



Brussels, 26.2.2016
SWD(2016) 75 final

COMMISSION STAFF WORKING DOCUMENT

Country Report Germany 2016

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

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EXECUTIVE SUMMARY

This country report assesses Germany's economy in light of the European 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 Commission published the Alert Mechanism Report that initiated the fifth round of the macroeconomic imbalance procedure. The Alert Mechanism Report identified Germany as warranting a further in-depth review.

Economic growth has been stable in recent years with domestic demand, notably private consumption, as the main growth driver. Real GDP growth stood at 1.6 % in 2014 and 1.7 % in 2015, according to first official results. The growth pattern has evolved with domestic demand having become a key growth driver. Notably, private consumption has strengthened, supported by the strong performance of the labour market and temporary factors such as low energy prices. The labour market weathered the crisis well and the unemployment rate has decreased to a post-reunification low.

By contrast, the recovery in private investment has been uneven and despite recent efforts, public investment remains low. Public investment has been falling and its share in GDP remains below the euro area average despite the large public investment backlog. Some areas of corporate investment, notably in machinery and equipment investment, still have not caught up with pre-crisis levels, in spite of the supportive financing conditions and strong corporate profits.

Going forward, growth is expected to strengthen slightly. Despite weaker export demand in emerging markets, real GDP is set to expand by 1.8 % in 2016 and 2017, respectively. Further growth in employment and wages should support private consumption. Public expenditure on refugees should provide further stimulus. Inflation is set to pick up slowly as the effect of low oil prices is dissipating only gradually. Risks include a weaker external environment, recent financial market volatility, and uncertainty surrounding the impact of the strong inflow of refugees.

Weak investment has contributed to the high and persistent current account surplus and poses risks for the future growth potential of the German economy. A number of factors play a role regarding weak investment such as still unused capacity and uncertainty. But there are also a number of bottlenecks including entry barriers in the services sector, some corporate taxation features and deficiencies in infrastructures including in the energy sector. The current design of fiscal relations may hamper especially municipalities' investment. Complex public infrastructure investment planning hinders both public and private investment. The venture capital is not well developed. Given the expected impact of the ageing society, strengthening the economy's longer-term production capacity and enhancing productivity is important to maintain Germany's high living standards and to cope with challenges such as increasing globalisation and digitisation.

Fiscal space exists for an increase in public investment as public finances remain in a sound position. General government budget surpluses have been recorded in 2014-2015. The budget is expected to remain balanced in headline and structural terms in 2016-2017, and the gross debt-to-GDP ratio is set to decrease. This means there continues to be fiscal space for higher public investment, while complying with the rules of the Stability and Growth Pact.

The ageing society will remain a key challenge. The resulting expected significant decline in the workforce is set to dampen potential growth. If the challenging integration of the refugees in the labour market succeeds, this could help to temporarily mitigate this development to some extent. However, shortcomings in the labour market preventing full utilisation of the existing labour force as well as barriers to competition in some sectors also remain obstacles to increasing potential growth.

Overall, Germany has made limited progress in addressing the 2015 country-specific recommendations (CSRs). As regards policies relevant to the macroeconomic imbalance procedure, the policy response so far is limited to address the investment backlog in infrastructure and establish a sustainable upward trend for public investment. Limited progress was made to ease

restrictive regulation in the professional services, improve the efficiency of the tax system, and reduce high taxes and social contributions. As regards recommendations to address other policy challenges, no progress has been made in revising the fiscal treatment of mini-jobs and their overall number remains large, though it has fallen slightly after the introduction of the minimum wage. Moreover, no steps were taken to remove the barriers to competition in railway transport.

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

The main findings of the in-depth review contained in this country report, and the related policy challenges, are the following:

- **The persistently high current account surplus widened further in 2015 and is projected to remain above 8 % of GDP in 2016-2017.** The German current account surplus accounts for three quarters of the euro area surplus. Though the recent oil price fall explains a significant part of its increase in 2015, the surplus and its persistence rather reflect structural features of the economy, including strong competitiveness in manufacturing and high revenues from private investment abroad. But it also reflects subdued investment and a high level of savings. Furthermore, inefficiencies in corporate taxation and the business environment weigh on private investment.
- **There appears to be further room for wage growth without endangering Germany's competitiveness.** Following a long period of wage moderation, wage growth has accelerated since 2008 as the labour market has tightened. However, the strong labour market situation, as well as wage benchmarks and unit labour costs in relation to the euro area average suggest scope for further sustained wage increases,

which would further support private consumption.

- **The low interest rate environment has not translated into significant changes in savings patterns that would further strengthen households' consumption.** Households did barely adjust their asset allocation in response to the very low interest rates and are hence potentially foregoing higher returns on their savings. To preserve future consumption possibilities, they maintain savings at a very high level.
- **Despite being an important intermediary of household savings, the life insurance sector plays a mainly indirect role in financing public and private investment.** The fiscal treatment of third pillar retirement savings may limit the incentives for households to diversify their investments and raise challenges for life insurers to shift from liquid assets to equity. Life insurers' solvency had been negatively affected by the significant decline in interest rates coupled with a large duration gap on their balance sheets, but safeguarding measures have been taken by authorities in recent years.
- **Public investment remains subdued.** Efforts up to now did not lead to a sustainable upward trend. Thus, a significant infrastructure investment gap remains. The design of federal fiscal relations may have contributed to persistent (especially municipal) underinvestment. In addition, overall public and private expenditure on education and research has only slightly increased in recent years and is likely not to have reached the national target for 2015. Regarding transport infrastructure investment, only limited use has been made of alternative funding instruments while complex planning procedures and administrative bottlenecks hinder invest.
- **Relatively restrictive regulation of professional services giving rise to high mark-ups constrains business dynamics and investment.** These barriers harm competitiveness and contribute to low productivity growth in this sector. In addition,

the retail sector is characterised by overly strict regulation.

- **Given its central position in the euro area, Germany is a source of potential spillovers to other Member States.** The current account surplus has adverse implications for the economic performance of the euro area. Raising its growth potential would benefit Germany. Moreover, given strong trade and financial linkages, it would also help sustain the recovery in the euro area amid the current demand shortfall. Instead, the weak domestic investment and dependence on external conditions pose risks to Germany. While the inflow of refugees is set to support German GDP in the short term via increased domestic demand, the medium-term effect on employment and growth hinges on refugees' successful labour market integration. Germany's solid fundamentals, including the robust labour market and the sound public finance position, provide a solid underpinning to build on in tackling this challenge.
- Besides its impact on the domestic economy, the inflow of refugees via spillovers will also affect euro area growth.

