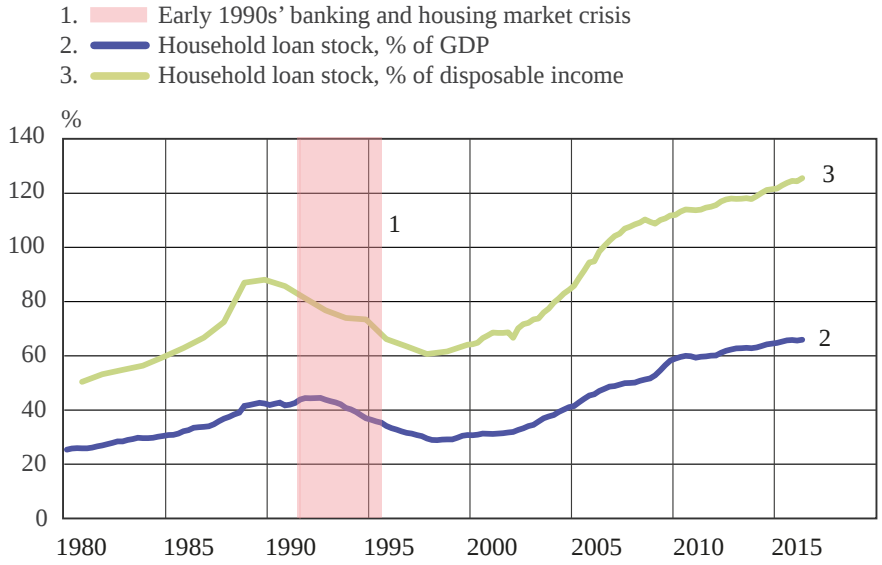
To ward off the risks identified by the ESRB it is vital that the Finnish authorities be provided with more powerful macroprudential instruments to address household indebtedness and related systemic risks. Although there are no imminent threats to financial stability at present, the capacity to deploy macroprudential instruments should be built in good time.

Short-term housing market risks have stabilised

Household indebtedness has continued to grow in Finland. The aggregate debt of the household sector relative to disposable annual income has climbed to over 125% (Chart 1).

Chart 1.

Household indebtedness in Finland record high



Loan stock includes loans via housing companies.
Sources: Statistics Finland and calculations by the Bank of Finland.

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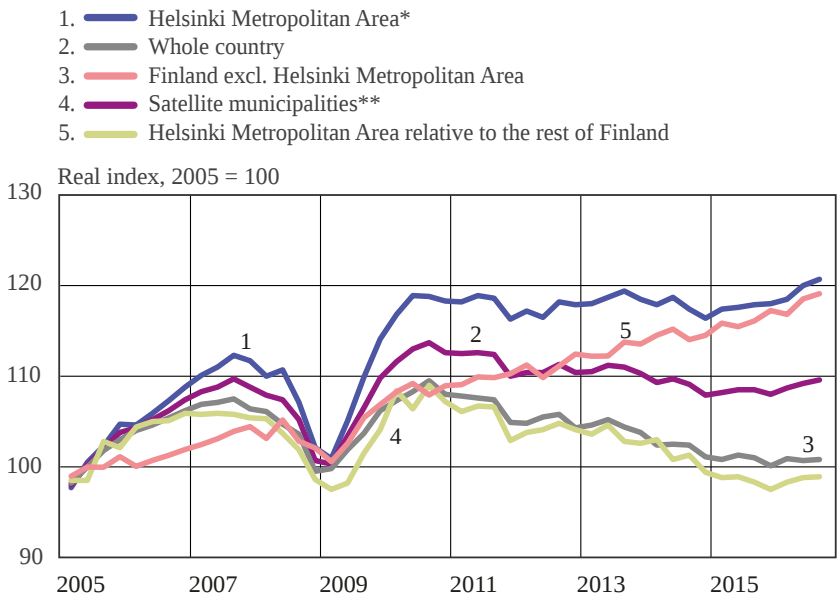
By contrast, the short-term risks to financial stability stemming from the Finnish housing market have stabilised against the background of moderate developments in the growth rate of the housing loan stock and house prices.

There are no signs of any widespread overvaluation of house prices in Finland. House prices are close to their long-term average nationwide, relative both to rents and to the level of wage and salary earnings. There are, however, large regional differences in house prices between growth centres and the rest of the country (Chart 2). The protracted period of slow growth has left the Finnish economy increasingly exposed to a major slowdown in global growth. The realisation of such a negative risk could also cause a drop in house prices.

Chart 2.

House prices are diverging



*Helsinki, Espoo, Vantaa, Kauniainen.
**Hyvinkää, Järvenpää, Kerava, Riihimäki, Kirkkonummi, Nurmijärvi, Sipoo, Tuusula, Vihti.
Sources: Statistics Finland and calculations by the Bank of Finland.

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Finnish banks demonstrate good resilience to direct risk exposures from lending for house purchase, against the backdrop of strong capital adequacy ratios and own funds of high quality. In addition, regular amortisation of housing loans reduces the risk that the market value of the house of a mortgage-holding household would fall below the outstanding loan value in the event of a crisis.

