

EUROPEAN ECONOMY

Occasional Papers 104 | July 2012

Macroeconomic imbalances – Finland



Occasional Papers are written by the Staff of the Directorate-General for Economic and Financial Affairs, or by experts working in association with them. The “Papers” are intended to increase awareness of the technical work being done by the staff and cover a wide spectrum of subjects. Views expressed do not necessarily reflect the official views of the European Commission. Comments and enquiries should be addressed to:

European Commission
Directorate-General for Economic and Financial Affairs
Publications
B-1049 Brussels
Belgium
E-mail: <mailto:Ecfin-Info@ec.europa.eu>

Legal notice

Neither the European Commission nor any person acting on its behalf may be held responsible for the use which may be made of the information contained in this publication, or for any errors which, despite careful preparation and checking, may appear.

This paper exists in English only and can be downloaded from the website
ec.europa.eu/economy_finance/publications

A great deal of additional information is available on the Internet. It can be accessed through the Europa server (ec.europa.eu)

ISBN 978-92-79-22890-2
doi: 10/2765/22165

© European Union, 2012
Reproduction is authorised provided the source is acknowledged.

European Commission

Directorate-General for Economic and Financial Affairs

Macroeconomic imbalances – Finland

ACKNOWLEDGEMENTS

This report was prepared in the Directorate-General for Economic and Financial Affairs under the direction of Servaas Deroose, Deputy Director-General, István P. Székely and Anne Bucher, Directors.

The main contributors were István P. Székely, Michael Stierle, Helena Marrez and Peeter Soidla. Statistical assistance was provided by Jan Kattevilder.

Other contributors were Carlos Cuerpo Caballero, Nikolay Gertchev, Maria Demertzis, Ines Drumond, Jonas Fischer, Aurora Mordonu and Stefan Zeugner. Laura Fernandez Vilaseca provided statistical assistance.

Comments on the report would be gratefully received and should be addressed to:

Michael Stierle
European Commission
BE-1049 Brussels
Michael.Stierle@ec.europa.eu

The cut-off date for this report was 27 May 2012.

CONTENTS

EXECUTIVE SUMMARY AND CONCLUSIONS	2
1. INTRODUCTION.....	4
2. Macroeconomic situation and potential imbalances.....	5
2.1. Macroeconomic scene setter	5
2.2. Sustainability of external positions	5
2.3. The anatomy of sectorial balance sheets	7
2.4. House price developments	10
3. IN-DEPTH ANALYSIS OF SELECTED TOPICS	11
3.1. Competitiveness and export performance	11
3.1.1. Export and import developments	11
3.1.2. Unit labour cost and labour market developments	14
3.1.3. Conclusion	15
3.2. Private sector debt and housing market developments.....	16
3.2.1. Private sector debt developments	16
3.2.2. Housing market developments	18
3.2.3. Conclusion concerning internal imbalances resulting from private debt and housing market developments.....	21
4. POLICY CHALLENGES	22

EXECUTIVE SUMMARY AND CONCLUSIONS

This in-depth review takes a broad view of the Finnish economy in order to identify actual or potential imbalances and the possible macroeconomic risks which they may entail. The Finnish economy has performed well after the deep crisis of 2009, but there are important medium and long term challenges arising from population ageing and structural changes. The main observations of this review are:

- **Current account balance continues its declining trend.** Over the past decade it turned from a surplus of 8% of GDP in 2002 into a deficit of ½% in 2011. Even the trade balance of goods turned into a deficit in 2011, the first time since 1990. Finland is exporting intermediate and investment goods mainly to mature, slowly growing economies and its products have limited presence in fast growing developing economies. World market shares declined by one fifth over the past five years only. The country is vulnerable towards energy price increases which explain the deterioration of the terms of trade.
- **Unit labour costs (ULC) increased significantly during the crisis,** as due to rigidities in the wage settlement process, wage developments could not yet fully reflect the drop of productivity during the crisis. While ULC developments may have contributed to the deterioration of the current account, the main driving force seems to be a deterioration in non-price competitiveness and delay with the necessary restructuring in some of the main export industries. Looking forward, measures should focus on increasing productivity, including in the services sector, and keeping ULC at an appropriate level..
- **External imbalances are not pressing at this stage, but in the absence of appropriate policy measures, they may threaten growth and living standards in the future.** For a mature economy with an aging population a persistent declining trend in the current account and trade balances can put growth and living standards at risk. Sustained economic growth without a further deterioration of the current account will only be possible in the future if major progress is made with improving productivity, labour market adjustments and innovation. Demographic developments will put pressure on wages and price competitiveness of the Finnish economy, even if the effective retirement age is adapted accordingly.
- **Following a rapid growth of household debt over the last decade, private sector debt has started to decline gradually.** The private sector, excluding financial firms, started to deleverage in 2011 but the debt level remains above the corresponding threshold set in the Alert Mechanism Report (160% of GDP). Household debt amounted to 62% of GDP in 2011, up from 36 % in 2002, with the increase mostly attributable to expansion in mortgage loans. Mortgage loans are typically based on variable rates, which exposes households to the risk of rate increases.
- **No evidence of housing market overheating has been found.** The housing market seems to respond to structural changes in underlying supply and demand factors. Affordability of housing has decreased slightly, while fewer households are overburdened by housing costs than in the EU as a whole. In addition, house price evolutions do not provide evidence of increased volatility. In 2011, prices were stable and new construction activity decreased. No sudden drop in house prices is currently expected and risks for future overheating of the housing market seem limited.
- **The financial sector remains strong.** Exposure to peripheral countries is limited and statistics on loan quality are good with a non-performing loan ratio below a half per cent. The average capital adequacy ratio is around 15% offering a considerable buffer to absorb unforeseen shocks, as confirmed by the European Banking Authority (EBA) stress tests.

In this context, **the in-depth review concludes that Finland is experiencing macroeconomic imbalances, which are not excessive but need to be addressed.** In particular, macroeconomic developments relating to competitiveness deserve attention so as to reduce the risk of adverse effects on the functioning of the economy.

In the coming years the Finnish government will have to create an environment in which competitiveness is enhanced, labour market participation among the labour force increased and households are discouraged to be overly indebted.

Participation in the labour market could especially be enhanced among the youth and by increasing the effective retirement age. In addition, a relatively high structural unemployment indicates unused labour reserves as well as regional and skills mismatches between labour demand and supply. Policy measures could support the adjustment by facilitating the relocation of labour to new growth sectors and by maintaining the correlation between productivity and wage growth, so that costs for businesses remain competitive.

Enhancing competitiveness would require facilitating innovation, enabling the transformation from the R&D stage to developing marketable products, and encouraging the penetration of fast growing export markets.

In order to reduce private indebtedness, the non-binding recommendations to banks of the Finnish Financial Supervisory Authority for assessing mortgage loan applicants' repayment ability and for caution regarding loan-to-value ratios in excess of 90 % should be enforced.

1. INTRODUCTION

On 14 February 2012, the European Commission presented its first Alert Mechanism Report (AMR), prepared in accordance with Article 3 of Regulation (EU) No. 1176/2011 on the prevention and correction of macroeconomic imbalances. The AMR serves as an initial screening device, helping to identify Member States that warrant further in-depth analysis to determine whether imbalances exist or risk emerge. According to Article 5 of Regulation No. 1176/2011, these country-specific “in-depth reviews” should examine the nature, origin and severity of macroeconomic developments in the Member State concerned, which constitute, or could lead to, imbalances. On the basis of this analysis, the Commission will establish whether it considers that an imbalance exists and what type of policy follow-up it will recommend to the Council.

For Finland, the AMR suggested the need to look more closely at the external position and competitiveness of the country as well as at the private sector indebtedness and house price evolution. Two scoreboard indicators for the external position, export market share losses and nominal unit labour cost evolution, are above the indicative thresholds, reflecting the global slowdown as well as structural changes in the export sectors. While losses in price competitiveness were relatively contained over most of the past decade, in recent years there have been some sharper losses due to slow adjustment of wages in a context of falling productivity. The scoreboard also points to a steady increase in the level of private sector indebtedness during the last decade which is now above the indicative threshold, driven to a large extent by increasing mortgages. House prices increased over the last decade despite some moderate correction over 2008-2009. In 2010 prices started to pick-up again, and at a pace above the indicative threshold, although prices have moderated since the second half of 2011.

Against this background, Section 2 of this review looks more in detail into these developments covering both the external and internal dimensions, followed by specific focus sections on competitiveness and private indebtedness in Section 3. Section 4 summarises the findings and presents possible policy considerations.