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

- **Regarding public finances,** corporate taxation continues to be high overall, while the efficiency of the tax administration could be further improved. Household income and consumption continue to be restrained by the high tax burden on labour, especially for low wage earners, despite steps having been taken to increase the income tax allowances and compensate for fiscal drag.
 - **Regarding labour market and social policies,** the labour market performance is strong, with in particular unemployment at historically low levels. However, ageing-related labour and skills shortages are looming, calling for full use of the existing labour force. The labour market potential of certain groups remains underutilised and work disincentives remain in place (including for second earners). Extending working lives and long-term unemployment
- remain challenges. Moreover, although severe material deprivation has remained broadly stable, relative poverty and social exclusion are increasing and the unemployed are particularly vulnerable, with a high at-risk of poverty rate.
- **Regarding education policy,** education is a crucial element for integrating the many (often young) refugees and so is fully mobilising the contribution of civil society. In addition, there appears to be room for further improving educational policies, while loosening the link between socioeconomic background and educational achievement.
 - **Regarding network industries and policies for long-term growth and resource efficiency,** further progress is lacking in reducing the administrative burden, improving public procurement, and enhancing digital public services and sustaining investment in education, research and development and innovation. Competition in the railway sector has hardly increased. Further increases in the share of renewable electricity as a proportion of total energy consumption are being constrained by delays in infrastructure development. Progress towards high speed broadband networks and further investment in enhancing the digital infrastructure is slow. Continued investment in education, research and development and innovation is important in view of weakening innovation activities in small and medium-sized enterprises and skills shortages.
 - **Regarding the financial sector,** the stability of the banking system has improved but sustaining profitability remains a key challenge, especially in the low interest rate environment. Financing conditions remain overall favourable despite the recent financial market developments, but the venture capital market remains underdeveloped.

1. SCENE SETTER: ECONOMIC SITUATION AND OUTLOOK

Economic situation

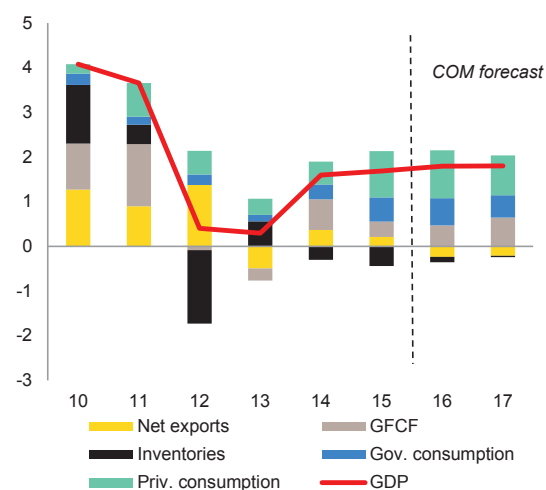
The German economy expanded steadily over the course of 2015. Moderate quarterly GDP growth was recorded throughout the year. Overall, real GDP increased by 1.7 % in 2015, driven mainly by domestic demand, after rising by 1.6 % in 2014.

Economic growth is expected to be sustained in 2016. In spite of recent headwinds from weaker export demand in emerging markets, Germany's economic growth continues to be supported by favourable labour market and financing conditions underpinning domestic demand, as well as by some temporary factors such as the impact of low energy prices and high net migration. Overall, real GDP is expected to increase by 1.8 % in both 2016 and 2017.

Downside risks relate to the external environment, including China's slowdown, and the recent financial market turmoil. Germany has the largest direct trade exposure to China among the EU Member States and could therefore be directly affected by China's slowing economic growth as well as by weaknesses in other emerging market economies. In addition, this weaker external environment, compounded by the increased uncertainties in the financial markets, could also have a negative impact on economic sentiment, which might hamper the recovery in investment. Moreover, uncertainty surrounding the inflow of refugees and its economic impact remains high.

The expansion is set to be driven by domestic demand. While investment has remained subdued, private consumption is expected to remain a key growth driver (Graph 1.1). Steady employment growth and low inflation should continue supporting real disposable incomes despite an expected deceleration in wage growth (see Section 2.2 for an analysis of wage dynamics). Slightly negative contributions to growth are expected from net external trade. Import growth supported by domestic demand should offset the effect of the expected increase in export growth as the external environment gradually strengthens.

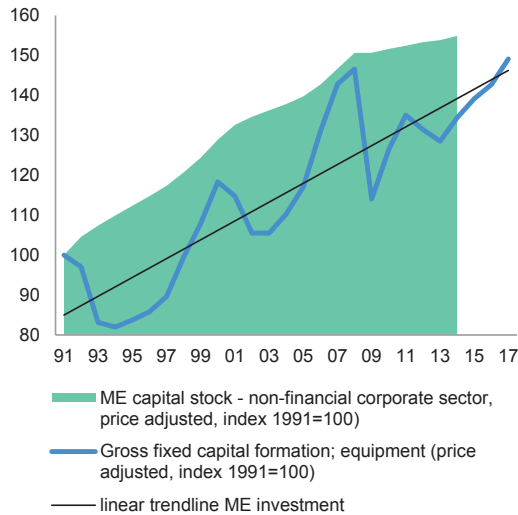
Graph 1.1: Demand components of GDP growth (% pp., contributions to annual growth)



Source: Eurostat and European Commission 2016 winter forecast.

Corporate investment remains weak, and is expected to pick up only moderately. Investment in machinery and equipment has seen only gradual recovery with frequent setbacks, including in 2015. Possibly also reflecting a correction in sales expectations and the impact of uncertainty, the corresponding capital stock appears to have shifted to a less dynamic growth path in the post-crisis period (Graph 1.2 as well as Box 1.1 for an analysis of investment challenges). Partly reflecting delayed replacement investment, equipment investment is expected to pick up moderately in the course of 2016 in line with the improving outlook and along with private non-residential construction. Following the upswing in recent years, housing investment growth is expected to remain broadly stable, partly due to the additional boost from high net immigration.