Finnish macroprudential toolkit needs beefing up

Several measures designed to mitigate the risks highlighted by the ESRB are either in place or in the pipeline in Finland: tax deductibility of mortgage interest is gradually being curtailed, the maximum size of new housing loans relative to loan collateral was restricted by the loan cap (loan-to-value or LTV ratio) introduced on 1 July 2016, and the Financial Supervisory Authority (FIN-FSA) has announced that it will impose a minimum requirement on banks' average risk weights for housing loans by July 2017. In addition, the capital conservation buffer requirement for credit institutions and the additional capital requirements for systemically important credit institutions (O-SIIs) provided for under EU regulations were put in place in Finland without application of the transitional periods allowed under EU legislation.

In its warning focused on medium-term vulnerabilities, the ESRB deems the measures adopted appropriate, but possibly insufficient. The ESRB draws special attention to the

Finnish authorities' lack of powers to restrict the maximum size of new housing loans, for example in recognition of the household's loan-servicing burden. In its assessment of the risks to the Finnish financial system, the International Monetary Fund (IMF) arrived at a similar conclusion.[4]

In order to complement Finland's current macroprudential toolkit (Table), the Ministry of Finance is in the process of drafting legislation allowing the authorities to impose on credit institutions a discretionary additional capital requirement – a systemic risk buffer (SRB) – based on the vulnerable structure of the banking system.

Table.

Finland's macroprudential toolkit *

Macroprudential instrument	Deployment
Countercyclical capital buffer requirement for credit institutions.	Set at 0% for QI2015–QIV2016 , reviewed on a quarterly basis.
Additional capital requirement for systemically important credit institutions (O-SIIs).	Additional capital requirements of 0.5–2.0% were set for 4 credit institutions, effective as of 7 January 2016, to be reviewed annually.
LTV ratio for housing loans.	90% of collateral value (95% for first-time buyers) as of 1 July 2016, may be tightened, to be reviewed on a quarterly basis.
Articles 124 and 164 of the CRR: increase in risk weights for real-estate mortgaged credit.	Not deployed.
Article 458 of the CRR: adoption of stricter national measures to address macroprudential risks.	Preparations are underway to set a 10% floor for average housing loan risk weights, to become effective by 1 July 2017.

* In addition to deploying formal macroprudential instruments, the financial supervisor may also impose discretionary additional requirements (Pillar 2 requirements) on credit institutions, based on the institution's financial position as revealed by supervision.

Sources: FIN-FSA and Bank of Finland.

There is no visible imminent threat to the stability of the Finnish financial system. The Bank of Finland finds the macroprudential measures adopted to be sufficient in the short term. It is nevertheless important that the authorities be ready to intervene promptly in

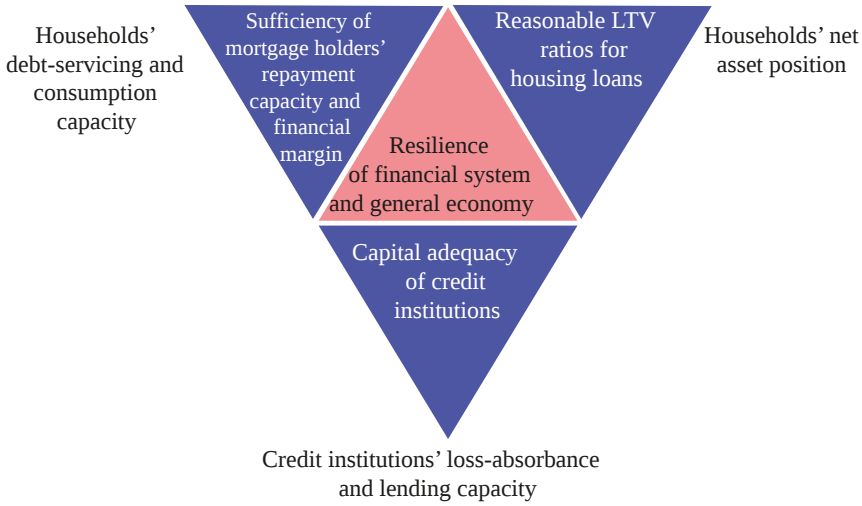
4. See the IMF's assessment of the vulnerabilities inherent in the Finnish financial system, https://www.imf.org/external/pubs/cat/longres.aspx?sk=44437.0 s.]

the event of an excessive reinforcement of the credit cycle. The tools necessary for countering threats must be readily available in good time.

With a view to safeguarding the stability of the Finnish financial system, the macroprudential decision-making body in Finland – the FIN-FSA board – should have access to appropriate instruments for ensuring 1) the sufficiency of the repayment capacity and financial margin of mortgage holders, 2) reasonable LTV ratios for housing loans and 3) the sound capital adequacy of credit institutions (Chart 3).

Chart 3.

Resilience of financial system to mortgage risks rests on a number of pillars



Source: Bank of Finland.

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The Finnish authorities do not currently have sufficient powers to ensure the adequacy of debt-servicing capacity in the household sector (Chart 3, left-hand side upper triangle). In fact, ever since 2010 the FIN-FSA has recommended that banks, in their credit granting process, test the repayment capacity of a customer in a scenario of an interest rate of 6% and a repayment period of 25 years. Expansion of the macroprudential toolkit with the instruments mentioned by the ESRB and IMF would give the authorities more robust powers to ensure the loan-servicing capacity of mortgage holders.