2. MACROECONOMIC SITUATION AND POTENTIAL IMBALANCES

2.1. MACROECONOMIC SCENE SETTER

Finland's economy proved highly sensitive to the collapse in global demand in 2009, with GDP falling by an unprecedented 8.4% in that year. In the following years, the rebound in GDP has also been rapid, with the economy expanding by 3.7% in 2010 and 2.9% in 2011, driven by domestic demand. According to the Commission services' 2012 Spring Forecast, the trend of a domestic demand driven gradual recovery is expected to continue. Sensitivity to the global environment is connected to the export structure, 80% of exports consist of capital goods and intermediate goods for which demand is typically more volatile and influenced by the business cycle.

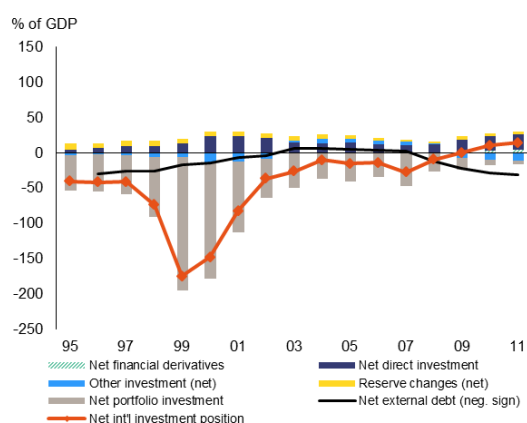
The Finnish economy faces strong headwinds from the ageing population. The working-age population has started to shrink. Productivity and living standards rank high among the developed countries, but some industries appear to have peaked in their development and, in general, the share of manufacturing in GDP is declining. Although Finnish labour productivity has traditionally been high in manufacturing, efficiency is less so in the services sector.

Public finances have been managed in a prudent manner and the current account was in steady surplus over the last decade. However, unit labour costs increased strongly and the current account surplus continuously fell over the last years and turned into a deficit in 2011, the first time in nearly two decades. Simultaneously, the private sector became increasingly indebted. This raises the question as to whether external imbalances are building up and if the increasing private sector debt burden is sustainable.

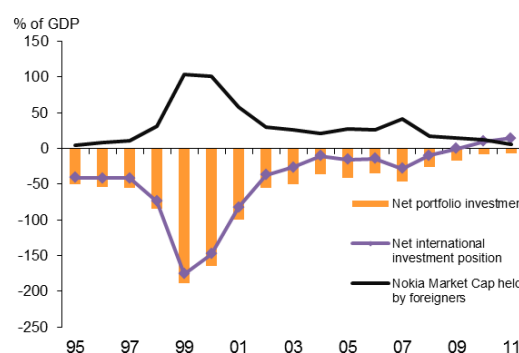
2.2. SUSTAINABILITY OF EXTERNAL POSITIONS

Finland's external position has undergone substantial changes in recent years. While the international investment position has recovered and even reached an – albeit small – surplus recently, the current account surplus turned into a deficit in 2011, the first time in nearly two decades. In addition, Finland's market share declined from 0.64% to 0.51% between 2005 and 2010, i.e. by around 20% in 5 years only. For a mature economy with an aging population these trends can put the living standards at risk, if continued.

Graph 1: Composition of Net IIP (% of GDP)



Graph 2: Nokia Market Capitalization influences NIIP (% of GDP)



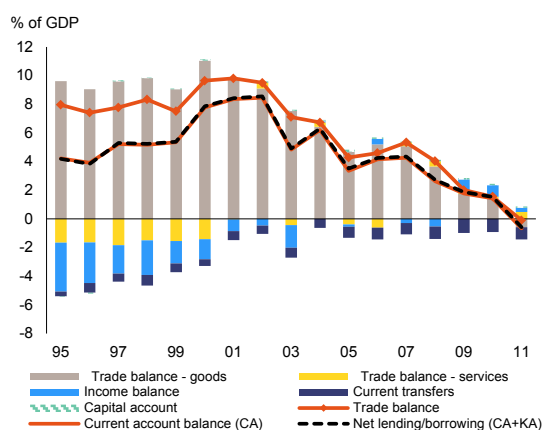
Source: Commission services, Ecwin

Net portfolio investments triggered large swings in Finland's net international investment position (NIIP). At the end of the 1990s, Finland's net international investment position dropped as low as to a deficit of 175% of

GDP. Thereafter it has recovered quickly, turning into a small surplus since 2010. Main component driving these swings were net portfolio investments, more precisely swings in Nokia's share price. About 75% of Nokia shares are held by foreigners and total market capitalization is sizeable compared to GDP. Consequently, valuation effects resulting from one stock only have been driving to a large extent the swings in Finland's NIIP, from the dot-com bubble to date.

Excluding this particular effect, Finland's NIIP showed a similar albeit less marked development. Current account surpluses over the last nearly two decades helped turning a negative NIIP into a surplus. In the medium term, these surpluses, even though small, should help Finland to dampen the impact of aging related declines in GDP on domestic absorption.

Graph 3: Trade balance and current account balance (% of GDP)



Source: Commission services

The current account balance remains on a declining trend. Following the boom in electronics exports after the crisis in the early 1990s, Finland attained a current account surplus of about 8% of GDP in 2002. However, over the past decade the current account showed a continuous declining trend to below 2% in 2010, even turning into a deficit of 0.4% in 2011, the first time since 1993. For 2012 and 2013 a further slight decline is expected. In 2011, even the trade balance of goods turned into a deficit, the first time since 1990.

Finland's competitiveness and trade performance has weakened over the past years. Whereas the deficit of the trade balance for services historically has been between 0 and 1% of GDP, the trade balance for goods experienced a continuous decline from a strong surplus of 10% to a deficit of -½% of GDP in 2011. In the 2012 Spring Forecast, the deficit in the balance of goods is expected to broadly double until 2013. This reflects the weakening of Finland's competitiveness and trade performance, also illustrated by the decline in export market shares, declining by one fifth over the past five years only.

One factor weakening competitiveness over the past years has been the upward pressure on Finnish export prices due to wage increases. Indeed, nominal unit labour costs rose sharply at +12% over the years 2007-2010, especially in comparison with major trading partners like Sweden and Germany, but also with the European Union average. This reflects faster wage growth, settled by a collective agreement negotiated in 2007 right before the crisis. In addition, Finnish policies during the crisis helped to attenuate the negative impact on overall employment. The decrease in GDP did not bring along a comparable decrease in employment, as companies were implicitly subsidised to hoard labour. While these measures limited layoffs and enabled to maintain a high level of consumer confidence, the flipside was that productivity declined and unit labour costs increased as a result of the reduced working time and subsidised temporary unemployment schemes. In order to mitigate potential negative effects on export growth, Finland will have to avoid further big increases in unit labour costs. Although the current wage agreement sets lower wage increases for 2012 and 2013, productivity growth is still expected to fall below the real wage growth.

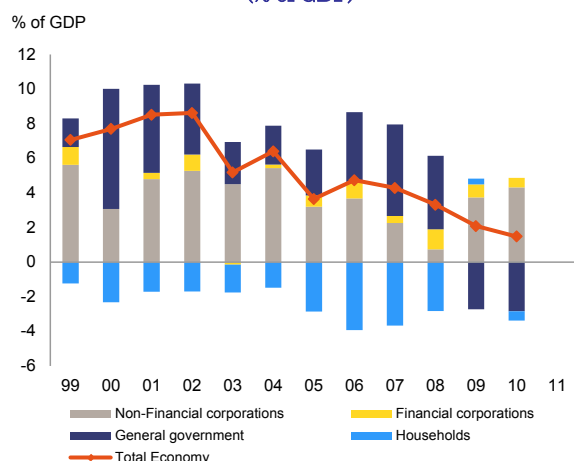
Over the past 10 years, Finland was able to combine slow but steady competitiveness losses with economic growth. Domestic absorption in Finland grew in recent years stronger than GDP, at the price of a continuous deterioration of its current account. The economic impact of structural changes and the loss in competitiveness has therewith been smoothened so far. To continue herewith will become increasingly difficult now that the current account already is in deficit. In addition, a mature economy with an aging population like the Finnish should rather save more, opposed to increasing domestic expenditure financed through declining assets and/or external borrowing, in order to be able to maintain living standards in the medium term when aging related economic effects kick-in.

2.3. THE ANATOMY OF SECTORIAL BALANCE SHEETS

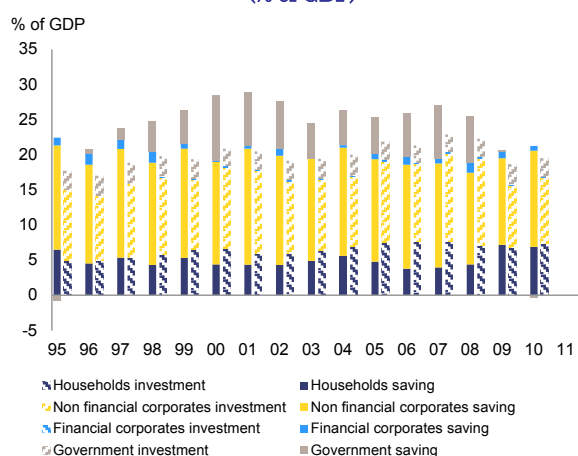
While the banking sector remained strong during the crisis, public and private debt increased. Taken together, net lending/borrowing of the total economy experienced a declining trend. These developments limit the available means for investments in the short run and for smoothing the impact of ageing in the medium term.