Graph 1.2: **Machinery and equipment (ME)— investment and non-financial corporate sector capital stock**



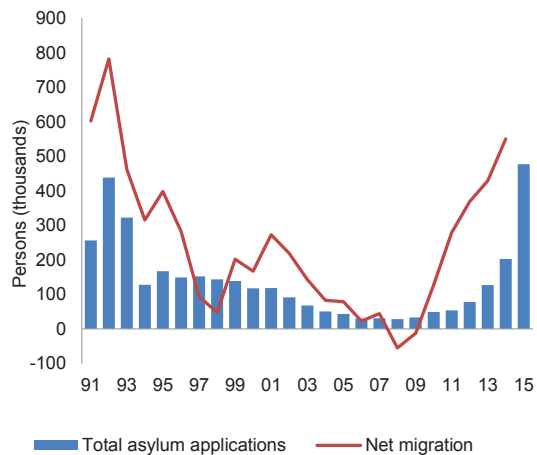
Source: Destatis, European Commission.

In spite of recent efforts, public investment as a share of GDP has continued falling, and in 2015 public sector investment decreased in nominal and real terms. The share of public sector investment in GDP has been on a steady decline in the post-crisis period and continues to fall short of the euro area average despite the existing backlog concerning public infrastructure investment (see also Box 1.1). Public sector investment decreased in current prices and in real terms in 2015. Moreover, net investment turned negative again in 2014, implying that the capital stock shrank. In light of the existing fiscal relations, public investment at municipal level has been particularly weak. The Commission 2016 winter forecast projects public investment to gain some momentum in 2016-2017 but measures do not appear to bring about a sustainable upward trend (see Section 2.5 on public investment and federal fiscal relations).

The large influx of refugees is set to stimulate growth in the short term. While net migration to Germany had been on the rise for several years, this trend was magnified in 2015. Germany was one of the key destination countries for the unprecedented flow of refugees in Europe. Around

1.1 million refugees (1.3 % of population)¹ registered in Germany in 2015 (Graph 1.3 and 1.4) and further inflows are expected. In the short term, this is likely to provide some stimulus to GDP growth via additional public spending on refugees and housing investment.

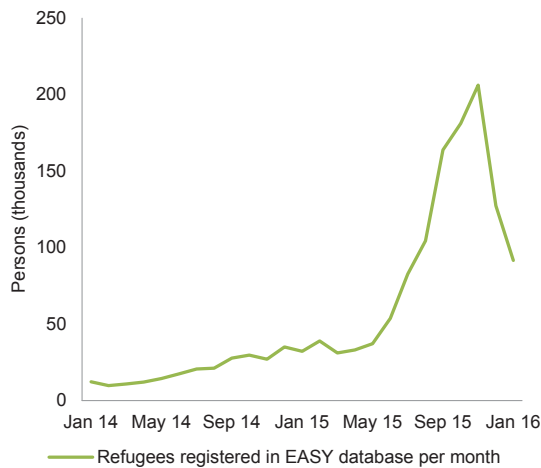
Graph 1.3: **Net migration to Germany and number of asylum applications**



Source: Destatis, Federal Office for Migration and Refugees. Note: The vast majority of refugees arriving in Germany intend to apply for asylum. However, due to marked delays in the registration and application process, the actual number of asylum applications does not yet adequately reflect the strong migration inflow.

¹ The high number of refugees adds to already increased net migration mainly from European countries (0.55 million in 2014).

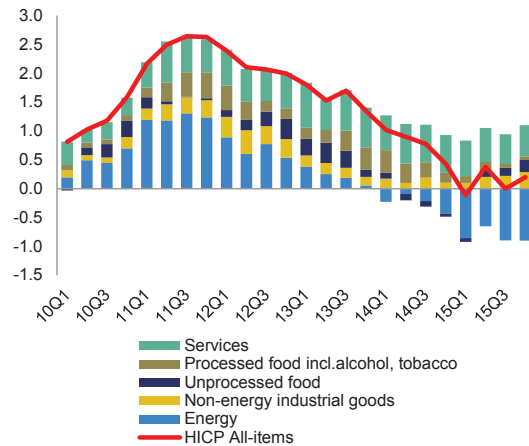
Graph 1.4: Refugees registered in Germany



Source: Federal Office for Migration and Refugees.

The medium-term impact hinges on the successful integration of the new immigrants into the labour market. The German labour market continued to perform robustly in 2015. Employment growth accelerated and unemployment continues to stand at a record low (4.6 % in 2015). Remaining unemployment is largely structural. Going forward, employment growth should accelerate but a moderate increase in unemployment is expected in 2016. Given the demographic structure of the newly-arrived refugees, the labour force is set to increase substantially, potentially helping to mitigate the negative impact of demographic change. But the labour market integration of refugees is set to take time and will require a targeted strategy, including upskilling, which explains the projected rise in unemployment. Despite the favourable labour market outcomes, poverty and social exclusion have increased in recent years. The unemployed are particularly vulnerable, their at-risk-of-poverty rate is the highest in the EU.

Graph 1.5: Contributions to headline inflation (y-o-y. %)



Source: European Commission.

External factors continue to dampen inflation. Lower oil prices resulting in negative energy price growth weighed heavily on headline inflation (Graph 1.5), which stood at 0.1 % in harmonised terms in 2015. Amid limited domestic price pressures, core inflation² stood at 1 % in 2015 but is expected to reaccelerate somewhat in 2016-2017. With the dampening effect of oil prices on energy prices expected to last until late 2016, headline inflation in the harmonised index of consumer prices (HICP) is projected to pick up only slightly in 2016 before accelerating to 1.5 % in 2017. Overall, limited price pressures have supported domestic demand via their effect on real disposable incomes.

External and sectoral developments

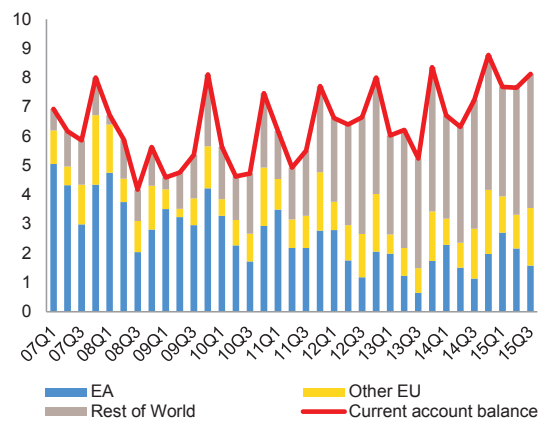
The current account surplus further increased in 2015. A large part of the increase from 2014 to 2015 by 1 pp. to 8.8 % of GDP³ is explained by recent oil price and exchange rate developments. However, with a projected balance of 8.6 % of GDP in 2016 and 8.3 % in 2017, no significant narrowing of the balance is expected in the coming years. This underlines the structural nature of the current account surplus.