Vulnerable structure of the banking sector

The Finnish banking sector has remained stable regardless of the challenging operating environment. Finnish banks are profitable and well capitalised, on average. However, the vulnerability of the Finnish financial system is accentuated by the high level of

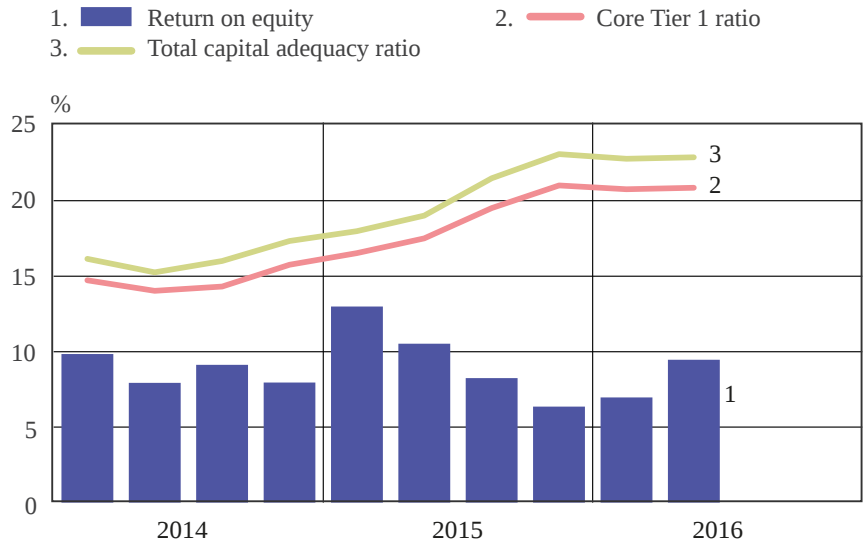
concentration in the banking sector: at the end of 2015 the two largest players together held a market share of nearly two-thirds of MFI loans and deposits.

Other structural vulnerabilities of the banking system include a high share of housing loans in the banks' credit portfolio, the low average risk weights on housing loans employed in banks' capital adequacy calculations, banks' high dependence on external market funding and the close interlinkages of the Finnish banking sector with the Nordic and Baltic banking systems.

The profitability of the domestic banking sector has remained relatively good despite the low interest rate environment and sluggish economic growth (Chart 4). Capital ratios remained high in the early part of 2016, with banks' own funds and risk-weighted assets practically unchanged. Capital adequacy in the banking sector continues to be characterised by a high share of Core Tier 1 capital in own funds. The credit stock is of good quality and stable, while non-performing assets are low.[5]

Chart 4.

Finnish banking sector remains well capitalised



Source: Financial Supervisory Authority.

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The interest rate on financial and non-financial corporations' deposits payable on demand has fallen very close to zero. A few banks have begun to apply negative rates to the deposits of their largest institutional customers. Households' current account deposits have expanded, although interest rates on them have also fallen in the latter

5. Valvottavien taloudellinen tila ja riskit 2/2016 ('Financial position and risks of supervised entities 2/2016', in Finnish only).

part of 2016. This probably reflects households' appreciation of the liquidity of these deposits, although deposit rates are exceptionally low.[6]

The phased-in introduction of the Liquidity Coverage Ratio (LCR) for banks began in October 2015. Banks' balance sheets must show a sufficient amount of high-quality assets that can be easily converted into cash at low cost, as a measure against an estimated net outflow of funding in stressed adverse circumstances lasting for 30 days. The Finnish banking sector easily fulfils the LCR requirement for 2016.

Digitalisation, non-bank competition and the prolonged period of low interest rates has been reflected in banks' business models, especially in development of tools for mobile payment. In addition, some banks are diversifying into multiple services, expanding their business beyond traditional banking, e.g. into the health and welfare business.

With the establishment of Banking Union and the Single Supervisory Mechanism (SSM), direct supervision of the four largest Finnish credit institutions was taken over by the ECB. The largest of these, the Nordea Bank Finland group (NBF), will be converted from a subsidiary into a branch of its Swedish parent company at the beginning of 2017. This is likely to reduce the aggregate balance sheet of the domestic banking sector substantially, considering that NBF accounted for 62% of the aggregate balance sheet of Finnish banks in June 2016.[7] All the assets and liabilities related to the NBF's financial business in secured bonds have already been transferred to the balance sheet of Nordea Mortgage Bank.[8]

Insurance and employee pension institutions play a major role as investors

Insurance and employee pension institutions rank among the major institutional investors in Finland. The significance of such large-scale investors for financial stability is mainly demonstrated by their investment behaviour, as any forced sales of securities undertaken by them in a crisis may give rise to serious problems on the capital markets. Consequently, the macroprudential authorities need to assess the investments of insurance companies, as well as their solvency.

