EUROPEAN
COMMISSION

Brussels, 26.2.2016
SWD(2016) 95 final

COMMISSION STAFF WORKING DOCUMENT

Country Report Sweden 2016

Including an In-Depth Review on the prevention and correction of macroeconomic imbalances

CONTENTS

LIST OF TABLES

LIST OF GRAPHS

LIST OF BOXES

EXECUTIVE SUMMARY

This country report assesses Sweden's economy in the light of the Commission's Annual Growth Survey published on 26 November 2015. The survey recommends three priorities for the EU's economic and social policy in 2016: re-launching investment, pursuing structural reforms to modernise Member States' economies, and responsible fiscal policies. At the same time, the European Commission published the Alert Mechanism Report that initiated the fifth annual round of the macroeconomic imbalance procedure. The Alert Mechanism Report identified Sweden as warranting a further in-depth review.

Sweden's economic growth has been accelerating gradually since 2012, expanding at a rate of 3.6 % in 2015. Growth was amongst the highest in the EU and is forecast to remain robust in the coming years according to the Commission's 2016 winter forecast. Steadily increasing household consumption, solid investment growth and increasing government consumption are expected to support strong growth in the coming years.

While domestic demand has been the main engine of economic growth during the last years, Sweden's export sector has been struggling. Nevertheless, as Swedish import growth slowed down at the same time, the current account surplus remained high at around 6 % of GDP compared with its peak of 9 % in 2008. As a result of sluggish trade performance, the export-oriented industrial sectors have been rather weak, while domestically oriented service sectors have been growing at a strong pace. A gradual recovery in Sweden's main trading partners and a relatively weak krona has been positively impacting Swedish export performance since 2015. This is projected to improve the outlook for export-oriented industrial production and manufacturing investment.

Investment levels in Sweden are higher than the EU average and above the country's pre-crisis level. After expanding at a rate of above 7 % in 2014 and 2015, investment is expected to keep increasing at a solid pace of around 4 % in the coming years. In particular housing investment has rebounded strongly since mid-2013 from relatively low levels. Nevertheless, the level of housing investment remains insufficient to meet existing housing demand as it is held back by structural inefficiencies on the housing market.

Structural inefficiencies on the housing market not only impact investment negatively but contribute to an increase in house prices and could hamper labour market mobility. Surging house prices are further increasing private indebtedness from already record high levels making the economy more vulnerable to shocks. Lack of available housing could prevent people from finding gainful employment in geographical areas with high labour demand thereby creating inefficiencies in the labour market.

The Swedish labour market has shown resilience during the crisis and employment recovered more quickly in Sweden than in other Member States. Sweden has the highest employment rate in the EU at 80.4 %, while overall unemployment is below the EU average at 7.4 % in 2015. Despite high employment growth, unemployment has only decreased at a slow pace during the last years because of the dynamically rising labour force. The main challenge for the Swedish labour market is to integrate the increasing number of economically and socially vulnerable people.

Fiscal policies remain broadly stable. Despite expansionary fiscal policy over the last couple of years to support economic growth and a significant increase of expenditure related to migration and integration, the general government deficit is expected to stay around a deficit of 1 % of GDP in the coming years.

Inflation has been subdued for a prolonged period of time and has only gradually picked up to 0.7 % in 2015. The Riksbank has been pursuing an expansionary monetary policy to support the gradual rise of inflation. Historically low repo rates have translated into continuously decreasing mortgage interest rates, which further supported the increase in house prices and private indebtedness.

Overall, Sweden has made limited progress in addressing the 2015 country-specific recommendation. As regards policies relevant to macroeconomic imbalances, steps have been taken to stem household indebtedness. These include the forthcoming introduction of compulsory

amortisation on new mortgage loans. Additional steps have been taken to improve the planning and appeals procedure for new construction projects. The Government proposed in the Budget Bill for 2016 public funding to increase investments in the housing sector and commissioned on inquiry on how to increase competition in the construction sector. However, no action has been taken to adjust fiscal incentives for instance to reduce tax deductibility of mortgage interest or to revise property taxation. No action has been taken to reform the rental market either.

Regarding the progress in reaching the national targets under the Europe 2020 Strategy, Sweden is performing well in employment rate, reducing greenhouse gas emissions, increasing the share of renewable energy, reducing early school leaving, improving tertiary education attainment and reducing the poverty while more effort is needed to reach energy efficiency and R&D targets.

The main findings of the in-depth Review contained in this report and the related policy challenges, are as follows:

- **Sweden has been continuously losing export market shares faster than the EU average since 2008, possibly indicating deteriorating Swedish competitiveness.** Nevertheless, the relatively slow recovery of exports of goods predominantly seems to be a cyclical rather than a structural phenomenon. It can be attributed to the specialisation of the Swedish economy in durable and investment goods for which demand recovers only slowly, together with weak demand in the country's traditional export markets.

- **The high level of household indebtedness in Sweden has been identified as posing an ongoing risk for macroeconomic stability**. Household debt, notably in the form of mortgages, remains at very high levels (roughly 87.2 % of GDP in 2015) and has continued increasing. Although Swedish households have significant assets as well, they are generally illiquid and exposed to market risks. In addition, the assets and liabilities are distributed unevenly across income levels and generations, in particular low-income and young borrowers have substantially higher levels of indebtedness and lower assets. High private indebtedness makes the Swedish economy vulnerable to macroeconomic shocks, as large deleveraging needs may potentially lead to a harmful correction in consumption, investment and credit flows.

- **Sweden is one of the EU countries most exposed to vulnerabilities on the housing market.** Persistent overvaluation and surging house prices coupled with high and rising household indebtedness, essentially driven by credit for house purchases, increasing debt-to-income ratios and high leverage in banks reflect elevated risks in this respect. Swedish house prices are above their fundamental levels, due to supportive taxation policy and structural inefficiencies in the housing market. Sweden has one of the highest tax incentives for home ownership in the EU due to relatively low property taxes and high mortgage interest rate deductibility, while the design of capital gains tax limits more efficient use of the existing housing stock. The current drivers of house prices growth are projected to remain in place in the short and medium term in the absence of a policy intervention. Overvalued house prices entail risks of a disorderly and harmful correction, with a potential impact on the banking sector and the real economy. The overall shortage of housing supply can hamper labour mobility and is further exacerbated by the large inflow of refugees in need of affordable housing.

- **Mortgages constitute a substantial and increasing part of the Swedish banks' assets**. The impact of a possible house price correction in the context of high household indebtedness is a growing concern. The regulatory capital adequacy ratios for Swedish banks are high, but the actual share of capital in banks' balance sheet remained at a relatively low level in recent years. The Swedish authorities have taken some relevant macroprudential measures but they have not been able to rein in the strong demand for housing loans. Any shock to the Swedish banking sector could have a wider impact on neighbouring countries. The Swedish banking groups are of systemic importance for all countries in the Nordic-Baltic financial market.

Other key economic issues analysed in this report which point to particular challenges facing Sweden's economy are the following:

- **In the short and medium term, Sweden faces no major risks in terms of fiscal sustainability.** The government debt stood at 44 % of GDP in 2015, well below the 60 % of GDP Treaty reference value. Nevertheless, the surge in the number of refugees and their integration puts short term pressure on public finances and public services (notably through education or social services including housing).

- **The Swedish labour market is functioning well, as reflected for instance by the high employment rate**. However, low-educated and low-skilled young people and people with a migrant background face relatively high unemployment. This challenge is likely to remain in the coming years also in light of the large number of refugees arriving in Sweden. Developing the human capital of the low-skilled could contribute to higher employment of vulnerable persons and positively contribute to economic growth.

- **Income inequality has continued to increase, although from very low levels.** At-risk-of-poverty rates are relatively high among older women, while the social situation of the increasing number of migrants deserves close monitoring, given the extent of the integration challenge.

- **Deteriorating outcomes of school education risk putting pressure on Sweden's competitiveness and innovation capacity in the long run.** School education results in Sweden have weakened significantly over the past decade (the country now, for instance, is performing below both the EU and OECD averages according to PISA surveys) and equity in education has been declining. A comprehensive approach appears to be important to establish conditions that promote the quality and improve the accountability of the education system. The integration of newly arrived migrant pupils warrants close monitoring.

- **The Swedish economy benefits from a favourable administrative environment**. On the other hand, the new National Agency for Public Procurement can help to address existing deficiencies in public procurement procedures. Despite the overall high performance of Sweden in digitisation as well as research and innovation, some indicators point to a slowdown in recent years. This development has been recognised by the Swedish government and has led to the formation of the Innovation Council.

- **Barriers to investment and long-term growth potential remain**. In particular, structural inefficiencies on the housing market hamper investment in this area. Investment in infrastructure to improve connectivity within and between urban areas is not sufficient in view of the constraints caused by the housing shortage. Moreover, a lack of cooperation between academia, research and business, and of exploitation of the potential of Swedish innovative SMEs and start-ups contribute to the declining trend in R&D investment.

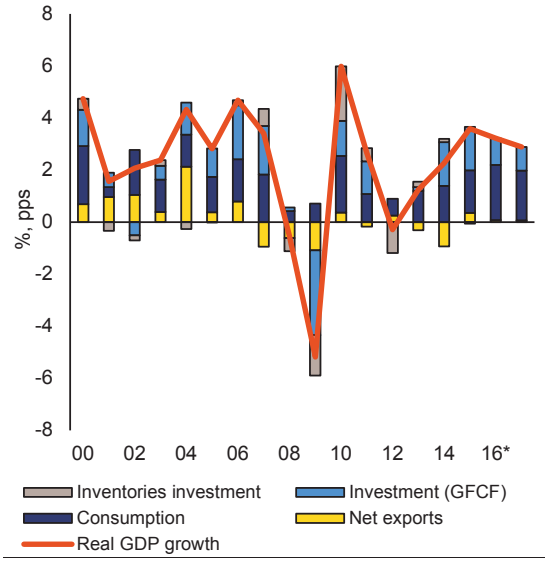
- **Sweden has ambitious environmental objectives and is generally on track to meet them.** Sweden has already exceeded its renewable energy target and there is additional potential in focusing more on alternative generation technologies. In addition to the national action plan to increase the competitiveness of its shipping industry, the Swedish railway system would benefit from further investment in order to improve the performance and cross-border connection.

1. SCENE SETTER: ECONOMIC SITUATION AND OUTLOOK

Economic outlook

Sweden's economic growth has slowly accelerated since 2012 and is expected to remain robust in the coming years. Real GDP expanded by 3.6 % in 2015 according to the European Commission's 2016 winter forecast, making it one of the fastest growing economies in the EU. While still robust, growth is forecast to slow down gradually (Graph 1.1).

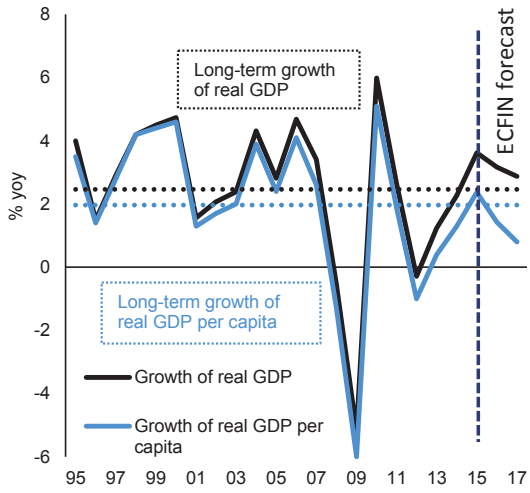
Graph 1.1: **External and domestic demand, contributions to growth - Sweden**



*Forecasts for 2015-2017 based on a no-policy-change assumption
Source: European Commission

Although Sweden's economy is projected to grow faster than its long term average in the coming years, per capita GDP growth remains below its long term average in the context of a dynamically growing population (Graph 1.2). Between 1995 and 2005 the country's population rose on average at an annual rate of 0.2 %. It has gone up to 0.8 % in the last decade and is projected to rise to more than 2 % from 2017. This is the highest rate of population increase of the country since the 1860s according to the Sweden's Statistical Office.

Graph 1.2: **Real GDP and real GDP per capita developments**



Forecasts for 2015-2017 based on a no-policy-change assumption
Source: European Commission (Eurostat)

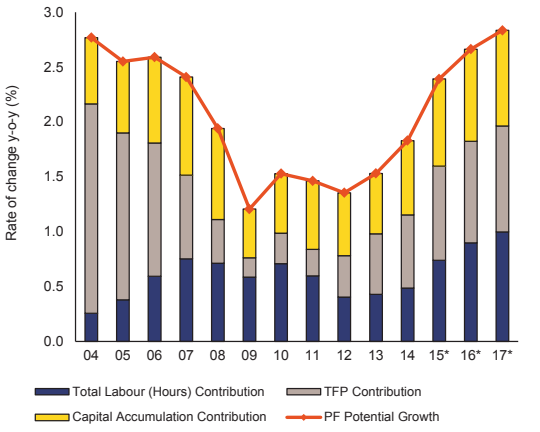
The rapid population expansion since 2011 is mainly due to a strong increase in the number of migrants. More than 80 000 refugees were registered in Sweden in 2014 (roughly 0.8 % of the total population) and almost 163 000 persons in 2015 (equivalent to almost 1.7 % of the total population). After Germany, Sweden takes the most refugees in the EU in absolute terms, and Sweden is the first Member State in terms of proportion of its resident population.

Accommodating such large numbers of refugees is expected to have significant economic impacts. In the short term, additional public spending is needed related to the provision of food, healthcare and shelter (and more broadly social and administrative support), with a positive impact on economic growth. In the medium to long term, the main challenge for the Swedish labour market is to ensure successful and quick integration of migrants. Successful integration could be helped by training, education (see also Section 3.2) and provision of affordable housing in areas with job opportunities (see also Section 2.3) since a widening skills and geographical mismatch could hinder the functioning of the labour market. In the longer-run, successful integration policies could increase Sweden's potential growth and strengthen its long-term fiscal sustainability by mitigating the

negative economic effects of an ageing population, shrinking workforce and associated labour shortages.

Sweden's potential growth has risen gradually since 2012 primarily due to the increasing contribution from total labour (Graph 1.3). High employment growth as a result of expanding labour force is expected to lift the potential growth of Sweden to pre-crisis levels.

Graph 1.3: **Contributions to potential growth - Sweden**



*Forecasts for 2015-2017 based on a no-policy-change assumption
Source: European Commission

Domestic demand

Domestic demand remained the main driver of economic growth in 2015. Strong employment growth and steadily rising disposable incomes combined with low interest rates are forecast to provide continued support for private consumption. Both central and local government consumption is projected to continue increasing dynamically in the coming years due to additional spending on public services related to migration and integration, including housing, training and education.

Investments have expanded rapidly at a rate of 7.1 % in 2015, well above the real GDP growth. This surge was driven by a strong rebound of housing construction growing from historically low levels. Despite the increase in housing investment, the number of new dwellings built still falls short of rising housing demand and investments in this area are still below the EU average. After shrinking for two years, equipment investment gained momentum in 2015 in the light of expanding capacity utilisation and a need for replacement investments. Overall investment growth is forecast to decelerate to 4.2 % in 2016 as the growth in equipment investment is unlikely to be enough to compensate for the projected slowdown in construction. Levels of capital formation in Sweden are higher than the EU average and in the main peer economies (such as Germany, the Netherlands or Denmark). Nevertheless, Sweden faces some investment challenges in several areas which are analysed in more detail in Box 1.1.

External trade developments

After several years of sluggish exports growth, exports picked up in 2015. Nevertheless, Sweden has suffered a substantial loss of export market shares over the past decade (see Section 2.1 for further details). This loss is concentrated in goods exports, which was only partly compensated by gains in export market shares for services. In the medium term, Swedish exports are expected to be in a position to gain additional impetus from improving market dynamism in several of the main trade destinations, and from increased demand for machinery, chemicals and transport equipment, which represent a large fraction of Swedish exports (see Section 2.1).

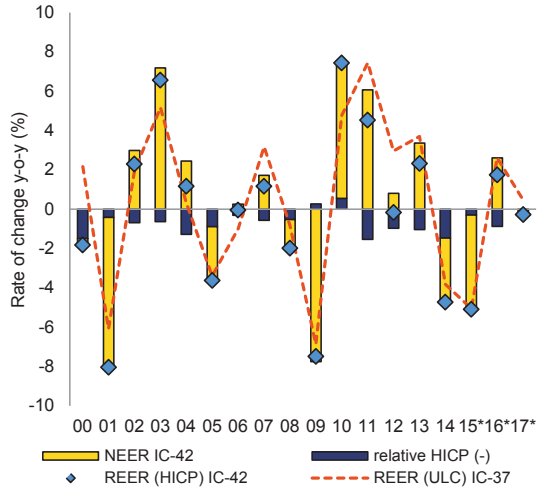
Sweden's current account surplus gradually declined from its peak of 8.6 % of GDP in 2008 to around 6 % over the last years. While the contribution of services and net incomes to the current account balance has been increasing, the trade surplus in goods diminished, resulting in a relatively stable current account surplus.

At an estimated -6 % of GDP in 2014, the Swedish net international investment position presents no sustainability concerns. The net international investment position has been negative since 2011 despite the persistently high current account surplus, but has been closing rapidly since then. It is expected to turn positive in the coming years and would have been so already since 2006, if foreign direct investments were valued at market terms and not at book value (see Section 2.1).

Swedish cost developments do not show major challenges in terms of competitiveness. Unit

labour costs have been growing in line with Sweden's main trading partners, while the accumulated unit labour costs growth was broadly stable between the period of 2001 and 2014. The real effective exchange rate has depreciated in 2014 and 2015 due to the weak krona, while domestic prices continue growing more slowly than in the main trading partners (Graph 1.4).

Graph 1.4: **Decomposition of REER - Sweden**

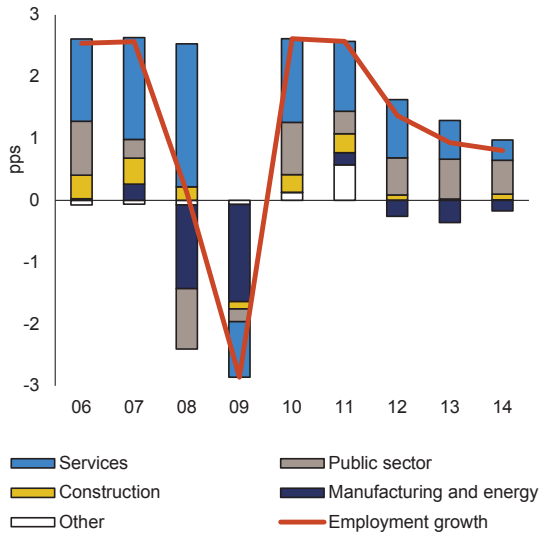


Source: European Commission

Labour market

Employment recovered quickly following the financial crisis and has been expanding at a strong pace. Rapid employment growth reflects the relative strength of the economic recovery, and buoyant labour supply. This rise has been driven primarily by services and the public sectors, while the manufacturing and energy sectors decreased the number of employed people (Graph 1.5). The increased building activity should also strengthen the contribution of the construction sector in creating jobs in the coming years. Due to the large inflow of refugees, public sector employment is projected to increase further as both municipalities and government agencies need to employ more people to deal with the reception of refugees.

Graph 1.5: **Change in employment per sector**



Source: Sweden's Statistical Office

People granted asylum are expected to gradually look for employment, lifting labour supply in the medium term. Since 2006, roughly 70% of the new jobs created have been taken up by foreign-born people, although their employment rate is still lower than that of the Swedish born population (see Section 3.2). Based on historical experience so far, after ten years, employment rates of people granted asylum could reach about 60%, compared with around 80% among the Swedish born population. Significant policy efforts are being taken by the Swedish authorities to reduce the time for newly arrived migrants to find jobs and increase the employment rate. In the short term, the gradual increase of the labour force is expected to slow down the decrease of the unemployment rate. Overall, unemployment is projected to fall from 7.4% in 2015 to 6.7% in 2017.

Inflation and monetary policy

Inflation increases only slowly from the very low levels. The depreciation of the krona, tax hikes as well as an expanding domestic demand supported by an accommodative monetary policy resulted in a rate of 0.7 % in 2015 compared with 0.2 % a year before. In 2016, inflation is projected to be raised by tax hikes and dampened by falling oil prices. HICP inflation is expected to only

gradually pick up to 1.1 % in 2016 and 1.4 % in 2017.

Sweden's central bank is supporting the rise of inflation with loose monetary conditions. Since January 2015, the Riksbank cut the repo rate from 0.0 % to –0.5 %, adjusted the repo rate path downwards, purchased large amounts of government bonds and announced additional purchases during the first half of 2016. An appreciating krona could reverse the current rising inflation trajectory. Therefore in January 2016 Sweden's central bank announced its intention to directly intervene on the foreign exchange market if necessary. The Riksbank is highly concerned about inflation expectations because the major wage negotiations starting this year in Sweden affect almost 3 million employees (almost half of the labour force), what would determine wage developments in the following years.

Main macroeconomic risks

Risks to the economic forecast are balanced. Downside risks could arise from weaker growth in Sweden's main trading partners, in particular in emerging markets including China, which could negatively impact exports and investments. China constituted 3.3 % of Sweden's exports in 2014, which is above the EU average of 2.6 %, the highest in the EU following Finland, Germany and Malta. In particular Swedish mining, metal and machinery sectors could be the most affected industries by a growth deceleration in China.

Rising private debt and house prices could make the economy vulnerable to shocks, **possibly affecting household consumption and housing investment.** Private indebtedness remains at 201 % of GDP. The primary concern is household debt, which is increasing at an accelerating pace driven by low mortgage interest rates and surge in house prices. This is analysed in detail in Section 2.2.

Upside macroeconomic risks are related to higher than expected private consumption, housing investment and government consumption growth. Households can raise their consumption more in view of the steadily rising disposable incomes and solid employment growth. Despite the rebound in housing investment, the number of new dwellings built still does not meet surging housing demand. Housing investment could thus be stronger than expected. The arrival of a large number of refugees could lead to higher government consumption in the short term, due to increased need for training, education and other public services.

Public finances

Sweden's general government deficit is expected to have improved significantly in 2015 from 1.7 % of GDP in 2014 to 1.0 % of GDP in 2015. This was mainly due to a strong rise in tax revenues, supported by buoyant private consumption and tax increases. For 2016 and 2017, the deficit is foreseen to remain broadly stable, despite a large increase in total government expenditure in 2016. About half of the increased expenditure this year is estimated to be related to the large number of refugees arrived since the second half of 2015. Nevertheless, continued strong revenue increases are expected to match expenditure growth. The main negative risks for the budget are related to higher spending on refugees, integration and sickness leave benefits. Public debt stands at a relatively low level of around 44 % of GDP in 2015, below the 60 % of GDP Treaty reference value and is foreseen to gradually decline in the coming years (see also Section 3.1).

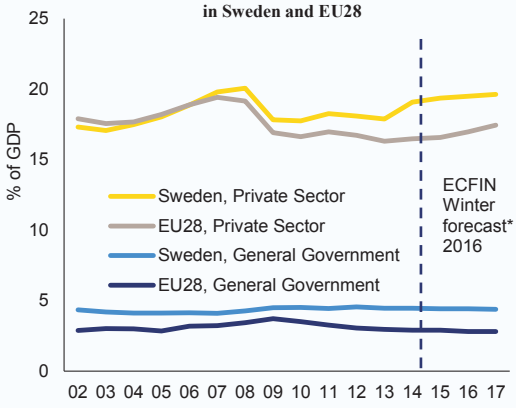
Box 1.1: **Investment challenges**

Macroeconomic perspective

Investment in Sweden grew at an average rate of 5% per year between 2009 and 2015, outpacing the average GDP growth of 3.8% per year in the same period. The main driver of this growth was investment in dwellings, which expanded at an average rate of 9.3% per year during this period rebounding from historically low levels, while equipment investment expanded at an average rate of 3.7% per year. According to the Commission's 2016 Winter Forecast, investment is expected to continue growing at a dynamic pace of around 4% in the coming years. The composition of investment is projected to change and become more broad-based. Housing and construction investment growth is forecast to gradually slow down, while equipment investment is expected to gain momentum with spare capacity diminishing.

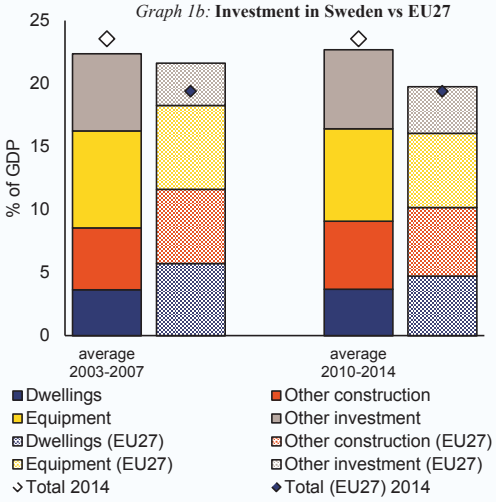
Overall investment levels in Sweden are above the EU average. Investment remains on an increasing trend and is already above the average pre-crisis level. The graph below shows a breakdown of total investment by sector and by component. Investment in Sweden has been above the EU average in all categories with the exception of dwellings construction over the period 2010-2014. Swedish investment in dwellings reached on average 3.7% of GDP between 2010 and 2014 compared to the EU average of 4.8% during this period. Nevertheless, dwellings investment has rebounded by 21% in 2014 and is forecast to keep expanding at a robust pace due to the surging housing demand and the general shortage of housing supply, thus gradually reducing the gap with the EU average. The level of the 'other investment' category has been considerably higher in Sweden than the EU average because Sweden's R&D investment was 3.2% of GDP in 2014, the second highest on the EU and well above the EU average of 2% of GDP in the same year (Graph 1b).

Graph 1a: **Public and private investment in Sweden and EU28**



***Note:** Forecasts for 2015-2017 based on a no-policy-change assumption
Source: European Commission

Graph 1b: **Investment in Sweden vs EU27**



Both private and public investment in Sweden stands above the EU average (Graph 1a). Private investment expanded at a rate of 5.3% between 2009 and 2014, while public investment grew at an average rate of 3.9% over the same period. Within private investment, manufacturing investment has been relatively weak in recent years due to sluggish industrial production and export markets. By contrast, investment in the services sector has risen dynamically, due to a prolonged period of strong domestic demand. General government investment expanded rapidly at the onset of the crisis and has since hovered around the level of 4.5% of GDP, compared to the EU average of 3.2%. Investment growth is also projected to become broader based: while service sector investment growth is expected to remain robust, manufacturing investment is also forecast to increase in the coming years. In addition, general government investment is projected to expand

(Continued on the next page)

Box (continued)

steadily, as the large surge in the number of asylum seekers require additional public investment in housing, health care or education infrastructure.

Assessment of barriers to investment and ongoing reforms

Despite a relatively good investment performance, Sweden faces challenges in several areas that could negatively impact the long-term competitiveness of the country. The Commission ([1]) has started to map policy fields and instruments in order to provide an overview of the main challenges to investment at national level.

The main investment challenge in Sweden is related to housing construction (see Section 2.2). Despite the current surge in housing investment, the number of new dwellings is not sufficient to match housing demand. Demand is expected to increase further over the coming years, as the number of vulnerable groups in Sweden will be expanding rapidly due mainly to the surge in the number of asylum seekers. This will further increase the shortage of (affordable) housing, especially in the main urban areas. Without adequate housing possibilities, these vulnerable groups will be prevented from establishing themselves in the labour market. The government has introduced limited reforms in this area by reducing complex and lengthy planning procedures and by allocating public funding to support the construction of additional housing. Further policy actions to revise the current rent-setting system, to incentivise municipalities to support new housing constructions and to increase competition in the construction sector could lead to higher investment in this area.