² Harmonised inflation rate excluding energy and unprocessed food.

³ According to provisional national accounts data for the year 2015.

Rebalancing with the euro area has stalled recently. In geographic terms, the surplus is the greatest in relation to non-EU countries (Graph 1.6). The balance in relation to China, which had improved sharply in the post-crisis years and turned into a surplus since 2012, has narrowed somewhat (see Section 2.1). At the same time, rebalancing in relation to the EU, and in particular the euro area, does not seem to have continued. The downward trend in the share of the German surplus accounted for by the rest of the euro area observed since 2007, when it peaked at around 60 %, seems to have stalled in recent quarters (see Section 2.1).

Graph 1.6: **Current account balance by geographical counterpart (% of GDP)**



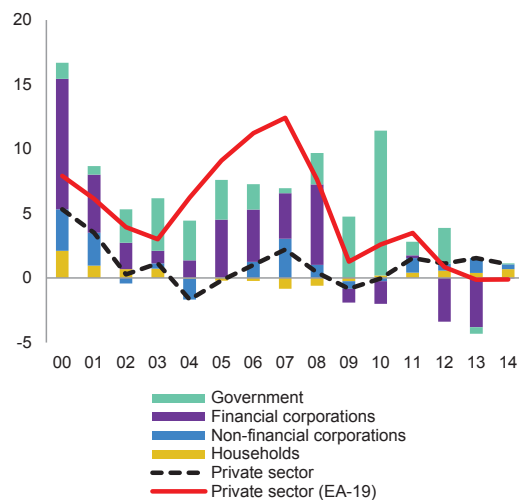
Source: Bundesbank, European Commission.

Credit growth has not picked up despite favourable financing conditions. Credit growth remains subdued (Graph 1.7), despite low interest rates and historically favourable credit constraints. On the household side, growth in loans for house purchases has accelerated slightly, resulting in total household credit growth which, while moderate, exceeds the rates seen in the past decade (see Section 2.3 on the effects of the low interest environment on household savings and consumption). The non-financial corporate sector continues to use internal funds for financing investment instead of relying on credit. However, its ample untapped funds are evidence that the weakness in credit growth is demand-driven.

Fiscal space exists for increasing public investment as public finances remain in a sound

position. The general government budget surplus rose from 0.3 % of GDP in 2014 to 0.5 % in 2015. In the years ahead, expenditure growth is expected to accelerate and to outstrip current revenue growth. In particular, the influx of refugees is expected to boost government consumption and spending on cash benefits. Additional funds destined for infrastructure investment should gradually increase public sector investment, although adopted measures still do not appear to bring about a sustainable upward trend. Strong pension increases announced for 2016 will also contribute to expenditure growth. Overall, the budget is expected to remain balanced in headline and structural terms in 2016-2017. This means there is still fiscal space for increasing public investment, without endangering the rules of the Stability and Growth Pact. The gross debt-to-GDP ratio is set to decrease noticeably.

Graph 1.7: **Credit flows by institutional sector (consolidated, % of GDP)**



Source: European Commission.

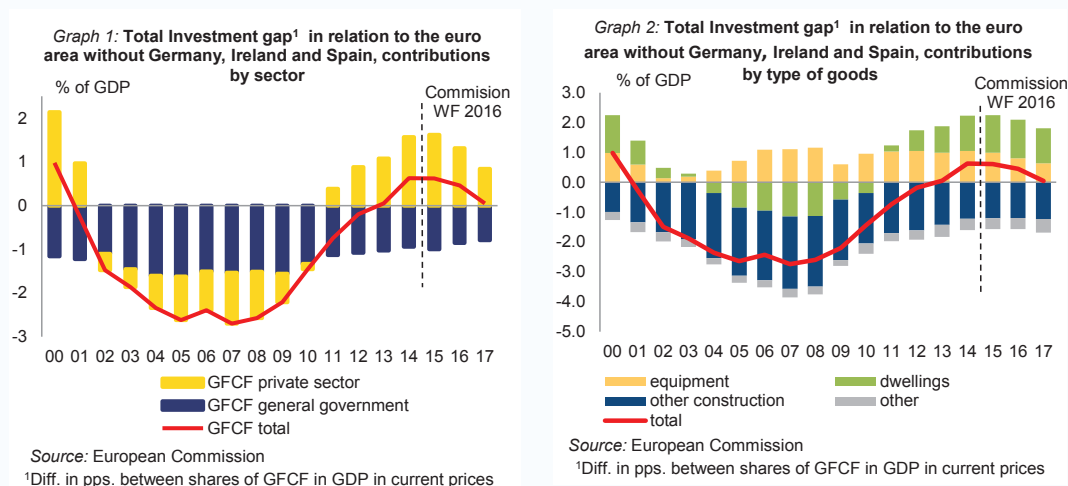
The ageing society will remain a key challenge despite the potentially mitigating effects of recent immigration. Demographic change will have a significant impact on a number of areas, including on potential growth as a result of the sharp decline in the labour force in the medium term. The current inflow of refugees could help to dampen this trend, if their labour market integration is successful. But that would not be fully sufficient to mitigate the projected fall of almost 30 % in the working-age population by 2060 and the associated negative impact on

potential growth, which would require additional counterbalancing measures to improve the sustainability of the social security system and make full use of the existing labour force.

Box 1.1: Investment challenges

Macroeconomic perspective

Previous editions of the in-depth review have identified relatively low public and private investment in Germany as a factor contributing to the persistent high current account surplus and limiting the economy's potential growth.¹ Indeed, domestic gross fixed capital formation (GFCF) as a share of GDP was on a downward trend prior to the crisis also in the context of Germany's weak growth performance and structural problems in the first half of the 2000s. This downward trend was only briefly reversed in 2006-07 on the back of strong economic growth. Following a crisis-related fall in 2009, investment has seen an uneven and gradual recovery, which is projected to continue at a slow pace in 2016-2017. After having been below the euro area² average since the early 2000s, the investment share in GDP has exceeded it since 2013. However, the difference in percentage points between the investment share in GDP in current prices observed in Germany and the euro area, the investment gap, is expected to fade over the forecast horizon (Graph 1).