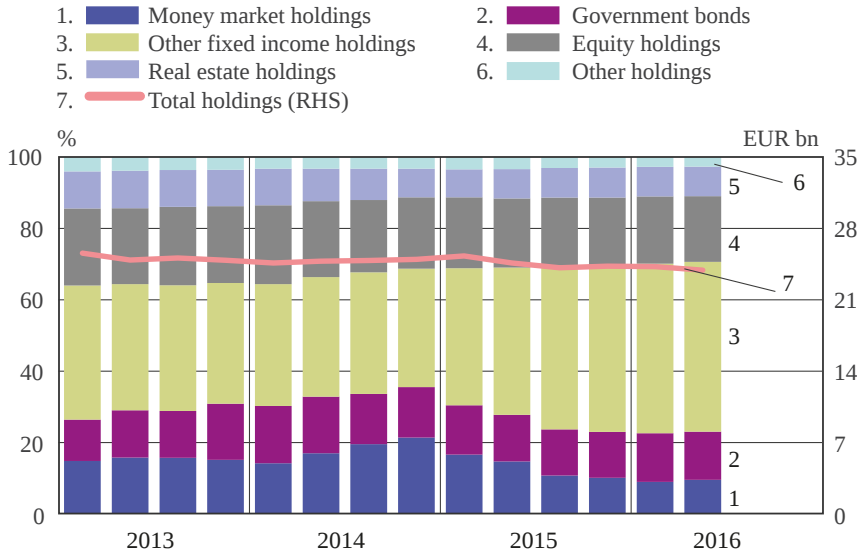
Insurance companies do no operate in an easy environment. In a low-interest-rate environment, insurance companies' exposures increase, as technical provisions are to be valued at market price in the solvency analysis according to the international Solvency II Regulatory Framework for insurance companies introduced at the beginning of 2016. Furthermore, fixed income investments of the highest investment grade yield weak returns, especially in the case of new investments. Notwithstanding this, the share accounted for by fixed income investments in insurance companies' asset portfolios has

6. The position taken by the Ministry of Finance to negative reference rates helps safeguard banks' net interest income. In spring 2016, the Ministry proposed that lenders have the right to charge the whole amount of the housing loan margin also in the context of negative reference rates, if so provided in the credit agreement.
7. The domestic banking sector does not include Finnish branches of foreign credit institutions.
8. The restructuring of Nordea scarcely registers in the Bank of Finland's MFI statistics, which also includes the Finnish branches of foreign credit institutions.

remained unchanged, and the companies' risk appetite has not been extended, on average (Chart 5).[9]

Chart 5.

Investment volume and asset allocation of Finnish life insurers has remained stable



Excludes derivatives.
Source: Financial Supervisory Authority.

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The insurance portfolio of Finnish life insurance companies is mainly composed of unit-linked policies, where the investment risk is borne by the policyholders. The volume of guaranteed-return investment policies is lower in Finland than in many other countries. This facilitates the functioning of Finnish life insurers in a low interest rate environment.

As a measure against market disruptions, the FIN-FSA has granted several life insurance companies permission to apply the long-term transitional provisions under the Solvency II Regulatory Framework for insurance companies. At the end of June 2016, all Finnish insurance companies fulfilled both the solvency and minimum capital requirements.[10]

The average investment return of employee pension institutions was nil in the early part of 2016. The low level of interest rates notwithstanding, the share of fixed income investment in the asset allocation increased. Total investment risk declined in step with

9. See article 'Korkotason laskusta huolimatta henkivakuutusyhtiöiden vakavaraisuus hyvällä tasolla' ('Life insurance companies demonstrate good solvency despite the fall in interest rates' in Finnish only).
10. The widespread application of the transitional provisions under the Solvency II Regulatory Framework impairs comparison of the solvency of insurance companies. Some companies have volunteered to release solvency data without application of the transitional provisions, but comparable data for all insurers will at the latest be available in spring 2017, when the companies publish annual reports on their solvency and financial position.

the fall in the portfolio share of equities. This strengthened the risk-based solvency position of the institutions. According to the FIN-FSA's assessment, the resilience of the employee pension institutions remains good.[11]

Room for improvement in financing growth companies

Efficient financial intermediation is vitally important for economic growth. Finland's financial system is dominated by the banking sector, and small and medium-sized enterprises (SMEs) are particularly dependent on bank-based finance. High-growth SMEs generate new jobs, thereby supporting employment and, more generally, the economy as a whole.

Although access to corporate finance has remained relatively unconstrained according to recent survey data, growth-oriented SMEs have been frustrated by the availability and terms of financing making it harder to finance their projects.[12] Such companies' funding needs are also greater than for SMEs on average.

According to a survey by the ECB,[13] excluding interest payments on loans, Finnish SMEs have seen a rise in their costs. Collateral requirements and other loan conditions, such as covenants and guarantees, have tightened. Nevertheless, the availability of bank funding for SMEs in Finland remains one of the best in Europe: 80% of applicants were granted loans either equal or close to the full amount requested. This ratio has remained broadly constant since 2014.

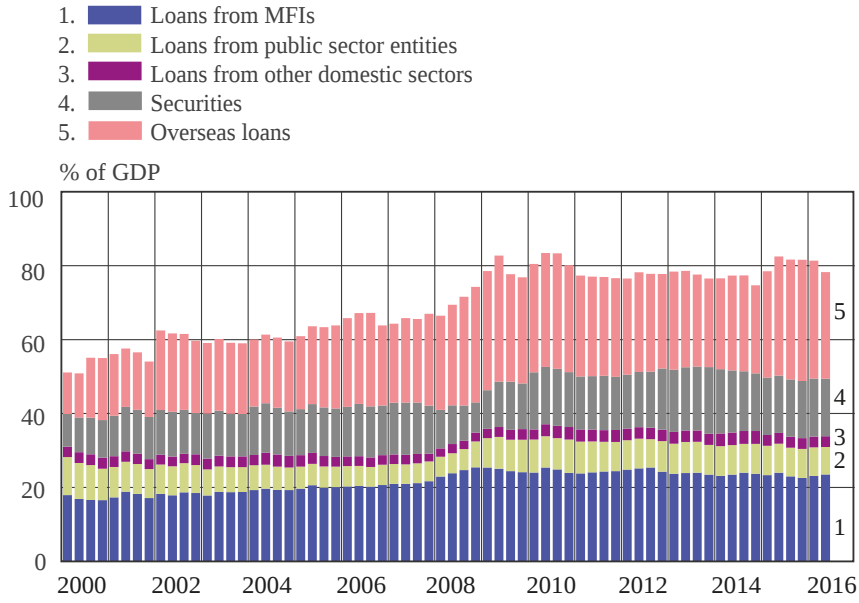
Collateral requirements are particularly frustrating for SMEs who require financing but whose primary assets are intangible. Newly established and rapidly growing SMEs often have short credit histories, which can prove detrimental to the availability and terms of finance.