The corporate sector has started to deleverage. The balance sheets of non-financial corporations showed a declining net lending over the past decade to below 1 % of GDP in 2008. The trend then reversed to 4.3 % of GDP in 2010. While the recent increase is partly linked to the deleveraging process, the net lending position of the corporate sector is probably reflecting both a healthy profit situation (shown by a high savings rate) as well as limited possibilities for profitable investments (shown by a relatively low investment rate). The financial corporations maintained a steady surplus ranging between 0 to 2 % of GDP over the last years.

Graph 4: Net lending/borrowing by sector (% of GDP)



Graph 5: Savings and investments by sector (% of GDP)



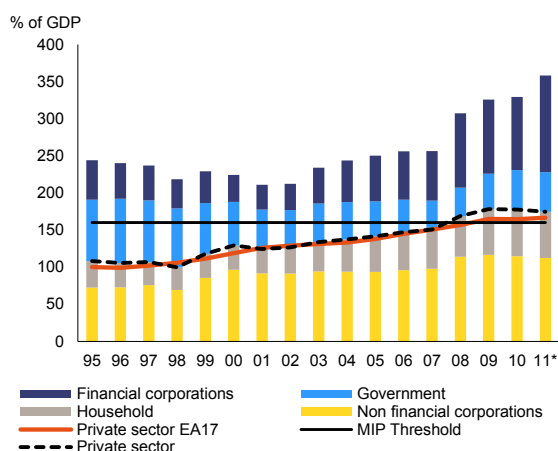
Source: Commission services

Households have started to deleverage as well, but the savings rate is expected to fall. In 2010 households continued to have a negative balance, but it was substantially improved compared to levels seen up to 2008. While household investments remained broadly stable, the savings rate increased substantially up to 2010. However, the savings rate is forecast to decline from about 11 % in 2010 to 7 % in 2013. In the context of an ageing population, the negative net lending of households over the last decade and the declining savings rate can be seen as worrying sign since the country will need its savings to cover the future costs of ageing.

Consolidation is bringing public finances back close to balance. The balance of the Finnish general government turned from a surplus of 4.2 % of GDP in 2008 into a deficit of -2.8 % of GDP in 2010. Fiscal consolidation led to a narrowing of the public deficit to -0.5 % of GDP in 2011. However, the central government deficit stood at -2.9 % of GDP, while local governments attained a deficit of -0.4 % of GDP. This deficit of -3.3 % of local and central governments was to a large extent offset by investment returns from the social security funds (2.8 % of GDP), being included in the general government deficit figure. A small general deficit target can therefore still imply a substantial deficit at the central government, which would entail debt

level increases. In light of fiscal measures recently agreed upon and taking effect as from 2014, public net lending is expected to remain broadly stable up to 2013.

Graph 6: Decomposition of debt (% of GDP)



Source: Commission services

Note: Threshold defined in the Alert Mechanism Report of 160 % of GDP for private sector debt, with private sector defined as non-financial corporations; households and non-profit institutions serving households.

In stock terms, public debt remains modest despite having increased over the last decade. Although general government debt increased during the recent crisis years 2007-2011, with 49% of GDP it still remains comfortably below the 60% ceiling. Whereas the ageing population will put increasing constraints on public sector provisions, the Finnish government prepares for these future developments by keeping the budget under tight control. Risks of derailing public debt levels are seen as low as the government is committed to achieve a substantial reduction in the central government debt-to-GDP ratio by the end of its parliamentary term (2015).

Private sector debt, on the other hand, has started to stabilize. Non-consolidated private sector debt excluding the financial sector, had reached 178% of GDP in 2009, before declining to 175% in 2011. This level still exceeded the scoreboard threshold, but was lower than in the other Nordic EU Member States Denmark and Sweden. Household debt, including debt of non-profit institutions serving households almost doubled over the last decade and amounted to 62% of GDP in 2011. The remaining 113% of GDP debt is held by non-financial corporations. Their debt remained relatively stable over the past years, with the exception of 2008 when the crisis led to a jump. Private sector debt will be analysed in more detail in section 3.1. In turn, debt of financial corporations rose sharply from 34% of GDP in 2000 to 130% of GDP in 2011.

The financial sector remains strong. Notwithstanding the increased debt level, the Finnish banking sector is seen as stable and did not need government support during the crisis, as occurred in some other EU countries. Exposure to peripheral countries is limited and with a non-performing loan ratio below half a per cent, current statistics on loan quality are good. Furthermore, as a whole the banking system remained profitable through the financial crisis; return on equity remained around 10%. This led to a solid solvency position with the average capital adequacy ratio of around 15% offering a considerable buffer to absorb unforeseen shocks as confirmed by the EBA stress tests. Following the July 2011 EBA stress test no Finnish institution was below the required 5% core Tier 1 capital ratio. Similarly, no institution was required to take measures in order to comply with the higher minimum core Tier 1 capital ratio of 9% following the temporary recapitalisation plan decided by the European Council in October 2011.

At around 140%, the loan to deposit ratio is relatively high, but banks have no difficulties in financing their operations as access to the wholesale market is not hampered. The interbank market is supported by the highest credit rating for the Finnish sovereign, which ensures the value of collateral. As a consequence there are no credit supply constraints and surveys show that enterprises do not see lack of credit among their most serious

problems. Loan growth to the private sector was around 8% in 2011, up from still 1% in 2009 when the economy was deeply in recession.

Table 1: Selected macro-financial stability indicators

	2007	2008	2009	2010	2011
Total assets of the banking sector (% of GDP)	170.4	213.4	231.5	267.3	339.7
Share of assets of the five largest banks (% of total assets)	81.2	82.8	82.6	83.8	...
Foreign ownership of banking system (% of total assets)	65.3	69.5	67.1
Financial soundness indicators:					
- non-performing loans (% of total loans)	0.3	0.4	0.6	0.6	0.5
- capital adequacy ratio (%) ¹⁾	15.1	13.6	14.6	14.4	14.7
- return on equity (%) ²⁾	18.0	12.1	10.0	9.2	11.2
Bank loans to the private sector (y-o-y % change)	12.4	11.6	0.9	5.7	8.6
Lending for house purchase (y-o-y % change)	12.4	8.8	6.4	6.8	6.6
Loan to deposit ratio	144.7	143.7	142.9	139.4	142.3
CB liquidity as % of liabilities	0.2	1.1	0.8	0.0	0.4
Banks' exposure to countries beneficiary of official financial assistance (% of GDP) ³⁾	0.0	0.0	0.0	0.5	0.3
Liabilities held by financial corporations (% of GDP, non-consolidated)	70.0	103.6	105.2	104.3	106.8
Gross external debt (% of GDP) ⁴⁾					
- Public	30.1	30.4	36.6	42.5	42.4
- Private ⁵⁾	42.7	54.4	50.6	50.8	45.3
Long term interest rates spread versus Bund (basis points)*	7.7	30.6	51.6	26.7	39.8
Credit default swap spreads for sovereign securities (5-year)*	...	28.7	38.3	29.5	49.2

Notes:

¹⁾ The capital adequacy ratio is defined as total capital divided by risk weighted assets. March 2011.

²⁾ Net income to equity ratio. March 2011.

³⁾ Covered countries are IE, EL, PT, RO, LV and HU.

⁴⁾ Latest data 2011Q3.

⁵⁾ Nonfinancial corporations, insurance companies, pension funds, other nondepository financial intermediaries, private nonprofit institutions, households and direct investment (intercompany lending)

* Measured in basis points.

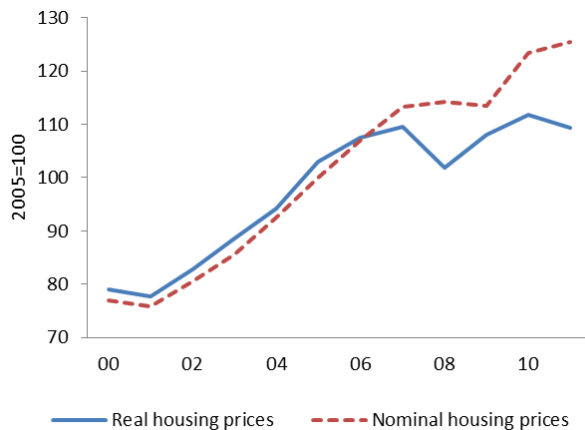
Source:

Bank for International Settlements and Eurostat (exposure to macro-financially vulnerable countries), IMF (financial soundness indicators), Commission services (long-term interest rates), World Bank (gross external debt) and ECB (all other indicators).