Public sector investment has been low and declining while the pick-up in private sector investment has been uneven. *Public sector investment* fell significantly relative to GDP in the pre-crisis years (see Section 2.5). After a pick-up also reflecting the policy response in 2008-2009, this downward trend resumed in the post-crisis period. As shown in Graph 2.5.3 in Section 2.5, this resulted in a persistent and pronounced public sector investment gap in relation to the euro area. The low investment rate mainly reflects the gradual scaling back of public infrastructure investment, for both the maintenance and expansion of infrastructure, which has resulted in the accumulation of a significant backlog. Net public capital formation has in fact been negative in recent years driven in particular by developments in municipalities (see Graph 2.5.4 in Section 2.5). *Private sector investment* relative to GDP had also seen a trend decrease in the pre-crisis years, declining most markedly in the early 2000s. Following the pronounced crisis-related fall in 2009, it strengthened somewhat and has since 2011 exceeded the investment share recorded in the rest of the euro area. Regarding the main categories, investment in machinery and equipment showed not only a pronounced cyclical pattern in the pre-crisis years but also a pronounced weakness, in part reflecting weak domestic demand in the early 2000s. To some extent, subdued nominal developments reflected a strong trend decrease in equipment prices in Germany, which was not observed at the euro area level. While strengthening, investment has repeatedly disappointed in the post-crisis years, as a more forceful pick-up could have been

¹ The in-depth review 2014 for Germany presented a detailed analysis of investment developments in Germany by sector and by category. European Commission (2014), IDR Macroeconomic Imbalances - Germany 2014, European Economy Occasional Papers No. 174.

² Throughout this box, comparisons with the euro area refer to the EA19 excluding Germany, Ireland and Spain to correct for the most pronounced construction bubbles observed in the run-up to the crisis.

(Continued on the next page)

Box (continued)

expected amid the current favourable conditions, including historically low credit constraints on the back of solid balance sheets and the low interest environment (see Graph 1.2 in the main text). Further supported by these factors, the gradual recovery is set to continue in 2016-2017. Construction investment accounted for the bulk of the investment gap vis-à-vis the euro area which peaked in 2007 (Graph 1). Residential investment (dwellings) had declined significantly before the crisis, also reflecting the post-reunification boom. It accelerated significantly in the post-crisis years in the context of a considerable increase in net migration, low interest rates, favourable labour market developments and its status as a safe investment. Still, rising house prices signal that housing demand exceeds the supply of dwellings. Going forward, only a small moderation is forecast for 2016-2017 while the current strong migration inflow should support residential construction in the medium term. Finally, non-housing construction investment has shown some weakness in the pre- and post-crisis years, falling short consistently of the euro area average. This gap is forecast to remain stable in 2016-2017. As regards public and private expenditure on education and research, only a slight overall increase has been recorded in recent years; it may thus have fallen short of the national target of 10 % of GDP for 2015.

Assessment of barriers to investment¹ and ongoing reforms

There are ongoing efforts to reform fiscal relations between different levels of government, public investment procedures and the provision of venture capital. Despite the existence of significant overall fiscal space to increase public investment in full respect of European and national budgetary rules, there seems to be a mismatch between the resources allocated to the different layers of government and their individual investment responsibilities, hampering municipalities' investment, in particular. Negotiations on a reform of federal fiscal relations are ongoing. At the same time, alternative instruments to traditional state funding of transport infrastructure, including through public-private partnerships, are used only to a limited extent. Moreover, complex planning responsibilities across the different levels of government, bottlenecks regarding administrative capacity as well as complicated approval procedures are important barriers to investment. In this context, it should be noted that the conclusions of an expert group that had been set up to develop proposals on how to raise private and public investment, e.g. by tapping more into private funds for public infrastructure projects, are currently being processed by the authorities. This could also help address the need to further step up public investment in transport infrastructure (see Section 2.5). Moreover, the venture capital market in Germany remains underdeveloped in international comparison (see Section 3.5), especially as regards later-stage financing. Further to earlier initiatives, the authorities approved in September 2015 an issue paper covering a number of measures to further promote venture capital investment.

Private investment would inter alia benefit from further changes to the tax system and the removal of sector-specific barriers. The complexity of the tax system remains a hindrance to private investment. no progress has been made inter alia regarding the reform of the local trade tax (see Section 3.1). In addition, elements of regulation in business services and regulated professions that remain unchanged, including professional qualifications requirements, legal form and shareholding requirements might be holding back investment (see Section 2.6). Unchanged planning regulations in certain federal states create entry barriers regarding retail, while the complex and slow process for electricity grid expansion might be hampering investment in the energy sector.

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

Germany is a beneficiary of European Structural and Investment Funds (ESIF) support and will receive up to EUR 27.9 billion for the period 2014-2020. This is equivalent to 5.3% of the expected national public investment in areas supported by the ESI funds.

At national level, all general ex-ante conditionalities have been met. At the level of the individual regional programmes, a few conditionalities have not been met and will be delivered in accordance with the agreed action plans before the end of 2016.

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 increased investments in R&D and measures to enhance participation and integration in the labour market, especially for the long-term unemployed. Regular monitoring of implementation includes reporting in mid-2017 on the contribution of the funds to Europe 2020 objectives.

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, Germany has signed agreements for EUR 2 billion for transport projects. For more information on the use of ESIF in Germany, see: <https://cohesiondata.ec.europa.eu/countries/DE>.