Although R&D investment in Sweden is higher than the EU average, it has been on a relative decline since 2008 when it reached a peak of 3.5% of GDP and is currently falling short of Sweden's Europe 2020 target of 4%. Increased cooperation between academia, research and business, and measures to increase the efficiency of the venture capital market could help to reverse the declining R&D investment trend and to boost the long-term competitiveness of the country. The Swedish authorities have established a new Innovation Council in February 2015 with the task to create strategies to boost Sweden's long-term innovation performance and competitiveness (see Section 3.3).

The Swedish railway system faces several challenges: in particular limited public funding for investment and maintenance together with organisation difficulties (see Section 3.3). Traffic volumes have outpaced investments over the last decade. Increased investments are needed in order to reduce delays and eliminate remaining bottlenecks (especially in urban areas, but affecting the entire network), particularly on cross-border rail traffic with continental Europe. Investment in road and railroad infrastructure to improve connectivity within and between urban areas could also help to alleviate some of the constraints caused by the housing shortage. The government has launched several initiatives to promote infrastructure investments in cooperation with municipalities, including the City Environment Agreements (Stadsmiljöavtal) and National Negotiation on Housing and Infrastructure (Sverigeförhandlingen).

There are additional areas where challenges for investment remain. For instance, further policy measures to increase transparency in public procurement procedures, to improve the pre-insolvency framework and to reduce policy uncertainty about the future energy policy, with respect to renewable energy (electricity and transport), nuclear energy and the role of energy efficiency could further increase incentives for investment in Sweden (see Section 3.3 for more detail).

([1]) See '*Member States Investment Challenges*', SWD(2015) 400 final/2 (http://ec.europa.eu/europe2020/pdf/2016/ags2016_challenges_ms_investment_environments_en.pdf).

Box 1.2: **Contribution of the EU Budget to structural change**

Sweden is a beneficiary of European Structural and Investment Funds (ESIF) support and will receive up to EUR 3.6 billion for the period 2014-2020. This is equivalent to 2.5% of the expected national public investment in areas supported by the ESI funds.

With the exception of an action plan on the ex-ante conditionality on "monitoring and result indicators", to be complete before end-2016, all other reforms and strategies have been put in place in those areas to benefit from the Funds in order to fulfil the conditionalities and ensure successful investments.

The programming of the Funds includes a focus on priorities and challenges identified in recent years in the context of the European Semester, in particular measures to enhance participation and integration in the labour market, especially for youth and people with a migrant background. Sweden's EUR 44 million euros for the Youth Employment Initiative (matched by the same amount from the European Social Fund) is focused on increasing employment and participation in education among young people, especially those with the greatest risk of long-term unemployment and future labour market problems. Regular monitoring of implementation includes reporting in mid-2017 on the contribution of the funds to Europe 2020 objectives (with a focus on sustainable business growth through innovation, appropriate broadband investments and cluster development and the other areas mentioned above). .

Financing under the new European Fund for Strategic Investments (EFSI), Horizon 2020, the Connecting Europe Facility and other directly managed EU funds would be additional to the ESI Funds. Following the first rounds of calls for projects under the Connecting Europe Facility, Sweden has signed agreements for EUR 82 million for transport projects. For more information on the use of ESIF in Sweden, see: https://cohesiondata.ec.europa.eu/countries/SE.

Table 1.1: **Key economic, financial and social indicators**

	2003-200	2008	2009	2010	2011	2012	2013	2014	forecast 2015	2016	2017
Real GDP (y-o-y)	3.5	-0.6	-5.2	6.0	2.7	-0.3	1.2	2.3	3.6	3.2	2.9
Private consumption (y-o-y)	3.3	0.2	0.4	3.9	1.9	0.8	1.9	2.2	2.4	2.6	2.8
Public consumption (y-o-y)	0.6	1.3	2.3	1.3	0.8	1.1	1.3	1.3	2.0	3.6	2.5
Gross fixed capital formation (y-o-y)	6.2	0.6	-13.4	6.0	5.7	-0.2	0.6	7.5	7.1	4.2	3.7
Exports of goods and services (y-o-y)	6.9	2.0	-14.5	11.9	6.1	1.0	-0.8	3.5	4.6	4.1	4.5
Imports of goods and services (y-o-y)	6.7	3.8	-14.1	12.8	7.3	0.5	-0.1	6.3	4.2	4.3	4.8
Output gap	0.9	0.8	-5.6	-1.4	-0.2	-1.9	-2.1	-1.7	-0.6	0.0	0.0
Potential growth (y-o-y)	2.7	1.9	1.2	1.5	1.5	1.4	1.5	1.8	2.4	2.7	2.8
Contribution to GDP growth:											
Domestic demand (y-o-y)	2.8	0.6	-2.5	3.5	2.3	0.6	1.3	3.1	3.3	3.1	2.8
Inventories (y-o-y)	0.2	-0.5	-1.6	2.1	0.5	-1.1	0.2	0.1	-0.1	0.0	0.0
Net exports (y-o-y)	0.5	-0.6	-1.1	0.4	-0.2	0.3	-0.3	-0.9	0.4	0.1	0.1
Contribution to potential GDP growth:											
Total Labour (hours) (y-o-y)	0.4	0.7	0.6	0.7	0.6	0.4	0.4	0.5	0.7	0.9	1.0
Capital accumulation (y-o-y)	0.7	0.8	0.4	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.9
Total factor productivity (y-o-y)	1.5	0.4	0.2	0.3	0.2	0.4	0.6	0.7	0.9	0.9	1.0
Current account balance (% of GDP), balance of payments	7.3	8.6	5.9	6.0	6.9	6.6	6.7	5.7	.	.	.
Trade balance (% of GDP), balance of payments	6.9	6.5	5.5	5.3	5.4	5.5	5.8	4.8	.	.	.
Terms of trade of goods and services (y-o-y)	-0.4	-0.4	0.9	-0.5	-0.8	0.1	0.3	0.4	0.3	0.2	0.0
Capital account balance (% of GDP)	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	.	.	.
Net international investment position (% of GDP)	-15.2	-1.5	0.6	2.9	-10.2	-14.3	-15.1	-5.9	.	.	.
Net marketable external debt (% of GDP)1	-37.2	-43.3	-46.0	-39.5	-42.9	-43.3	-45.7	-45.5	.	.	.
Gross marketable external debt (% of GDP)1	111.5	143.0	146.9	135.5	145.1	143.6	152.6	162.0	.	.	.
Export performance vs. advanced countries (% change over 5 years)	4.9	3.1	-8.3	-5.2	-4.2	-9.6	-8.8	-3.63	.	.	.
Export market share, goods and services (y-o-y)	0.3	-4.3	-8.3	-1.3	-0.1	-6.2	-1.0	-1.4	.	.	.
Net FDI flows (% of GDP)	2.7	-1.6	3.7	4.1	3.0	2.3	4.4	0.7	.	.	.
Savings rate of households (net saving as percentage of net disposable income)	6.8	12.7	12.2	11.0	12.7	15.3	15.1	15.3	.	.	.
Private credit flow (consolidated, % of GDP)	11.3	18.6	5.5	5.2	6.5	2.2	4.7	5.9	.	.	.
Private sector debt, consolidated (% of GDP)	153.1	189.9	202.0	189.9	191.2	192.5	192.3	194.0	.	.	.
of which household debt, consolidated (% of GDP)	60.2	68.7	76.8	77.1	78.0	80.5	82.3	83.6	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	92.8	121.2	125.2	112.8	113.2	112.0	110.0	110.4	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	4.0	1.5	1.8	2.2	0.4	-0.3	-0.7	-0.7	-0.7	-0.7	-0.7
Corporations, gross operating surplus (% of GDP)	24.5	24.2	22.4	24.8	24.4	23.0	22.8	23.2	24.0	24.2	24.3
Households, net lending (+) or net borrowing (-) (% of GDP)	1.8	4.8	5.3	4.3	5.4	7.5	7.3	7.1	7.0	7.0	7.0
Deflated house price index (y-o-y)	8.7	-1.9	0.8	6.4	0.8	0.7	4.7	8.6	.	.	.
Residential investment (% of GDP)	3.7	3.9	3.3	3.6	3.9	3.4	3.5	4.1	.	.	.
GDP deflator (y-o-y)	1.5	3.3	2.4	1.0	1.2	1.1	1.1	1.6	1.9	1.7	1.8
Harmonised index of consumer prices (HICP, y-o-y)	1.5	3.3	1.9	1.9	1.4	0.9	0.4	0.2	0.7	1.1	1.4
Nominal compensation per employee (y-o-y)	3.9	3.7	2.7	2.2	3.2	3.1	1.9	2.2	2.8	2.7	2.9
Labour productivity (real, person employed, y-o-y)	2.9	-1.4	-2.8	5.0	0.5	-1.0	0.3	0.9	.	.	.
Unit labour costs (ULC, whole economy, y-o-y)	1.0	5.2	5.7	-2.6	2.6	4.1	1.7	1.3	0.6	1.2	1.7
Real unit labour costs (y-o-y)	-0.6	1.8	3.2	-3.6	1.4	3.0	0.6	-0.3	-1.3	-0.5	-0.1
Real effective exchange rate (ULC, y-o-y)	0.9	-0.8	-6.9	4.8	7.4	3.0	3.7	-3.8	-5.7	2.2	.
Real effective exchange rate (HICP, y-o-y)	0.9	-2.2	-7.2	6.5	4.1	-0.8	1.7	-4.6	-5.4	2.8	-0.7
Tax wedge on labour for a single person earning the average wage (%)	30.5	26.9	25.4	24.7	24.8	24.9	25.0	24.4	.	.	.
Taxe wedge on labour for a single person earning 50% of the average wage (%)	26.3*	21.8	20.6	19.7	19.9	20.0	20.0	19.6	.	.	.
Total Financial Sector Liabilities, non-consolidated (y-o-y)	10.9	6.7	1.9	6.9	5.0	3.2	7.5	12.7	.	.	.
Tier 1 ratio (%)2	.	7.8	10.5	10.5	10.8	11.2	11.3	19.2	.	.	.
Return on equity (%)3	.	12.3	5.4	10.3	10.7	11.4	11.2	12.2	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (4)	.	.	.	.	0.6	0.5	0.5	1.4	.	.	.
Unemployment rate	7.0	6.2	8.3	8.6	7.8	8.0	8.0	7.9	7.4	6.9	6.7
Long-term unemployment rate (% of active population)	1.1	0.8	1.1	1.6	1.5	1.5	1.5	1.5	.	.	.
Youth unemployment rate (% of active population in the same age group)	20.2	20.2	25.0	24.8	22.8	23.7	23.6	22.9	.	.	.
Activity rate (15-64 year-olds)	78.4	79.3	78.9	79.1	79.9	80.3	81.1	81.5	.	.	.
People at-risk poverty or social exclusion (% total population)	15.4	14.9	15.9	15.0	16.1	15.6	16.4	16.9	.	.	.
Persons living in households with very low work intensity (% of total population aged below 60)	7.3	5.5	6.4	6.0	6.9	5.7	7.1	6.4	.	.	.
General government balance (% of GDP)	1.3	2.0	-0.7	0.0	-0.1	-0.9	-1.4	-1.7	-1.0	-1.1	-1.2
Tax-to-GDP ratio (%)	46.6	44.9	45.1	44.1	43.5	43.5	43.8	43.7	43.6	44.1	44.2
Structural budget balance (% of GDP)	.	.	.	0.8	0.1	0.2	-0.1	-0.6	-0.7	-1.0	-1.2
General government gross debt (% of GDP)	45.3	36.8	40.4	37.6	36.9	37.2	39.8	44.9	44.0	43.1	42.3

(1) Sum of portfolio debt instruments, other investment and reserve assets
(2,3) domestic banking groups and stand-alone banks.
(4) domestic banking groups and stand alone banks, foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches.
Source: European Commission, Winter forecast 2016; European Central Bank

2. IMBALANCES, RISKS, AND ADJUSTMENT ISSUES

This section provides the in-depth review foreseen under the Macroeconomic Imbalances Procedure (MIP)[1]. It focuses on the risks and vulnerabilities flagged in the Alert Mechanism Report 2016. The section analyses the reasons behind the persistent current account surplus and continuous loss of export market shares. It also analyses whether Sweden faces major competitiveness issues. Focusing on the policy area covered in the 2015 country-specific recommendations, the second section explores the drivers of the accumulation of debt in the households and corporate sectors and assesses the underlying macroeconomic risks. Since private debt growth is to a large extent fuelled by mortgage debts, the reasons for surging house prices are assessed in the third section. Finally, in light of Swedish banks' relative large size compared to the economy and their systemic importance in neighbouring countries, the fourth section analyses the risks related to the banking sector. The section concludes with the MIP assessment matrix which summarises the main findings.

2.1 EXTERNAL COMPETITIVENESS

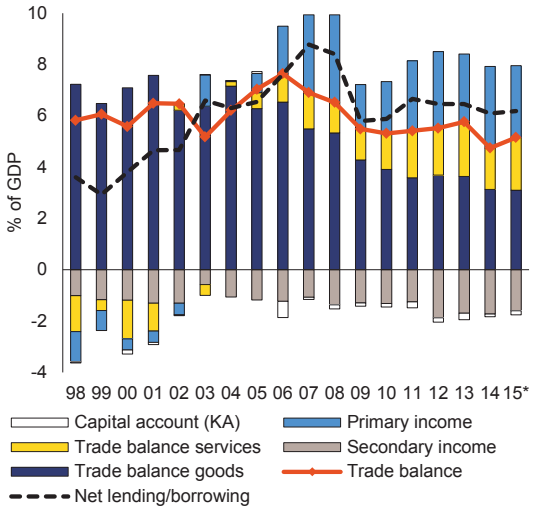
External imbalances

Sweden has run a persistently large current account surplus for over two decades. For 2015, the surplus is estimated to have been around 6 % of GDP. A large current account surplus does not necessarily reflect an imbalance as it can simply signal high savings in excess of investment and relative to partner countries. It could also signal, however, domestic bottlenecks such as high precautionary savings or low investment. In parallel, trade is characterised by a secular decline of export market shares and by the sluggish recovery of exports following the contraction. This section examines the risk that this is reflecting a structural problem of the Swedish industry. Further analysis is thus warranted to determine whether this reflects a structural problem of the Swedish industry.

Current account

While persistently in surplus, the composition of the current account balance has undergone significant changes over the past years. The goods trade surplus shows a structural decrease which was partly compensated by the steadily increasing service exports balance and by the income balance (see Graph 2.1.1). As argued below, many years of surpluses have improved the net international investment position of the Swedish economy, leading to positive investment income from abroad. These shifts of opposite signs have cancelled each other out, leaving the overall level of net lending broadly stable over time.

Graph 2.1.1: **Current account balance**



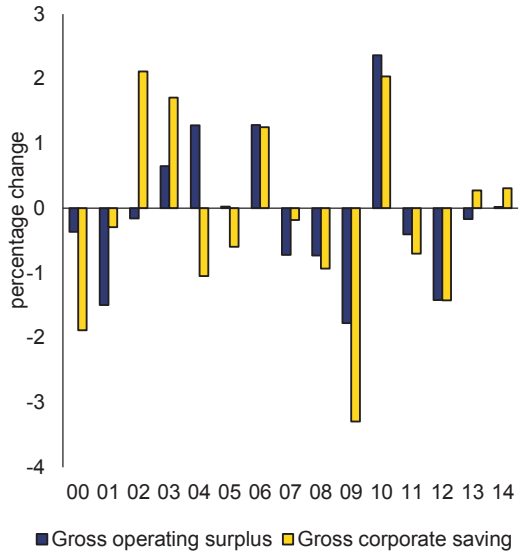
* Indicates an estimate based on quarterly data.
Source: European Commission

It is indeed high savings, not low investment, that drive the current account surplus. Saving currently stands at around 30 % of GDP and has been above the investment rate since the early 1990s. A steady increase in the savings rate in the first decade of this century was first driven by the comparatively high net savings of the financial sector which have contributed to the high capitalisation levels of the Swedish banking sector. Since the crisis, however, corporate savings have begun to moderate, following a fall in profits (see Graph 2.1.2). With respect to the government sector, the budget deficits of recent years have had a limited impact on the total level of net lending of the economy. By contrast, Swedish households have shown a sharp increase in their saving rate

([1]) According to Article 5 of Regulation (EU) No. 1176/2011.

since the start of the millennium; from being only a minor contributor to the overall net lending of the economy their contribution has grown to 7 % of GDP in 2014, corresponding to a savings rate of almost 18 % of disposable income (Graph 2.1.3).

Graph 2.1.2: **Corporate savings and profits**



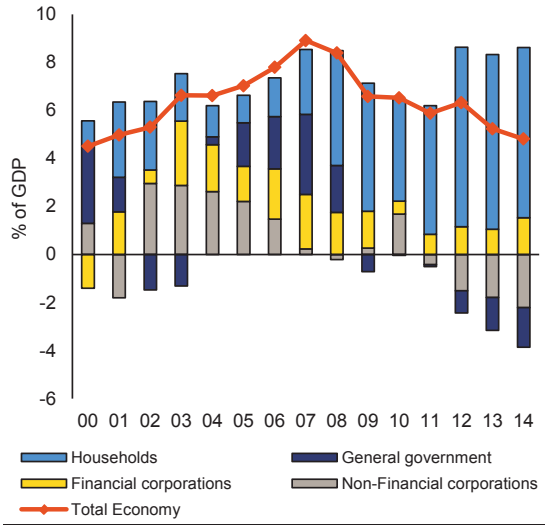
Source: European Commission

The increase in household savings can be linked to the pension reform of the 1990s and other reforms introduced during that decade. The reforms entailed a move towards a defined contributions pensions scheme that keeps public pensions constant as a percentage of GDP, and hence shifts the burden of ageing onto future pensioners that react by increasing private pension savings ([2]).

The saving rate is the response to long-term institutional reforms and it is expected to remain high in the future: it is not cyclical or the consequence of policy responses to the crisis. The high saving rate is neither caused by recent contractionary policies nor precautionary saving. As the population ages and the baby-boomers retire, the saving rate is projected to stabilise but most likely at a high level.

([2]) See European Commission, Ageing Report 2015 and Nilsson, C., Söderberg, J. and Vredin, A. (2014) "The significance of collective pension saving for the Swedish financial system," Sveriges Riksbank, Economic Commentaries 2014-03.

Graph 2.1.3: **Net Lending/Borrowing by Sector - Sweden**



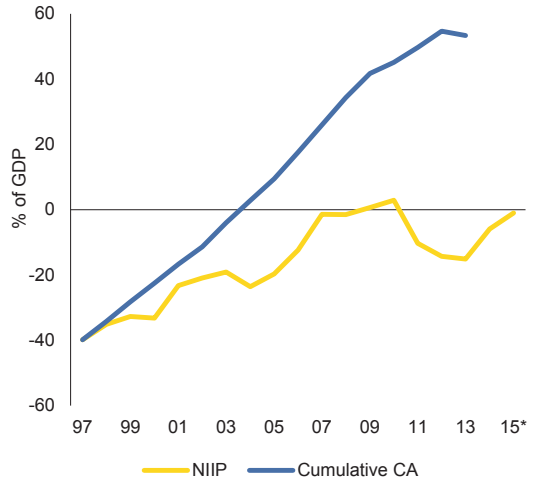
Source: European Commission

Investment levels in Sweden are high compared to EU peer Member States. The investment rate managed to remain between 20 % and 25 % of GDP since the crisis in the early 1990s. This was even the case during the downturn in 2009, when many EU Member States experienced a marked decline in investment. The Swedish investment rate has been historically at the EU average and today is 4 percentage points above. Further, it is significantly higher that other Member States experiencing large current account surpluses and characterized by low investment in houses and infrastructures (Germany, the Netherlands and Denmark). Following the recession of the 1990s investment in dwellings dropped dramatically in Sweden, but has since then recovered and is today at 4.5 % of GDP virtually identical to the other surplus countries. However, given the fast population increase and the significant shortage of housing supply, a higher investment rate could be expected. A further increase in housing investment has been dampened by restrictions and inefficiencies in the functioning of the Swedish housing market, as detailed in Section 2.3. Addressing the inefficiencies of the housing market, in particular the rental market, could increase investment in dwellings and therefore contribute to reducing the current account surplus.

Accumulated current account surpluses have improved the net international investment position, which explains the major

improvement in the primary income balance over the past decade. At face value, this might not be intuitive as the net international investment position is still (slightly) negative. Taking the starting point of 1997, the continuous accumulation of surpluses should have in principle improved Sweden's net international investment position to a surplus of more than 60 % of GDP by year-end 2014 (see Graph 2.1.4). However, valuation effect and measurement errors are likely to significantly underestimate the real position of the Swedish economy. For example, the discrepancy between the book and the market value of foreign direct investment stocks may be an important factor explaining the seemingly excessively low net international investment position of Sweden ([3]).

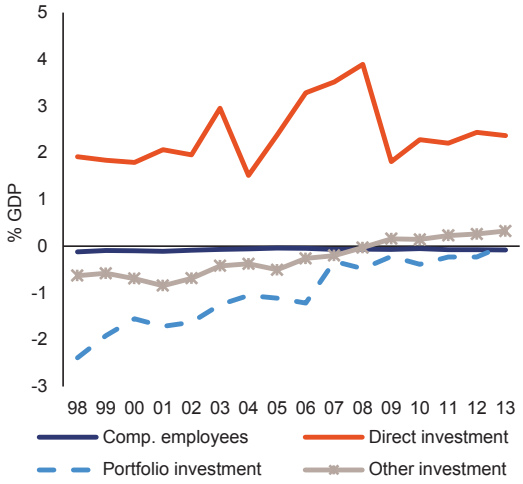
Graph 2.1.4: **Net international investment position and valuation effects***



* Own estimation
Source: European Commission

The rising stock of investment abroad would explain the surge in investment income. While returns from direct investment have shown no obvious trend, income from portfolio and other investments have shifted from –3 % of GDP fifteen years ago to a positive contribution (Graph 2.1.5). This increasing income from abroad explains why net exports can drop while the rate of saving in excess of investment remains fairly stable.

Graph 2.1.5: **Decomposition of the primary income balance**



Source: European Commission

In turn, the composition of net exports reflects the increasing importance of trade in services in Swedish foreign trade. The balance of trade in goods accounts for the reduction of net exports while the balance of trade in services increases. This shift to services in the composition of net exports is likely to be reaction to several factors, including increased competition from emerging markets in manufacturing goods and a strong development of domestic demand compared to a relatively weak external demand. In turn, the increased importance of services is related to business services being outsourced from manufacturing companies. A large share of these services is pre- and post-production services to the industry, such as R&D, engineering and design services; marketing and after-sales services ([4]).

Overall external dynamics and the current account surplus appear to be largely benign responding to economic fundamentals and do not reflect underlying structural problems. With the stabilisation of saving rates, Sweden's external surplus is expected to stabilise as well over the

([3]) See G. Blomberg, S. Kåhre and A. Lindström, "Sweden has had a stable financial surplus for many years – but where did the money go?," Riksbank, Economic Commentaries No 2, 2015 and section 3.1.2 in European Commission (2014) "Macroeconomic Imbalances. Sweden 2014". Occasional Papers No 186.

([4]) For a thorough inspection of structural change in Sweden, see Daniel Lind, *Avindustrialiseringen av Sverige: myt och verklighet*, Unionen, 2010.

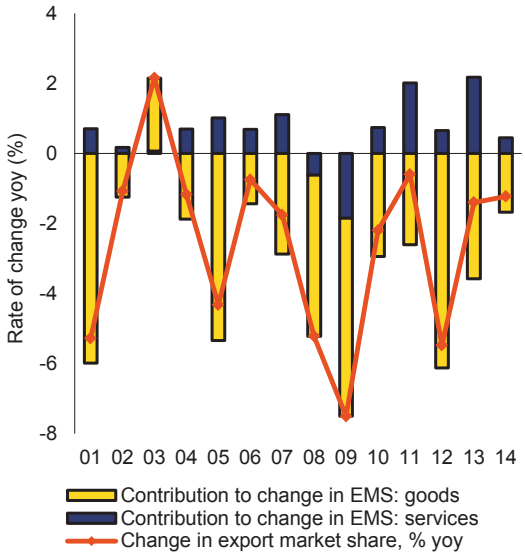
coming years. The Swedish surplus has a very limited impact on the external rebalancing processes in the EU, given the relatively small size of the Swedish economy, the geographical profile of its imports, the fact that it maintains an external deficit with the euro area and the freely-floating regime of the currency.

Export performance

The secular reduction in export market shares together with the poor recovery of exports from the crisis could point to a structural problem of the Swedish industry. Export market shares have contracted by 9.8 % in the last five years, continuing a long-term trend that started in the 1970s.

Like other industrialised, mature economies, Sweden's export share has been diluted by the increasing volume of global trade resulting from the integration of emerging economies into the global value chains. World trade growth has consistently outpaced Sweden's export growth over the past decade (Graph 2.1.6). Goods exports have long been most affected by the secular decrease in export market share, while service exports have been significantly more dynamic. The strength of services, however, has not been sufficient to offset the export market share losses in goods, not only because export market share gains in services have been comparatively moderate, but also because goods exports still represent approximately 68 % of all Swedish exports.

Graph 2.1.6: **Changes in export market share (EMS)**

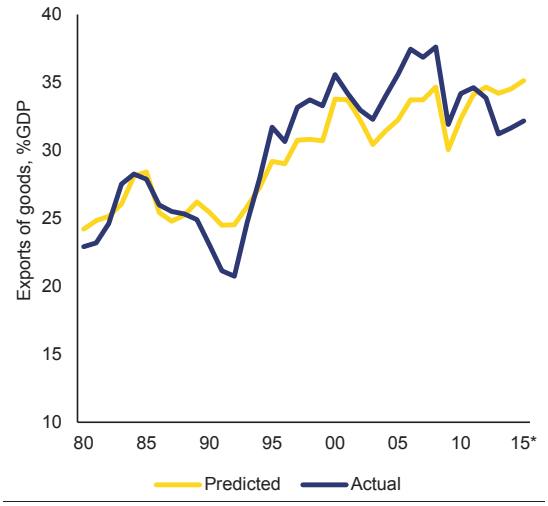


Source: European Commission

When limiting the comparison to advanced economies, the Swedish industry seems to have coped well with globalisation. Taking a long view (Graph 2.1.7) over the past decades Swedish exports have kept up with the average degree of openness in the EU. Since the crisis, exports have been underperforming but it does not seem worrying. It shows some similarity to the situation in the early 1990s but the cause is fundamentally different. Twenty years ago the Swedish industry had an important adjustment pending and the economy as a whole was in the midst of one its worst recessions. Today, instead, the economy is doing well and the weak export recovery can be linked to weak external demand rather than to structural problems in the Swedish industrial sector. This absence of a structural problem is further reinforced looking at Swedish exports from the side of the importers: for the period 1999-2013 Swedish exports have grown roughly at the same rate as the economies of destination markets ([5]).

([5]) See section 2.3.3 and in particular diagram 2.12 in Näringsdepartementet (2015) *Sveriges företagande och konkurrenskraft - Internationell jämförelse,* Näringsdepartementet, Ds 2015:43.

Graph 2.1.7: **Globalisation and increasing openness**

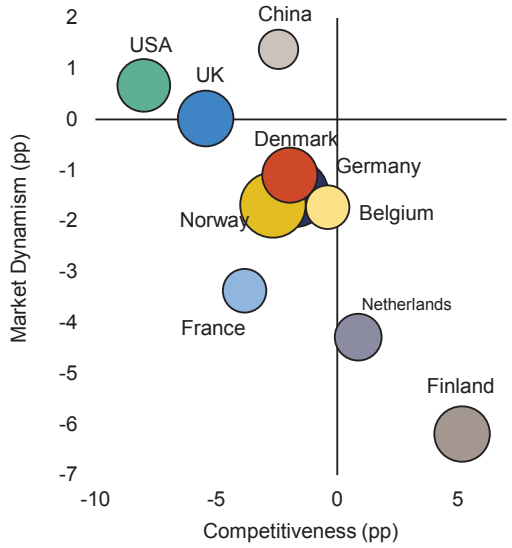


Note: The predicted series show average exports over GDP for main EU countries given the size of the Swedish GDP. Own estimation.
Source: European Commission and own calculations.