The corporate sector's consolidated interest-bearing debt reached around 78% of GDP in June 2016 (Chart 6). Of this debt, 37% consisted of overseas loans, which were primarily used by business concerns to finance internal direct investments. Omitting this relatively fluctuant component from our analysis reveals that the 2014–2015 trend of shrinking corporate debt-to-GDP ratios came to an end in 2016. The stock of domestic corporate loans issued by Finnish monetary financial institutions (MFIs) increased by slightly over 2% in 2016.

11. See article 'Työeläkesektorin alkuvuoden alavireinen vakavaraisuuskehitys pysähtyi, mutta haasteet jatkuvat tulevina vuosina' ('The sluggish development in solvency in the employee pension sector witnessed in the early part of the year was reversed, but there are further challenges in the years ahead', in Finnish only).
12. Survey by the Federation of Finnish Enterprises. PK-yritysbarometri 2/2016. Finnish only.
13. Survey on the access to finance of enterprises (SAFE).

Chart 6.

Overseas loans constitute large portion of Finnish corporate debt



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

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Increased competition within the banking sector as well as greater diversification in funding sources would facilitate better access to corporate finance. The reduction of banks' local branch networks remains a continuing trend in Finland. As banking operations become increasingly centralised and local branches' tacit knowledge on corporate clients lessens, this could change the availability and conditions of corporate loans.

Swedish housing markets risks are a cause for concern in Finland, too

Cross-border financial interlinkages increase the Finnish financial system's vulnerability to serious disruptions in the international and European financial systems.

The risk resilience of Europe's financial system has been systematically strengthened in the years following the global financial crisis. Regulatory reforms already implemented or currently being prepared place considerably greater capital, leverage and liquidity requirements on banks and incentivise the use of stable sources of funding. These regulatory reforms as well as the introduction of the Single Supervision and Crisis Resolution Mechanism under Banking Union will act to contain the occurrences and effects of financial crises.

The low interest rate environment is weakening the profitability of euro area banks. Additionally, a number of banks are burdened by large quantities of nonperforming

loans. Many euro area countries are vulnerable to the cyclical and structural risks of the housing markets.

Risks to the Finnish economy in the event of global economic and financial crises and other serious disruptions include weakened exports, constraints on banks' access to market funding, and restrictions on credit issued by Nordic financial institutions. Finland's banking sector is becoming increasingly interconnected with the Nordic financial system, a trend reinforced by the restructuring of Nordea.

Household indebtedness and the stock of mortgages held by financial institutions have increased in Sweden. Consequently, the rise of house prices has rapidly overtaken that of households' disposable income. Moreover, the banking sector is large, concentrated, interconnected and dependent on market funding, partially denominated in euro and US dollars.

Both the Swedish authorities and international organisations have expressed concern over the growing risks associated with Sweden's housing market.[14] The realisation of systemic risks stemming from the Swedish housing market would probably also affect Finland, particularly via the Nordic banking groups and intra-Nordic trade. The magnitude of cross-border contagion would depend on the extent of Swedish banks' exposure to the housing market and the effects this would have on their liquidity, credit lines and ability to raise capital.

The growing interconnectedness of the Nordic and Baltic banking systems requires deeper cooperation and information-sharing between authorities to ensure the stability of the financial system. To this effect, the central banks of these countries signed a revised Memorandum of Understanding to outline mutual policy in the event of crises or other contingencies.

The cross-border interlinkage of the banking system increases the importance of EU Member States having a uniform range of macroprudential tools at their disposal as well as the prerogative to target systemic risks. It is essential that the effects of macroprudential policy also extend to foreign banks operating within a country, particularly when these banks play a significant role in the financial system. This will require authorities to coordinate and reciprocate their macroprudential policies as comprehensively as possible.

Appendix. What is the European Systemic Risk Board and how does it operate?

The legislation establishing the European Systemic Risk Board (ESRB) was passed in December 2010. The ESRB largely consists of the central banks and financial supervisory authorities of EU Member States.[15] Its General Board, chaired by ECB president Mario

14. The European Systemic Risk Board issued a warning to Sweden over its housing market at the same time as the warning to Finland over its own housing market. See the latest Riksbank financial stability report.
15. In addition to the central banks and financial supervisory authorities of the 28 EU Member States, the ESRB's membership includes 6 European institutions (the ECB, the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authority

Draghi, serves as the executive body.[16] The Governor of the Bank of Finland serves as a voting member on the General Board, while the Director General of the Financial Supervisory Authority serves as a non-voting member. Bank of Finland experts participate in the preparation of meeting agendas. The ESRB operates from within the ECB in Frankfurt.[17]

The ESRB is responsible for the macroprudential oversight of the EU's financial system. Its mission is to identify, prevent and mitigate the effects of systemic risk within the financial system.