2.4. HOUSE PRICE DEVELOPMENTS

House prices have been climbing upwards. Nominal house prices increased by about half over the last 10 years. This high level and the continuous upward path might trigger concerns with regards to the sustainability of the housing market. Also real houses prices steadily trended upwards, after a huge decline during the crisis in the early 1990s. While there was a modest drop in in 2009, house prices rebounded in 2010 and 2011.

Graph 7: Nominal and real housing prices



Source: Commission services

The Finnish housing market is characterised by features making the economy vulnerable to unsustainable house price increases. Since Finland is a small open economy, an external shock hitting the economy could lead to increasing unemployment and/or higher interest rates. Like in some of the euro area countries in the current crisis, unsustainably high house prices could in that case drop sharply and amplify the initial shock to the economy. This could happen through the loss of employment in the construction sector, losses of the banking sector from loans extended to developers and from mortgage loans, and adverse effects on household confidence through perceived wealth losses. Furthermore, certain structural features of the Finnish housing market tend to amplify price volatility. These include, for example, the tax deductibility of interest rates on mortgage loans and the high use of variable mortgage rates. House price increases are also shown by the Alert Mechanism Report, indicating a 6.8% year-on-year change in deflated house prices for 2010, above the threshold of 6%, although growth decelerated again in 2011.

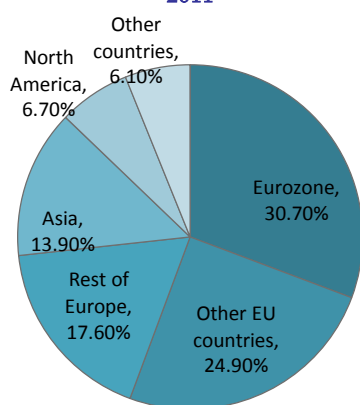
3. IN-DEPTH ANALYSIS OF SELECTED TOPICS

3.1. COMPETITIVENESS AND EXPORT PERFORMANCE

3.1.1. Export and import developments

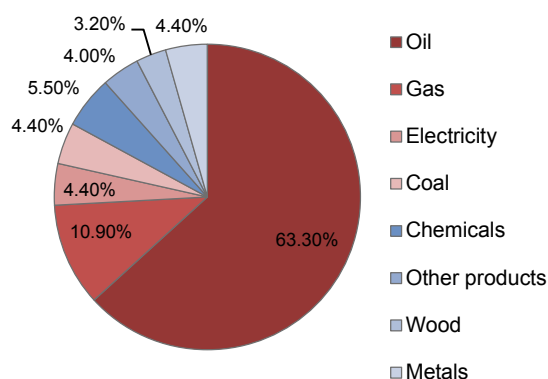
The Finnish economy is relatively open and is characterised by a concentrated industry and export structure. Against this backdrop, for maintaining the growth potential of the economy the adjustment capacity to structural changes as well as to global and sector-specific shocks is crucial. The recent developments show that, without additional policy measures, the deterioration of competitiveness could continue and develop into imbalances.

Graph 8: Finland's export markets by value of exports, 2011



Source: Tulli customs

Graph 9: Imports from Russia by products, 2011



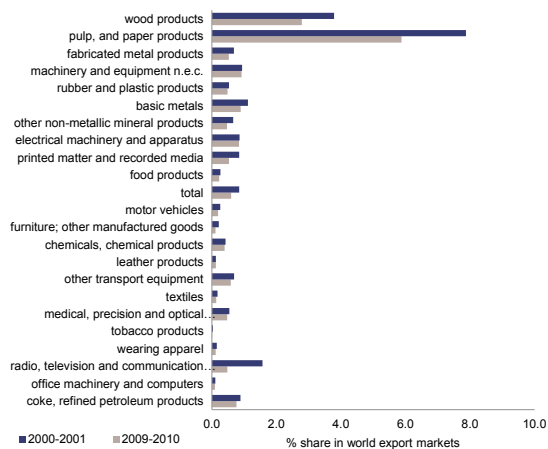
Source: Tulli customs

Finland's main export markets are developed economies that experience slow growth. In 2011 over 50% of Finnish exports went to EU countries, complemented by 18% going to the rest of Europe (incl. Russia) and 7% to North America. Only 14% of Finnish exports went to Asia, and 6% to the rest of the world. The lack of presence in the markets of rapidly growing developing economies plays to the disadvantage of Finnish companies.

Finland is highly dependent on energy imports, mainly from Russia. In 2011 energy imports represented 22% of total imports, amounting to 9.3 billion euros and representing over 80% of Finland's imports from Russia. Rising energy prices entail rising import prices and deteriorating terms of trade for Finland. The effects on the Finnish economy can only be attenuated over time by making the Finnish industries less energy-dependent and by increasing values of Finnish exports, through higher non-price competitiveness.

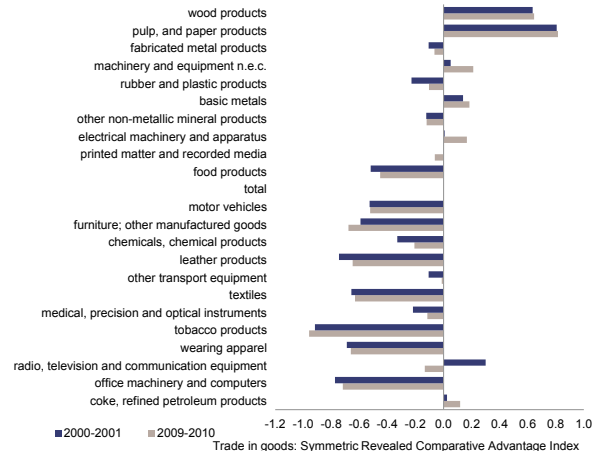
The largest market share losses were recorded in forestry, paper and electronics products. Finland's main export industries are forestry, metal products, machinery and equipment, chemicals and electronics (radio, television and communication equipment). Finland has a comparative advantage vis-à-vis the rest of the world in the forestry and paper industry, nevertheless market share in world export markets declined compared to 2000 and 2001. The machinery and chemicals sector maintained their market shares in world trade but this could not offset the losses in exports from the forestry and the electronics industry.

Graph 10: Share in world export markets



Source: Commission services

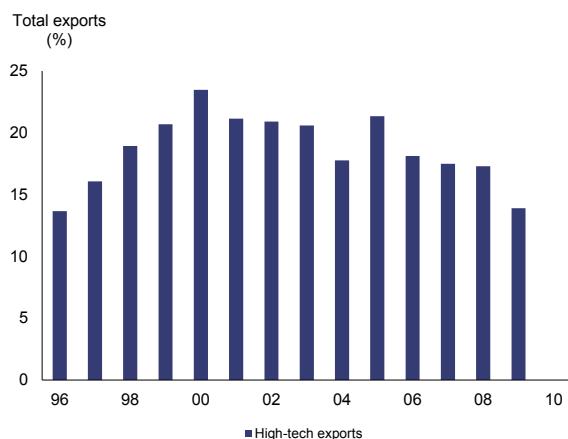
Graph 11: Trade in goods: Symmetric revealed comparative advantage index



Source: Commission services

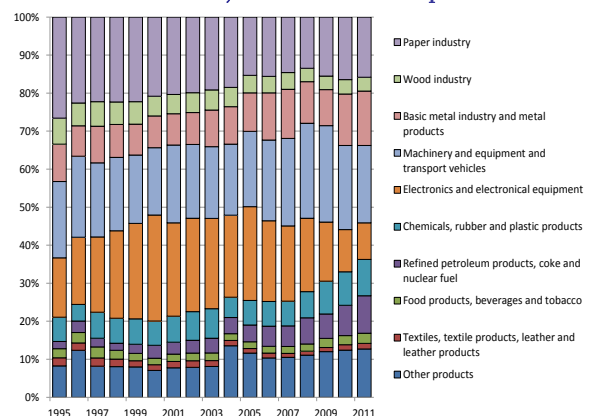
Nokia's reduction in domestic production accounts for a large share in the decline in electronics exports. In 2002, Finland exported 25 million mobile phones with a total value of 5.1 billion euros and imported around 5 million per year for a total value of 0.4 billion euros. Some of the imported phones were re-exported, hence consolidating the numbers results in at least 20 million mobile phones manufactured in Finland. That year, Nokia's exports represented about one fifth of total exports of Finland¹. By 2011 Finnish exports of mobile phones plummeted to 6.5 million mobile phones with a total value of 1.4 billion euros while 3 million mobile phones worth 0.5 billion euros were imported. According to Finnish customs statistics, the share of high technology products reached a peak of 23% of total exports in 2000, and declined steadily afterwards, to below 10% by 2011. Similarly, electronics exports, virtually non-existent up to 1980, grew to about one third of Finnish exports in 2000, but have continuously declined over the last decade.