Sweden has in fact managed to retain the high-value added segments of the value chain. When focusing on income rather than gross exports (i.e. abstracting from intermediates and foreign value added), the performance of Swedish exports is even better. Over the period 1995-2011 the Swedish economy has kept a constant share of global value chain income, at around 0.8 % of World income and 2.7 % of the EU ([6]). In other words, the loss of market shares seems concentrated in the low-value added parts of production.

([6]) Data from the World Input-Output Database analysed in G.J. De Vries (2014) "*Competing in Global Value Chains. Implications for Jobs and Income in Sweden*," Growth Analysis PM 2014:10.

Graph 2.1.8: **Competitiveness and dynamism in Sweden's top-10 export destinations 2010-2014**



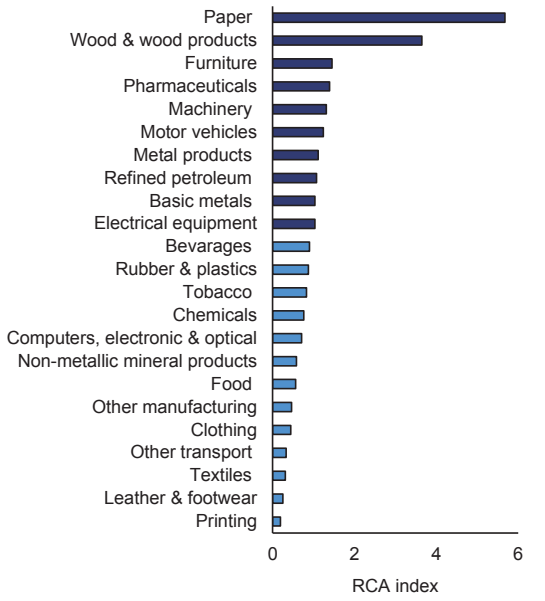
Note: Size of bubbles indicates weight of destination in total exports. Market dynamism compares growth of imports (of that market) and global World imports. Competitiveness compares growth of exports (to that market) and World imports (of that market).
Source: UN COMTRADE database, European Commission

Weakness of foreign demand translates directly in the performance of the Swedish goods export. Swedish firms export mostly to other Member States (around 70 % of total exports). To the extent that the recovery has been quite sluggish in the EU, demand for Swedish products from those countries has been rather weak, as illustrated by Graph 2.1.8. – see also box 2.1.1 on the new export strategy targeting countries with a high growth potential. Sweden also faced deteriorating competitiveness between 2010 and 2014 in most of its main trading partners.

The relatively weak recovery of exports is further exacerbated by the specialisation of Sweden in investment goods, which were particularly negatively affected during the crisis. Beyond the classical forest products (wood and paper), Sweden is specialised in sectors such as machinery, motor vehicles, metal products, and electrical equipment (Graph 2.1.9). Most of these products are typically capital goods. In an environment of high uncertainty and generally low investment, a country specialised in these products is bound to suffer more than average. The relatively good performance of the exports of

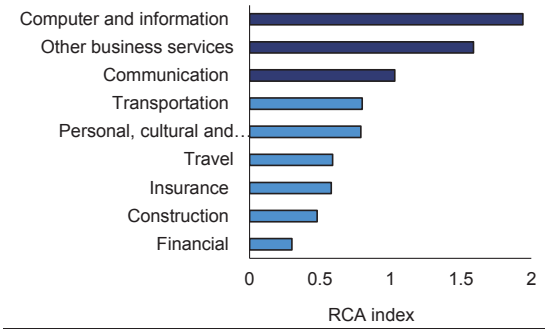
services on the other hand can be linked in turn to the specialisation in dynamic and fast growing service sectors like computers and IT, business services or communication (Graph 2.1.10).

Graph 2.1.9: **Revealed comparative advantage (RCA) in goods' sectors, 2013**



Source: European Commission

Graph 2.1.10: **Revealed comparative advantage in services' sectors, 2013**



Source: European Commission

Finally, the cost-competitiveness of the Swedish economy has improved since 2014. Following three years of significant appreciation, the real effective exchange rate has depreciated by almost 4 % in 2014 and 5 % in 2015, in line with the depreciation of the Swedish krona. At the same time, the increase in unit labour costs has been roughly in line with that of the euro area over the past years.

Non-cost competitiveness

Sweden is at the top of the global value chain, retaining the sophisticated stages of the production process. As noted above, the Swedish share in world income has remained roughly constant since 1995, which implies that it has been successful in retaining the high value added activities.

The Swedish economy is characterised by a highly competitive business environment. International assessments rank Sweden consistently among the world's most competitive economies. Sweden ranks 10th in the Global Competitiveness Report 2014-2015, 8th in the World Bank's Ease of Doing Business report, or 4th in the Transparency International index. However, in terms of regulatory environment, Sweden's performance is less remarkable. According to the latest 2013 data, Sweden ranked 27th out of 45 in the integrated product market regulation indicator of the OECD. According to this indicator, the level of regulatory restrictions in Sweden was roughly at the OECD average.

Sweden's performance in R&D and innovation is particularly strong. At 3.16 % in 2014, Sweden displays the second highest R&D intensity in the EU—even if there are some risks associated with offshoring, as discussed in section 3.3 below. Sweden ranks first among Member States in the Commission's composite indicator of innovation output, showing a strong performance in three of the four indicator components (namely, in patents, employment in knowledge-intensive activities and employment in fast-growing firms of innovative sectors). The share of high-tech products in exports, a factor which is also considered in the composite indicator, has been broadly stable at 14 % since 2001. This figure is similar to that of the largest EU economies (Germany, France and the UK) and higher than that of the other EU Nordics (Denmark and Finland). Sweden is, likewise, the highest ranking member state in the Commission's Innovation Union scoreboard, heading a group of four Member States deemed as innovation leaders.

Outlook

The current account surplus has stabilised at around 6 % of GDP and is foreseen to remain in sizeable surplus in the medium- to long-term. The persistent high saving rate is the main factor behind the current account surplus while investments do not seem to be hampered, remaining at high level compared to peer countries. The composition, however, has been changing. The accumulation of surpluses in the past has reversed the sign of the balance of investment income to become positive today. This has allowed the economy as a whole to import relatively more goods, reducing net exports, even with a stable saving rate. Current transfers are likely to have an increasing albeit modest dampening effect.

The export market share has declined, but the sluggish recovery of exports is likely to be a temporary phenomenon linked to poor economic conditions in major trade partners and the Swedish specialisation in investment goods as in other mature economies. The export market share for Sweden is foreseen to further decline and largely depends on the overall development of world trade and the economic situation in the main trading partners. The Swedish economy remains highly competitive supported by a high R&D intensity.

Within exports, the increasing importance of services stands out. The disappointing short-term behaviour of exports of goods is likely to be a temporary phenomenon that is likely to reverse when growth and investment picks up in Sweden's export markets. Moreover, it is partly compensated by the increase in export market share in services. This is likely to become a trend and continue to improve given the apparent specialisation of the Swedish economy in innovative services sectors.

Box 2.1.1: A new export strategy

In September 2015 the Ministry for Enterprise and Innovation launched the "*Sveriges exportstrategi*", Sweden's new export strategy for jobs and growth ([1]). The new strategy is at least partially motivated by the sluggish recovery of exports after the 2009 contraction, in turn deemed to be caused by the poor economic performance of the EU, the main destination of Swedish exports. The new strategy aims to help Swedish firms reach new markets. The emphasis is on giving information to potential exporters as well as support on the spot in countries with a high growth potential. Ultimately it is intended to gain a first-mover advantage in areas in which Sweden has a comparative advantage and where demand is foreseen to grow fast in the near future: urbanisation, digitisation, energy conversion, waste management, electrification, ageing populations, etc. The strategy is not only looking outwards but seeking to attract more tourism and investment from abroad.

The main instrument to achieve these goals is "Team Sweden", a chapeau structure that will centralize for exporting firms all mobilized resources from the administration at home and abroad. The strategy turns around a number of specific actions. Team Sweden will try to capitalize on the good image of the country abroad and, as partner countries develop, make the transition from aid to trade; it will put the emphasis in human capital fostering mobility of workers but also: attracting talent to Sweden simplifying procedures to study, research or work in Sweden; create export centres with staff on the ground to help deal with the specificities of the area; it will map barriers to trade in order to address them via diplomatic action.

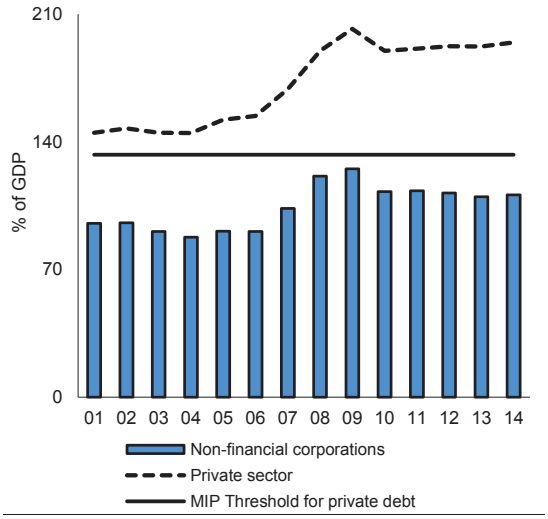
In general the strategy points to a number of interesting areas, in which public action may help coordinate the different actors involved, alleviate asymmetric information or simply capitalize on resources that are already in place, like the diplomatic network. In other areas it is less clear what is the market failure addressed by some of the actions. For instance, it is difficult to see how access to finance could be a problem to Swedish exports. In the absence of more details it may be worth recalling that, even if financial support measures comply with EU State aid Rules, the idea to subsidize exports is debated ([2]).

([1]) Sveriges exportstrategi, Regeringskansliet, 2015.
([2]) See for instance the arguments reviewed in Eliasson, K., Hansson, P. and Lindvert, M. (2010) "Är exportfrämjandet motiverat?," Ekonomisk debatt, Vol. 38, No 1, 31-45.

2.2. PRIVATE INDEBTEDNESS

Private debt ([7]) has been steadily increasing since 2011 and remains one of the highest in the EU. The private debt-to-GDP ratio rose to 194.4 % as of the end of 2014 from 192.4 % a year earlier, exceeding significantly the indicative threshold of 133 % (Graph 2.2.1). A large part of the private debt is financed from abroad, as the net external debt is reported at 54.3 % of GDP at the end of 2014. This ratio has declined somewhat since the peak of 66.2 % in 2008 but remains well above the average for the EU. A large part of the net external debt is matched by a positive stock of investments abroad resulting into a broadly balanced net international investment position. About 70% of the private debt is channelled through bank credits to households and companies and financing to both sectors is rising faster than GDP. The developments in household and corporate debt will be analysed separately in this section.

Graph 2.2.1: **Private sector debt**

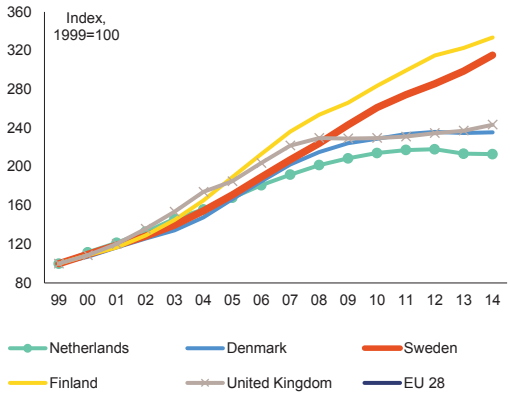


Source: Sweden's Statistical Office

Household debt

Household debt in Sweden is high and growing at one of the fastest rates in the EU over the past ten years (Graph 2.2.2). In nominal terms, Sweden's household debt increased by 5.7 % in 2014 and accelerated further to 6.5 % year-on-year as of June 2015. Although this growth is to a large extent driven by an increasing population and additional housing needs arising from migration flows, both to and within the country, it is outpacing the rate of income growth and entails certain economic risks.

Graph 2.2.2: **Household debt growth (1999=100)**



Source: European Commission

Household debt to annual disposable income increased to 175 % as of mid-2015 according to Riksbank estimates. In relation to GDP, household debt widened from 85.9 % at the end of 2013 to 86.9 % at end 2014 and 87.2 % as of mid-2015. While household debt in most of the other Member States reached a peak shortly after the global financial crisis in 2008 – for instance, Denmark and the UK in 2009 and the Netherlands in 2010 – the ratio in Sweden is still growing (Graph 2.2.3).

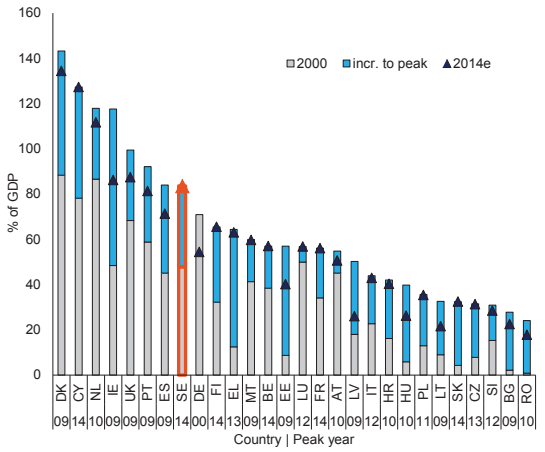
Credits to Swedish households on average have very long maturities. The average contractual maturity of mortgage credits is estimated at about 50 years. In many cases, households are restructuring the loans to extend the repayment periods, bringing the average effective maturity to over 70 years.

Most of the loans (63 %) bear variable interest rates and therefore risks related to interest rate movements are largely transferred to the household sector. Overall, the combination of high household debt, long maturity and variable interest rates creates significant risks for the future cash flows of households and limited deleveraging capacity in case of shocks. The debt burden is tilted towards younger households and the long duration of loans creates risks of further

([7]) Private debt in this chapter is analysed on consolidated basis only for the purpose of excluding double-counting effects linked to intra-group loans.

intergenerational debt transfers to them in case of inherited liabilities.

Graph 2.2.3: **Household debt change since 2000 to peak**

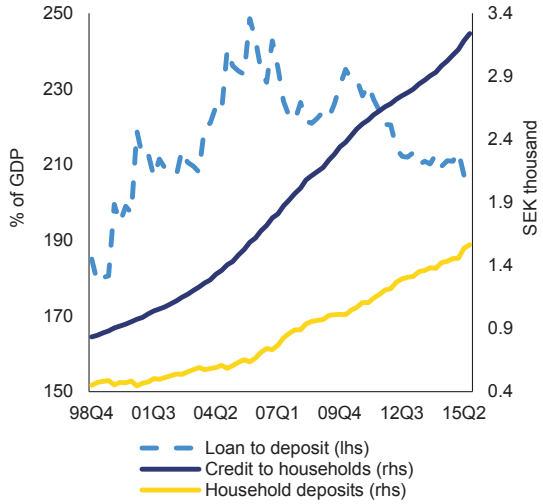


Source: European Commission

Risks are mitigated by the very low share of non-performing household loans (less than 1 %), partly explained by the good compliance culture of debtors. Risks are also partly mitigated by the strong asset side of households and the high savings rate. The financial wealth of households is estimated at roughly three times their liabilities. However, a large part of the assets are exposed to market risks and/or liquidity constraints. For instance, households' direct holdings of shares account for about 35 % of their total wealth. Furthermore, about 38 % of the financial assets are held in pension funds and 8 % in life insurance instruments. Pension funds are accessible only upon retirement and mostly through monthly instalments. In addition, about 18 % of the assets of pension funds are held in equities and about 69 % in bonds according to OECD estimates. As most of the financial wealth is held by older generations, the underlying market risk is also having certain intergenerational implications.

Bank deposits of households, which are the low-risk and liquid part of household assets, account for only 13 % of the household financial wealth and are well below the stock of bank credits to households. On the other hand, deposits have been on the rise recently and the loan-to-deposit ratio has declined, albeit from high levels (Graph 2.2.4). Credits to households depend to a large extent on external financing, as the net foreign asset value in the bank sector is negative at 40 % of GDP at the end of 2014, widening from 36 % at the end of 2011.

Graph 2.2.4: **Bank exposure to households**



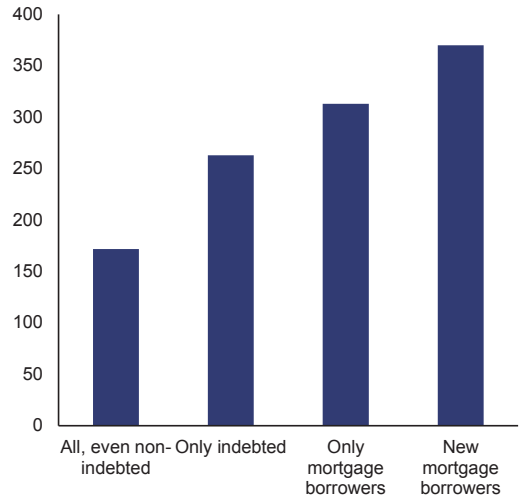
Source: Sweden's Statistical Office

Micro-analysis indicates that household debt is unevenly distributed. The debt-to-income ratio in the lowest income decile is around 560 % and is substantially higher in comparison with the other income groups ([8]) though it has dropped from more than 600 % in 2010. For new mortgage borrowers, the ratio is estimated at about 370 % ([9]) as reflected in Graph 2.2.5. The debt-to-income ratio for households with a mortgage reached 317 % in mid-2015 as compared to 315 % a year earlier. About 12 % of the mortgage borrowers have debt-to-income ratios of more than 600%. The distribution among age groups is also quite uneven with younger borrowers facing much larger debt service relative to their incomes. Borrowers in the age groups of up to 35 years are estimated to have the highest debt-to-income ratios of about 500 % while the lowest ratio of about 250 % is estimated for the oldest age group (above 76 years).

([8]) Winstrand, Jakob and Ölcer, Dilan (2014), *How indebted are the Swedish households?* Economic Commentary no. 1, 2014. Sveriges Riksbank.

([9]) Financial Supervisory Authority: "*The Swedish Mortgage Market 2014*", 2014.

Graph 2.2.5: **Debt-to-income ratio for different groups (%)**



Source: Riksbank

A comparative study of the Commission ([10]) puts Sweden among the Member States with the highest potential need for deleveraging. The pace and mode of potential adjustment however can be smooth and accommodative, reflecting the strength of the economy and the sound state of the financial sector (for the latter, see Section 2.3). Given existing risk-mitigating factors, a potential adjustment could be mostly driven by nominal economic growth and appropriate policy measures to contain credit growth.

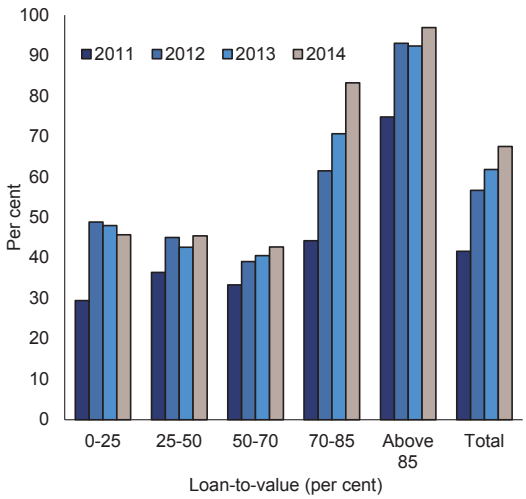
Incentives to take debt are still strong

Even though credit flows moderated somewhat since 2010, they accelerated again in 2015 and still outpace nominal GDP growth and disposable income. Several factors lie behind the continuous increase in household indebtedness, including both fundamentals and debt-biased policy measures. Firstly, the continuous increase in housing prices -fuelled by housing supply constraints over the past two decades has led to larger mortgage loans (see Section 2.3). Secondly, generous tax deductibility options for interest payments create a debt-bias incentive for home ownership and purchases of consumer goods and (financial) assets. Low and in many cases regressive recurrent taxation on real estate encourages investments in more expensive properties. Furthermore, the existing design of the transaction tax on capital gains from sales of real estate limits the potential for more efficient use of the existing housing stock. Finally, low interest rates and favourable credit conditions make mortgages more affordable. Moreover, the possibility to take unsecured loans on top of the 85 % loan-to-value cap increases the credit growth potential although the share of unsecured loans is reportedly small. In addition, low amortisation requirements and very long repayment periods favour a growing stock of debt.

Policy response remains limited

Policy responses have mainly focused on macro-prudential measures so far. Several measures have been adopted to contain the demand for credit, promote amortisation and strengthen the banks' resilience. An 85 % loan-to-value cap was introduced by the Financial Supervisory Authority in 2010. As a result, the share of new loans with a loan-to-value above 85 % has decreased from 11.5 % in 2011 to 8.6 % in 2014 and consequently the share of amortisation in the total mortgage portfolio has increased (Graph 2.2.6).

Graph 2.2.6: **Share of amortising households**



Source: Financial Supervisory Authority (FSA)

In February 2016, the government submitted to the parliament draft legislation aimed at imposing mandatory amortisation requirements

([10]) *IDR Macroeconomic imbalances - Sweden* 2014, European Economy, Occasional Papers **186**, March 2014.

on new mortgage loans. The proposal is expected to come into force as of 1 June 2016 if supported by the parliament. The requirement has been initially proposed by the Financial Supervisory Authority but legal issues have significantly slowed the process ([11]). The government plan stipulates that new mortgage loans should be amortised by at least 2 % per year down to 70 % of the property value and by at least 1 % if the share is between 50 % and 70 %. At the same time, some soft rules are already contributing to higher amortisation rates. This refers to individual amortisation plans applied by banks since July 2014 following an initiative by the Financial Supervisory Authority and the Swedish Bankers' Association. The objective of these plans is to raise the awareness on the debt burden as banks are required to illustrate the long-term impact of the loan on customers' finances. This measure, together with the enhanced public debate on amortisation, seems to have incentivised new borrowers to apply an amortisation plan. However, these plans are voluntary and households have the right to interrupt amortisation. For the moment, not all new loans are amortised and for those with an loan-to-value of 70 % to 85%, the annual amortisation is estimated at only 1.6 % of the loan, which is below the requirement envisaged in the draft legislation.

A government regulation on fairer rules for mortgage repayment entered into force in July 2014, but it has only a limited and indirect impact on debt amortisation. The regulation aims at facilitating the possibility for repaying fixed-rate mortgages or to switch banks. From a financial stability perspective, this measure restricts banks' options to transfer market risks to the household sector. However, this has no direct impact on amortisation requirements and can only be seen as a soft measure. Several other measures have been implemented regarding banks' resilience (Section 2.4) and housing supply (Section 2.3).

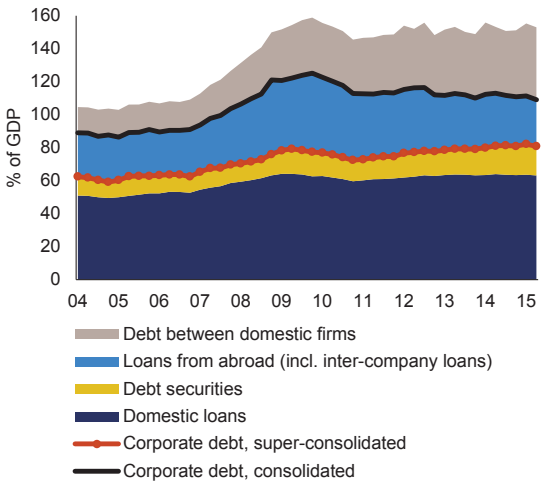
([11]) In November 2014, the Financial Supervisory Authority announced a draft regulation on amortisation on new loans. However, the Administrative Court of Appeal in Jönköping issued an opinion that the Financial Supervisory Authority does not have the legal base to impose compulsory amortisation. The legislative initiative was then transferred to the government and had to pass through additional court reviews to overcome potential issues with the constitutionality of the measures. In December 2015 the Council on Legislation (Lagrådet) deemed the proposal to be constitutional.

In contrast to Sweden, several other Member States facing high debt burden have taken measures to limit tax deductibility or to increase recurrent property taxation. For instance, Spain and Ireland removed interest relief entirely for new mortgages from 2013, while Denmark, Finland and the Netherlands (Box 2.2.1) limited deductibility.

Corporate Debt

Consolidated debt of non-financial corporations has remained broadly stable at around 110 % of GDP over the last four years. This ratio is still far above the euro area average estimated at 80% of GDP at the end of 2014. On a non-consolidated basis, taking financing between domestic firms into account, corporate debt in Sweden reached 151 % of GDP (Graph 2.2.7) which is the fifth highest in the EU (average of 110 %). Since the peak in 2009, corporate debt has contracted by about 14 % of GDP with the main decrease taking place in 2010. Since then, the debt level has remained nearly unchanged. Valuation changes, debt write-downs or restructuring have partly offset the deleveraging process since 2009.

Graph 2.2.7: **Decomposition of corporate debt**

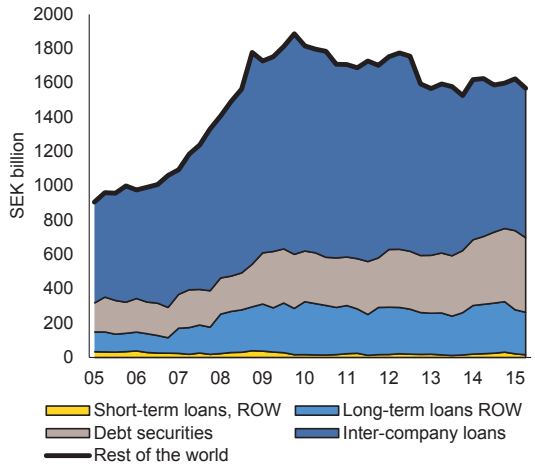


Source: Sweden's Statistical Office

Financing from abroad, especially via inter-company loans, has been an important financing source for firms. Loans from abroad

peaked to 48 % of GDP as of the end of 2009 which represented roughly one third of the corporate debt. The ratio however dropped slightly afterwards. Domestic loans, mostly by financial corporations, remained rather stable at around 60 % of GDP.

Graph 2.2.8: **Liabilities to rest of the world (ROW)**

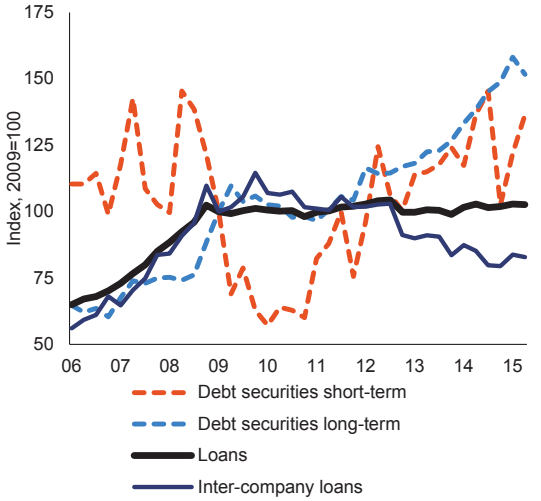


Source: Sweden's Statistical Office

Inter-company loans are associated with lower risks than other forms of borrowing. Firms might have used their Swedish and foreign subsidiaries for liquidity management, tax planning or as an access point for issuing securities on the international capital market. As an example, firms have reportedly financed their Swedish subsidiaries with interest bearing loans in order to deduct interest payments from their tax liabilities. Therefore, Swedish authorities reduced tax deductibility of intra-group interest expenses along with a decrease in the corporate income tax from 26.3 % to 22 % in 2013. As a result of these changes, inter-company loans from abroad diminished by 24 % of GDP between 2012 and 2015 (Graph 2.2.8). However, this has so far no sizeable impact on the overall debt level of firms, as the intra-company loans have seemingly been replaced by intra-sector funding and debt issuance.