Table 1.1: Key economic, financial and social indicators — Germany

	2003-2007	2008	2009	2010	2011	2012	2013	2014	forecast		
									2015	2016	2017
Real GDP (y-o-y)	1.6	1.1	-5.6	4.1	3.7	0.4	0.3	1.6	1.7	1.8	1.8
Private consumption (y-o-y)	0.6	0.6	0.2	0.4	1.4	1.0	0.6	0.9	1.9	2.0	1.7
Public consumption (y-o-y)	0.5	3.4	3.0	1.3	0.9	1.3	0.8	1.7	2.8	3.1	2.5
Gross fixed capital formation (y-o-y)	2.2	1.5	-10.1	5.4	7.2	-0.4	-1.3	3.5	1.7	2.4	3.2
Exports of goods and services (y-o-y)	8.3	1.9	-14.3	14.5	8.3	2.8	1.6	4.0	5.4	3.8	4.8
Imports of goods and services (y-o-y)	7.4	2.2	-9.6	12.9	7.0	-0.3	3.1	3.7	5.7	5.2	6.3
Output gap	-0.9	1.7	-4.5	-1.4	1.1	0.4	-0.5	-0.4	-0.4	-0.4	-0.3
Potential growth (y-o-y)	1.3	1.1	0.6	0.8	1.1	1.2	1.2	1.4	1.7	1.8	1.7
Contribution to GDP growth:											
Domestic demand (y-o-y)	0.8	1.2	-1.4	1.5	2.3	0.7	0.2	1.5	1.9	2.1	2.0
Inventories (y-o-y)	0.1	-0.2	-1.6	1.3	0.4	-1.6	0.6	-0.3	-0.4	-0.1	0.0
Net exports (y-o-y)	0.7	0.0	-2.6	1.3	0.9	1.4	-0.5	0.4	0.2	-0.2	-0.2
Contribution to potential GDP growth:											
Total Labour (hours) (y-o-y)	0.1	0.0	-0.1	-0.1	0.1	0.3	0.4	0.5	0.8	0.8	0.6
Capital accumulation (y-o-y)	0.3	0.4	0.1	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.4
Total factor productivity (y-o-y)	0.9	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
Current account balance (% of GDP), balance of payments	4.6	5.6	5.7	5.6	6.1	6.8	6.4	7.3	.	.	.
Trade balance (% of GDP), balance of payments	5.1	6.0	4.9	5.2	4.8	5.8	5.8	6.4	.	.	.
Terms of trade of goods and services (y-o-y)	-0.4	-1.7	4.6	-2.3	-2.7	-0.4	1.4	1.5	2.7	0.7	0.0
Capital account balance (% of GDP)	0.0	0.0	-0.1	0.0	0.1	0.1	0.0	0.1	.	.	.
Net international investment position (% of GDP)	11.4	18.2	25.0	25.8	23.3	28.8	34.8	42.1	.	.	.
Net marketable external debt (% of GDP)1	.	12.3*	20.1*	19.8*	17.1*	14.0	19.8	21.4	.	.	.
Gross marketable external debt (% of GDP)1	120.9	135.7	135.6	142.8	143.7	143.0	126.5	130.7	.	.	.
Export performance vs. advanced countries (% change over 5 years)	13.3	6.2	1.2	-0.2	-0.9	-6.7	-4.1	-2.82	.	.	.
Export market share, goods and services (y-o-y)	0.5	-3.5	-1.3	-6.4	-1.6	-4.6	1.8	1.7	.	.	.
Net FDI flows (% of GDP)	1.1	1.7	1.3	1.8	0.3	1.3	0.3	2.9	.	.	.
Savings rate of households (net saving as percentage of net disposable income)	10.1	10.5	10.0	10.0	9.6	9.3	9.1	9.5	.	.	.
Private credit flow (consolidated, % of GDP)	0.5	0.4	-0.8	0.0	1.5	1.2	1.6	1.0	.	.	.
Private sector debt, consolidated (% of GDP)	116.5	109.4	112.8	107.1	103.2	102.7	102.9	100.4	.	.	.
of which household debt, consolidated (% of GDP)	66.5	59.4	61.7	59.0	56.9	56.4	55.4	54.4	.	.	.
of which non-financial corporate debt, consolidated (%)	50.0	50.0	51.1	48.1	46.3	46.3	47.5	46.0	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	1.4	0.3	2.9	4.3	2.3	2.3	2.1	2.8	3.5	3.7	3.5
Corporations, gross operating surplus (% of GDP)	26.4	26.8	25.2	26.3	25.9	24.8	24.7	24.6	24.9	25.0	25.0
Households, net lending (+) or net borrowing (-) (% of GDP)	5.8	5.3	6.2	5.8	4.7	4.9	4.6	4.7	4.7	4.8	4.8
Deflated house price index (y-o-y)	-1.8	-0.4	1.3	-1.0	1.4	1.9	1.8	1.5	.	.	.
Residential investment (% of GDP)	5.2	5.0	5.1	5.2	5.6	5.8	5.8	5.9	5.9	.	.
GDP deflator (y-o-y)	1.0	0.8	1.8	0.8	1.1	1.5	2.1	1.7	2.1	1.5	1.8
Harmonised index of consumer prices (HICP, y-o-y)	1.8	2.8	0.2	1.2	2.5	2.1	1.6	0.8	0.1	0.5	1.5
Nominal compensation per employee (y-o-y)	0.8	2.1	0.2	2.6	3.0	2.5	1.8	2.6	2.7	2.8	3.2
Labour productivity (real, person employed, y-o-y)	1.3	-0.2	-5.7	3.8	2.3	-0.7	-0.3	0.7	0.9	.	.
Unit labour costs (ULC, whole economy, y-o-y)	-0.5	2.3	6.3	-1.2	0.7	3.3	2.2	1.9	1.8	1.8	2.2
Real unit labour costs (y-o-y)	-1.5	1.5	4.4	-1.9	-0.4	1.8	0.1	0.2	-0.3	0.3	0.5
Real effective exchange rate (ULC, y-o-y)	-0.5	0.1	4.2	-4.5	-0.1	-1.0	4.3	1.8	-3.0	1.2	.
Real effective exchange rate (HICP, y-o-y)	1.0	0.5	1.0	-5.2	-0.7	-3.3	2.1	0.9	-4.2	1.1	-0.7
Tax wedge on labour for a single person earning the average wage (%)	42.5	42.0	41.3	39.2	39.9	39.8	39.6	39.5	.	.	.
Tax wedge on labour for a single person earning 50% of the average wage (%)	31.9*	31.9	31.1	30.4	31.2	31.1	30.9	30.8	.	.	.
Total Financial Sector Liabilities, non-consolidated (y-o-y)	5.6	3.6	-4.8	-0.3	2.6	3.7	-5.7	5.6	.	.	.
Tier 1 ratio (%)2	.	8.8	10.2	11.3	11.6	13.8	15.2	14.6	.	.	.
Return on equity (%)3	.	-11.4	-2.7	2.3	2.3	1.3	1.3	2.5	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (4)	.	1.9	2.7	2.4	1.6	1.7	1.8	2.5	.	.	.
Unemployment rate	10.0	7.4	7.6	7.0	5.8	5.4	5.2	5.0	4.6	4.7	5.0
Long-term unemployment rate (% of active population)	5.4	3.9	3.5	3.3	2.8	2.4	2.3	2.2	.	.	.
Youth unemployment rate (% of active population in the same age group)	13.2	10.4	11.1	9.8	8.5	8.0	7.8	7.7	7.3	.	.
Activity rate (15-64 year-olds)	73.7	75.9	76.3	76.6	77.3	77.2	77.6	77.7	.	.	.
People at-risk poverty or social exclusion (% total)	19.7	20.1	20.0	19.7	19.9	19.6	20.3	20.6	.	.	.
Persons living in households with very low work intensity (% of total population aged below 60)	12.4	11.7	10.9	11.2	11.2	9.9	9.9	10.0	.	.	.
General government balance (% of GDP)	-2.6	-0.2	-3.2	-4.2	-1.0	-0.1	-0.1	0.3	0.5	0.1	0.0
Tax-to-GDP ratio (%)	38.8	39.2	39.6	38.2	38.7	39.3	39.4	39.5	39.7	39.7	39.9
Structural budget balance (% of GDP)	.	.	.	-2.2	-1.4	-0.2	0.2	0.8	0.8	0.3	0.0
General government gross debt (% of GDP)	64.9	65.0	72.5	81.0	78.4	79.7	77.4	74.9	71.6	69.2	66.8