Graph 12: High-tech exports as % of total exports



Source: Commission services

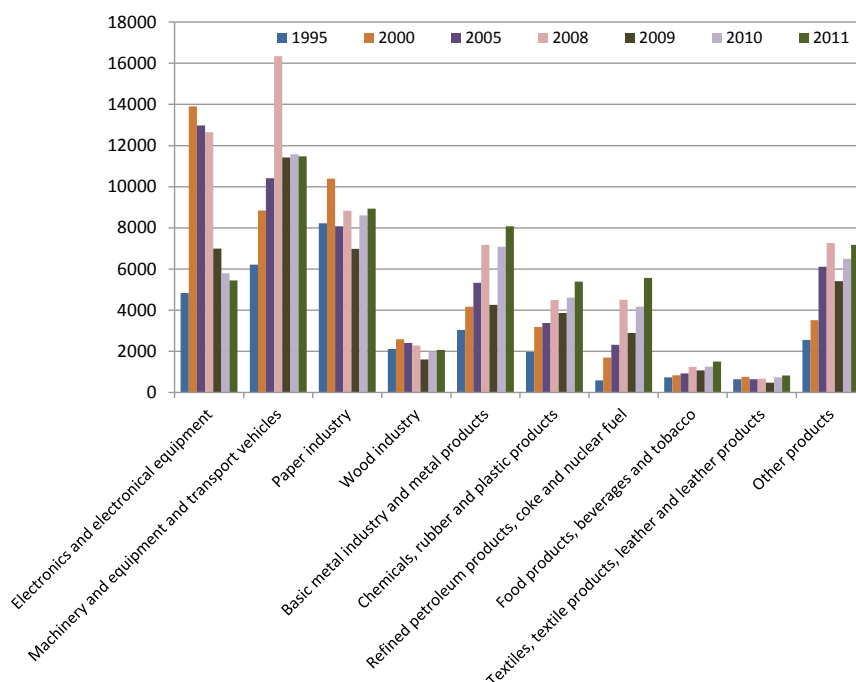
Graph 13: Finnish exports of goods by branches 1960-2011, % of the value of exports



Source: Tulli Customs

¹ "Nokia and Finland in a sea of change", ETLA (The Research Institute of the Finnish Economy), 2010.

Graph 14: Finnish exports of goods by branches, EUR million



Source: Commission services

The decline in Finnish export market shares is partly driven by difficulties to translate R&D into marketable products. The Finnish government awards relatively high subsidies towards entrepreneurship, R&D and innovation. Public and private investments combined in these areas are close to 4 % of GDP in Finland, the target set by the government under its Europe 2020 strategy, and Finland is leading in innovation². Even when excluding the one third of total R&D expenditure by Nokia, the resulting R&D figure for Finland still exceeds the EU average (Ali-Yrkkö, 2010)³. However, barriers to innovation and high-growth companies seem to hamper the transformation of high R&D investments into marketable products and high-growth export companies. Without overcoming these barriers, Finland's ranking as an EU innovation leader risks declining and Finland might continue losing world market shares.

Services, on the other hand, are becoming more important in exports. Their share in total exports increased from 15% in the late 1990s to 24% in 2011. With the relocation of manufacturing sites to other parts of the world, mainly in the developing countries, intra-company exports of services have increased due to headquarter services provided to the manufacturing sites located elsewhere.

Increasing competition in services is essential to boost productivity and innovation in Finland. Regulatory barriers in services are still restrictive and market concentration is high, not only in retail trade but also in food production. Finland has the greatest degree of market concentration in grocery retail trade and food prices are among the highest in Europe. Retailers tend to exploit their strong position vis-a-vis suppliers, seriously hindering competition in the sector⁴. Previous studies have also identified the protection of existing firms, licencing of commercial activities and regulation of large outlets as the key issues⁵. Therefore, there is considerable scope for reducing structural barriers to competition and for facilitating entry into the services sector, especially in retail trade. Moreover, R&D intensity of the service sector is low, since 59% of companies have no innovation activity.

² Innovation Union Scoreboard, 2011.

³ Commission Services' data for 2010.

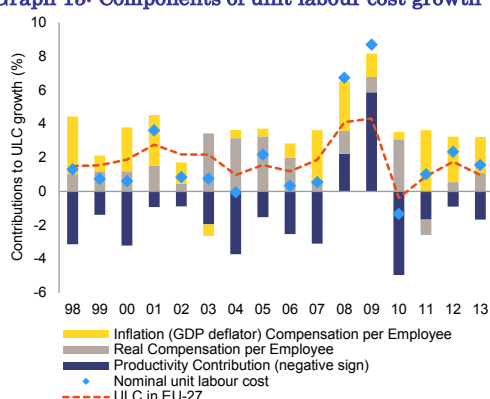
⁴ According to a recent study on buying power in the daily consumer goods trade published by the Finnish Competition Authority. The press release in English is available at <http://www.kilpailuvirasto.fi/cgi-bin/english.cgi?luku=news-archive&sivu=news/n-2012-01-10>.

⁵ OECD (2011), Product Market Regulation Database, www.oecd.org/economy/pmr

3.1.2. Unit labour cost and labour market developments

The wage setting process⁶ has not always ensured that wages grow in line with productivity. While in most years between 1998 and 2011 productivity and wage developments were closely linked and real compensation per employee and inflation were largely offset by productivity increases, this does not hold for 2008 and 2009. In 2007 a new wage agreement was negotiated setting wage growth at a high pace, not expecting a severe impact from the crisis at the time. In the following years productivity growth turned negative, due to reduced hours worked, resulting in a jump in ULC high above previous Finnish levels and the euro area average. These excessive wage increases are reflected in the unit labour cost increase reported in the Alert Mechanism Report at 12.3 % over the period 2008-2010. The recent Tripartite Agreement negotiated end of 2011 and valid for two years sets wage growth at a moderate pace. However, in light of the stagnating labour market, ULC are forecast to increase by around 2 to 2½ % in 2012 and 2013⁷.

Graph 15: Components of unit labour cost growth



Source: Commission services

A breakdown of ULC by sectors reveals a heterogeneous picture. Overall, ULC in the industry sectors grew below the EU and euro area averages, improving the price competitiveness of this highly trade-dependent sector. Only over 2008 – 2010, the years on which the scoreboard data are based, industry ULC grew at similar rates as in other European countries. In turn, ULC in the Finnish construction sector grew in the medium term similar to those in other EU economies, but with a markedly higher volatility. This high volatility of ULC in the cyclical construction sector is partly driven by the tendency to reduce working hours instead of laying off people during a downswing. Finally, the market services sector's ULC moved basically in line with the European averages and the average for the total Finnish economy. Within these market services however, ULC growth for financial and business services was consistently higher than in the EU, while growth rates converged in 2010.

⁶ The Finnish labour market is highly organised. The majority of both employers and employees are members of the organizations that participate in collective bargaining. These negotiations are facilitated by the government. Whereas national legislation forms the basis for regulating the labour market, specific employment terms are determined according to collective agreements within each branch. If the parties to a collective agreement cover at least half of the employees within a specific branch, the collective agreement has general applicability for all companies within that branch.

⁷ The latest agreement was reached in October 2011. The agreement sets the framework for pay and cost increases in branch-level collective agreements for a period of 25 months. According to the framework agreement, the total cost effect of the sectoral agreements shall not exceed 2.4% for the first 13 months, followed by 1.9% for the next 12 months. The numbers include the rise in payroll costs and the cost effects of changes made in the terms and conditions of employment. The annual cost effect is calculated to be about 2%.

Graph 16: Unit labour cost growth by sector



Source: OECD

At the same time, the Finnish labour market will face important demographic changes over the next few years. The working-age population is projected to decline by over 5% of the current labour force by the end of the decade. The decline will reduce the economy's growth potential, with adverse effects on the labour market and public finances. In order to minimise the effects of the declining working-age population on the labour market, it is increasingly important to lengthen working careers and to combat the rise in long-term unemployment as well as persistently high youth unemployment (19.9% at the end of 2011⁸).