In recent years, the market for debt securities has grown significantly. During the financial crisis, firms reported difficulties in accessing bank funding or increasing costs with bank loans. In the current environment of low interest rates, debt securities have become more attractive. Since 2011, firms have increasingly been using the corporate bond market as an alternative source for financing and investment (Graph 2.2.9). The stock of debt securities rose from 15 % of GDP in 2011 to 21 % of GDP in 2015. This increase could also be explained by a lower risk perception of market participants. Short-term debt securities seemed to be used as emergency financing during years of financial turbulences (1999, 2000, 2007-2008). Although loans are still a more important source of corporate financing, their share in total debt has been contracting due mainly to the reduced use of inter-company loans.

Graph 2.2.9: **Annual growth in loan-based funding**



Source: Sweden's Statistical Office

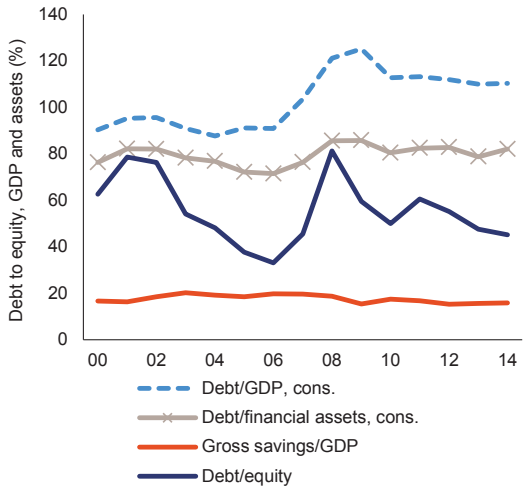
Financing on the bond market could make firms more exposed to volatility and stress in the financial markets. More than 50 % of investors have foreign roots stemming mainly from the United States, Luxembourg and the United Kingdom ([12]). These foreign investors, however, might recall their investment rapidly in times of economic downturn than domestic investors. Additionally, an increasing share of funds is invested in volumes of sources with "no official credit rating" ([13]) (48 % of issue volumes beginning of 2015) and therefore information on the actual risk situation is lacking. It would be

([12]) This might also be related to the financial centres in these countries – investors use the financial market place as a hub for issuing bonds.

([13]) Credit ratings by S&P, Moody's or Fitch are referred to as *official* ratings.

beneficial for market participants to improve transparency and information access. However, the exchange rate risk could be somewhat limited since the currency composition of Swedish companies' debt securities shows a strong preference for the Swedish krona. Although the number of issuing companies and sectors using corporate bonds is increasing, the market is relatively concentrated. In 2014, large property companies (42 %) and automotive companies (28 %) were dominating the market. These large companies might be affected when foreign investors would no longer fund or refinance their outstanding bonds.

Graph 2.2.10: **Leverage indicators for non-financial corporations**



Source: Sweden's Statistical Office

Despite high debt levels, Swedish corporates are in a relatively healthy financial position taking other leverage indicators into account. The ratio of *debt to financial assets* (80 %) is relatively high compared with the euro area (70 %) but has been broadly stable during the last years (Graph 2.2.10). On the other hand, the *debt to equity ratio* (45 %) is below the euro area average (66 %) and has been steadily decreasing over the last years. Additionally, gross savings of non-financial corporations are at 15 % of GDP (12 % of GDP for the euro area) which shows that firms' profits are sufficiently high to mitigate risks of financial distress.

Overall, private debt in Sweden is high and still growing due to a combination of structural factors, fiscal incentives, and favourable lending conditions. As regards household debt, the underlying risks are further exacerbated by the very long maturity of credits and the large share of variable interest rates. Rising housing prices, substantial tax subsidies, low amortisation rates and historically low level of interest rates are fuelling the rise in indebtedness. Even if households' assets are high at aggregate level, they are exposed to market risks and liquidity constraints. Furthermore, both assets and liabilities are unevenly distributed over generations. Measures regarding amortisation are taking longer than expected to be enforced and the debt-bias in taxation, particularly the tax deductibility of mortgage interests, has not been tackled so far. Although corporate debt is at a high level and decreasing only slowly, the financial situation of firms is not of immediate concern.

Box 2.2.1: Interest deductibility reforms in the EU

Several EU Member States recently undertook reforms to reduce the tax subsidy to mortgage debt. Denmark, Finland and the Netherlands are gradually reducing interest relief. Spain and Ireland abolished interest relief for new mortgages in 2013. Greece did so for all mortgages in the same year. Portugal abolished the relief for new loans in 2012, France in 2011, Lithuania in 2009, and Poland in 2007. In the UK, mortgage interest tax relief was completely abolished in 2000 after several reductions of the ceiling and the rate throughout the preceding 26 years.

Sweden: Consistent with the principles of dual income tax, all interest paid reduces the capital tax base. Capital income is taxed at a flat rate of 30%. In the case of capital losses (i.e. capital income is negative, the taxpayer benefits from a credit against the tax liability on labour income (taxed at progressive rates). The tax credit rate is 30% for losses up to SEK 100,000, and 21% for losses exceeding this amount. So far, Sweden has not initiated any reforms concerning interest deductibility in the area of personal income taxation.

Denmark: Interest payments are deductible from capital income. The marginal rate has been reduced from up to 73% in 1987 to about 33% in 2002. The tax value of an interest deduction which exceeds DKK 50,000 for singles (DKK 100,000 for married couples) is gradually reduced from 33.5% to 25.5% by 1% per year from 2012 until 2019.

Finland: Under the Finnish dual income tax system, interest paid on a mortgage taken out to acquire (or substantially renovate) the main residence is deductible against positive capital income (taxed at 30%). As of January 2012, the deduction is only partial. 2014 has seen a reduction of the deductible fractions. Currently the deductible fraction of mortgage interest is at 65% for 2015, 60% for 2016, 55% for 2017, and 50% for 2018. The government's budget proposal for 2016 foresees another reduction which would lead to 55% in 2016, 45% in 2017, 35% in 2018, and 25% in 2019. Negative net capital income gives rise to a credit against the tax liability on earned income at a rate of 32% for losses linked to the taxpayer dwelling. The deduction is capped at EUR 1,400 per taxpayer, plus EUR 400 for one child, and EUR 800 for two or more children.

Netherlands: Interest payments on loans for the purchase of owner-occupied dwellings taken out as of 1 January 2013 can be deducted from aggregate income in the relevant category only if they are fully repaid within a maximum of 30 years. Before 2013, the deductibility was not conditioned on amortisation of the loan. Moreover, as of 2014, the rate at which mortgage interests can be deducted in the highest income tax bracket is reduced by 0.5 points each year over a 28-year period, from 51.5% to 38% in 2031.

Belgium: As of January 2015, housing tax policy was transferred to the regions. For loans concluded as of 1 January 2015, the three regions maintained the structure of the instrument, but the reduction is no longer given at the taxpayer marginal tax rate but at a fixed rate. In Flanders and Wallonia, this rate will be 40%, while in the Brussels Capital Region it will be 45%. The maximum qualifying amount will drop from EUR 2,280 to EUR 1,520 in Flanders and will not be indexed. In the other regions, the previous maximum qualifying amount of EUR 2,290 remains in place. The additional amount of EUR 760 for the first 10 years will be kept in all three regions.

Estonia: The ceiling for the overall limit on the tax deduction granted for mortgage interest, education, donations and gifts will be reduced from EUR 1,920 to EUR 1,200 from 1 January 2016. The ceiling was already reduced in 2013 from the previous level of EUR 3,196.

Austria: There are no special rules for mortgage interest, but annuities for repayment and for interest on loans for the construction or renovation of residential buildings or condominiums have been deductible as special expenses up to a maximum value of EUR 2,920 (or EUR 5,840 for sole earners). This will be abolished in the course of the 2016 tax reform with transitional provisions being in place until 2020.

2.3. HOUSING MARKET

Housing market developments

House prices in Sweden have been growing almost uninterruptedly over the last 20 years: real house prices doubled during this period and surged by almost 40 % since 2008. The growth has been accelerating since late 2011. While real house prices grew at an average rate of 4.7 % in 2013 and 8.5 % in 2014, they further accelerated to 13.7 % in Q3 2015 compared to the previous year. The growth rate in 2015 was the steepest among EU Member States and historically one of highest in Sweden except for a short period of 2006-2007, when housing tax reforms triggered temporary surge in property prices.

The current house price cycle in Sweden has been quite different from other EU countries. While most EU countries experienced significant adjustment in real estate prices during the last decade, Sweden falls among the small group of EU countries, where house prices have not gone through a major correction, have not reached their peak yet and also show no signs of a correction in the short term.

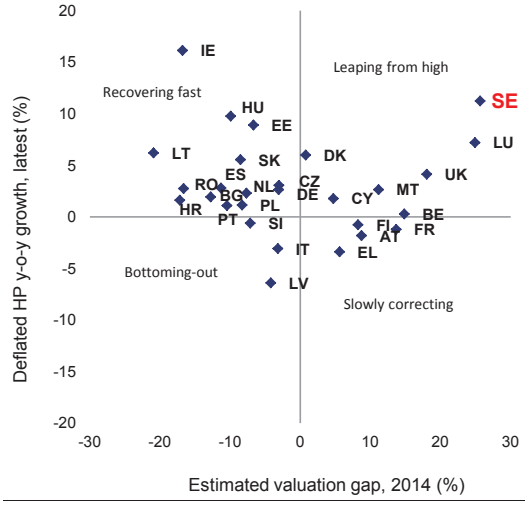
While house prices have gone up all over the country, there are significant regional differences. The metropolitan areas of Stockholm and Göteborg showed the strongest price increase with 100% and 75% respectively since 2004. In other areas the house price developments have been more muted, with 65% increase in prices over the same period in Sweden as whole.

Growing imbalances on the housing market

The analyses provided in previous in-depth reviews have shown that Swedish house prices appear to be above their fundamental values ([14]). They also concluded that strong fundamentals (such as disposable income growth) cannot fully explain these developments: other factors have contributed to the elevated house price growth. While the price to income ratio fluctuated in a small range between 2007 and 2012, it increased from 15 % in 2013 to 37 % by 2015. Similar trends can be observed regarding dividend ratios, measured as price-to-rent. Even if such indicators have limitations ([15]), they corroborate the premise that house price appear to be above their fundamental values and are showing increasing misalignment.

Sweden is one of the most exposed to vulnerabilities on the housing market among EU countries (Graph 2.3.1). Persistent overvaluation of house prices ([16]) coupled with accelerating house price growth, high household indebtedness, high stocks of credit for house purchases, increasing debt-to-income ratios and high leverage in banks all signal elevated risks in this respect.

Graph 2.3.1: **Valuation levels and latest house price growth - Sweden**



Source: European Commission (Eurostat), Bank of International Settlement

Policy measures implemented so far have not curbed the house price increase. Over the past years, several macro-prudential measures have been implemented with the objective to increase

([14]) Macroeconomic imbalances Country Report – Sweden 2015. Occasional Papers 226, June 2015.

([15]) Long term trend lines based on historical averages cannot capture any possible structural shifts (for instance, a change in the cost of home ownership) or altered fundamentals (such as lower mortgage rates or lower taxes) which might justify higher prices than the historical norms. The price to rent ratio can also overestimate valuation gaps in Sweden.

([16]) The aggregate valuation gap is an average of three measures: (1) the affordability gap (price-to-income deviation with respect to its long-term average); (2) the yield gap (price-to-rent deviation from its long-term average); and (3) an estimate of the deviation from equilibrium values from a fundamental error-correction model.

financial stability. These measures only marginally increased the cost or constrained the availability of mortgage loans and thus had only a limited impact on house prices so far. A new macro-prudential measure aiming to curb household indebtedness is the compulsory amortisation of new mortgage loans. This is planned to be introduced from the second half of 2016 (further specified in Section 2.2). Policy measures directly affecting credit demand (such as debt to income requirements) or the housing demand (such as changes in taxation) would have a more significant impact on house price trajectories.

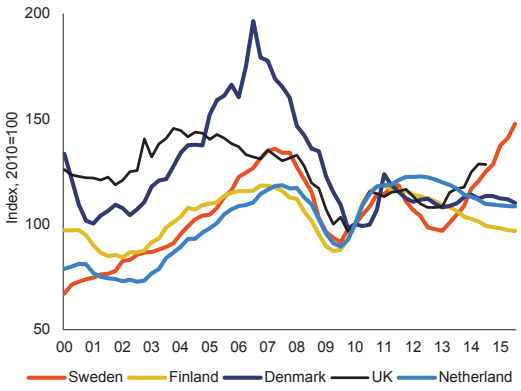
Residential housing construction has been low in Sweden both from historical and from international perspective for a prolonged period as depicted on Graph 2.3.2. While real house price increases have triggered large housing investments in other EU countries, investments to new housing in Sweden remained subdued until recently despite steadily growing demand for housing and rising house prices. This can be partly explained by the large housing stock resulting from significant housing investment until the mid-80s. While Sweden as a whole still might have sufficient housing available at an aggregate level, the available dwellings are not located in geographical areas with the highest demand and are not in line with the type of housing needed.

The number of new dwellings construction has not been sufficient in many regions, in particular in the main urban areas, **despite being profitable to build ([17]).** Stockholm municipality - the most densely populated urban area - has one of the lowest estimated housing supply elasticities in the country and experienced the steepest increase in house prices ([18]).

([17]) Profitability for new construction in the housing market can be related to the relationship between the market price of an existing home and the total construction cost of producing a new, similar home. This ratio is known as Tobin's Q, which has been steadily increasing and has been above 1 since 2003 in Sweden. See for instance Boverket: Analysis of the development of the construction and residential building market with forecast. November 2015.

([18]) IMF: Staff report for the 2014 Article IV consultation on Sweden 2015.

Graph 2.3.2: **Change in residential investment as of % of GDP (2010 Q1=100)**



Source: European Commission (Eurostat)

Surging house prices recently triggered increased construction of new dwellings. From the historically low levels between 2008 and 2012, when on average around 24 000 dwellings were built annually, this number could have increased to 48 000 in 2015 and forecast to increase to 53 500 in 2016 according to Boverket. This year the number of new constructions could be the highest since 1991. More than 70 % of the new construction consists of multi-dwelling buildings and approximately 40 % consist of rental housing.

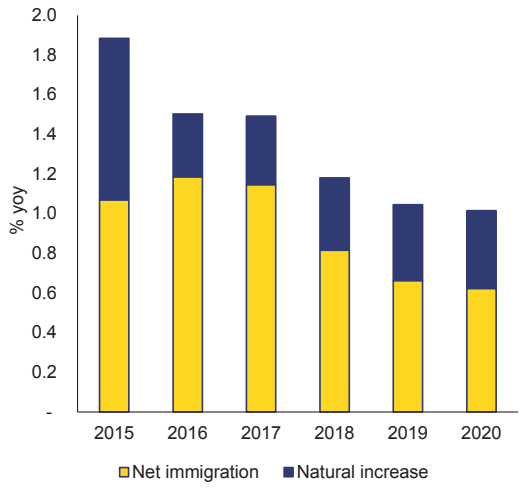
The recent pick-up in construction is not sufficient to address the sharply rising housing demand or to reduce accumulated housing shortage. According to Boverket, 75 000 dwellings need to be completed annually between 2015 and 2020 for the housing supply to keep pace with the demographic developments, three quarters of which in the three metropolitan regions. This would imply that annually more than 7.5 new dwellings per 1 000 inhabitants in the country during the period 2015-2020. Only 17 of the 290 municipalities reached this number in 2014. Housing supply would therefore need to increase substantially to meet surging housing demand.

The shortage of housing is particularly difficult for groups who cannot afford to purchase their own home, such as pensioners, newly arrived migrants, students or single parents. The housing shortage also hampers many companies to recruit relevant staff, according to a recent survey by the Stockholm Chamber of Commerce. There is above all a shortage of rental apartments. 126 out

of 290 municipalities reported having a housing shortage in 2013, with as much as two-thirds of Sweden's population living in municipalities with a shortage primarily concerning rental dwellings.

The lack of adequate housing is exacerbated by the sharply increasing inflow of migrants over recent years. Sweden's population is forecast to increase by over 1.1 million people in the next ten years compared to an increase of 0.7 million increase during the previous decade. Migration is expected to be the primary source of growth (Graph 2.3.3), which poses additional challenges on the housing market.

Graph 2.3.3: **Sweden's population change forecast**



Source: Sweden's Statistical Office

Migration entails a greater need for housing in the short term, compared to a population growth by birth surplus, which makes greater demands in the longer run. According to the Swedish Migration Agency forecast of February 2016, around 160 000 migrants are expected to need permanent housing in 2016 and 2017. Migrants are likely to seek jobs in the main urban areas where employment growth is the highest, putting additional pressure on housing in these areas. High house prices, non-availability of social housing, high requirements or unavailability of rental apartment pose challenge for these people to find proper accommodation and to integrate in the labour market.

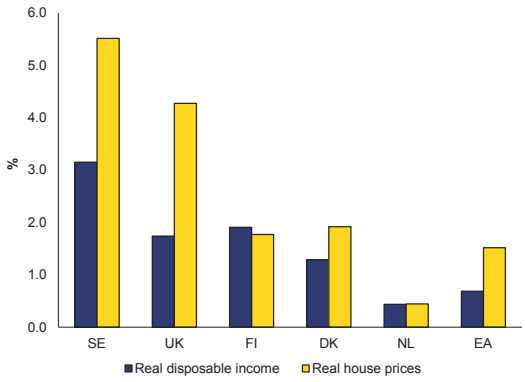
The newly arrived persons' housing needs also likely differ from the average population's needs. As they need more time to establish themselves on the labour market and pay the costs of housing, their housing demand is more concentrated on affordable accommodation and not on purchasing new properties. Therefore the housing demand of these vulnerable groups is expected to have a limited impact on house prices in short term.

Limited availability of affordable housing is a key constraint for the effective integration of migrants into labour market. The current level of increased construction to a large extent consists of expensive multi-dwelling buildings, which does not address the housing needs of those vulnerable groups. Supporting investments in these specific housing segments would likely have a limited impact on house price growth, but it is essential for the long term competitiveness of the country. In the Autumn Budget Bill, the government proposed additional funding (SEK 5.5 billion in 2016 and SEK 6.1 billion annually from 2017) to increase investments in the (rental) housing sector. In order to encourage municipalities to promote new housing further measures were proposed in the Budget Bill for 2016 to stimulate housing production within the municipalities.

Demand side drivers

Strong macroeconomic fundamentals have been boosting house prices. Sweden has experienced a prolonged period of strong rise in disposable incomes fuelled by increasing wages and tax cuts. Real disposable incomes grew on average by 3% per year between 1999 and 2014, but were outpaced by an average house price growth rate of 5.5 % during this period as depicted on Graph 2.3.4.

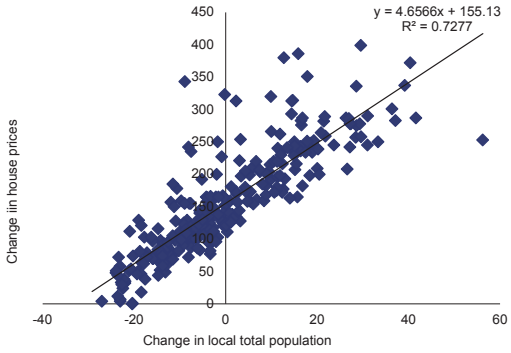
Graph 2.3.4: **Average annual growth rates of real disposable income and real house prices between 1999 and 2014**



Source: Eurostat

There has been a strong correlation between house price growth (one- and two dwelling buildings) and population growth (for age between 15 to 65 years) over the last two decades (Graph 2.3.5). Population growth has also been coupled with strong urbanisation trends. This is particularly the case for the Stockholm metropolitan area, which is one of the fastest growing cities in terms of population in the EU. These developments have a strong upward effect on house prices.

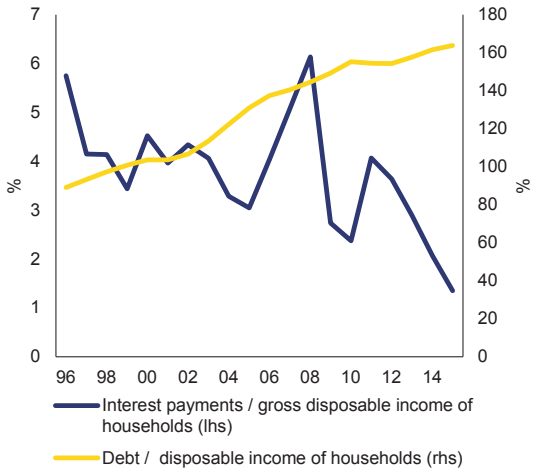
Graph 2.3.5: **Change in house price and population (15-65y) for Swedish municipalities between 1994 and 2014**



Source: Sweden's Statistical Office, European Commission

The low inflation environment and expansionary monetary policy have led to a significant decrease in the mortgage interest rates. Short-term mortgage interest rates have decreased from 2 % in October 2014 to 1½ % a year later. The high share of mortgage loans with variable interest rates is translating lower interest rates to lower monthly payments expanding households' ability to borrow. This is further exacerbated by the absence of formal amortisation requirements. As a result, the interest burden of households continues to fall, despite the increase in household indebtedness as shown on Graph 2.3.6. The lower interest rates have also contributed to the fact that credit growth has outpaced income growth. Long maturities of mortgage loans further increase the households' ability to borrow.

Graph 2.3.6: **Interest burden vs debt per gross disposable income**



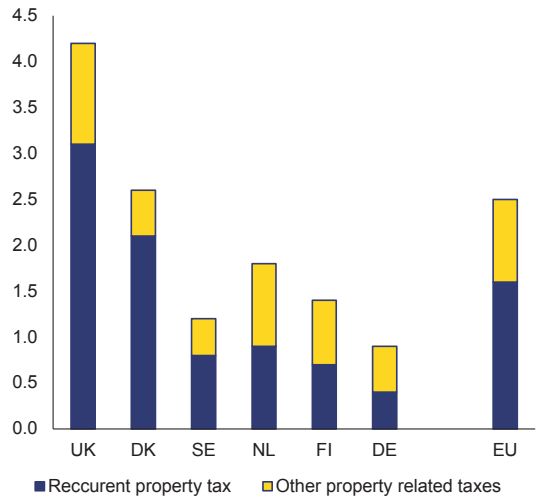
Source: Eurostat, European Commission calculations

Sweden applies one of the highest incentives in the tax system for home ownership in the EU. Taxation of properties in Sweden is below the EU average, contributing around 1.2 % of GDP to tax revenues in 2014 compared to 2.5 % of GDP for the EU average as depicted on Graph 2.3.7([19]). This is linked to a low recurrent property tax, which is capped at a relatively low ceiling and therefore only gains from increasing house prices to a very limited extent. In addition, Sweden provides one of the most generous tax subsidies to mortgage interest payments. By lowering the after-tax cost of debt, tax relief for mortgage interest payments creates a debt bias for households. This also increases income inequality as people at the top of the income distribution benefit more from

([19]) European Commission: Tax Reforms in EU Member States, September 2015.

mortgage interest deductibility as a proportion of their disposable income, than those with low incomes. This is further exacerbated by the regressive character of the recurrent property taxes. A low level of recurrent property taxes combined with a generous mortgage interest deductibility creates a strong incentive towards home ownership and contribute to house price growth.

Graph 2.3.7: **Revenues from property taxes, 2014 (in % of GDP)**



Source: European Commission (Eurostat)

Supply side challenges: better use of the existing housing stock

Sub-optimal use of the existing housing stock is pointed out as one of the main reason for the housing shortage in Sweden further bolstering house price increases. New constructions add marginally to the existing housing stock (approximately 1 % annually), which is not sufficient to meet current demand or to reduce the accumulated housing deficit. By contrast, Sweden has a relatively large housing stock by historical standards and compared to other countries. For this reason, possibilities for a better use of the existing housing stock could reduce the accumulated housing shortage.

The Swedish rental market in certain areas is characterised by growing structural inefficiencies, in particular in dynamically growing urban areas. Inefficiencies are primarily linked to the rent setting system. Sweden is characterised by the highest levels of rent control among the Member States ([20]).While the rent setting system leads to market price equivalent rental prices in some regions (such as the Malmö region), in other areas a significant gap has opened up (such as the Stockholm region). Relatively low rental prices incentivise conversion of rental units to owner-occupied dwellings which allows for a higher financial return and further exacerbating affordable housing shortage. Unavailability of rental housing also fuels demand for owner-occupied houses and thus house prices.

In order to increase the supply of rental houses, several policy measures have been taken to ease the conditions for subletting rental unit or tenant-owned apartments. As a result, the supply of sublet apartments increased significantly in Stockholm in 2013, but that still only concerns limited portion of the housing stock. Nevertheless, subletting remains constrained because is subject to the agreement of the tenant-owners' association of each building. In addition, rental prices cannot be set freely and remain uncertain due to possible litigation by tenants.

More market oriented rental prices would likely increase the supply of rental apartments. In addition, easing the condition of subletting would make more tenant-owned apartments available for rent. Simulating the impact of such rental market reforms with the Commission's QUEST model([21]) shows that if due to such reforms (i.e. more market oriented rental prices) the housing stock could increase by 5 %, this could result in 8.5 % more housing investment and 6 % less house price increase in the next five years compared to the baseline.

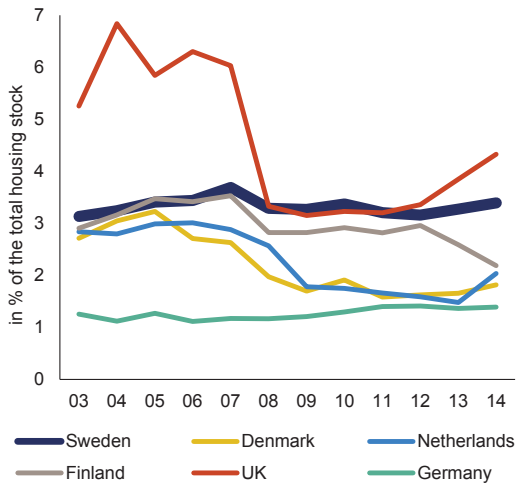
Providing incentives for more property transactions would lead to higher mobility and thus better utilisation of the existing housing stock. Following the 2008 tax reforms, recurrent property taxes have decreased sharply (leading to strong tax bias favouring home ownership), while capital gains taxes have been changed resulting in

([20]) Carlos Cuerpo, Sona Kalantaryan, Peter Pontuch: Rental Market Regulation in the European Union, April 2014.

([21]) QUEST is a structural macro-model in the New-Keynesian tradition with microeconomic foundations derived from utility and profit optimisation and including frictions in goods, labour and financial markets.

higher taxes paid by the seller of the real estate (22 % of the capital gains). In order to promote transactions, capital gains tax can be postponed on condition that the price of the newly bought dwelling is the same or higher than the one sold. The amount to be postponed is capped at SEK 1.45 million and the postponed amount is taxed annually by 0.5 %. The number of housing transactions per dwellings in Sweden is above those of peer countries as shown on Graph 2.3.7. Nevertheless, the current capital gains tax system discourages certain housing transactions, for instance people moving to a less expensive property. Typically people in their retirement age who accumulated large capital gains through their housing are discouraged to move to smaller, cheaper housing.

Graph 2.3.8: **Housing transactions per dwelling stock**



Source: European Commission

Supply side challenges: structural inefficiencies holding back new constructions

Availability of land is a key constraint for new construction. The increase of construction activity is dependent on the availability of land for development. However, the supply of land for building has not increased at the same pace as demand for land to construct. First, although a significant proportion of the land eligible for construction is owned by the municipalities, they do not always have sufficient incentives to make land available for construction. Secondly, the sale of land for construction is not always conducted in a transparent manner. Insider knowledge on staff and procedures of local communes is often required to be a contender for buying building plots. Thirdly, complex and cumbersome planning and zoning procedures delay to bring zoned land (ready for construction) available to market. Fourthly, the value of the land is increasing at a higher pace than the value of new housing. Therefore large construction companies owning land to develop can have an incentive to initiate only limited new constructions and rather capitalising on rising land prices. Moreover, if a construction company does not start developing a zoned land during the executions time, it typically faces no sanctions ([22]).