When the ESRB identifies systemic risk, it responds by issuing warnings or making policy recommendations. Recommendations can address specific vulnerabilities or broad threats to financial stability. Moreover, the ESRB can issue warnings and recommendations to the entire EU, or any combination of Member States and their respective financial supervisory authorities. The ESRB General Board holds the right to publicise its warnings and recommendations.

The ESRB may issue a warning when it has identified one or several risks that threaten financial stability. Warnings do not contain explicit policy instructions, nor is the recipient expected to issue reports on their policy response. Recommendations issued by the ESRB do, however, lay out macroprudential policy guidelines and a deadline for implementing these measures. The ESRB monitors implementation of its recommendations, and the recipient is obliged to report on their progress to the ESRB and the European Council.

Tags

- financial stability
- households
- housing loans
- indebtedness
- macroprudential policy
- mortgage credit granting

(EIOPA), and the EU's Economic and Financial Committee (EFC) plus the central banks of Norway and Iceland as observers.

16. Other organs are the Steering Committee, the Secretariat and two advisory committees (the Advisory Technical Committee and the Advisory Scientific Committee) supported by a number of expert working groups.

17. For more information on the structure and mission of the ESRB, please visit its website.

FORECAST TABLES

Forecast for 2017–2019

13 DEC 2016 11:00 AM • BANK OF FINLAND BULLETIN 5/2016 • ECONOMIC OUTLOOK

December 2016

1. BALANCE OF SUPPLY AND DEMAND, AT REFERENCE YEAR 2010 PRICES

% change on previous year

	2015	*2016*	*2017f*	*2018f*	*2019f*
GDP at market prices	0.2	1.0	1.3	1.2	1.2
Imports of goods and services	1.9	1.2	2.0	2.1	1.9
Exports of goods and services	-0.2	0.7	2.1	2.5	2.6
Private consumption	1.5	1.9	1.4	1.0	0.9
Public consumption	0.4	0.3	0.3	0.3	-0.3
Private fixed investment	2.2	5.8	3.4	2.5	2.7
Public fixed investment	-5.1	3.1	0.6	-0.2	-0.1

Source: Bank of Finland forecast December 2016.

2. CONTRIBUTIONS TO GROWTH[1]

	2015	*2016*	*2017[f]*	*2018[f]*	*2019[f]*
GDP, % change	0.2	1.0	1.3	1.2	1.2
Net exports	-0.8	-0.2	0.0	0.1	0.3
Domestic demand excl. inventory change	1.0	2.2	1.5	1.1	0.9
of which Consumption	0.9	1.2	0.8	0.6	0.4
Investment	0.1	1.1	0.6	0.4	0.5
Inventory change + statistical discrepancy	0.0	-1.1	-0.2	0.0	0.0

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

Source: Bank of Finland forecast December 2016.

3. BALANCE OF SUPPLY AND DEMAND, PRICE DEFLATORS

Index 2010 = 100, and % change on previous year

	2015	*2016*	*2017[f]*	*2018[f]*	*2019[f]*
GDP at market prices	112.0	113.3	113.2	113.6	114.4
	1.6	1.2	-0.1	0.3	0.7
Imports of goods and services	100.6	98.5	101.6	104.3	106.5
	-4.0	-2.0	3.1	2.7	2.1
Exports of goods and services	103.3	100.7	103.2	105.2	107.1
	-0.9	-2.5	2.5	2.0	1.8
Private consumption	110.8	111.4	112.0	112.7	113.6
	0.4	0.5	0.6	0.7	0.8
Public consumption	112.6	114.3	113.7	114.1	114.8
	0.2	1.5	-0.5	0.4	0.6
Private fixed investment	109.4	111.2	112.4	113.4	114.9
	0.5	1.6	1.0	0.9	1.3
Public fixed investment	110.3	112.2	114.3	114.8	115.6
	0.1	1.7	1.9	0.4	0.8
Terms of trade (goods and services)	102.7	102.2	101.6	100.9	100.6
	3.3	-0.5	-0.6	-0.7	-0.3

Source: Bank of Finland forecast December 2016.

4. BALANCE OF SUPPLY AND DEMAND, AT CURRENT PRICES

EUR million and % change on previous year

	2015	*2016*	*2017[f]*	*2018[f]*	*2019[f]*
GDP at market prices	209,149	213,663	216,225	219,620	223,805
	1.8	2.2	1.2	1.6	1.9
Imports of goods and services	77,548	76,869	80,780	84,665	88,096
	-2.2	-0.9	5.1	4.8	4.1
Total supply	286,697	290,532	297,005	304,286	311,901
	0.7	1.3	2.2	2.5	2.5
Exports of goods and services	76,579	75,193	78,715	82,286	85,969
	-1.0	-1.8	4.7	4.5	4.5
Consumption	166,733	170,560	172,795	175,163	177,429
	1.5	2.3	1.3	1.4	1.3
Private	115,711	118,595	120,929	122,941	125,049
	1.8	2.5	2.0	1.7	1.7
Public	51,022	51,965	51,865	52,221	52,380
	0.6	1.8	-0.2	0.7	0.3
Fixed investment	42,718	45,695	47,582	48,931	50,603
	1.1	7.0	4.1	2.8	3.4
Private	34,562	37,146	38,821	40,154	41,771
	2.7	7.5	4.5	3.4	4.0
Public	8,156	8,549	8,761	8,777	8,832
	-5.1	4.8	2.5	0.2	0.6
Inventory change + statistical discrepancy	667	-916	-2,086	-2,094	-2,101
% of previous year's total demand	0.0	-0.6	-0.4	0.0	0.0

Source: Bank of Finland forecast December 2016.