3.1.3. Conclusion

The recent developments show that, without additional policy measures, the deterioration of competitiveness could continue and, over the medium run, develop into imbalances. Finland is exporting intermediate and investment goods mainly to mature, slowly growing economies and its products have limited presence in developing economies. Nokia for long was the main strong holder of Finnish exports, while recently the reduction in its domestic manufacturing accounts for a large share in the decline in electronics exports. These developments underline that the Finnish economy needs to become more diversified both in terms of companies and in terms of products and export markets in order to maintain a strong export performance. This requires facilitating innovation, enabling the transformation from R&D into marketable products, and encouraging the penetration of fast growing export markets.

Finland will have to ensure that wage developments do not endanger future competitiveness and will have to facilitate necessary structural changes over the longer term. It will be key to ensure that productivity gains are not offset by excessive wage increases. In this respect, the practice of the Tripartite Agreement aimed at

⁸ Statistics somewhat exaggerate the problem as Finnish unemployment numbers also include full-time students who are looking for a part-time job in addition to their studies.

making wage growth consistent with macroeconomic objectives is important. Over the longer term, avoiding the build-up of excessive external imbalances will require facilitating the necessary structural change. Three priorities are identified as follows. First, adapting the skill supply (e.g. through appropriate education and training policies, life-long learning and active labour market policies) would help ease the restructuring in the electronics sector and diversify its specialised labour pool. Second, productivity can be stimulated by enhancing competition, especially in services. Third, measures encouraging R&D, innovation, product development and growth of small- and medium-sized enterprises could stimulate sectors and companies to grow. Finally, to the extent that these measures are insufficient to achieve high productivity growth, it will be important to ensure a corresponding wage moderation to limit unit labour costs and to avoid losses in price competitiveness and world market shares.

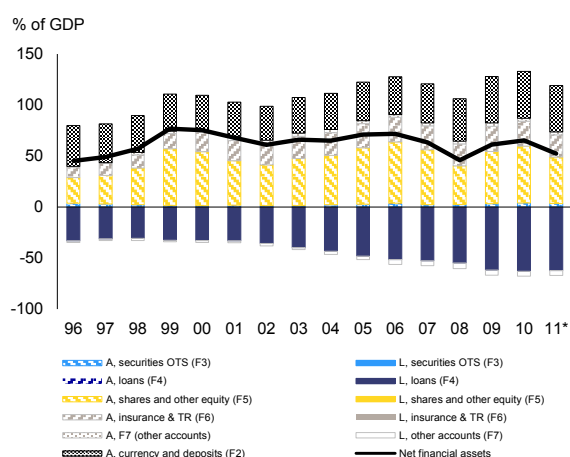
3.2. PRIVATE SECTOR DEBT AND HOUSING MARKET DEVELOPMENTS

3.2.1. Private sector debt developments

Private sector debt, excluding the financial sector, reached 175 % of GDP in 2011. This level exceeds the scoreboard threshold, but falls below the levels observed in the other EU Nordic countries Denmark and Sweden. Household debt, including debt of non-profit institutions serving households, amounted to 62 % of GDP in 2011.

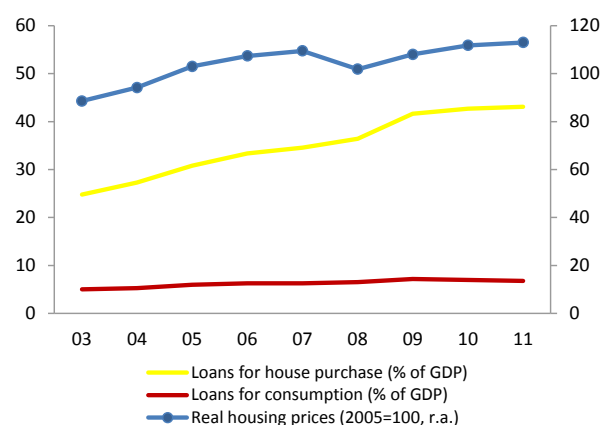
Households' net financial assets remain positive. After a temporary fall in 2007-08, households' net financial assets started to increase again and have now levelled off. Furthermore, assets accumulated in pension funds, currently equivalent to about 70 % of GDP, are accounted for under the government sector. These investment returns are supporting the pension payments and could also be indirectly regarded as household assets.

Graph 17: Balance sheet of households



Source: Commission services

Graph 18: Real house prices and housing and consumption loans of households



Source: Commission services, ECB

The biggest part of household debt is related to housing, with mortgage loans increasing together with house prices. When the Finnish economy recovered from the crisis in the early 1990s, house prices started to increase. With real prices trending upwards, the total loan amount for housing, expressed in percent of GDP, started to rise as well. In contrast, loans for consumption other than housing remained fairly stable between 5 and 7 % of GDP. This indicates that the rising amount of loans for house purchases does not necessarily reflect a change in appetite of Finnish households for debt, but also the necessity to be able to acquire a dwelling at increased price levels.

Mortgage market characteristics imply potential risks for the Finnish housing market. Certain developments in the mortgages market, such as the lengthening of average maturities and the decreasing interest rates, enabled lending of larger amounts. The possibilities to lend larger amounts, in turn, might have contributed to higher housing demand and higher house prices and therefore again the need to take larger mortgage loans. The share of heavily indebted households, with debt levels exceeding 500 % of their annual disposable income,

has more than doubled from less than 2 % in 2002 to 4 % of households in 2010. As more than 90 % of mortgage loans in Finland are based on variable interest rates, predominantly the 12 month EURIBOR rate, customers face the risks of interest rate increases in the future. Especially when interest rates stand at a low level for a longer period of time, a development observed today, customers might be taken by surprise when interest rate hikes occur. For one third of all mortgage loans these risks are, however, attenuated by clauses that provide for the possibility to lengthen maturity in such cases, enabled by the fact that 80 % of mortgage loans in Finland carry a maturity of 25 years or less.

Tax deductibility of interest rates on mortgage loans encourages private indebtedness by favouring home ownership above renting. In order to reduce these incentives for taking out mortgage loans, the Finnish government has decided to reduce the share of deductible interest payments from 100 % in 2011 to 85 % in 2012, to 80 % in 2013 and to 75 % in 2014. This measure will reduce the debt bias but not entirely remove it.

Non-binding recommendations to minimise risks of the Finnish Financial Supervisory Authority (FSA) are not always followed. The FSA issued recommendations to assess carefully mortgage loan applicants' housing and repayment affordability and regarding loan-to-value ratios in excess of 90 %, in order to minimise negative risks for households⁹. The customer should not use more than 40 % of his or her disposable income to service the loan (calculated on the maximum duration of 25 years), and extra careful evaluation of repayment capacity is to be carried out if the loan-to-value ratio exceeds 90 %. While for loans to change accommodation this recommendation is broadly followed, a study on lending practices in private home mortgages finds that for first time purchasers the loan-to-value ratio is equal or higher than 100 % for almost half of all loans granted¹⁰. Where high loan-to-value ratios were approved for customers with relatively low incomes, banks were only partly able to give satisfactory explanations regarding additional incomes and personal guarantees, indicating that in several cases loans had been awarded contrary to the recommendations in force.

Interest rate increases would bring only a small proportion of households into financial difficulties. A study by Mäki-Fränki (2011) finds that an interest rate increase of 5 percentage points would bring only 3 % of households owning a house in difficulties to pay for minimum consumption while still servicing their loans. This would translate in a small increase in delinquency rates for banks and thus not threaten the stability of the financial system. While approximately one fifth of households has very little margin to adjust to a substantial loss of income from e.g. unemployment simply by reducing consumption, there are more renting households in this situation than over-indebted owner-occupier households. These findings are confirmed by the FSA, which estimates that less than 5 % of households would have to use more than 40 % of their net disposable income for loan servicing as long as the interest rate remains under 4 %. The share would rise to 20 % if the interest rate would rise to 6 %.

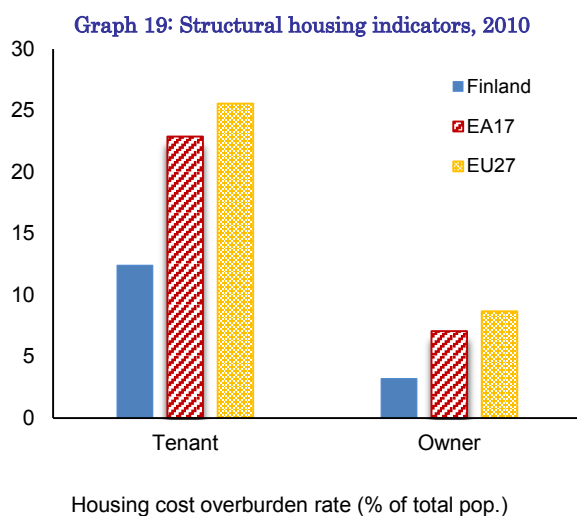
Finnish households are less overburdened by housing costs than in the EU. The housing-cost-overburden rate shows that between 2007 and 2010 on average 12.4 % of the Finnish tenants were living in households where the total cost of housing represents more than 40 % of disposable income. This share compares favorably to the EU average, since over 25 % of the EU population finds themselves in this situation. The picture remains equally positive for house owners, where the Finnish population share of 3.2 % is again far below the EU average of 8.7 % (Graph 19).