Public infrastructure projects can positively impact land supply in the medium term. Expansion of regional and local infrastructure is a way to connect new areas to the cities, expanding available land and thus possible housing supply, while easing price pressure on urban centres. Taking a wider regional perspective across municipalities and improved incorporation of housing aspects when designing infrastructure projects typically helps to increase available land for housing development. The government has already launched several initiatives to foster infrastructure investments in cooperation with municipalities, including the City Environment Agreements (Stadsmiljöavtal) and National Negotiation on Housing and Infrastructure (Sverigeförhandlingen), although the approach followed towards (public) transport infrastructure does still not appear fully structured and holistic. According to the Commission's QUEST model, 5% increase in the stock of available land, for instance as a result of better public infrastructure connection, would result in at least 3% higher housing investment in Sweden over a five year period. The impact is expected to be much higher in the Stockholm area, where the availability of land is a key issue.

Lengthy, complex planning process combined with different standards and requirements for dwellings across the country can hinder investment in dwellings. Several policy measures have been implemented aiming further simplifications and speeding up in these areas.

([22]) See for instance Swedish Competition Authority: Buildable land? A key resource in building. June 2015.

During 2015, a government bill was submitted to the Parliament including a number of changes in existing laws with the aim of making the planning and building process more efficient, to improve regulations of noise in the vicinity of planned housing. The bill has been approved by the Parliament and the proposed changes have entered into force on 1 January 2016. In November 2015 a government bill concerning a shorter chain of appellation for detailed plans and area regulations was submitted to the Parliament for approval. The implemented measures over the last years have significantly reduced the amount of time needed for approval of new construction from the initial 8-10 years to 5-6 years, which is, however, still longer than the average of three years in Germany for example. A government inquiry has been commissioned to study and propose measures aimed at increasing municipal planning for housing construction and the number of municipal land allocation, the results of which published on 31 December 2015 paving the way for further simplification in this area.

The Swedish construction sector is characterised by weak competition. Entry barriers on the market are high as the ownership of land is highly dispersed, exclusive contacts with local authorities are required and there are complex and diverging building requirements across the country. The participation of foreign companies is typically limited for infrastructure projects tenders, while housing constructions tenders are typically left to a limited number of domestic companies. The construction sector is dominated by four large, vertically integrated companies, whereof the three biggest account for half of the turnover in the industry. A commission has been assigned to investigate proposals to improve competition in the construction and building materials sectors. The commission delivered its report on 15 December 2015 ([23]). Apart from improvements in the planning processes and more transparency for municipal land sales, the inquiry calls for a national strategy to allow the construction of approved model multiple family-dwellings. Increased competition simulated with the Commission's QUEST model through for instance 10 % decrease in the cost of construction services would increase housing investments by around 5-6 % over a five year period.

Municipalities do not have sufficient (financial) incentives to support construction activities. Their tax revenues increase, if at all, only moderately and in the mid-term. The existing municipal equalisation scheme is expected to reduce long term gains from additional population growth. At the same time, increased residential construction would entail public infrastructure investments to be financed by the municipalities, such as schools, health care facilities and physical infrastructure. Nevertheless, municipalities are the key actors in all parts of the building process, who have the sufficient means to support or hinder building by for instance allocating land for construction, speed up planning and zoning process or invest in transport infrastructure. Therefore municipalities' incentives to support new constructions are key to ensure additional house supply.

Overall, the current drivers of house prices are expected to remain in place in the short- and medium term driving house prices further upwards. In the short term, policy changes on the demand side (for instance by revising the high level of tax incentives for housing) would have an impact on house price developments. In the medium term, better use of the existing stock (for instance by rental market reforms and increased housing transactions) would impact house price increases and help to reduce the accumulated housing shortage. Policy gaps are still present when it comes to ensure that new housing construction meets housing demand, and in particular regarding availability of land, complex planning and building regulations, lack of sufficient incentives for municipalities to support new constructions, public infrastructure design or weak competition in the construction sector.

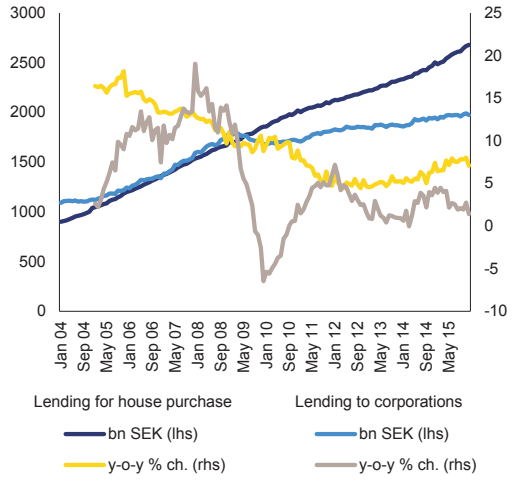
([23]) Increased competition to build more (Plats för fler som bygger mer). SUO 2015:105.

2.4. BANKING SECTOR

Recent developments

Swedish banks dominate the Nordic-Baltic financial market. Subsidiaries and branches of the Swedish banking groups hold the majority of the market in Lithuania, Latvia, Estonia and Finland. They also have substantial market shares in Denmark and Norway. At the same time, exposure of those banking groups to the Swedish mortgages has been growing in recent years against the background of strongly increasing house prices. These two characteristics create the risk of potential spill-overs involving the Swedish banking sector. If the Swedish house prices collapsed, the problems with domestic mortgages would cause restriction of credit to the Swedish economy but also to the other economies of the region. These two potential mechanisms are analysed in this section. Yet, judged by the standard financial stability indicators, the Swedish banking sector is currently sound.

Graph 2.4.1: **Lending to the private sector**



Source: European Central Bank

Loans constitute the majority of the Swedish banking assets. The structure of lending to the private sector becomes increasingly household-biased, supporting the trend of growing private indebtedness (see Chapter 2.2). Mortgage loans amount to 23 % of the balance sheet, compared with 18 % in 2004. In 2015, the loans for house purchase grew at rates above 7 % year on year, while the corporate loans growth rate was barely above 1 % (Graph 2.4.1). The latter account for 17% of the balance sheet, down from 22% ten years ago.

The Swedish banks' profitability is among the highest in Europe. The average sector's return on equity in 2014 stood at 12.2 % and the return on assets 0.6 % (Table 2.4.1). The high leverage, cost efficiency and asset quality are the key factors supporting banks' profitability.

Table 2.4.1: **Financial soundness indicators, all banks in Sweden**

Financial soundness indicators						
(%)	2010	2011	2012	2013	2014	2015*
Non-performing loans	n.a.	0.6	0.5	0.5	1.4	1.0
Coverage ratio	126.3	69.8	63.5	63.0	31.6	38.2
Capital adequacy ratio	12.2	11.8	12.1	12.3	22.2	22.9
Tier 1 ratio	10.7	10.9	11.3	11.5	19.2	20.1
Return on equity	10.3	10.7	11.4	11.2	12.2	6.2

*Q2
Source: European Central Bank

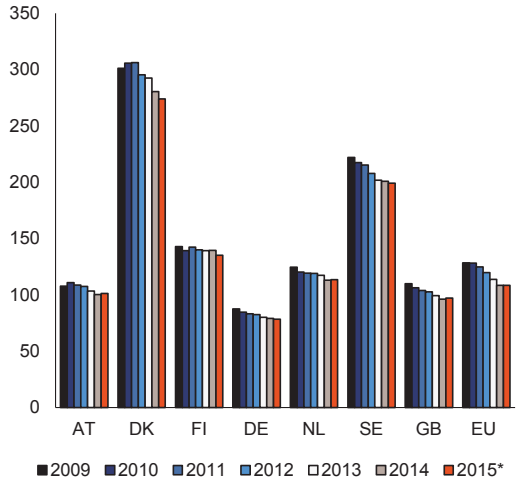
Good asset quality is a major strength of the banking sector. In 2014, the average non-performing loan ratio increased from 0.5% to 1.4% (due to an asset quality review in one of the large banks), but still remained one of the lowest in the EU. The non-performing loan ratio fell to 1 % by mid-2015. In particular, the share of impaired mortgage loans has been very low for more than a decade([24]). High payment ability and discipline of borrowers contribute to this phenomenon. A substantial role is played by the very efficient public framework for debt enforcement. In the first half of 2015, the average coverage ratio of non-performing loans) with loan loss provisions increased from 32 % to 38 %, moving closer to EU average (48 %).

International financial markets play a major role in the funding of Swedish banks. The loan-to-deposit stands above 200 % (Graph 2.4.2), implying that deposits fund only about half of the loan portfolio. Banks issue debt securities to cover this funding gap. Regarding the outstanding stock, the share of short-term securities (with maturities below one year) is relatively high (close to 40%). Furthermore, according to statistics of the

([24]) According to information from Kronofogden, the Swedish enforcement authority, number of mortgage foreclosures has been declining for last two years. The growing real estate prices made it easier for debtors in difficulties to sell property before entering an enforcement procedure. In 2015, 2200 foreclosures were estimated to be carried out.

Financial Supervisory Authority, a significant share (above 60 %) of bank market funding is provided by foreign investors. Such characteristics imply increased currency and refinancing risks. To a large extent banks manage these risks, e.g. by currency swaps with insurance companies or by matching the maturity structure of assets and liabilities for same currency. Yet, the exposure to external shocks remains the specific challenge for the Swedish banking sector. In particular, volatile behaviour of foreign investors could amplify the macroeconomic impact of a domestic house price fall through this channel. In recent years, however, financial market access conditions for Swedish banks remained very favourable.

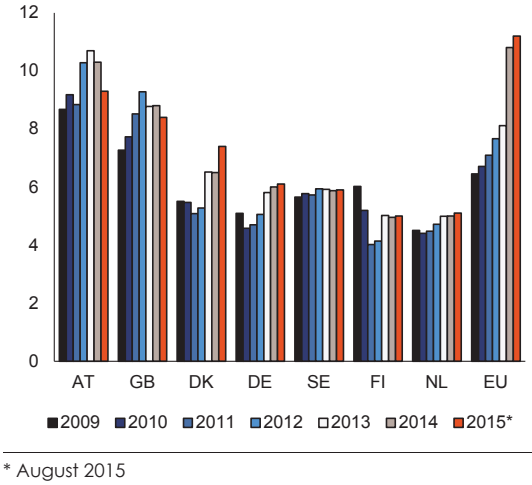
Graph 2.4.2: **Loans-to-deposits ratio (%)**



* August 2015
Source: European Central Bank, European Commission

The capital adequacy ratios are high, but banks have not been increasing their capital buffers. The average capital adequacy ratio of the Swedish banking sector amounted to 22.2 % at the end of 2014. The majority of capital is composed of Tier 1 instruments which ratio was 19.2% on average. Both ratios, which are core measures of a bank's financial strength from a regulator's point of view, were among the highest in the EU. However, the high capital adequacy was reached to a large extent trough the lowering of risk weighted assets ([25]). For example, according to FSA statistics, the average risk weights for corporate exposures declined from around 60 % to 30 % between 2007 and 2015. The absolute capitalisation of the Swedish banking sector has remained stable in recent years. On average, total capital accounts for about 6 % of the banks' balance sheets, while the leverage ratio of four main Swedish banks is just above 4 %. Whereas this level stays within the range typical also for Sweden's peer markets (Graph 2.4.3), the trend in the EU has been to increase the leverage ratio. The Financial Supervisory Authority has recognised some concerns related to the lowering of risk weighted assets and is considering measures to improve management of bank internal risk models.

Graph 2.4.3: **Leverage ratio (%)**



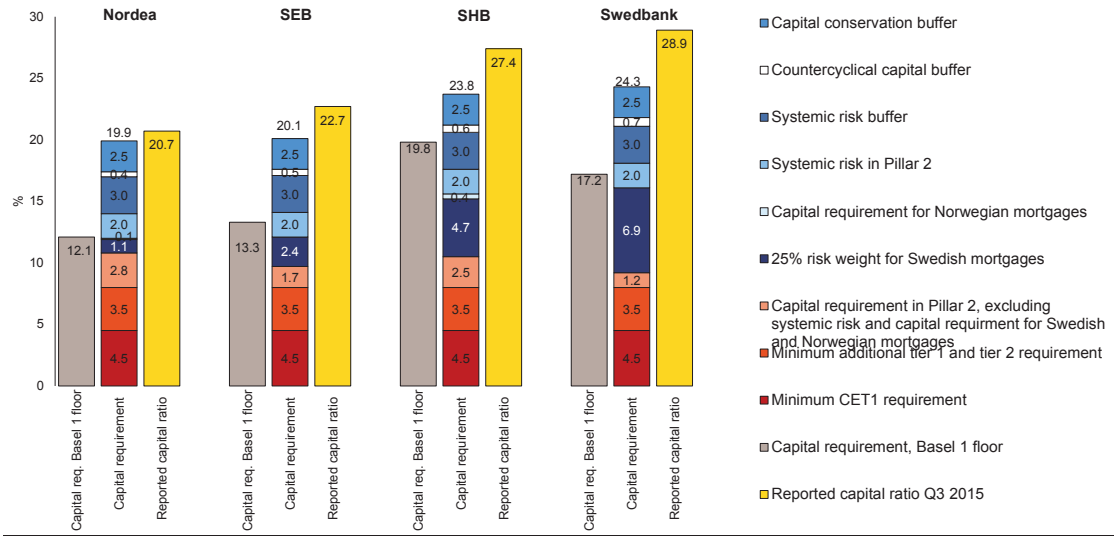
* August 2015
Source: European Central Bank, European Commission

The Financial Supervisory Authority is setting high and transparent capital requirements. The four large banks are required to hold minimum 13.5% of Common Equity Tier 1 capital as of 2015 (a measure of capital that is predominantly common equity as defined by the Capital Requirements Regulation). The 25% risk weight floor on mortgage exposures introduced in September 2014 results in an additional capital ranging from 1.1 % to 6.9 % per bank ([26]). In June 2015, the Financial Supervisory Authority

([25]) It was linked to the removal of Basel 1 risk weight floors from risk exposure calculations through the CRD IV from the beginning 2014. See also European Commission's 2015 Country Report on Sweden.

([26]) The growing share of mortgage exposures that were attributed very low risk weights in banks' internal models (6% on average) was a particular concern for the Swedish supervisor. The low risk weights were justified by long historical data series without defaults, dating back to mid-1990s, but failed to reflect the mounting macro-prudential risks.

Graph 2.4.4: **Capital requirements for four major Swedish banks (Q3 2015)**



Source: Sweden's Financial Supervisory Authority

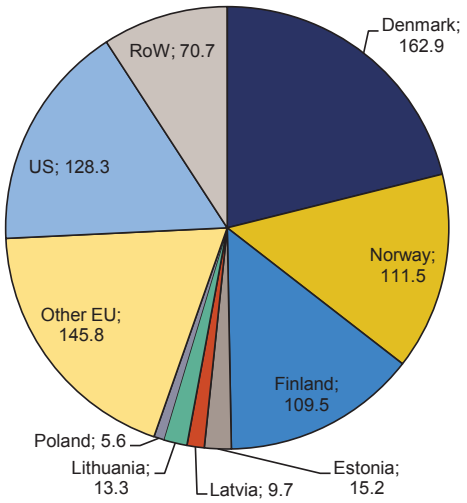
increased the countercyclical capital buffer calculated on Swedish exposures from 1% to 1.5%, motivating its decision by increased risks linked to household indebtedness. Currently, all banks comply with the capital requirements, although some of them have relatively little extra buffer (Graph 2.4.4), which makes them more vulnerable to unexpected losses. In November 2015, the Financial Supervisory Authority enhanced supervisory transparency by publishing some details of its Pillar 2 capital requirements for the ten largest banks. On 5 February 2016, the Financial Supervisory Authority proposed to raise the countercyclical buffer to 2% from March 2017.

According to the latest stress tests by the Swedish authorities, banks' capital buffers are large enough to absorb losses under the adverse scenarios. In 2015, the Financial Supervisory Authority and the Riksbank have developed a common stress tests methodology. In the stress period of three years (2016-2018), the average deterioration in the banks' Common Equity Tier 1 capital ratio was estimated to be almost 2 percentage points: it declined from 18.4 % to 16.4 % average Common Equity Tier 1 for the four major banks by end 2016 according to statistics of the Financial Supervisory Authority. Credit losses and changes in risk exposures deteriorated the Common Equity Tier 1 ratio by 11.4 percentage points, but they were compensated by bank profits. During 2016, several different stress tests of the Swedish banking system are scheduled, including by the Financial Supervisory Authority, the IMF and the European Banking Authority.

Foreign exposure, potential financial spill-over

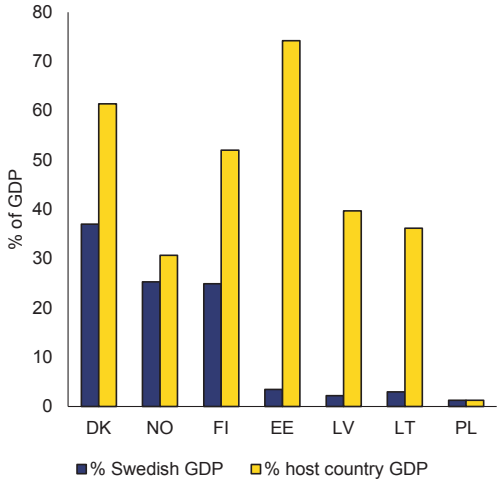
Swedish banking groups are systemic in all countries of the Nordic-Baltic region. Total foreign exposure of banks amounted to 176% of Swedish GDP in March 2015, up from 165% in mid-2014. In nominal terms, it amounted to EUR 772 billion. More than half of this amount was directed to Sweden's Nordic neighbours, while the exposure to the Baltic countries accounted for a relatively small share (Graph 2.4.5).

Graph 2.4.5: **Swedish banks' foreign asset holdings by geographical destination (Q3 2015), Bn. EUR**



Source: Bank of International Settlements

Graph 2.4.6: **Relative importance of Swedish banks' exposure to the countries of the region (Q3 2015)**

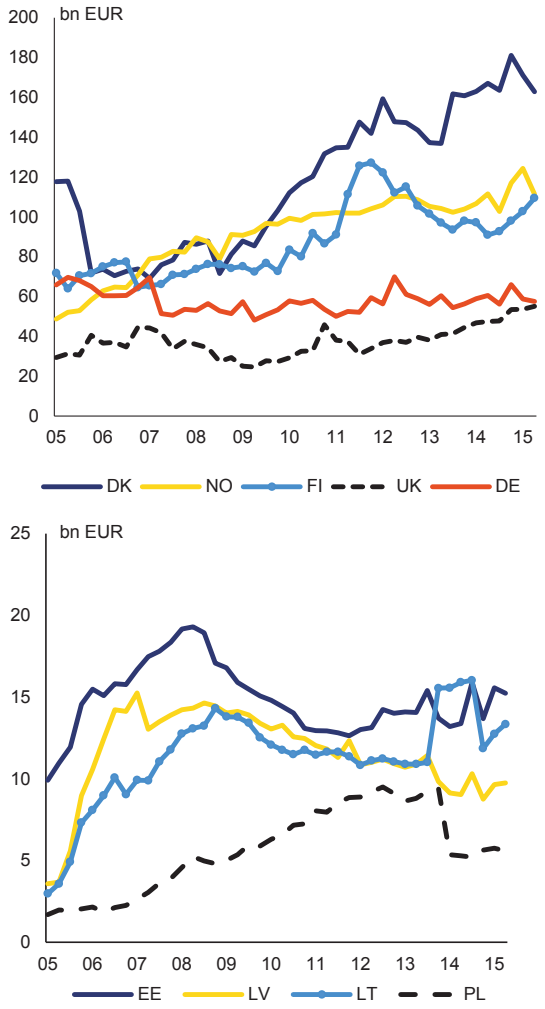


Source: Bank of International Settlements

The exposure to Denmark, Norway and Finland accounts for half of total foreign claims of Swedish banks. The value of Swedish banks' claims on Denmark was increasing in recent years (Graph 2.4.6). The invested amounts are systemic, constituting about 60% of Danish and 37% of Swedish GDP (Graph 2.4.7). They include the assets of Nordea Bank Denmark, the second largest bank on the Danish market as well as assets of other subsidiaries and branches of Swedish banks. In addition, insurance companies that are part of Swedish bank groups have substantial holdings of Danish securities, in particular mortgage bonds, in their portfolios. Exposure to Norway corresponds to more than 30% of the Norwegian GDP and almost 25% of the Swedish GDP. It has picked up in 2015. The subsidiary of Nordea is the second largest bank in Norway while the branch of Svenska Handelsbanken is the third entity on the market. Exposure to Finland amounts to more than 50% of Finnish GDP and 25% of Swedish GDP. It shrank in recent years to recover in 2015. The claims are primarily the assets of Nordea Bank Finland, the largest bank in Finland with almost 60% market share, including the sizeable derivatives portfolio. Treasury operations of the Nordea Group are accounted on the balance sheet of the Finnish subsidiary.

While Baltic assets are a relatively minor share of Swedish banks' balance sheets, Swedish banks constitute the pillars of the Estonian, Latvian and Lithuanian financial sectors. These exposures have been on average flat in 2015 (the steep decline in exposure to Poland in 2014 reflects the sale of retail operations of Nordea Polish subsidiary to PKO BP). In the wake of the crisis, Swedish banks have been passively deleveraging the Baltic markets as their funding credit lines were successfully replaced with local deposits.

Graph 2.4.7: **Evolution of foreign exposure of the Swedish banking sector' asset holdings**



Source: Bank of International Settlements

Individual Swedish banks' exposures are more systemic to other Nordic and Baltic countries than they are for Sweden. However, if they are summed up, the proportions change. Together, the regional bank exposure amounts to 100% of Sweden's GDP. The recent trends indicate the increasing exposure to Denmark, Norway and the UK and the continued deleveraging of the Finnish and Baltic economies. These trends coincide with the fast growing domestic mortgage exposures in Sweden. A housing market shock that would trouble the banking groups could force them to (further) reduce foreign exposures. However, the Finnish and Baltic subsidiaries are largely self-funded and in the short run could carry on their business relatively independently of their parent institutions.

The cross-border links between banks in the region create specific challenges in terms of supervision and crisis management. Swedish banks have both subsidiaries and branches in the countries that are in the euro area (Finland and the Baltics), in the EU but not the euro area (Denmark and Poland) and outside the EU (Norway). The authorities of the region have made attempts to enhance cooperation on bank supervision and resolution. In 2010, they signed a Nordic-Baltic Cooperation agreement on cross-border financial stability, crisis management and resolution. Several sub-groups work on its implementation, although in recent years the focus has shifted to the new European framework for supervision and resolution: the Single Supervision Mechanism and the Single Resolution Mechanism.

The macroprudential measures taken in Sweden have not been able to rein in the increasing demand for housing loans. Mortgages constitute a substantial and increasing part of the Swedish banking assets. Their good quality is a major strength of the banking sector, placing it in the top EU league in terms of profitability. The Financial Supervisory Authority has set high capital requirements and taken a series of relevant supervisory measures. The capital adequacy ratios are high, although the share of capital in banks' balance sheet remains at a relatively low level in recent years. According to latest stress tests, bank capital buffers are large enough to absorb losses under the envisaged adverse scenarios.

Swedish banking groups are systemic in all countries of the Nordic-Baltic financial market. In absolute term, the banks are most exposed to Denmark, Norway and Finland. While the Baltic business holds a relatively minor share on the Swedish banks' balance sheets, the Swedish subsidiaries and branches constitute the pillars of the Estonian, Latvian and Lithuanian financial sectors. Swedish bank exposures to the Nordic and Baltic countries are individually more systemic for them than they are for Sweden. However, taken together they add up to 100 % of Swedish GDP. The cross-border links between banks in the region create specific challenges in terms of supervision and crisis management.

2.5. MIP ASSESSMENT MATRIX

This MIP Assessment Matrix summarises the main findings of the in-depth review in the country report. It focuses on imbalances and adjustment issues relevant for the MIP.

Table 2.5.1: **MIP assessment matrix (*) – Sweden 2016**

	Gravity of the challenge	Evolution and prospects	Policy response
	Imbalances (unsustainable trends, vulnerabilities and associated risks)		
External balance and competitiveness	Sweden has run for over two decades a large current account surplus. The surplus reflects high domestic savings, which could be further affected by potential deleveraging needs in the household sector (p. 11). As a result of persistent current account surpluses and because net external debt is matched by a positive stock of investments abroad, the Swedish net international investment position is broadly balanced (p. 13). Sweden has been continuously losing export market shares faster than the EU average since 2008, pointing to a potential deteriorating Swedish competitiveness (p. 14).	The current account balance peaked at 9% of GDP in 2007 and has later stabilised at around 6.0% of GDP. This drop is due to increasing investment income from abroad, in turn due to accumulated surpluses in past decades. The current account balance is expected to remain at the current level due to stable saving rates, or even decrease if investment picks up or investment income keeps growing (p. 11). The decreasing export market share mirrors that of other advanced countries and it is not worrying: Sweden has retained high value added segments of the production process (p. 14). The poor recovery of exports of goods is likely to be a cyclical rather than structural problem, and probably linked to the specialisation of the Swedish economy in durable and investment goods together with weak demand in traditional Swedish markets, notably EU Member States (p. 16).	The government has launched a new Export Strategy to help Swedish firms to reach new and emerging markets beyond traditional trade partners. Among the tools considered, the government would provide centralised support to exporting companies, including legal and information provision, trade credit or the identification and resolution of barriers to trade (p. 17).
Private debt	Sweden continues to have one of the highest levels of private debt in the EU at 194% of GDP as of the end of 2014. A large part of the debt is financed from abroad, as the net external debt stood at 54% of GDP as of end-2014. High private indebtedness increases the vulnerability to macroeconomic shocks, as subsequent deleveraging may lead to sharp corrections in consumption and investment (p. 18). Households have good repayment ability and assets, but the distribution of debt and assets is uneven and a large part of the household assets is exposed to liquidity and/or market risks (p. 19).	Household debt increased by 5.7% of GDP in 2014 and the pace accelerated further as of June 2015 (6.5% yoy). As a result household debt stood at 175% of disposable income and 87.2% of GDP as of mid-2015 (p.18). Potential deleveraging needs in Sweden are among the highest in the EU and are estimated at more than 20% of GDP for households (p. 20).	Measures have been limited to compulsory mortgage amortisation rates but have faced legal issues. Previous policy measures introduced include: loan-to-value LTV caps in 2010, a recommendation of amortisation and some soft policy measures in 2014 for increasing customer awareness (p. 21). Policy gaps are still present regarding the incentives to take on debt for house purchasing: the tax deductibility of mortgage interest payments or the recurrent property taxation have not been reformed (p. 21).