(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 controlled branches. (*) Indicates BPM5 and/or ESA95

Source: European Commission, winter forecast 2016; ECB

2. IMBALANCES, RISKS, AND ADJUSTMENT ISSUES

This section provides the in-depth review required under the macroeconomic imbalance procedure (MIP).⁴ It focuses on the potential risks and vulnerabilities flagged in the Alert Mechanism Report 2016. The section analyses the reasons behind the high current account surplus, notably the dynamics driving its further widening, both structural – including saving and investment patterns – and cyclical, including terms-of-trade effects, in particular related to oil price and exchange rate. Factors influencing households' saving and consumption decisions are then examined, in particular wage developments and the impact of a low interest rate environment. Further, challenges for the life insurance sector are discussed, given that it manages a large share of households' savings. Factors contributing to subdued public sector investment are then analysed, including the current design of federal fiscal relations. In light of the relatively restrictive regulation of professional services and its implications for the wider economy, the potential impact of reforms improving the sector's overall efficiency is then analysed. Finally, given Germany's close integration with other EU economies, this section also discusses possible inward and outward spillover effects, including those related to the influx of refugees into Germany. The section concludes with the MIP assessment matrix which summarises the main findings.

2.1. CURRENT ACCOUNT DEVELOPMENTS

Germany's current account surplus increased in 2014 (7.3 % of GDP) and 2015 (8.2 % of GDP) essentially driven by a rising surplus in foreign trade in goods. The overall increase in the surplus⁵ for 2015 in relation to 2013 of 1.8 pps. of GDP primarily reflects a widening surplus in goods trade (by 1.2 pps. to 8.6 % of GDP), and a narrowing deficit in services (by 0.4 pps. to -1.2 % of GDP) and secondary income (by 0.2 pps. to -1.3 % of GDP). The sizeable positive primary income balance has stayed unchanged at 2.2 % of GDP. The current account surplus in relation to the EU⁶ increased by 1.3 pps., of which 0.7 in relation to the euro area. The halt in the rebalancing in relation to the rest of the euro area can be explained by a combination of value and, to a lesser extent, volume effects affecting German imports from the region.

The current account seems largely structural, only partly driven by fundamentals, and is

likely to persist at a level beyond 6 % of GDP in the foreseeable future. While oil price and exchange rate fluctuations explain the bulk of the 2014-2015 surplus increase (Box 2.1.1), the level of the surplus will most likely remain high when these effects fade. This is because a large part of the surplus is due to structural factors. The persistent component of the current account surplus is, however, only partly explained by the fundamental factors such as demographics, resource endowments, or manufacturing intensity. Empirical estimates vary regarding the impact of such fundamentals on the German surplus. A recent International Monetary Fund (IMF) estimate⁷ attributes 3.9 pps. (around half) of the surplus to fundamental determinants, while the European Commission finds that they explain only 1 pp. (about $\frac{1}{8}$)⁸ Results of most other studies

⁷ IMF (2015), Germany: Staff Report For The 2015 Article IV Consultation', IMF, June 2015.

⁸ The European Commission benchmark derives from a reduced-form panel over 70 countries capturing the main determinants of the saving-investment balance, including fundamental determinants policy factors and global financial conditions, all of which are considered as differences with respect to the world economy. The methodology is akin to the External Balance Assessment (EBA) approach developed by the IMF. Phillips, S. et al. (2013), 'The External Balance Assessment (EBA)

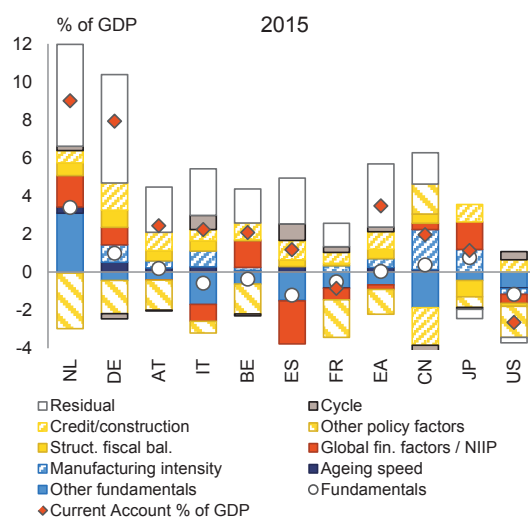
⁴ Article 5 of Regulation (EU) No 1176/2011.

⁵ This section uses balance of payments and foreign trade statistics data.

⁶ Geographic breakdowns refer to the year ending in the third quarter of 2015.

relying on the estimation of global current account benchmark models lie within that range⁹. Moreover, fundamental factors play only a partial role in explaining the surplus increase since the early 2000s.