Recently rates for new mortgage loans have not followed the steep decline of the EURIBOR rates. Over the first months of 2012, Finnish banks have been raising the interest rate margins on new mortgage loans, according to their statements a needed move in the light of tightened capital requirements and higher costs of funding. These margin increases, of about 0.2 percentage point compared to 2011, prevented somewhat the variable interest rates on mortgage loans to follow the downward movement of the Euribor.

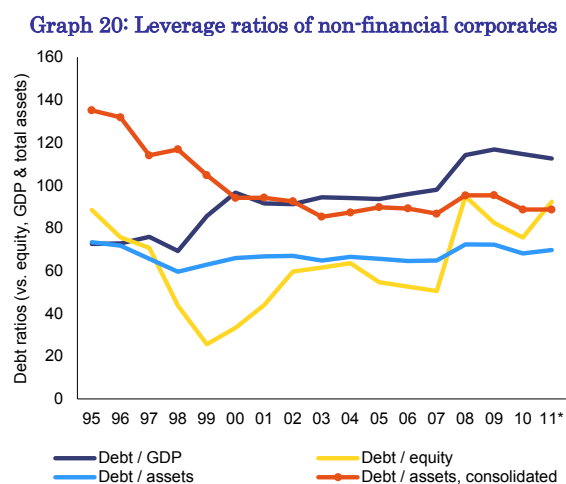
The evolutions in the mortgage market deserve close attention, but Finland's financial system and households' financial position are still in good health. This is particularly true compared to other European countries with high private sector debt levels such as Denmark, Sweden and the Netherlands. In the current environment, private consumption is supported by the reduction in mortgage payments thanks to historically low interest rates in core euro area countries and relatively low margins of local banks.

⁹ As repeated in the press release of the Bank of Finland on the occasion of the presentation of the Financial Stability Report, May 2012.

¹⁰ Palmroos, P and J. Nokkala, 2011. Otantatutkimus henkilöasiakkaiden asuntoluotosta, Financial Supervisory Authority.



Source: Commission services



Source: Commission services

The remainder of the private sector debt outside the financial sector, 115% of GDP, is held by non-financial corporations. The debt of non-financial corporations was relatively stable over the last decade, with a jump in 2008. The relatively high debt-to-GDP ratio can to a large extent be attributed to the strong presence of multinational companies residing in Finland. As multinationals service their debt with revenues from global sales, the debt sustainability is not directly linked to Finnish GDP. Also, an important part of the corporate debt is most likely linked to intercompany loans, amounting to 23% of GDP, which are used to minimise tax payments. In an international context they can also be used to overcome imperfections in local capital markets through reallocation of lending within the group. The large share of intercompany lending thus overstates the debt burden of Finnish corporations, since liabilities of affiliates are typically matched by assets of foreign affiliates of the same group. In addition, intra-group loans from abroad are to some extent matched with intra-group loans to foreign affiliates, thus lowering the net debt figure. The overall indebtedness of the entire multinational companies would be a better indicator of the risks involved; however, such data are not available.

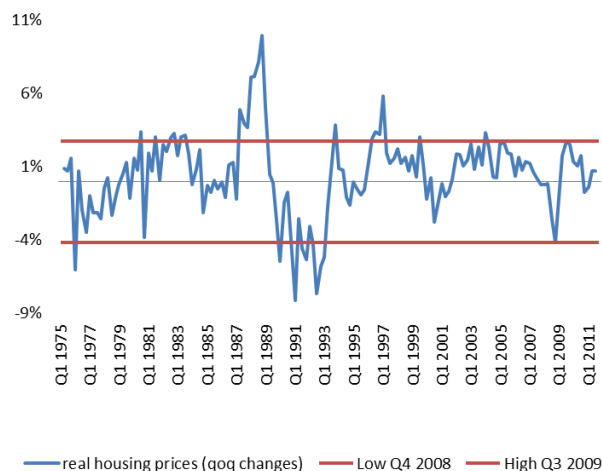
Risks for spillovers from public to private debt are limited. In other European countries, where public finances are under severe stress, high interest rates for public debt can also drive up financing costs for private debtors. In Finland with an excellent credit rating for government bonds, a strong fiscal consolidation and a relatively low public debt level, corresponding risks are limited. In contrast, public and private interest rates have rather fallen in the crisis than increased.

3.2.2. Housing market developments

The housing market remained stable in recent years, supporting the sustainability of private debt. As mortgage loans form the biggest share in private sector debt, housing market stability is key to preserving economic and financial stability. Negative developments on housing markets would not only pose a potential *direct* risk for economic developments, but would also an *indirect* one by threatening the sustainability of household indebtedness.

Since the mid-1990s, housing not only became more expensive in nominal terms, but also in real terms. House prices divided by consumer prices increased by 92% in Finland over the years 1993-2007, indicating a relative increase in housing costs vis-à-vis consumption. In most countries, however, this increase exceeded 100%.

Graph 21: Quarter-on-quarter changes in real housing prices 1975-2011



Source: Commission services

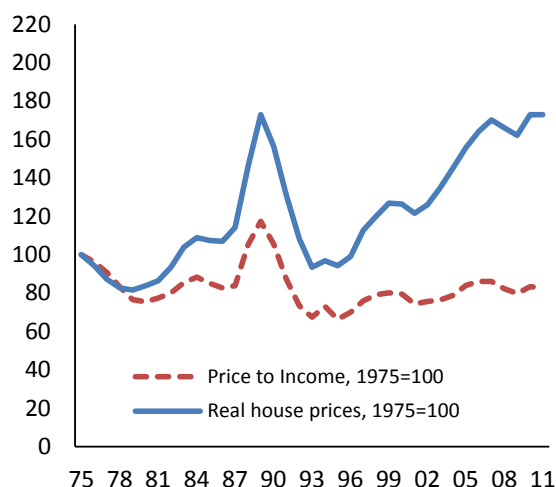
House price evolutions do not provide evidence for increased house price volatility. Quarter-on-quarter real house price changes show that previous decades, and notably the crisis period in the early 1990s, saw much higher price volatility than what the economy experiences at the current juncture.

The current house price cycle is likely to be milder than the previous one. The previous cycle, with a peak in 1989 and sharp drop in house prices thereafter, was linked to a series of factors that are currently no longer at play. The financial market liberalisation in Finland in the 1980s led to a large upswing in credit, which reversed at the end of the decade, also due to the collapse of the Soviet Union, traditionally an important trade partner. Another difference between the two cycles is that labour markets were in a worse shape in the early 1990s, when unemployment increased dramatically from 3 to 16%.

Affordability of housing decreased only moderately. Real incomes have been broadly keeping up with house price increases. Consequently, affordability of housing only slightly decreased as house prices divided by household income increased by 28% between 1993 and 2007. Compared with other countries, this increase is relatively moderate. In overheating housing markets in UK, Ireland and the Netherlands, this indicator increased with more than 90%. In Sweden and Denmark the increase was 84% and 120%, respectively. Considering a longer period, 1975-2011, the price-to-income ratio for Finnish dwellings is currently below its long-term average¹¹.

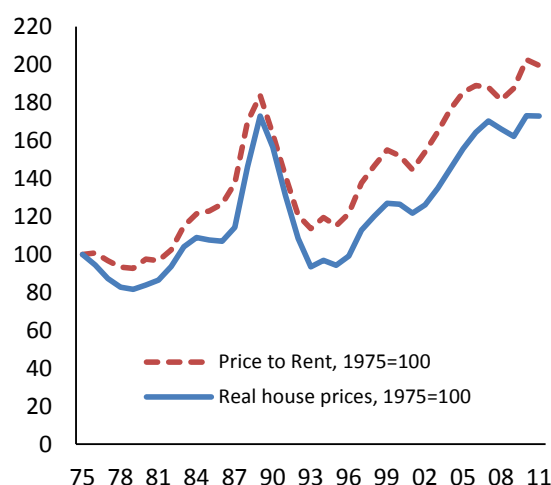
¹¹ This finding is confirmed by the OECD, which finds the price-to-income ratio only 2% above the average of the period 1994-2011, "Economic Outlook 89", OECD, June 2011.