(Continued on the next page)

Table (continued)

	Corporate debt is above the EU average, but it is matched by high value of assets and reflects a large share of international companies. Exposure to external financing is high (p. 22). Banks' non-performing loans remain among the lowest in the EU and profitability among the highest. These indicators mitigate somewhat, but do not fully offset, risks stemming from high private sector indebtedness (p. 33).	Corporate debt is broadly stable (p. 22).	
Housing sector	Swedish house prices point to an overvaluation, as suggested by a more than 20% average deviation from long-term averages for price-to-rent, price-to-income ratios and from a fundamental model (p. 25). The current level of house prices cannot be fully explained by fundamentals. Structural bottlenecks to housing supply are apparent in the main urban areas (p. 26). Overvalued and still growing house prices entail risks of a disorderly and harmful correction, with a potential impact on the banking sector and the real economy (p. 26)	House prices have grown almost continuously in the last 20 years, and have not even reached their peak. There is no sign of a correction in the near term. Real house prices continue to grow strongly, by 13.7% in Q3 2015 year-on-year, the highest rate recorded in the EU and one of highest rates in country's history. House price increases have been particularly steep in the Stockholm area (p. 25). Housing investment rebounded sharply albeit from very low levels. Despite the strong pick-up in construction, the new housing supply is not sufficient to address the sharply rising housing demand (p. 26). Existing housing shortage is further exacerbated by the large inflow of asylum seekers in need of affordable housing (p. 27).	Limited measures have been taken to curb the progression of house prices and to address inefficiencies on the housing market (p. 28). The Autumn Budget Bill includes additional funding (SEK 5.5 billion in 2016 and SEK 6.1 billion annually from 2017) to support the construction of new housing, but full details of the proposed measures are not yet known (p. 27). Policy gaps are still present regarding complex planning and building regulations, revision of municipalities' incentives to support new constructions, weak competition in the construction sector or the high level of rent control (p. 31).

Conclusions from IDR analysis

- Sweden is characterised by large stock imbalances in the form of high households debt associated with high house prices, which represents a risk as it exposes Sweden to adverse shocks and possible disorderly correction with harmful implication for the real economy and the banking sector.
- Household indebtedness keeps increasing as a result of positive credit flows and house prices are increasing at an elevated pace. The current drivers of house prices growth will likely remain in place in the short- and medium term.
- Policy measures have been taken in recent years especially in the domain of macroprudential policy. But these measures remain insufficient to correct the imbalances. Overall, policy gaps remain especially in the area of housing-related taxation, the requirements of amortisation of mortgages, the functioning of housing supply and of the rental market.

(*) The first column summarises "gravity" issues which aim at providing an order of magnitude of the level of imbalances. The second column reports findings concerning the "evolution and prospects" of imbalances. The third column reports recent and planned relevant measures. Findings are reported for each source of imbalance and adjustment issue. The final three paragraphs of the matrix summarise the overall challenges, in terms of their gravity, developments and prospects, policy response.

Source:

3. ADDITIONAL STRUCTURAL ISSUES

In addition to the imbalances and adjustments issues addressed in section 2, this section provides an analysis of other structural economic and social challenges for Sweden. This section analyses issues related to fiscal sustainability risks, labour market, education and social policies. Finally, the section focuses on challenges to long term competitiveness of the country by analysing weaknesses in the business environment, as well as investment challenges related to the environment, energy and the railway sectors.

3.1 TAXATION, DEBT SUSTAINABILITY, AND FISCAL FRAMEWORK

Sweden appears to face no major fiscal sustainability risks in the medium-term. The well-established fiscal framework has contributed providing the necessary margin for automatic stabilisers to play their role in a context of a weaker economic activity over the past years. However, the arrival of a large number of refugees is expected to lead to higher general government expenditure in the short- to medium-term.

Taxation developments

Sweden's general level of taxation is relatively high compared with other EU countries. The tax burden is 42.8% of GDP compared with 38.8% at EU level. The 2016 budget amendments to the tax system introduced by the new government do not change this level. While they have a limited positive impact on revenue, they contribute to a tax shift back to labour which could be seen as unfavourable to growth.

The new government introduced relatively minor adjustments in tax levels. Taxation changes included abolishing the reduced taxation on personal income (such as earned income tax credit) and reducing deductions applicable to certain types of services, for instance for house repair and maintenance (ROT) and for domestic services (RUT). Otherwise changes to personal income tax, property tax and corporate income tax have been minimal so far under the new government. The reversion of previous reforms on personal income tax has led to an (albeit limited) increase of tax on labour which could be considered to be detrimental for economic growth.

The study of the effects of the reduced VAT rate on restaurant and catering services, presented by National Institute of Economic Research (NIER) in December 2015, shows that the prices in the sector have been reduced by approximately 5% and that approximately 6 000 new jobs have been created since the introduction of the reduced rate in 2012.

Taxation related to housing, such as interest deductions or the recurrent property tax have not been addressed as recommended in last year's CSR. Lack of reforms in this area risks contributing strongly to the increase of household indebtedness as well as the continued rise in house prices. The interest deductibility also poses a risk to the budget in case of an increase in the interest rates. At the same time, recurrent property taxation is considered to be among the least distortive taxes (see also Section 2.2).

Other options for tax reform related to the housing market could be the revision of capital gains taxes' design. For instance, the capital gains tax design could be adjusted to allow postponement of a part of the capital gains tax liability when a smaller and cheaper dwelling is purchased. Such changes could help improve the overall utilisation of the existing housing stock (see also Section 2.3).

Concerning corporate taxation, no further reforms have been implemented in recent years to contribute to reducing corporate indebtedness. Intra-group interest deductions remain large, thereby making intra-group loans attractive as an alternative to equity.

Public debt sustainability

Sweden appears to face low sustainability risks in the medium-term. Government debt stood at 44% of GDP in 2015, well below the 60% of GDP Treaty reference value, and is expected to decrease to 42.3% of GDP by 2017.

Medium sustainability risks appear over the long run due to the projected impact of age related public spending. In particular, health and long term care can represent areas for policy reforms so as to improve the sustainability of public finance, while pension expenditure is projected to have a mitigating effect thanks to the pension reforms implemented in the past.

Fiscal framework

In the past 20 years, Sweden's fiscal framework has put public finances on a strong footing at both the central and local level. It has contributed to preventing pro-cyclicality in fiscal policy making, which, in turn, has provided the necessary margin for automatic stabilisers to play their role over the cycle. The framework comprises three key components([27]): (i) a surplus target stipulating that an overall budget surplus of 1% of GDP should be achieved over the business cycle; (ii) a three-year rolling nominal expenditure ceiling for central government and the pension system; (iii) a balanced-budget rule for local authorities forbidding municipalities and counties to approve ex-ante deficit budgets. Moreover, municipalities and counties can balance revenues counter-cyclically over time through 'results-balancing reserves'.

In addition to the budgetary rules, the Fiscal Policy Council was established in 2007 with the task of providing an independent evaluation of the government's fiscal policy and compliance with the fiscal rules. However, the right to access information from the Ministry of Finance, so far ensured at working level, is not enshrined in legislation allowing 'opportunistic' behaviour. Second, the Fiscal Policy Council is a government agency, reporting directly to the government which also has the final say on appointing its members. This does not guarantee the independence of the Council.

Moreover, adaptations have been made to allow the Swedish budgetary framework to comply with the requirements for budgetary frameworks of the Member States laid down in the Council Directive 2011/85/EU. These include, for example, the introduction of regular evaluations of the forecasts presented in the autumn and spring Budget Bills([28]) as well as the codification and extension of the current practice on the expenditure side of the budget to the revenue side.

Over the past years, a public debate has started on the level of the surplus target in view of the low debt level, combined with important needs to invest in infrastructure and housing, and to spend more on education and for maintaining welfare service standards.

In January 2015, the government tasked the National Institute of Economic Research with analysing the effects of changing the budget surplus target to balanced net lending. The National Institute of Economic Research concluded that taxes would still have to be raised, even with a balanced-budget target if the public sector commitment is to be maintained at current levels. Switching to a balanced-budget target would not create space for loosening fiscal policy over the coming years due to the expected budget deficit. Moreover, a balanced-budget target would reduce fiscal buffers and therefore the scope for counter-cyclical fiscal policy([29]). In June 2015, a Parliamentary Committee was appointed to analyse the revision of the fiscal target and the fiscal framework. It is expected to publish its conclusions in two steps in April and October 2016.

Even if Sweden's national fiscal target becomes a balanced budget over the cycle, it would still be more stringent than required by the European Union. The medium term objective of a structural balance of -1% of GDP specified by Sweden in the 2015 Convergence Programme reflects the objectives of the Stability and Growth Pact to ensure sustainable public finances and provide a safety margin with respect to the reference value of 3% of GDP for the deficit during a normal economic cycle.

A revision of the national fiscal target could be an opportunity for the Swedish authorities to further strengthen the fiscal framework. First,

([27]) For further detail on these components see Country Report Sweden 2015, SWD(2015) 46 final.

([28]) Following the conclusions of a parliamentary inquiry (SOU 2013:38, May 2013).

([29]) NIER, The Swedish Economy, Special analysis: Consequences of a balanced budget target for public finances, August 2015

the fulfilment of the domestic surplus target is currently measured by means of five indicators, but it is unclear what relative weight is placed on each of them. Prioritising these indicators or relying on a single one may reduce the risk of an opportunistic interpretation of these indicators. Furthermore, the credibility of the target could be enhanced by entrusting the assessment of its respect to an independent body, such as the Fiscal Policy Council. Second, the current rule of "a budget balance over the cycle" is hard to define, which may result in the fiscal target becoming a moving target. In that regard, the definition of the structural balance has the merit of taking into account the cyclical component of the budget balance, making the target predictable in every single year.

3.2. LABOUR MARKET, EDUCATION, AND SOCIAL POLICIES

Labour market and social policies

The labour market situation in Sweden is generally good and the labour market functions well with strong involvement of social partners. Sweden had the highest employment rates in the EU both for men and women (82.4 % and 78.2 % respectively for the population aged 20-64) in the first three quarters of 2015, and the share of long-term unemployment in the active population is 1.6 %, among the lowest in Europe, while overall unemployment is below the EU average, at 7.4 % in 2015 (Graph 3.2.1). Overall, the Swedish labour market has shown resilience during the crisis. Although the return of GDP growth in 2013 helped employment to increase further, certain segments of the labour force have difficulties entering the labour market and even when they do, struggle to secure a job that corresponds to their qualifications and skills.

A large share of unemployed people is from vulnerable groups and therefore faces multiple barriers to entering or re-entering the labour market. In particular, low-educated and low-skilled young people and people with a migrant background struggle to get a foothold on the labour market. It also remains to be seen to what extent the Swedish labour market can absorb the current very large influx of migrants: more than 80 000 refugees were registered in Sweden in 2014 (roughly 0.8 % of the total population), and this number increased to 163 000 persons in 2015 (almost 1.7 % of the total population). Sweden takes the highest number of refugees in the EU in absolute terms, after Germany, and is the Member State with the highest number of refugees relative to its resident population.

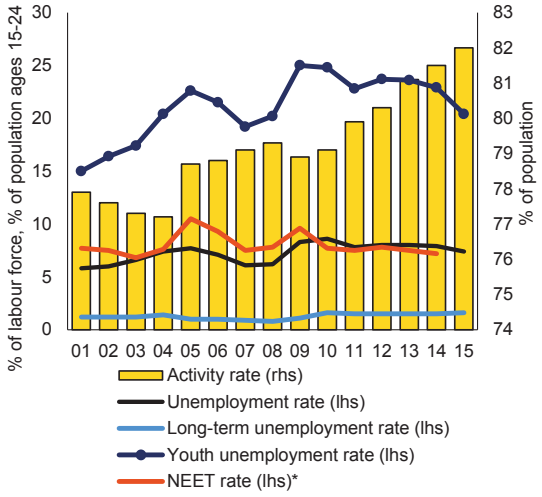
Income inequality has increased rapidly, although starting from very low levels. The increase in inequality between 1985 and the early 2010s, by one third, was the largest seen in any OECD country ([30]). The at-risk-of-poverty rate has increased among older women and families with children, especially single mothers (the great majority of single parents).

([30]) OECD (2015), In It Together: Why Less Inequality Benefits All.

Youth unemployment

The youth labour market picture is mixed. The youth unemployment rate (22.9% in 2014) is close to the EU average, but it is four times higher than the adult unemployment rate in Sweden (Graph 3.2.2). Some groups are particularly affected: the unemployment rate among non-EU born young people was 41.7% in 2014, 15 percentage points above its 2008 level, in contrast to the unemployment rate of Sweden-born young people (20.6%, just one percentage point above its level in 2008).

Graph 3.2.1: **Labour market situation overview**

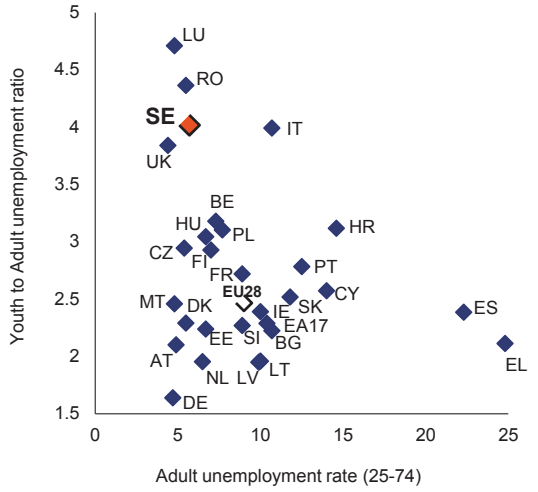


*NEET refers to people aged 15-24 who are "not in employment, education or training". Activity rate and long-term unemployment rate for 2015 are based on Q1-Q3.
Source: Eurostat Labour Force Survey

Sweden has a relatively low rate of people not in education, employment or training (7.2% in 2014). This is less than half the EU average and is on a declining trend. The youth long-term unemployment rate is particularly low (1.3% in the first three quarters of 2015). Moreover, about half of the young unemployed are actually students who would like to work while studying. Nonetheless, student unemployment also reflects an untapped opportunity, as the economy is missing out on the positive impact that early work experience has on wages and on generic skills ([31]).

([31]) OECD (2014), "Employment Outlook 2014", OECD Publishing

Graph 3.2.2: **The adult unemployment rate and the ratio of youth unemployment to adult unemployment, 2014**



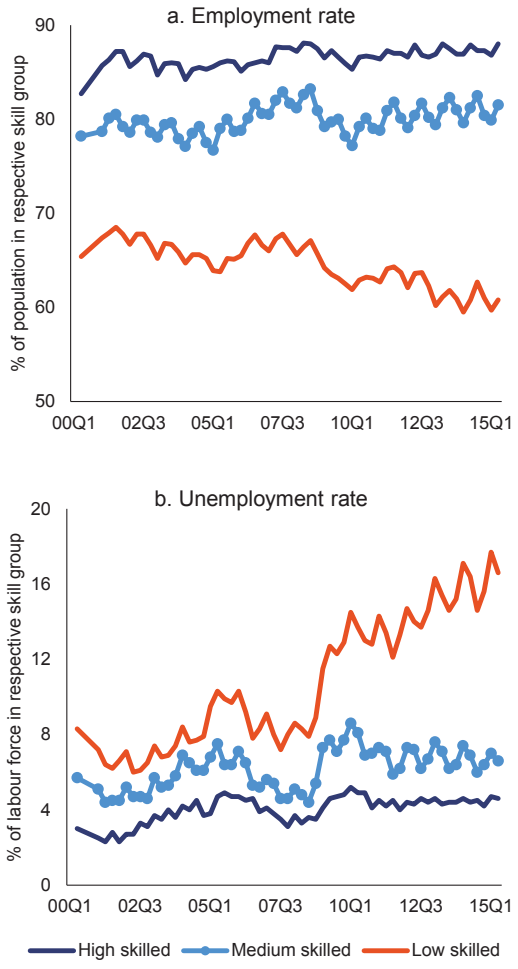
Source: European Commission, Eurostat Labour Force Survey

Low-skilled

It is becoming increasingly difficult to enter the Swedish labour market with low qualifications. In Sweden's highly skills-intensive economy, low-skilled people are finding it increasingly difficult to secure employment, while the employment rate of the medium and high-skilled workforce has remained stable for over a decade (Graph 3.2.3). Unemployment has increased particularly for young cohorts of low-skilled people, and the unemployment rate for 15-24 year old low-skilled is as high as 39.5 % (Graph 3.2.4).

To address the challenges relating to unemployment of low-skilled young people, the Swedish government has reinforced the Youth Guarantee with a gradual introduction of a 90-day guarantee of education or employment with measures from day 1. This is designed to further strengthen early intervention by increasing the number of support offers made within the first months of unemployment. A range of active measures are being launched, particularly trainee jobs and education contracts. While under the current format of the Youth Guarantee many young beneficiaries are offered a job, the proportion of referrals back to education is limited ([32]). Some steps have been taken, such as strengthening coordination through the delegation for young people and offering additional financial support for 20-24 year olds who return to education, in order to create further bridges between labour market measures and second chance education.

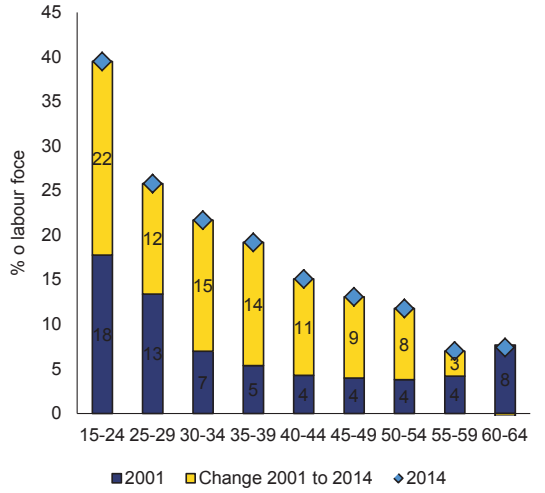
Graph 3.2.3: **Employment and unemployment rate by educational attainment, 2001-2015**



Source: European Commission, Eurostat Labour Force Survey

([32]) Yearly report from the Swedish Public Employment Service, 2014.

Graph 3.2.4: **Unemployment rate for the low-skilled workforce, by age cohorts, 2001 and 2014**



Source: European Commission Eurostat Labour Force Survey

In view of the limited employment opportunities for early school leavers on the labour market, the cooperation between municipalities and the public employment service is important. In this regard, financial incentives for accessing active labour market programmes are not fully aligned between municipalities and centrally financed employment services, limiting the outreach capacity. It is still too early to assess the impact of the reinforced municipal activation responsibility for young people up to 20 that came into force in 2015, as municipalities are still adapting their internal procedures to the new data and reporting requirements.

There is also scope to further increase the labour market relevance of the trainings offered to the unemployed by ensuring greater flexibility in the specialisations available locally ([33]). The choice and design of training programmes has not been adapted to meet the needs of the increased share of unemployed people who lack upper secondary qualification, are under-skilled or are newly arrived.

Dual programmes combining work experience with education have been rolled out but have encountered some obstacles; in particular that they do not achieve sufficient employer buy-in. Vocational education and training (VET) is often seen as a second best alternative. In particular, opportunities to transfer between types of education (between vocational and academic programmes) and from dual VET programmes to higher education are non-existent or lack flexibility, which has a negative impact on the image and attractiveness of VET. Training paths are still hampered by relatively weak links and compatibility between upper secondary school, adult education and training for the unemployed, and the apprenticeship system for adults.

Migrants

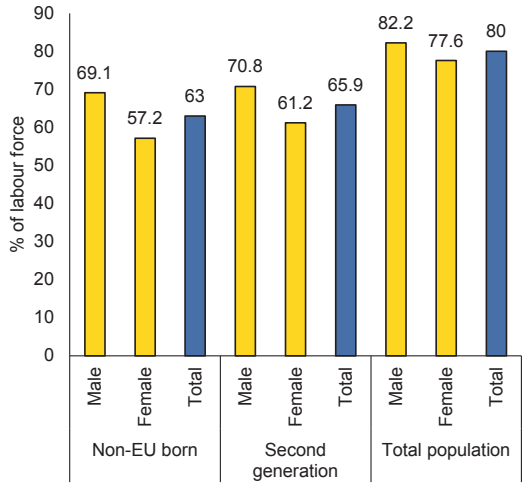
The integration of people with a migrant background into the labour market is one of the biggest social and labour market challenges for Sweden. Sweden is among the countries with the largest proportion of non-EU born residents (10.6% of the population in 2014), and a further 10% of the population are children of non-EU born residents ("second generation" migrants). Non-EU born population groups are less likely to be present on the labour market, with an activity rate of 77.1 % in 2014 for those aged 20-64, which is above the EU average, but below the rate of 87.8 % recorded for the Sweden-born population, and the rate of 84.7 % for those born in other EU countries. Moreover, even when available for work, the non-EU born population faces higher unemployment, which, when combined with a low activity rate, results in a low employment rate (see Graph 3.2.5) In particular the female non-EU born population has low labour market attachment, reflected in considerably lower activity and employment rates (gender employment gap of 11.9 percentage points in 2014 for non-EU born, far higher than the 4.6 percentage point gap among Sweden-born). This results from, amongst other things, the difficulty of overcoming the gender roles prevalent in the countries of origin. In addition, when non-EU-born people are in employment, their skills may not be used efficiently. The under-use of skills for people born outside the EU with tertiary education is 39 % (around the EU rate of 44 %), compared to 13 % for Sweden-born workers ([34]). Nevertheless, the

([33]) Regional anpassning av arbetsmarknadsutbildning – vilka hänsyn tas till arbetsmarknadens behov? (RiR 2015:22)

([34]) Estimated as the share of highly educated people (ISCED 5-6) working in medium and low-skilled occupations

labour market outcomes are somewhat better for the second generation than for non-EU born.

Graph 3.2.5: **Employment rate (population aged 20-64) for non-EU born by gender, 2014**



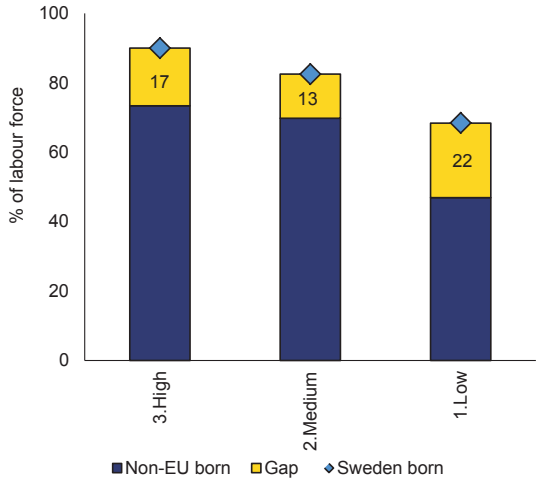
Source: European Commission, Eurostat Labour Force Survey

The different characteristics of migrants – education levels, language skills, country of origin and immigration motive – all have implications on labour market outcomes. Non-EU born migrants are on average less qualified, which affects their labour market outcomes, with the low qualified facing the highest gap in employment, at 22 percentage points in 2014. For all qualification levels, however, the employment rate of the non-EU born population is lower than that of the Sweden-born population (see Graph 3.2.6).

The current inflow of refugees is expected to add to the existing integration challenges (see also Section 1). Moreover, the rate of recognition of migrants as beneficiaries of international protection is higher than in other Member States. Although there are no legal obstacles to entering the labour market from the moment an asylum request has been submitted, access to the introduction programme and to other employment services and support is not granted until the residence permit is issued.

(ISCO 4-9), and often referred to as the over-qualification rate.

Graph 3.2.6: **Employment rate (population aged 20-64) for non-EU born workforce by qualification level, compared to Sweden-born population, 2014**

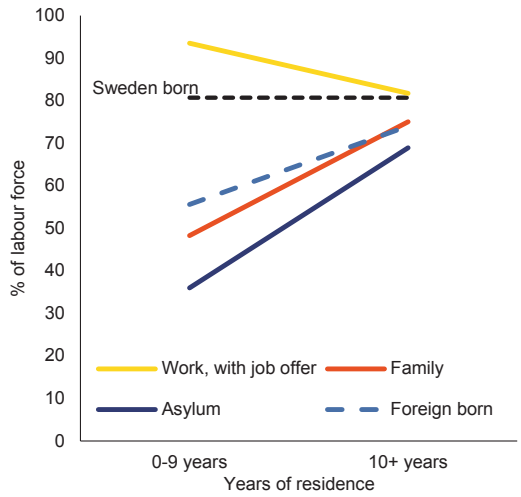


Source: European Commission, Eurostat Labour Force Survey

With more time spent in Sweden, the labour market outcomes of beneficiaries of international protection tend to improve, getting close to the employment levels of migrants who enter the country for family reasons. Nevertheless, a gap remains compared to the Sweden-born population and to migrants who entered primarily for work reasons, both for men and women (Graph 3.2.7). Moreover, there are some indications that labour market integration may have been taking more time recently than for earlier refugee flows([35]).

([35]) SWECO (2015), "Etableringsgrad."A Study for Riskrevisionen

Graph 3.2.7: **Employment rate (20-64) by years of residence, according to residence grounds (2014)**



Source: European Commission Eurostat Labour Force Survey

Considerable policy efforts have been devoted to helping integration. Sweden is at the forefront of developing policies to promote all aspects of migrant integration ([36]). Instruments include a two-year introduction programme with Swedish language and other job-related training, a comprehensive system validating qualifications, and help with finding housing. Moreover, more recent attempts have been made, in the spring 2015 budget and the 2016 budget, to improve the reception and introduction process and speed up the entry into the labour market. The new measures include fast-tracks to jobs, better and quicker validation of formal and informal qualifications and skills, including validation for migrants qualified as teachers (in the context of the teacher shortage discussed below), and better targeted and customised measures combining work and language or other training (including vocational training).

A "validation commission" has been tasked with proposing new and improved structures and regulation for validation of qualifications and skills, however is not likely to report until 2019. Sweden is also facilitating co-operation between the local and regional levels and civil society. Due to the number of migrants currently arriving, handling times for granting residence permits could reach 18-24 months. Consequently, the public employment service is preparing for the influx of jobseekers. Sweden is also ensuring that best use is made of the two years of the integration package, by accelerating the implementation of the measures related to this. Beyond these two years, the public employment service is also looking at improving the transition from the introduction programme to ordinary support measures, as migrants may make up a higher proportion of the registered unemployed in the future.

Pension adequacy

The Swedish labour market and pension systems are characterised by relatively low and fairly stable gender gaps for the overall population. The Swedish pension system generally performs well in terms of income adequacy.

In spite of this overall good design, women aged 65 years and older stand out as a group with a high risk of poverty ([37]). After almost doubling between 2007 and 2011, from 12.7 % to 24.7 %, this risk has slightly declined to 21.7 % in 2014. The gender poverty gap is among the highest in the EU and it has increased from 6.6 percentage points in 2007 to 11.4 percentage points in 2014. As illustrated in Graph 3.2.8 below, for women aged 75 and over, the at-risk-of-poverty rate reaches 30.9 %, even though survivors' pensions are maintained under transitional rules.

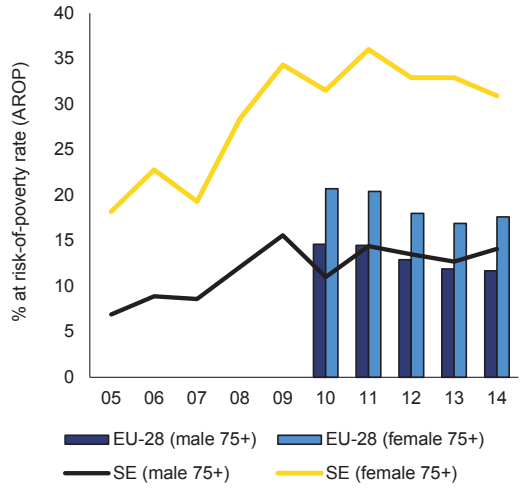
The series of stepwise tax breaks that Sweden introduced on earned income for the working population from 2007 onwards is playing a significant role in the deterioration of the relative situation of pensioners. To counteract the situation, Sweden has raised the housing benefit for low-income pensioners, and has also adopted some tax breaks for pensioners, such that the lowest incomes increased by 14 % between 2004 and 2014. However, the associated impacts are not sufficient to curb the increase in the at-risk-of-poverty rate for older women.

([36]) Sweden has been consistently ranked as the top country according to the Migrant Integration Policy Index, which considers 167 indicators from eight policy areas.

([37]) The at-risk of poverty rate measures the share of population whose income is below 60% of the equalised median income after social transfers.

A further explanatory factor for the current risk of poverty is the phasing out of survivors' pensions that began in 1999. Given the length of the transition period, cohorts currently retiring are not yet fully affected by the reform.