4. BALANCE OF SUPPLY AND DEMAND, AT CURRENT PRICES

Total demand	286,697	290,532	297,005	304,286	311,901
	0.7	1.3	2.2	2.5	2.5
Total domestic demand	210,118	215,339	218,291	221,999	225,931
	1.4	2.5	1.4	1.7	1.8

Source: Bank of Finland forecast December 2016.

5. BALANCE OF SUPPLY AND DEMAND

% of GDP at current prices

	2015	*2016*	*2017f*	*2018f*	*2019f*
GDP at market prices	100.0	100.0	100.0	100.0	100.0
Imports of goods and services	37.1	36.0	37.4	38.6	39.4
Exports of goods and services	36.6	35.2	36.4	37.5	38.4
Consumption	79.7	79.8	79.9	79.8	79.3
Private	55.3	55.5	55.9	56.0	55.9
Public	24.4	24.3	24.0	23.8	23.4
Fixed investment	20.4	21.4	22.0	22.3	22.6
Private	16.5	17.4	18.0	18.3	18.7
Public	3.9	4.0	4.1	4.0	3.9
Inventory change + statistical discrepancy,	0.3	-0.4	-1.0	-1.0	-0.9
Total demand	137.1	136.0	137.4	138.6	139.4
Total domestic demand	100.5	100.8	101.0	101.1	101.0

Source: Bank of Finland forecast December 2016.

6. PRICES

Index 2010 = 100, and % change on previous year

	2015	*2016*	*2017[f]*	*2018[f]*	*2019[f]*
Harmonised index of consumer prices, 2005=100	100.0	100.4	101.1	102.0	103.0
	-0.2	0.4	0.8	0.8	1.0
Consumer price index, 2005=100	100.0	100.4	101.1	101.9	102.9
	-0.2	0.4	0.7	0.8	1.0
Private consumption deflator	110.8	111.4	112.0	112.7	113.6
	0.4	0.5	0.6	0.7	0.8
Private investment deflator	109.4	111.2	112.4	113.4	114.9
	0.5	1.6	1.0	0.9	1.3
Exports of goods and services deflator	103.3	100.7	103.2	105.2	107.1
	-0.9	-2.5	2.5	2.0	1.8
Imports of goods and services deflator	100.6	98.5	101.6	104.3	106.5
	-4.0	-2.0	3.1	2.7	2.1
Value-added deflators					
Value-added, gross at basic prices	111.9	113.8	113.9	114.4	115.2
	1.8	1.6	0.2	0.4	0.7
Private sector	111.2	113.3	113.8	114.2	115.0
	2.1	1.9	0.4	0.4	0.7
Public sector	115.1	115.5	114.7	115.0	115.9
	0.7	0.4	-0.8	0.3	0.8

Source: Bank of Finland forecast December 2016.

7. WAGES AND PRODUCTIVITY

% change on previous year

	2015	*2016*	*2017f*	*2018f*	*2019f*
Whole economy					
Index of wage and salary earnings	1.4	1.3	0.3	0.8	1.3
Compensation per employee	1.6	1.1	-0.5	0.6	1.0
Unit labour costs	1.0	0.5	-1.2	0.0	0.4
Labour productivity per employed person	0.6	0.6	0.7	0.7	0.5

Source: Bank of Finland forecast December 2016.

8. LABOUR MARKET

1,000 persons and % change on previous year

	2015	*2016*	*2017f*	*2018f*	*2019f*
Labour force survey (15–74-year-olds)					
Employed persons	2,437	2,446	2,460	2,474	2,491
	-0.4	0.4	0.6	0.6	0.7
Unemployed persons	252	237	228	224	223
	8.7	-6.2	-3.7	-1.7	-0.5
Labour force	2,689	2,683	2,688	2,698	2,714
	0.4	-0.3	0.2	0.4	0.6
Working-age population (15–64-year-olds)	3,474	3,463	3,452	3,444	3,437
	-0.4	-0.3	-0.3	-0.2	-0.2
Labour force participation rate, %	65.6	65.3	65.2	65.3	65.6
Unemployment rate, %	9.4	8.8	8.5	8.3	8.2
Employment rate (15–64-year-olds), %	68.1	68.6	69.1	69.7	70.2

Source: Bank of Finland forecast December 2016.

9. GENERAL GOVERNMENT REVENUE, EXPENDITURE, BALANCE AND DEBT

% OF GDP

	2015	*2016*	*2017[f]*	*2018[f]*	*2019[f]*
General government revenue	54.9	54.9	54.3	54.2	54.0
General government expenditure	57.7	57.4	56.9	56.6	56.2
General government primary expenditure	56.5	56.4	55.9	55.7	55.3
General government interest expenditure	1.2	1.0	1.0	0.9	0.9
General government net lending	-2.8	-2.5	-2.6	-2.4	-2.2
Central government	-3.0	-2.9	-2.8	-2.5	-2.0
Local government	-0.6	-0.7	-0.6	-0.6	-0.6
Social security funds	0.9	1.1	0.8	0.6	0.4
General government primary balance	-1.6	-1.4	-1.7	-1.5	-1.3
General government debt (EDP)	63.6	65.6	68.2	70.1	71.3
Central government debt	47.7	49.4	51.6	53.3	54.3
Tax ratio	44.1	44.2	43.7	43.7	43.6

Source: Bank of Finland forecast December 2016.