Graph 22: Price to income ratio



Source: Commission services

Graph 23: Price to rent ratio



Source: Commission services

However, the comparison with historical average values does not capture the important structural shifts that increase housing demand. Three main demand factors contributed to lifting prices above the historical norm. (1) Finnish households are looking to have more square meters of living space per inhabitant, as Finland is behind other similarly developed nations in this regard. (2) The Helsinki area, where prices increased most, experiences population growth which, in combination with a relative shortage of land, seems to be a driving force. (3) The decline in interest rates has reduced the cost of ownership, making it more affordable to buy a house, and consequently has supported price rises. The increase in the price-to-rent ratio by 66% over the years 1993-2007, for example, can be partly explained by a decline in the cost of ownership¹². The decline in market interest rates, with the three-month Euribor end of April 2012 at only 0.7%, reduced interest rates on housing loans to a record-low level in Finland. Households' expectations on interest rates developments might underestimate the possibility of interest rate increases, hereby increasing their willingness to accept higher house prices.

Housing supply did not keep up with increasing demand over the last decade. While various factors seem to have contributed to keeping housing demand up, this should only result in upward price pressure if supply is not able to match increased demand. After the crisis in the early 1990s, residential construction had to recover from low levels of activity, but the increase was rather modest. Between 1995 and 2011, residential investment rose from 5% of GDP to 7% of GDP, fluctuating within this band. The number of building permits granted in the period 2000-2011 was highest in 2005; nevertheless this level still remained below the number of permits granted in 1999. Employment in the construction sector is about 7% of total employment and it has not increased significantly from the long-term average.

The recent slowdown in construction activity is limiting risks of sharp house price decreases. Residential construction investment slowed down in 2011 and is forecast to fall further in 2012, while for 2013 a moderate recovery is expected. Both residential building construction and permits granted for residential building construction are slightly declining since autumn 2011. In January 2012, the volume of residential building construction fell 1.3% below the level of January 2011. At the same time, the cubic volume covered by permits for residential buildings diminished by 5% year-on-year. The probability of a sharp and sudden decrease in housing prices due to an oversupply of newly-built houses thus remains low.

¹² The OECD calculated that the price-to-rent ratio is 37% above the long-term average, "Economic Outlook 89", OECD, June 2011.

3.2.3. Conclusion concerning internal imbalances resulting from private debt and housing market developments

The high level of household debt in Finland could be a concern but risks are attenuated. Private debtors with high mortgage loans are vulnerable to shocks such as interest rate increases, and any sudden forced deleveraging would negatively impact on growth. Delinquency rates are in that case expected to increase slightly, but remain at a level that the Finnish banking sector can absorb, as the financial system is in good health. An increase in unemployment or in interest rates would have an impact on households' ability to serve their loans, but this impact is estimated to be fairly limited. The debt levels of households do not seem to be a major threat to the Finnish economy in the near future.

No evidence has been found that Finnish house prices have reached an unsustainable level. House prices do not show increased volatility, affordability declined only gradually and households do not need to be overly leveraged in order to acquire a dwelling. Over the last decade construction activity did not keep up with increasing and housing investment is expected to remain moderately below 2011 levels for 2012 and 2013. The Helsinki area, where prices increased most, experiences population growth which, in combination with a relative shortage of land, seems to be the main driving force behind house price increases. Based on the indicators observed, no sudden drop in housing prices is expected. At the current juncture, risks for future overheating of the housing market seem limited.

Although the indebtedness of corporations is high, it does not per se constitute an imbalance. The debt-to-GDP ratio of Finnish non-financial corporations might appear high at first sight. However, there are many considerations which make it difficult to establish that corporate debt in Finland demonstrates an underlying imbalance. The debt-to-GDP ratio is inflated by the presence of multinational companies in Finland and their tax minimisation practices. The debt level of Finnish non-financial corporations lies above the European Union average, but at the same time the level is much higher in some other Member States, such as Belgium, Ireland, Portugal and Sweden, where the debt-to-GDP ratios of non-financial corporations reaches 150% of GDP or more.

Nevertheless, high private debt relative to GDP poses a potential economic and fiscal risk. Thus, financial supervision should stay vigilant to ensure that the banking system remains well capitalized and banks follow a sufficiently conservative provisioning policy.

4. POLICY CHALLENGES

The preceding analysis has shown that Finland is experiencing macroeconomic imbalances, which are not excessive but need to be addressed. In particular, macroeconomic developments relating to competitiveness deserve attention so as to reduce the risk of adverse effects on the functioning of the economy.

While currently there are no major macroeconomic imbalances in Finland, over the medium term some imbalances concerning external competitiveness could build up. The export-oriented economy of Finland has rapidly lost world market shares and the current account and trade balances have been declining, both reaching a deficit in 2011. Close attention should be given to these trends and preventive policy action should be taken, in line with the National Reform Programme and the Country Specific Recommendations for Finland.

To maintain high and increasing living standards, further losses in world market shares and further declines in the current account balance should be avoided. For a mature economy with a fast aging population it is key to sustain its competitiveness. Policies that are generally considered competitiveness enhancing are well developed in Finland. According to the IMD World Competitiveness Yearbook, Finland has high business and government efficiency and very good infrastructure. In addition, Finland is an advanced investor in R&D, achieving close to 4% of GDP in this area.

While R&D intensity is high, its economic impact needs to be improved. The share of innovative companies in Finland is comparable to the EU average. The difficulties in nurturing high-growth companies stands in contrast to Finland's technological sophistication. The Finnish government provides relatively high subsidies to support entrepreneurship, R&D and innovation. The focus of public R&D&I funding should now be shifted to SMEs which are growth-oriented, creating jobs and internationalising, with more attention given to the various stages of company development.

The transformation of the ICT sector poses challenges but also creates new opportunities. The declining importance of Nokia could reduce the R&D intensity of the Finnish economy, at least in the short term. Without broadening the base of companies investing in R&D, Finland's position as an innovation leader in the EU is at risk. To avoid this risk, it will be key to use the opportunities stemming from the transformation of the ICT sector, especially for SMEs, by efficiently utilising the human resources that will be freed up in the process. Efficient employment services as well as, focused training schemes could help facilitate this process.

Labour market policies need to ensure an efficient use of the labour force. In view of the ageing population, it is increasingly important to lengthen working careers and combat the increasing long-term unemployment and the persistently high youth unemployment. In addition, regional and skills mismatches should be addressed.

Wage growth should be kept in line with productivity increases. To maintain cost competitiveness, the temporary increase in relative ULC should be reversed over time wage and productivity developments should be well aligned. This will be even more essential if productivity is not going to grow again as strongly as in the past, e.g. because of a delayed restructuring of the ICT sector.

Increasing competition in the service sector could help enhance productivity and innovation. Innovation and productivity growth could be stimulated by fostering competition in the service sector. To this end, regulatory frameworks currently limiting competition should be redesigned and restrictions to new entrants should be removed. In addition, the productivity enhancing of public services could contribute to achieving cost savings also in the private sector.

Financial supervision should remain vigilant and be legally enabled to establish national macro-prudential policy tools for safeguarding financial market stability where needed. With regards to private indebtedness these tools should include the possibility to set binding recommendations on the loan-to-value ratios. However, while the planned gradual reduction in tax deductibility of mortgage interest rates will reduce incentives for taking out housing loans, a complete elimination of this scheme should be considered.

REFERENCES:

- Andrews, D., 'Real House Prices in OECD Countries: The Role of Demand Shocks and Structural and Policy Factors', *OECD Economics Department Working Papers*, No 831, OECD Publishing, 2010.
- Bank of Finland, 'Bulleting 2/12 – Financial stability 2012', 2012, PowerPoint presentation.
- Ali-Yrkkö, J., '*Nokia and Finland in a sea of change*', Sarja B 244 Series, ETLA (The Research Institute of the Finnish Economy), Helsinki, 2010.
- IAB (Institute for employment research Germany), 'The labour markets in Finland, Germany, Latvia, Norway, and Sweden 2006-2010', *IAB Forschungsbericht* 07/2012, 2012.
- IMD. 2012. '*World competitiveness yearbook 2011*'.
- Maiväli, M. and N. Lubenets, 'Managed vs free wage-setting in Finland and Estonia: optimising outcomes', Directorate-General for Economic and Financial Affairs, *ECFIN Country focus Volume IV*, issue 10, 2007.
- Mäki-Fränki, P., 'Finnish households' economic margin', *Bank of Finland Bulletin* 5, 2011.
- OECD, Product Market Regulation Database, 2011 (www.oecd.org/economy/pmr).
- OECD, '*Economic Outlook 89*', Vol. 2011/2, OECD Publishing, 2011.
- OECD, '*Economic surveys: Finland 2012*', OECD Publishing, 2012.
- Palmroos, P and J. Nokkala, '*Otantatutkimus henkilöasiakkaiden asuntoluotosta*', Financial Supervisory Authority, 2011.
- Tulli Customs, 'Statistical graphics 2011', 2012.
- World Economic Forum, '*The Global Competitiveness Report 2011–2012*', 2012.