Graph 3.2.8: **At-risk-of-poverty rate for male and female population aged 75 years and above (2007-2014)**



Source: European Commission, Eurostat, EU Statistics on Income and Living Conditions (SILC)

The gender gap in poverty risks is also accentuated by the housing status of older women. As in many other countries, they tend to outlive their spouses, and therefore to live alone in single-person households, and single-person pensioner households face a particularly high risk of poverty. In addition, gender difference in tenure status in Sweden is above the EU average with older women more likely to be tenants rather than owners, which implies additional constrained expenses. The at-risk-of-poverty rate among older women who are tenants increased by 18 percentage points between 2005 (13 %) and 2014 (31.6 %), and 16.6 % of older women were overburdened by housing costs([38]) in 2014 (compared with 5.8 % for men of the same age group).

In the defined contribution pension system, gender differences in pay, working hours and career duration, resulting in a gender earnings gap of 30.2 %, are fully reflected in pension entitlements. They are therefore, as in other countries, another driver of the gender pension gap. However, indicators relating to labour market participation and pay show that labour market gender gaps are generally below average, and have not worsened, with the exception of the increase in the gender gap in the duration of working life (by 0.3 years since 2004, in contrast with a decrease of 1.4 years for the EU as a whole). The economic incentives provided by the gender neutral pension system have not, however, been sufficient to break the gendered division of unpaid work and its consequences. Since the present system does not provide for the sharing of entitlements between spouses, gender differences in care responsibilities, primarily for children continue to be a major driver of gender gaps in employment and subsequently in pensions.

Over the next two decades, improvement in the activity and employment rates of women is expected, which would reduce the at-risk-of-poverty rate.

However, the guarantee pension, which was meant to be a residual floor in the pension system, may start to be more widely used. In particular, the long-term consequences of the phasing-out of the survivor's pension have not yet been seen to their full extent, due to the very long transition period. In addition, women with a migrant background have a very low employment rate (57.2 % in 2014 for the non-EU born population) and earnings, which is expected to translate into low pensions.

Moreover, some groups of the population, and notably women with a migrant background, are not likely to even qualify for the guarantee pension, and could have to resort to old age income support. Whereas the resort to this safety net only concerned 15 700 recipients in 2013, it is likely to increase in the future when women with a migrant background could reach pension age without having lived 40 years in Sweden, which is an eligibility requirement for the guarantee pension.

Political awareness of the gendered adequacy risks in the pension system has been growing in recent years. A special committee of the political parties that agreed the pension reform is currently

([38]) The threshold for being classified as overburdened by housing costs is 40% of disposable income being spent on housing.

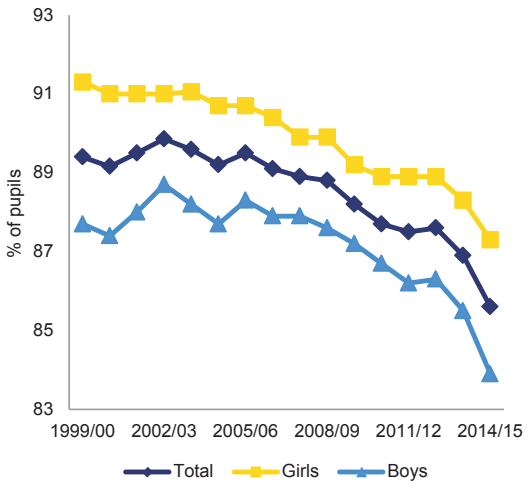
analysing the present and longer-term risks to women and men. Comprehensive proposals as to how these risks may be reduced are expected to emerge. Meanwhile the government has intensified efforts to raise awareness among women of the pension consequences of part-time work for their pensions.

Education

Maintaining a high level of skills and further developing human capital are essential for sustaining growth and maintaining the competitiveness of the Swedish economy. Sweden has one of the highest educational attainment levels in the EU, with 41.4 % of its prime age (aged 25-54) population having high qualifications. However, the declining educational outcomes in terms of basic skills proficiency is concerning, as Sweden's competitiveness depends heavily on high skills ([39]). If skills acquisition were to slow down or even decline in the future, as recent international surveys suggest, productivity growth and the competitiveness of knowledge-intensive industries could be at risk. Assuring a proper supply of highly skilled human capital, in particular in science and engineering, is vital to boosting the innovation performance of the Swedish economy and to attracting business investments. Educational outcomes started to deteriorate in the 1980s, and continued to decline in the 1990s, a period marked by numerous reforms. In addition, the equity of educational achievement has worsened, with newly arrived migrant pupils being the most disadvantaged in the education system. The high number of pupils that arrived in 2014 and in 2015 has created new challenges for the school system, if it is to provide all students with the necessary skills for a successful transition into the labour market.

There are clear signs of polarisation of educational attainment among young people, with an increasing share of tertiary graduates but also a constant share of low-educated people. There has been an increasing demand for high skills in the economy, which has been paired with an overall expansion of the higher education system, both in terms of participation rates and the number of higher education institutions. Sweden's tertiary education attainment rate is at an all-time high, reaching 49.9 % in 2014 for 30-34 year olds, well above the EU average of 37.9 % and matching Sweden's new Europe 2020 national target of 45-50 %. The share of young people holding a tertiary degree is over 20 percentage points higher than for older people (aged 55-64). However, at the other end of the spectrum, the share of young people (aged 20-24) with low educational attainment (lower secondary or less) remained stable at around 13 % over the last decade. In the same vein, one in four young people do not successfully complete upper secondary education by the age of 20, a figure higher than in the 1990s and constant over recent years according to the National Agency for Education. In addition, the share of young people who do not qualify for a 'national programme' ([40]) at upper- secondary level after the 9th grade has continued to rise over recent years, to 14.4 % in 2015.

Graph 3.2.9: **The share of pupils (%) that qualify for a 'national programme' at upper secondary level after the 9th grade.**



Source: Swedish National Agency of Education

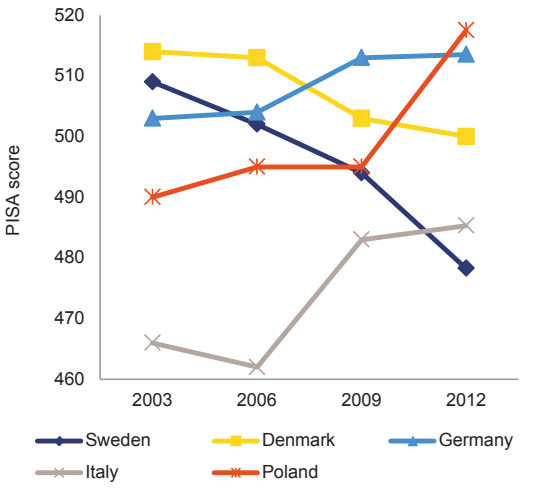
A continuous decline in school education outcomes may translate into declining skill levels among adults in the future. Over the past decade, Sweden experienced the sharpest decline in the performance of 15-year-olds of any OECD

([39]) SOU (2015:90) Utbildning för framtidens arbetsmarknad.

([40]) Since 1 July 2011, there are 18 national programmes at upper secondary level; 6 higher education preparatory programmes and 12 vocational programmes. There are also 5 introductory programmes for those who do not qualify for a national programme, with the aim to prepare students for future studies or the labour market.

country, as measured in the OECD's Programme for International Student Assessment (PISA) survey. From a position well above average in the three core subjects, in 2012 Sweden was for the first time below both the EU and the OECD averages in all of them, ranking 25th out of 34 in both mathematics and science. This negative trend is also confirmed by the results of the Trends in International Mathematics and Science Study: Sweden showed the largest decline in mathematics performance of Year 8 students (14-15 year-olds) between 1995 and 2011 of all OECD-EU countries. The evolution of PISA scores is consistent with the weaker results of the younger cohorts (aged 16-24) of Swedish adults in the OECD's Survey of Adult Skills. Across the OECD, no country with a below-average score in PISA scores significantly above-average in the Survey of Adult Skills for younger cohorts of adults. This suggests that it is expected to be very difficult to make up for poor performance at the early stages of education, and that the low performance in mathematics and other basic skills among 15-year-olds in Sweden is likely to lead to decreasing performance among adults in the future.

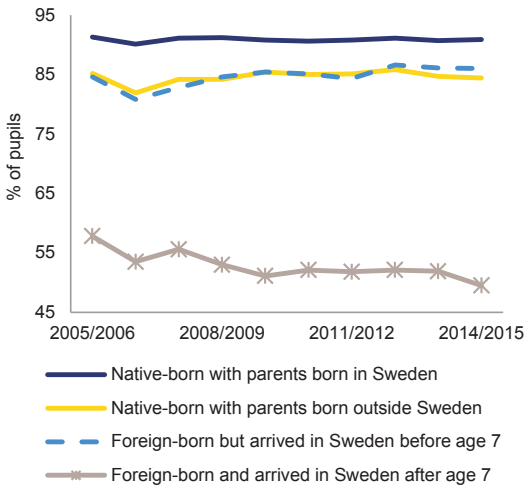
Graph 3.2.10: **Mean score in mathematics in PISA**



Source: OECD

Furthermore, the number of new graduates in science and engineering (per thousand 25-34 year olds) fell from 16.8 in 2012 to 15.6 in 2013, placing Sweden below the EU average (16.3). This negative trend is particularly concerning when taking into consideration the high level of business R&D investment in the country, which presumes the availability of highly-skilled human resources able to carry out breakthrough research and innovation. If this trend is not reversed, Sweden may suffer from a shortage of human resources in science and technology in the future. This could negatively affect the productivity and innovation performance of the country and could also become a barrier to R&D investments.

Graph 3.2.11: **The share of pupils (%) that qualify for an upper secondary 'national' programme, by background and time living in Sweden, 2005 – 2015.**



Source: Swedish National Agency of Education

The decentralisation of the school system has been carried out without ensuring that local capacities are in line with the new responsibilities. Since the mid-1990s, the school system and its financing have been decentralised, putting municipalities at the forefront of implementing nationally set goals and requirements in school education. Evidence suggests that this move to increased local autonomy has not been matched by clear measures to ensure accountability. The lack of clarity as to roles and responsibilities at various levels of the education administration continues to have a negative impact on student performance ([41]). In particular, smaller municipalities have struggled to manage their new responsibilities, including new curricula and teaching methods, and

([41]) OECD (2015), Improving Schools in Sweden: An OECD Perspective.

decentralisation has taken place without ensuring adequate central support ([42]). Structural features such as unclear funding mechanisms and no systematic monitoring of the use of funding at different levels of the school system have hindered the efficient use of resources. This had led to conditions that have not been optimal for building a high-quality teaching profession. Teachers' salaries are on average 20% lower than the salaries of other professionals with a comparable level of education and wage progression is limited. According to the OECD's TALIS survey, the status of the teaching profession is perceived as low, with only 5% of teachers reporting that their profession is valued in society.

The introduction of school choice, along with independent education providers, also carried out in the 1990s, has increased school segregation between foreign-born and native-born pupils ([43]). The performance gap between foreign-born and native-born students is a challenge: almost one in two students with a migrant background (48 %) performs below the baseline level in mathematics, and the proportion is even higher for first generation migrants (59.2 %). Only 52% of students who migrated after the age of 7 qualify for a 'national programme' at upper secondary level, and the share drops to 28 % of students among those who arrived in the last 4 years of compulsory schooling (aged 12-15).([44]) Support for integration has not been consistent across the country and continues to depend on the municipalities' capacity to take on additional tasks and resources. The share of foreign-born students has been high in EU comparison, with these students concentrated mainly in the major cities. In addition, in 2014, 4% of compulsory schools accommodated a third of all newly arrived students according to the National Agency for Education.

Sweden is taking steps to improve school outcomes and equity but measures are fragmented. The government is prioritising the early years of schooling. A government inquiry intends to make proposals by 30 September 2016 on how to improve the teaching of reading, writing and mathematics in grades 1-3. In addition, grants were provided to reduce class sizes or to employ more specialist teachers in grades 1-3, with a budget of close to SEK 2 billion in 2015. International evidence shows that smaller class sizes could be beneficial in the early years of education, in particular for disadvantaged students. However, the initiative may be hindered by the growing teacher shortages. Reducing class sizes, which are already below the EU average, may also be a less efficient way of improving school outcomes than improving the quality of teaching or increasing the teaching hours. Moreover, as measures are to be implemented by municipalities, their success depends on clear implementation guidance being offered at central level.

The government has made funding available to raise teacher salaries and to improve teachers' professional development. From 2016, the additional SEK 3 billion per year earmarked for teacher salaries would be linked to teachers' competence development. These are positive steps, however, implementation would rely on the widely varying capacity of municipalities to apply for additional grants and to support teachers' continuous professional development. Moreover, current measures do not represent a broader strategy for human resource development in the school sector, as they do not address the development of professional standards or initial teacher education. Overall, prioritising investment in the school system is welcome. It would be important to ensure efficient resource allocation based on clear objectives and find the right balance between central and local responsibilities.

Sweden can build on its current efforts and policy tradition of integrating migrants in education. According to the Migration Board's statistics, of the almost 163 000 refugees who arrived in Sweden in 2015 over 70 000 were children of school age. The number of unaccompanied minors has also risen sharply from 7 000 in 2014 to 35 369 in 2015. The government's new regulation on reforming the process of receiving and educating newly arrived students came into force on 1 January 2016. The measures target students in three main ways: diagnostic tests on a student's previous education and level of academic knowledge within two months of arrival;

([42]) OECD, Shifting Responsibilities - 20 Years of Education Devolution in Sweden: A Governing Complex Education Systems Case Study, *Education Working Papers*, No. 104, Paris.

([43]) Böhlmark, A., Holmlund, H. and Lindahl M. (2015) School choice and segregation: evidence from Sweden, IFAU Working paper 2015:8.

([44]) National Agency for Education (Skolverkets lägesbedömning) 2015, Rapport 421.

'introductory classes' for a maximum of two years; and Swedish teaching combined with tuition in mother tongue. Measures have also been introduced targeting teachers and head teachers. These include providing professional development, training of newly arrived adults as teachers / tutors in their mother tongue and supporting education providers in neighbourhoods with large migrant populations.

The government is also providing increased financial support to municipalities. SEK 200 million is being distributed to each of the 46 municipalities that have taken a significant share of newly arrived students in 2015. Furthermore, each municipality can apply for a 50 % increase in the flat-rate funding per newly arrived student. There is, nevertheless, a risk that differences between schools in terms of students' performance could grow. To achieve faster integration of newly-arrived students, the coordination of divergent municipal approaches as well as capacity building amongst teachers and school leaders are crucial. The success of these measures would also depend on the availability of quality introductory classes, together with extra support for newly arrived students in and during their transition to regular classes.

3.3. COMPETITIVENESS, INNOVATION, INFRASTRUCTURE, AND ENVIRONMENT

Public administration and business environment

The Swedish economy is characterised by a highly competitive business environment. International assessments rank Sweden consistently among the world's most competitive economies (see also Chapter 2.1).

The Small Business Act Fact Sheet 2015 for Sweden also indicates that the country has a good quality business environment. It shows excellent scores for access to finance where the country outperforms all other Member States. Internationalisation, skills and innovation, as well as second chance for entrepreneurs are other particularly strong areas. The level of entrepreneurial activity, however, remains low given the overall encouraging policy environment. Sweden has been effective at detecting potential weaknesses and works on them consistently. Since 2008 progress has been constant and clearly noticeable in most Small Business Act areas.

Entrepreneurship

The Agency for Economic and Regional Growth carried out a survey on business conditions, growth opportunities, internationalisation, innovation and barriers in 2014. The government established a commission in February 2015 to follow up on this. This commission is expected to identify barriers and opportunities and propose measures to improve and further develop a climate of entrepreneurship and innovation. There are initiatives to promote entrepreneurship, but no new measures were implemented during the latest SBA assessment period.

Responsive administration

Sweden's performance in responsive administration is above the EU average. An important development is that the time necessary to start a new business has become shorter. It takes 1-2 days to register a limited company if applications are complete. Improvements such as the IT tool to check company names before submitting a request have contributed to reducing start-up times. Another indicator that has improved substantially over the assessment period is the time to transfer property, which halved from 28 to 14 days against an unchanged EU average (26 days).

Sweden's national company law does not provide a specific legal framework for cross-border transfers or other cross-border restructurings ([45]). This lack of rules or procedures in Sweden makes it difficult and costly for national companies (apart from the European Companies) to directly transfer their registered office abroad (or for foreign companies to transfer to Sweden) and therefore weakens the business environment. With respect to its insolvency processes, Sweden is only average in the EU. According to the World Bank's Resolving Insolvency ranking, insolvency costs in Sweden are relatively high (9 % of estate, 14th in the EU) and time-consuming (2 years, 15th in the EU).

Public Procurement

The share of contract award notices with proper price information published under EU public procurement rules by Swedish authorities and entities remains low and far below the EU average. In 2015, only 9 % of the contract award notices contained any information on the value of contracts, which is to be compared with 95% in a typical European Economic Area country. Moreover, data gathered over time confirms the picture that the low quality of contract award notices is a recurrent issue in Sweden. The actual impact of the missing information is difficult to estimate, as it concerns reporting on contracts that have already been advertised as such. The likely impact for EU businesses interested in public contracts in Sweden is indirect, as they cannot verify the actual value of the opportunities that remain unreported. The fact that contract values are not included in the contract notice means that it is not possible to verify if there had been any unjustified contract modifications. Also, this does not allow verification of whether the prices paid correspond to market prices.

Insufficiently transparent public procurement procedures may risk discouraging in particular foreign firms and SMEs (see Section 2.3). In view of this, the new national agency for public procurement that is operational since September

([45]) See the 2013 study on the application of the Cross-Border Mergers Directive

2015 is expected to have an important role to play to share best practice.

The conditions for Swedish SMEs wishing to participate in the public procurement market remain comparable to those of EU small businesses. E-procurement is well established (19.1 % compared to 12.9 % (EU average). However SMEs' share of the total value of public contracts awarded (19 %) is well below the EU average (29 %). The new national agency for public procurement is expected to provide support to contracting authorities, entities and suppliers.

Digitisation

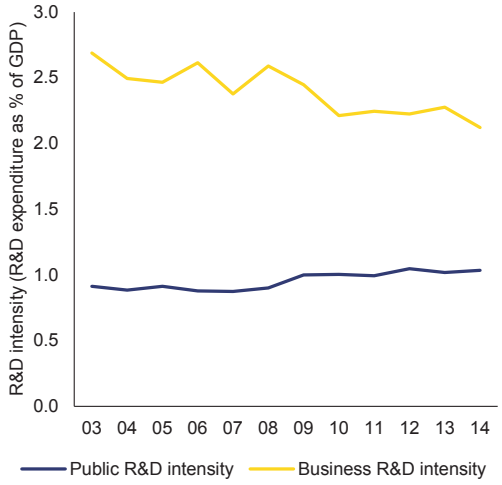
Sweden ranks third in the EU regarding digitisation, according to the Digital Economy and Society Index. It recorded an overall high performance on most of the dimensions measured ([46]). However, coverage of very high speed broadband is lower than other dimensions (with 76 % of households it ranks 18th in Europe). Delays in the deployment of this critical infrastructure could constitute a drag on the country's economic performance. Sweden also has one of the highest shares of ICT-specialists (6%) in the workforce in Europe, more than 50 % higher than the EU average value (3.7 %). At the same time it ranks only 19th when it comes to producing graduates in science and technology and companies report difficulties in recruiting ICT-specialists. The excess of demand over supply of digital skills, can also hold back the economy. Hence it is important that Sweden upholds efforts in human capital development.

Research and Innovation

The Swedish research and innovation system is characterised by highly qualified human resources, a strong science base and good research infrastructures. These are all important preconditions for the production, dissemination and exploitation of knowledge. However, Sweden's strong position as innovation leader in the Innovation Union Scoreboard is challenged by a few structural weaknesses that hinder R&D investments and, therefore, the overall competitiveness of the economy in the long term. As a result, Sweden's R&D intensity has been in relative decline since 2008.

Sweden's R&D intensity was 3.16% in 2014, the second highest level of R&D expenditure as a percentage of GDP recorded in the EU. Nevertheless, this intensity has been in relative decline since 2008, when R&D expenditure represented 3.5% of GDP. This reduction stems from the negative evolution of the private component of this indicator. Indeed, while the public R&D intensity has been continuously growing in recent years (from 0.90% in 2008 to 1.04% in 2014), the business R&D intensity has registered an important downward trend (from 2.59% in 2008 to 2.12% in 2014), as presented in Graph 3.3.1 below.

Graph 3.3.1: **Sweden - evolution of business R&D intensity and public R&D intensity, 2000-2014**



Source: European Commission (Eurostat)

Sweden faces difficulties in retaining, leveraging or attracting business R&D investment despite the high quality of its research and innovation system and the considerable support provided by the public sector. Although proximity to first-class universities or access to a highly-qualified work force are factors which influence enterprises' localisation and investment decision, the way the transfer of knowledge takes place is fundamental. The collaboration between universities and businesses (in particular SMEs) is still suboptimal

([46]) The index defines five main drivers of the digital economy. Sweden ranks second in the EU on use of internet services and human capital, third on integration of digital technologies and connectivity and seventh on digital public services. Source: 'Digital Economy and Society Index' developed by the European Commission.

and represents an obstacle to investments. In 2013, public R&D financed by business enterprises represented only 0.04 % of GDP, lower than the EU average of 0.05 %.

Business R&D in Sweden is mainly performed by a few large multinational enterprises, which have been increasingly offshoring their R&D facilities. In view of this, reducing the strong dependence of the Swedish economy on a few multinational enterprises is key ensuring that any relocation decisions do not have unpredictable consequences on the national innovation system. Nevertheless, the potential of Swedish innovative SMEs and start-ups has not been fully exploited yet. Better framework conditions to improve the flexibility of product and services markets could help capitalise on that potential. Indeed, Sweden's performance in the barriers to entrepreneurship([47]) sub-indicator of the OECD's product market regulation indicator is not outstanding (ranking 16th in the EU), due the complexity of its regulatory procedures, and Sweden only ranks 19th at EU level on the product market regulation composite indicator. Improvements in this area may further reduce the obstacles innovative firms encounter when starting and developing their activities.

Many initiatives have been launched in recent years in Sweden to support innovative SMEs. However, those initiatives do not seem to generate the desired effects at macroeconomic level either because they suffer from limited resources or because complementarities between programmes have not been explored yet. Moreover, the Swedish research and innovation system would benefit from stronger incentives to enhance academia-business collaboration and promote the commercialisation of innovative products.

A new Innovation Council chaired by the Swedish Prime Minister was established in February 2015 to respond these challenges and guarantee an overall coordination of research and innovation policies and programmes. It is made up of representatives from five different ministries as well as ten elected external members from business, academia and employers' unions. The Innovation Council would focus exclusively on innovation issues to boost and promote the long-term competitiveness of the Swedish economy.

([47]) This indicator measures obstacles faced by entrepreneurs, including complex regulations, the administrative burden on start-ups and regulatory protection of existing operators

Environment

Sweden is making good progress towards the achievement of its climate EU targets([48]). Nevertheless, emissions from transport, accounting for 33 % of its total greenhouse gas emissions and more than 50 % of non-Emissions Trading Scheme emissions, remain a particular policy challenge. Average emissions of newly registered passenger cars were at a level of 131 g CO2/km in 2014, which was higher than the total EU rate of 123.4 g CO2/km. However, this emission level has decreased by 32 % between 2005 and 2014, which is at a rate faster than the EU average decline of 23 %.

In 2009, Sweden adopted an integrated Climate and Energy Policy, which sets national climate and energy targets for 2020, some of which go beyond its EU obligations. These include (i) a 40 % reduction in greenhouse gas emissions by 2020, compared to a 1990 baseline; (ii) at least 50% share of renewable energy in total energy use; (iii) 10 % renewable energy in the transport sector; and (iv) 20 % increase in energy efficiency. These targets are to be reached by strengthening the existing policies (e.g. taxation policy), implementing EU legislation as well as purchasing international carbon credits. Two-thirds of the reductions are to be achieved domestically and one-third through international investments. Sweden has also a well-developed waste policy promoting recycling and re-use, and reached a recycling rate for municipal waste close to 100 % in 2013.

Both the carbon and energy policies (see below) aim at improving efficiency and contribute to enhance the overall resource efficiency of the economy. Although Sweden landfills a low share of municipal waste, it incinerates more of this waste than it recycles. The Swedish waste management plan for the years 2012-2017 includes

([48]) Sweden has also adopted a voluntary national target to reduce non-ETS emissions by 40% by 2020 compared to 1990 and by 33% compared to 2005, of which two thirds should be achieved domestically.

measures to promote material recycling and additional steps may be needed to meet future EU recycling targets.

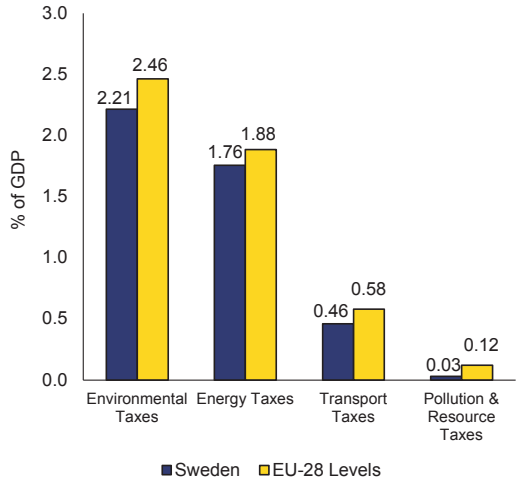
Sweden is currently developing its 2050 Roadmap for carbon neutrality. This also includes a strategy for achieving the Government's long-term target for Sweden with no net greenhouse gas emissions in 2050 and with interim emissions targets for the period 2030 to 2050. After a first proposal of the Roadmap was published in 2014, the Government now has instructed the Parliamentarian Committee on Environmental Objectives to take over the work on the development of a framework for a long-term climate policy. A report on the current progress is due in the beginning of 2016.

In order to stimulate further emissions reductions in the transport sector, tax measures and pilot programmes promoting low-carbon emission vehicles and technologies are being promoted. These include biofuels that have become an important element in Swedish energy supply. Sweden aims at achieving a vehicle fleet that is independent of fossil fuels by 2030. By 2020 Sweden aims at reducing greenhouse gas emissions from road transport by 35 %, by 2025 by 60 % and by 2030 by 80 % compared with 2010 levels. The National Transport Plan, adopted by the Government in 2014, foresees major investments in railway infrastructure, e.g. the construction of new high-speed tracks between major cities and 400 km of new cycling paths.

Sweden was the first country to introduce a green tax shift in 1990, and has used taxation as a key instrument in its climate and energy policy. However, environmental taxation as a percentage of GDP has generally been decreasing since 2005. This development has partly been due to the behavioural impacts of taxes, and in particular the fuel shifting away from fossil fuels within the domestic heating sector. This can be seen as a success, as between 1990 and 2012 Sweden's total greenhouse gas emissions fell by 13 % while GDP per capita increased by 42 %. The decreasing emissions is a consequence of the decoupling of energy consumption and economic growth that Sweden has achieved in part through structural change towards the services sector and in part through improved energy efficiency.

Sweden's environmental taxes generated revenue equivalent to 2.21 % of GDP in in 2014, which is below the EU average (2.46 %). The component from energy taxes, at 1.76 % of GDP, was slightly below the EU average of 1.88 %. Revenues from transport (excluding fuel) taxes and pollution and resource taxes, at 0.46 % of GDP were well below the EU average of 0.58 % of GDP, reflecting the fact that no registration tax is levied on cars in Sweden. The tax rates on fossil fuels in Sweden remain above the EU average. The road fuel excise duties on petrol are the fifth highest in the EU and the excise duties on diesel are the third highest.