10. BALANCE OF PAYMENTS

EUR million

	2015	*2016*	*2017f*	*2018f*	*2019f*
Exports of goods and services (SNA)	76,579	75,193	78,715	82,286	85,969
Imports of goods and services (SNA)	77,548	76,869	80,780	84,665	88,096
Goods and services account (SNA)	-969	-1,676	-2,065	-2,379	-2,126
% of GDP	-0.5	-0.8	-1.0	-1.1	-1.0
Investment income and other items, net (+ statistical discrepancy)	2,420	2,109	2,222	2,212	2,202
Current transfers, net	-2321	-2068	-2096	-2132	-2176
Current account, net	-870	-1,636	-1,939	-2,299	-2,100
Net lending, % of GDP					
Private sector	2.3	1.7	1.7	1.4	1.3
Public sector	-2.8	-2.5	-2.6	-2.4	-2.2
Current account, % of GDP	-0.4	-0.8	-0.9	-1.0	-0.9

Source: Bank of Finland forecast December 2016.

11. INTEREST RATES

%

	2015	*2016*	*2017[f]*	*2018[f]*	*2019[f]*
3-month Euribor[1]	0.0	-0.3	-0.3	-0.2	0.0
Average interest rate on new loan drawdowns[2]	2.1	1.8	1.8	1.9	2.1
Average interest rate on the stock of loans[2]	1.6	1.5	1.4	1.5	1.6
Average interest rate on the stock of deposits[3]	0.3	0.2	0.1	0.1	0.2
Yield on Finnish 10-year government bonds[1]	0.7	0.4	0.7	0.9	1.1

[1] Technical assumption derived from market expectations.

[2] Finnish credit institutions' loans to households and non-financial corporations (excl. overdrafts, credit card credits and repurchase agreements).

[3] Finnish credit institutions' deposits from households and non-financial corporations.

Source: Bank of Finland forecast December 2016.

12. INTERNATIONAL ENVIRONMENT

The Eurosystem staff projections

	2015	2016	2017[f]	2018[f]	2019[f]
GDP, % change on previous year					
World	3.1	2.9	3.3	3.4	3.5
USA	2.6	1.5	2.0	2.0	2.0
Euro area	1.9	1.7	1.7	1.6	1.6
Japan	0.6	0.7	0.9	0.8	0.7
Imports, % change on previous year					
World	1.9	1.5	3.2	3.9	4.0
USA	4.6	0.7	3.0	4.5	4.4
Euro area	6.2	3.3	4.1	4.3	4.1
Japan	0.4	-1.7	1.5	2.7	3.0
Index, 2010 = 100, and % change on previous year					
Import volume in Finnish export markets	113.1	115.2	118.4	122.7	127.2
	0.1	1.8	2.8	3.6	3.7
Export prices (excl. oil) of Finland's trading partners, national currencies	102.7	101.0	103.8	106.3	108.6
	-0.5	-1.7	2.7	2.4	2.2
Export prices (excl. oil) of Finland's trading partners, in euro	109.1	105.8	107.2	109.8	112.2
	3.9	-3.0	1.3	2.4	2.2
Industrial raw materials (excl. energy), HWWA index, in US dollars	98.0	95.9	104.1	107.8	112.8
	-25.0	-2.1	8.6	3.6	4.6
Oil price, USD per barrel[1]	52.4	43.1	49.3	52.6	54.6
	-47.1	-17.6	14.3	6.7	3.7

Source: Bank of Finland forecast December 2016.

12. INTERNATIONAL ENVIRONMENT

Finland's nominal competitiveness indicator[1, 2]	97.8	99.1	100.5	100.5	100.5
	-4.3	1.4	1.4	0.0	0.0
US dollar value of one euro[1]	1.11	1.11	1.09	1.09	1.09
	-16.5	0.2	-1.9	0.0	0.0

[1] Technical assumption derived from market expectations.

[2] Narrow plus euro area, 1999Q1 = 100

Source: Bank of Finland forecast December 2016.

13. Current and June 2016 forecast

	2016	*2017[f]*	*2018[f]*	*2019[f]*
GDP, % change	1.0	1.3	1.2	1.2
June 2016	1.1	1.1	1.0	
Inflation (HICP), %	0.4	0.8	0.8	1.0
June 2016	0.2	0.8	1.0	
Current account, % of GDP	-0.8	-0.9	-1.0	-0.9
June 2016	-0.6	-0.8	-0.7	
General government net lending, % of GDP	-2.5	-2.6	-2.4	-2.2
June 2016	-2.6	-2.4	-2.3	
General government debt (EDP), % of GDP	65.6	68.2	70.1	71.3
June 2016	66.0	68.4	70.2	
Unemployment rate, %	8.8	8.5	8.3	8.2
June 2016	9.2	9.0	8.9	

Source: Bank of Finland forecast December 2016.

Tags

- economic situation
- indicators
- forecast