Graph 3.3.2: **Overview of taxation, 2014**



Source: European Commission (Eurostat)

Energy

Despite recent price hikes largely due to the relatively cold start of 2016, electricity wholesale prices on average have been falling over recent years. This is due to several factors including falling or stable demand in combination with an increasing share of renewable electricity with low operating costs. At the same time, the nuclear plants (which represent over 40 % of the power supply) are ageing. Due to this and their low profitability, the electricity companies have announced in 2015 the closure of several reactors earlier than foreseen (starting around 2020). Plans for new nuclear reactors have been put on hold earlier due to a combination of market signals and political uncertainty around the future of nuclear

energy. While cross-party talks have been initiated in 2015, the government announced in the beginning of its term that its objective is to replace nuclear energy with renewable energy and energy efficiency improvements, and it has also confirmed that Sweden should have 100 % renewable energy in the long term.

As a result of these factors, the projected electricity supply situation for Sweden in the medium to long run has changed considerably over the last year. At present, investment in new generation capacity is primarily incentivised through the Swedish-Norwegian certificate system for renewable energy, which has helped Sweden to already exceed its 2020 target for renewable energy of 49 % of final energy consumption in a relatively cost-effective way (2014 figure: 52,6 %). Sweden is also one of few EU countries that have already met the target of 10 % renewable energy in transport. The quota in the certificate system will be further increased between 2016 and 2035 ensuring continued growth in renewable power generation. At the same time, it is expected that investments will be needed also in other generation technologies despite ambitious plans to improve energy efficiency. A parliamentary commission is currently working on reaching an agreement on a long term energy policy, including in particular the power supply. Its results are foreseen for early 2017. Once concluded, this agreement could help to provide long-term predictability and investment certainty.

With regard to energy efficiency, Sweden has recently set a higher national indicative target for primary energy efficiency in 2020. This target is ambitious in light of expected GDP growth up to 2020 ([49]). To reach its target, Sweden will likely need to reduce its primary energy efficiency at a higher rate in the period between 2014-2020 than in the period between 2005-2013 to reach its target.

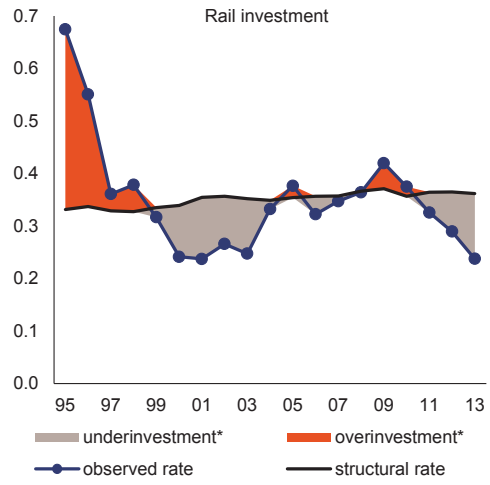
In terms of market functioning, Sweden has the most nationwide electricity suppliers of any Member State. Retail market concentration remains low for both electricity and gas and is characterised by a high level of competition. Sweden could gain from further integration of wholesale as well as retail markets for electricity in the Nordic region and from taking further advantage of the already high but increasing level of interconnectivity with neighbouring states (26 % of generation capacity in 2014). Initiatives for closer cooperation between energy regulators in the Nordic countries have been initiated.

([49]) See the European Commission's Energy Efficiency Progress Report 2015, COM(2015) 574 final.

Transport infrastructure

The functioning of the Swedish railway system requires continued attention. While the overall situation of the transport infrastructure network is not unsatisfactory, the level of investment in the maintenance and upgrading of the Swedish rail system, including in cross-border connections deserves further consideration as depicted on Graph 3.3.3 ([50]).

Graph 3.3.3: **Sweden - Investment pattern in rail infrastructure**



Source: European Commission based on Eurostat and OECD
Comment: Overinvestment and underinvestment correspond to the difference between the observed investment rate and a model predicted rate which accounts for sectoral and macroeconomic factors.

Profitability is in general low in the Swedish railway sector ([51]). The system is to a sizeable

([50]) The graph points at a period of underinvestment in rail infrastructure starting from 2011 compared to what can be expected based on demand and structural factors. European Commission, Updated data of '*Infrastructure in the EU: Developments and Impact on Growth*', European Economy, Occasional Papers, No 203, 2014.

([51]) The Return on Capital Employed indicator shows that for 2013 profitability is indeed very low for Sweden (among

extent governed by state-owned enterprises, representing 76 % of the railway sector turnover in 2013 compared to the EU average of 89 %. The inquiry regarding the organisation of the railway system finalised its work in December 2015. Its results highlight, among several proposals, the needs for a strategy for the utilisation of the railway system, in particular in view of the foreseen investments in high-speed railway. Regarding maintenance, a better system to assess the needs and to plan and manage such works is seen as required by the inquiry in order to improve the current situation. These proposals have yet to be put into practice and bear results, while additional public funds have been allocated to maintenance and investments in the railway sector as of mid-2015.

Given Sweden's geographical situation, all transport modes are important for the future of its exports, and potential capacity bottlenecks need careful consideration. In this context, maritime transport continues to be a strong alternative as a transport mode in its own right and as an essential part of short sea shipping within the intermodal chain. In 2015, following the government's adopted action plan for improved competitiveness of the shipping industry, some concrete measures have been proposed and are expected to enter into force in 2016. In particular, Sweden is on its way to introduce tonnage tax system ([52]) to enhance its competitiveness and stem the negative trend of flagging out of Swedish flagged vessels, in line with what most EU/EEA States and Flags have done. Effects of the measure, expected in the coming years, could be judged on the possible increase in the fleet and possible 'returning' tonnage under the Swedish flag. In line with EU policy the aim should be to maintain or attract quality ships, supporting the whole maritime cluster and with the potential to provide job opportunities for seafarers.

---

the lowest in the EU). Also in terms of cost efficiency (OPEX rate) Sweden ranks in the lowest quartile (i.e. among the 7 worst performing countries). See "*Stylized facts on State-owned Enterprises in Energy and Railway sectors"*, European Commission, DG ECFIN, 2015.

([52]) 19 EU/EEA countries, including all with bigger fleets, have already introduced this system.

ANNEX A

Overview Table

Commitments	Summary assessment ([53])
2015 Country specific recommendations (CSRs)	
CSR 1: Address the rise in household debt by adjusting fiscal incentives, in particular by gradually limiting the tax deductibility of mortgage interest payments or by increasing recurrent property taxes, and by increasing the pace of mortgage amortisation. To alleviate the structural under-supply of housing, foster competition in the construction sector, streamline the planning and appeals procedures for construction and revise the rent-setting system to allow more market-oriented rent levels.	Sweden has made **limited progress** in addressing CSR 1 (this overall assessment of CSR 1 does not include an assessment of compliance with the Stability and Growth Pact): **No progress** in adjusting fiscal incentives, i.e. changing the mortgage interest deductibility rules or property taxation. **Some progress** in increasing the pace of mortgage amortisation: the Government prepared a proposal on compulsory amortisation requirement on mortgage loans and it was submitted to the Parliament. **Limited progress** in alleviating the structural undersupply of housing: the Government proposed in the Budget Bill for 2016 public funding to increase investments in the housing sector. **Limited progress** in fostering competition in the construction sector: the results of an inquiry have been published end 2015 recommending a set of measures. **Some progress** in rendering the zoning and planning processes more efficient by achieving further simplifications in this area (such as revision of noise regulation and shortening the appeal procedures). In addition, the results of an inquiry have been published end 2015 recommending additional set of measures. **No progress** in reviewing the rent-setting system to allow more market-oriented rent levels.
Europe 2020 (national targets and progress)	
Employment rate target set in the 2014 NRP:	Employment rate (%) in 2014: 80 % (2013

([53]) The following categories are used to assess progress in implementing the 2015 CSRs:
No progress: The Member State (MS) has neither announced nor adopted measures to address the CSR. This category also applies if the MS has commissioned a study group to evaluate possible measures.
Limited progress: The MS has announced some measures to address the CSR, but these appear insufficient and/or their adoption/implementation is at risk.
Some progress: The MS has announced or adopted measures to address the CSR. These are promising, but not all of them have been implemented and it is not certain that all will be.
Substantial progress: The MS has adopted measures, most of which have been implemented. They go a long way towards addressing the CSR.
Fully implemented: The MS has adopted and implemented measures that address the CSR appropriately.

well over 80 %.	79.8 %, 2012 79.4 %) The EU wide target was met already before the crisis in 2007-08. Achievement of a more ambitious national target was hindered by the 2008-09 crisis. Since then progress has picked up and Swedish labour market performance remains solid and 80% employment has been reached.
R&D target**:** 4 % of GDP	3.16 % (2014) No progress towards the target. Although public R&D intensity has grown yearly by 2.4 % over the 2007-2014 period, private expenditures on R&D as % of GDP has decreased by 1.6 % per year over the same period. Sweden is only expected to reach its national target for 2020 if it is able to decisively revers this negative trend.
National greenhouse gas emissions target: -17% in 2020 compared to 2005 (in non-ETS sectors)	2020 target: -17 % According to the latest projections and taking into account existing measures, the target is expected to be achieved: -28 % in 2020 compared to 2005 (with a margin of 11 percentage points). Change in non-ETS greenhouse gas emissions between 2005 and 2014: -24 % (preliminary data). Sweden has decreased its greenhouse gas emissions in sectors outside the EU Emissions Trading Scheme by 24 % between 2005 and 2014. According to its 2015 projections, Sweden is on track to reach its 2020 target (-17 %), with an 11 % margin between the projected emissions and its target compared to 2005.
2020 Renewable energy target: 49%	With a renewable energy share of 52.6 % in 2014, Sweden is already above its target for 2020. The main measure to increase the share of renewable energy is a certificate system established together with Norway which favours low-cost and mature renewable technologies. With 19.2%, achieved through increasing use of double-counting biofuels, Sweden is also above the 10% binding renewable energy share target in transport to be achieved by 2020.
Sweden's 2020 energy efficiency target is 43.4 Mtoe expressed in primary energy consumption (30.3 Mtoe expressed in final energy	The target for primary energy efficiency is ambitious in light of expected GDP growth up to 2020. Sweden would need to reduce its primary

consumption.)	energy efficiency at a higher rate in the period between 2014 and 2020 than in the period between 2005 and 2013 to reach its target. At the same time it would be important to continue to ensure that the measures put in place to meet this target are cost-efficient.
Early school leaving target: below 7 % (revised from below 10 % by Sweden in 2015).	Early leavers from education and training (share of the population aged 18-24 with at most lower secondary education and not in further education or training) in 2014: 6.7 % (2013 7.1 %, 2012 7.5 %). The target of below 7 % has been achieved.
Tertiary education target: 45-50 % (revised from 40-45 % by Sweden in 2015).	Tertiary educational attainment (share of population 30-34 having successfully completed tertiary education) in 2014: 49.9 % (2013: 48.3 %, 2012 47.9 %) The target of 45-50 % has been achieved.
Target on the reduction of population at risk of poverty or social exclusion in number of persons: Reducing to well under 14 % the number of people aged 20-64 who are not in the labour force (except full-time students), long-term unemployed or on long-term sick leave.	People at-risk-of-poverty or social exclusion in 1,000 persons attainment in 2014: 12.6 % (2013 12.7 %, 2012: 13.1 %) According to the 2014 national reform programme the proportion of the population covered by the target is estimated to be about 12.6 % of the age group (2014), which would suggest that the target has been reached.

ANNEX B

MIP scoreboard

Table B.1: **The MIP scoreboard for Sweden**

			Thresholds	2009	2010	2011	2012	2013	2014
External imbalances and competitiveness	Current account balance, (% of GDP)	3 year average	-4%/6%	7.8	6.8	6.3	6.5	6.7	6.5
	Net international investment position (% of GDP)		-35%	0.6	2.9	-10.2	-14.3	-15.1	-6.5
	Real effective exchange rate - 42 trading partners, HICP deflator	3 years % change	±5% & ±11%	-8.5	-3.3	2.9	10.1	5.1	-3.7
	Export market share - % of world exports	5 years % change	-6%	-13.2	-12.7	-11.9	-18.8	-16.1	-9.8
	Nominal unit labour cost index (2010=100)	3 years % change	9% & 12%	15.9	8.3	5.6	4.0	8.6	7.1
Internal imbalances	Deflated house prices (% y-o-y change)		6%	0.8	6.4	0.8	0.7	4.8	8.6
	Private sector credit flow as % of GDP, consolidated		14%	5.6	5.2	6.5	2.1	4.7	6.5
	Private sector debt as % of GDP, consolidated		133%	202.0	189.9	191.3	192.5	192.4	194.4
	General government sector debt as % of GDP		60%	40.4	37.6	36.9	37.2	39.8	44.9
	Unemployment rate	3 year average	10%	6.9	7.7	8.2	8.1	7.9	8.0
	Total financial sector liabilities (% y-o-y change)		16.5%	3.2	2.8	3.4	5.3	8.8	13.4
New employment indicators	Activity rate - % of total population aged 15-64 (3 years change in p.p)		-0.2%	0.1	0.0	0.6	1.4	2.0	1.6
	Long-term unemployment rate - % of active population aged 15-74 (3 years change in p.p)		0.5%	0.1	0.7	0.7	0.4	-0.1	0.0
	Youth unemployment rate - % of active population aged 15-24 (3 years change in p.p)		2%	3.5	5.6	2.6	-1.3	-1.2	0.1

Figures highlighted are those falling outside the threshold established in the European Commission's Alert Mechanism Report. For REER and ULC, the first threshold applies to euro area Member States.
Source: European Commission

ANNEX C
Standard Tables

Table C.1: **Financial market indicators**

	2010	2011	2012	2013	2014	2015
Total assets of the banking sector (% of GDP)	289.4	281.7	286.6	278.8	289.8	291.3
Share of assets of the five largest banks (% of total assets)	57.8	57.8	57.4	58.3	58.5	-
Foreign ownership of banking system (% of total assets)	8.6	8.4	8.6	8.7	9.5	-
Financial soundness indicators:						
- non-performing loans (% of total loans)[1)]	0.8	0.7	0.7	0.6	1.2	1.1
- capital adequacy ratio (%)[1)]	12.0	11.5	11.7	12.0	22.5	23.4
- return on equity (%)[2)]	14.1	14.9	15.3	16.7	8.0	-
Bank loans to the private sector (year-on-year % change)	7.3	5.5	3.6	2.9	5.1	4.4
Lending for house purchase (year-on-year % change)	8.7	5.6	4.7	5.4	6.4	8.4
Loan to deposit ratio	217.4	215.3	207.8	201.9	201.0	195.7
Central Bank liquidity as % of liabilities[3)]	0.0	0.0	0.0	0.0	0.0	0.0
Private debt (% of GDP)	189.9	191.3	192.5	192.4	194.0	-
Gross external debt (% of GDP)[4)] - public	16.4	17.3	18.0	18.7	22.0	19.3
- private	69.7	63.8	61.2	54.6	54.7	51.7
Long-term interest rate spread versus Bund (basis points)*	15.0	-0.3	9.7	55.1	55.3	22.3
Credit default swap spreads for sovereign securities (5-year)*	31.2	35.7	36.2	14.3	9.9	9.5

1) Latest data Q3 2015.
2) Latest data Q2 2014.
3) Latest data in October 2015.
4) Latest data September 2015. Monetary authorities, monetary and financial institutions are not included.
* Measured in basis points.
Source: IMF (financial soundness indicators); European Commission (long-term interest rates); World Bank (gross external debt); Eurostat (private debt); ECB (all other indicators).

Table C.2: **Labour market and social indicators**

	2010	2011	2012	2013	2014	2015 (4)
Employment rate (% of population aged 20-64)	78.1	79.4	79.4	79.8	80.0	80.4
Employment growth (% change from previous year)	1.0	2.1	0.7	0.9	1.4	1.4
Employment rate of women (% of female population aged 20-64)	75.0	76.5	76.8	77.2	77.6	78.3
Employment rate of men (% of male population aged 20-64)	81.1	82.1	81.9	82.2	82.2	82.4
Employment rate of older workers (% of population aged 55-64)	70.4	72.0	73.0	73.6	74.0	74.3
Part-time employment (% of total employment, aged 15 years and over)	27.0	26.5	26.5	26.2	26.2	26.0
Fixed term employment (% of employees with a fixed term contract, aged 15 years and over)	16.4	17.0	16.4	16.9	17.5	17.3
Transitions from temporary to permanent employment	43.9	41.6	38.1	42.7	-	-
Unemployment rate(1) (% active population, age group 15-74)	8.6	7.8	8.0	8.0	7.9	7.5
Long-term unemployment rate(2) (% of labour force)	1.6	1.5	1.5	1.5	1.5	1.6
Youth unemployment rate (% active population aged 15-24)	24.8	22.8	23.7	23.6	22.9	20.7
Youth NEET(3) rate (% of population aged 15-24)	7.7	7.5	7.8	7.5	7.2	-
Early leavers from education and training (% of pop. aged 18-24 with at most lower sec. educ. and not in further education or training)	6.5	6.6	7.5	7.1	6.7	-
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	45.3	46.8	47.9	48.3	49.9	-
Formal childcare (30 hours or over; % of population aged less than 3 years)	33.0	32.0	35.0	34.0	-	-

(1) Unemployed persons are all those who were not employed but had actively sought work and were ready to begin working immediately or within two weeks.
(2) Long-term unemployed are peoples who have been unemployed for at least 12 months.
(3) Not in Education Employment or Training.
(4) Average of first three quarters of 2015. Data for total unemployment and youth unemployment rates are seasonally adjusted.
Source: European Commission (EU Labour Force Survey).

Table C.3: **Labour market and social indicators (continued)**

Expenditure on social protection benefits (% of GDP)	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sickness/healthcare	7.5	7.0	7.1	7.3	7.5	-
Invalidity	4.2	3.8	3.6	3.6	3.6	-
Old age and survivors	12.5	11.9	11.9	12.5	12.8	-
Family/children	3.0	2.9	2.9	3.0	3.1	-
Unemployment	1.2	1.3	1.1	1.2	1.2	-
Housing and social exclusion n.e.c.	0.4	0.4	0.4	0.5	0.5	-
Total	29.5	28.0	27.7	28.7	29.4	-
of which: means-tested benefits	0.8	0.8	0.8	0.8	0.8	-
Social inclusion indicators	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
People at risk of poverty or social exclusion(1) (% of total population)	15.9	15.0	16.1	15.6	16.4	16.9
Children at risk of poverty or social exclusion (% of people aged 0-17)	15.1	14.5	15.9	15.4	16.2	16.7
At-risk-of-poverty rate(2) (% of total population)	13.3	12.9	14.0	14.1	14.8	15.1
Severe material deprivation rate(3) (% of total population)	1.6	1.3	1.2	1.3	1.4	0.7
Proportion of people living in low work intensity households(4) (% of people aged 0-59)	6.4	6.0	6.9	5.7	7.1	6.4
In-work at-risk-of-poverty rate (% of persons employed)	6.9	6.5	6.8	6.7	7.1	7.8
Impact of social transfers (excluding pensions) on reducing poverty	50.0	51.7	49.8	48.5	45.4	47.0
Poverty thresholds, expressed in national currency at constant prices(5)	116661	117236	117980	121035	123515	125498
Gross disposable income (households; growth %)	4.9	3.3	5.7	4.2	2.4	2.9
Inequality of income distribution (S80/S20 income quintile share ratio)	3.7	3.5	3.6	3.7	3.7	3.9

(1) People at risk of poverty or social exclusion (AROPE): individuals who are at risk of poverty (AROP) and/or suffering from severe material deprivation (SMD) and/or living in households with zero or very low work intensity (LWI).
(2) At-risk-of-poverty rate (AROP): proportion of people with an equivalised disposable income below 60 % of the national equivalised median income.
(3) Proportion of people who experience at least four of the following forms of deprivation: not being able to afford to i) pay their rent or utility bills, ii) keep their home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) enjoy a week of holiday away from home once a year, vi) have a car, vii) have a washing machine, viii) have a colour TV, or ix) have a telephone.
(4) People living in households with very low work intensity: proportion of people aged 0-59 living in households where the adults (excluding dependent children) worked less than 20 % of their total work-time potential in the previous 12 months.
(5) For EE, CY, MT, SI and SK, thresholds in nominal values in euros; harmonised index of consumer prices (HICP) = 100 in 2006 (2007 survey refers to 2006 incomes)
Source: For expenditure for social protection benefits ESSPROS; for social inclusion EU-SILC.

Table C.4: **Structural policy and business environment indicators**

Performance indicators	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Labour productivity (real, per person employed, y-o-y)						
Labour productivity in industry	-7.09	15.85	1.90	-0.48	0.69	0.60
Labour productivity in construction	-7.47	2.43	-4.85	-8.23	-4.50	10.53
Labour productivity in market services	-1.21	1.33	2.70	2.71	3.25	1.58
Unit labour costs (ULC) (whole economy, y-o-y)						
ULC in industry	12.27	-17.30	1.64	5.68	1.51	1.02
ULC in construction	9.41	0.71	10.29	10.82	6.76	-7.23
ULC in market services	4.76	-1.58	1.73	2.54	-0.40	1.22
Business environment	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Time needed to enforce contracts(1) (days)	508	314	314	314	314	321
Time needed to start a business(1) (days)	16.0	16.0	16.0	16.0	16.0	16.0
Outcome of applications by SMEs for bank loans(2)	0.76	na	0.20	na	0.57	0.71
Research and innovation	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
R&D intensity	3.45	3.22	3.25	3.28	3.30	3.16
Total public expenditure on education as % of GDP, for all levels of education combined	7.26	6.98	6.82	7.38	na	na
Number of science & technology people employed as % of total employment	48	49	50	51	52	54
Population having completed tertiary education(3)	28	28	29	30	31	33
Young people with upper secondary level education(4)	88	87	87	86	86	87
Trade balance of high technology products as % of GDP	0.29	0.14	0.11	-0.14	0.09	-0.07
Product and service markets and competition				**2003**	**2008**	**2013**
OECD product market regulation (PMR)(5), overall				1.50	1.61	1.52
OECD PMR(5), retail				0.72	0.60	0.60
OECD PMR(5), professional services				0.77	0.55	0.55
OECD PMR(5), network industries(6)				2.30	2.20	1.87

(1) The methodologies, including the assumptions, for this indicator are shown in detail here: http://www.doingbusiness.org/methodology.
(2) Average of the answer to question Q7B_a. "[Bank loan]: If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome?". Answers were codified as follows: zero if received everything, one if received most of it, two if only received a limited part of it, three if refused or rejected and treated as missing values if the application is still pending or don't know.
(3) Percentage population aged 15-64 having completed tertiary education.
(4) Percentage population aged 20-24 having attained at least upper secondary education.
(5) Index: 0 = not regulated; 6 = most regulated. The methodologies of the OECD product market regulation indicators are shown in detail here: http://www.oecd.org/competition/reform/indicatorsofproductmarketregulationhomepage.htm
(6) Aggregate OECD indicators of regulation in energy, transport and communications (ETCR).
Source: European Commission; World Bank — Doing Business (for enforcing contracts and time to start a business); OECD (for the product market regulation indicators); SAFE (for outcome of SMEs' applications for bank loans).

Table C.5: **Green growth**

Green growth performance		2009	2010	2011	2012	2013	2014
Macroeconomic							
Energy intensity	kgoe / €	0.15	0.16	0.15	0.15	0.14	-
Carbon intensity	kg / €	0.18	0.19	0.17	0.17	0.16	-
Resource intensity (reciprocal of resource productivity)	kg / €	0.56	0.59	0.61	0.61	0.62	0.63
Waste intensity	kg / €	-	0.35	-	0.45	-	-
Energy balance of trade	% GDP	-1.2	-1.6	-1.8	-1.7	-1.5	-1.4
Weighting of energy in HICP	%	11.09	10.99	11.99	11.68	11.01	10.69
Difference between energy price change and inflation	%	-0.4	2.0	0.7	-3.9	-0.4	-2.5
Real unit of energy cost	% of value added	8.3	8.9	9.1	-	-	-
Ratio of labour taxes to environmental taxes	ratio	9.7	9.5	10.2	10.5	10.7	11.3
Environmental taxes	% GDP	2.7	2.6	2.4	2.4	2.4	2.2
Sectoral							
Industry energy intensity	kgoe / €	0.21	0.19	0.18	0.18	0.18	-
Real unit energy cost for manufacturing industry	% of value added	25.1	25.4	26.5	-	-	-
Share of energy-intensive industries in the economy	% GDP	-	-	-	-	-	-
Electricity prices for medium-sized industrial users	€ / kWh	0.07	0.08	0.09	0.08	0.08	0.07
Gas prices for medium-sized industrial users	€ / kWh	0.04	0.05	0.05	0.05	0.06	0.05
Public R&D for energy	% GDP	0.04	0.04	0.04	0.04	0.03	0.04
Public R&D for environment	% GDP	0.02	0.01	0.02	0.02	0.02	0.02
Municipal waste recycling rate	%	98.6	99.1	99.2	99.3	99.4	-
Share of GHG emissions covered by ETS*	%	29.6	34.8	32.7	31.5	36.1	35.9
Transport energy intensity	kgoe / €	0.53	0.52	0.48	0.46	0.46	-
Transport carbon intensity	kg / €	1.28	1.24	1.14	1.06	1.03	-
Security of energy supply							
Energy import dependency	%	36.7	36.6	36.2	28.6	31.6	-
Aggregated supplier concentration index	HHI	14.0	16.7	24.4	16.9	16.2	-
Diversification of energy mix	HHI	0.28	0.28	0.29	0.32	0.30	-

All macro intensity indicators are expressed as a ratio of a physical quantity to GDP (in 2005 prices)
Energy intensity: gross inland energy consumption (in kgoe) divided by GDP (in EUR)
Carbon intensity: greenhouse gas emissions (in kg CO2 equivalents) divided by GDP (in EUR)
Resource intensity: domestic material consumption (in kg) divided by GDP (in EUR)
Waste intensity: waste (in kg) divided by GDP (in EUR)
Energy balance of trade: the balance of energy exports and imports, expressed as % of GDP
Weighting of energy in HICP: the proportion of "energy" items in the consumption basket used for the construction of the HICP
Difference between energy price change and inflation: energy component of HICP, and total HICP inflation (annual % change)
Real unit energy cost: real energy costs as a percentage of total value added for the economy
Environmental taxes and labour taxes : from European Commission, 'Taxation trends in the European Union'
Industry energy intensity: final energy consumption of industry (in kgoe) divided by gross value added of industry (in 2005 EUR)
Real unit energy costs for manufacturing industry: real costs as a percentage of value added for manufacturing sectors
Share of energy-intensive industries in the economy: share of gross value added of the energy-intensive industries in GDP
Electricity and gas prices for medium-sized industrial users: consumption band 500–20 00MWh and 10 000–100 000 GJ; figures excl. VAT.
Municipal waste recycling rate: ratio of recycled municipal waste to total municipal waste
Public R&D for energy or for the environment: government spending on R&D (GBAORD) for these categories as % of GDP
Proportion of greenhouse gas (GHG) emissions covered by EU Emission Trading System (ETS): based on greenhouse gas emissions (excl land use, land use change and forestry) as reported by Member States to the European Environment Agency
Transport energy intensity: final energy consumption of transport activity (kgoe) divided by transport industry gross value added (in 2005 EUR)
Transport carbon intensity: greenhouse gas emissions in transport activity divided by gross value added of the transport sector
Energy import dependency: net energy imports divided by gross inland energy consumption incl. consumption of international bunker fuels
Aggregated supplier concentration index: covers oil, gas and coal. Smaller values indicate larger diversification and hence lower risk.
Diversification of the energy mix: Herfindahl index over natural gas, total petrol products, nuclear heat, renewable energies and solid fuels
* European Commission and European Environment Agency
Source: European Commission (Eurostat) unless indicated otherwise