Graph 2.1.1: Drivers of current account balances, 2015 (in % of GDP)



Source: European Commission. Note: Current account balances based on Commission 2016 winter forecast.

Among the fundamental factors, ageing contributes to the current account surplus.

According to the Commission estimates, ageing is one of drivers of the German current account surplus (Graph 2.1.1). The current inflow of refugees could help to alter the impact on the current account, if their labour market integration is successful. Also a full utilisation of the existing labour force (especially with respect to women and older people), or changing the institutional framework of pension savings could have an impact (see also 2015 country report).¹⁰

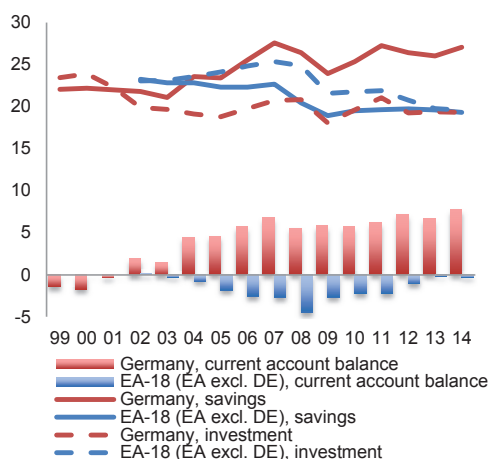
A part of the German surplus increase since the early 2000s can be attributed to non-fundamental factors, including those driven by policies. According to Commission estimates (Graph 2.1.1), the relatively tight fiscal stance relative to the world economy contributed ca. 1 pp to the surplus in 2015, while muted credit provision to the private sector and relatively low construction investment account for ca. 1.5 pps. compared to their negative contribution in the early 2000s. The persistent surpluses led Germany to accumulate net foreign assets, which supports the income balance despite fluctuating asset valuations. Net foreign assets are thus estimated to contribute another 1 pp. and is a structural factor that is expected to continue contributing to the surplus, notwithstanding the possible fluctuation in asset valuations. In contrast, the recently persistent output gap differential between Germany and its trade partners ('Cycle' in Graph 2.1.1) has tended to lower the current account by roughly 0.3 to 0.6 pps. according to various estimates. This implies that the current account surplus could expand further and exceed 9 % of GDP when the cyclical conditions elsewhere improve. Overall, both the IMF and Commission approaches identify a significant gap where determined policies could play a role in reducing the current account over the short to medium term. Yet, such generalised models still leave a considerably larger part of the surplus unexplained, which underlines the importance of the detailed assessment in this country report.

Kollmann R., Ratto M., Roeger W., In 't Veld J., and Vogel L. (2014) "What drives the German current account? And how does it affect other EU member states?" European Economy. Economic Paper no. 516

Methodology', IMF Working Paper, 13/272. Differences with IMF estimates relate to i. a. variations in the choice and design of explanatory variables, in particular relating to ageing speed, and the country sample.

⁹ European Commission (2014), "IDR Macroeconomic imbalances - Germany 2014", European Economy. Occasional Papers 174., pp. 98-100

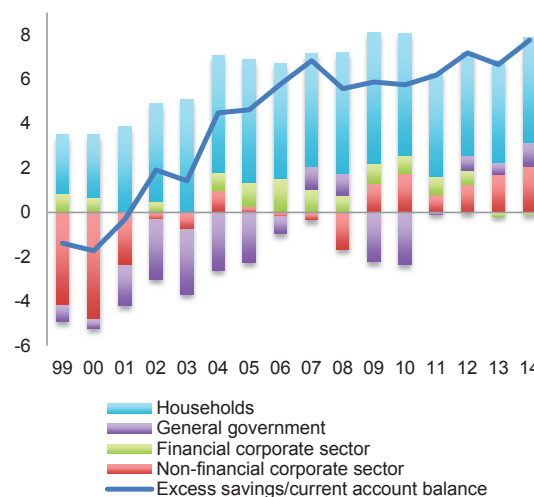
¹⁰ In contrast to global empirical models without fixed effects, country-specific estimations can implicitly take into account such institutional settings and thus find a considerably stronger impact of ageing. Consider, e.g.,

Graph 2.1.2: **Current account balance, national saving and investment (in % of GDP)**

Source: European Commission.

Developments in savings and investment balances by sector

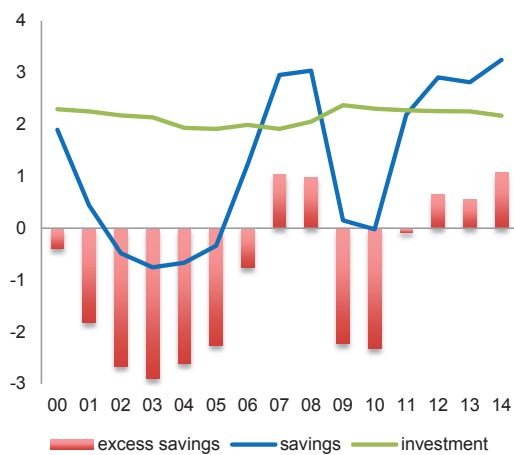
The widening of the current account surplus in 2014 reflected higher savings, while investment remained stable. One perspective on current account balances is to see them as a reflection of a mismatch between national savings and investment (of the household sector, general government and the non-financial and financial corporate sectors), where the increase in the German current account surplus reflects both increasing savings and a trend decrease in investment (relative to GDP) (Graph 2.1.2). Since the pre-crisis peak of the surplus in 2007, savings as a proportion of GDP have been broadly stable, while the downward trend in investment has continued. In 2014, the further increase in the current account surplus was predominantly driven by a rise in savings. At the same time, the investment share in GDP was further reduced by 0.1 pps. Thus, no trend reversal regarding investment has taken place despite the supportive conditions. At the euro area level (excluding Germany), where both savings and investment have decreased in the aftermath of the crisis, a slightly stronger decline in savings than in investment was recorded in 2014, leading to a slight deterioration of the balance.

Graph 2.1.3: **Sectoral excess savings and current account balance (% of GDP)**

Source: European Commission.

The general government and the non-financial corporate sector accounted for the bulk of the rise in savings in 2014 while no sector saw an increase in investment. From a sectoral perspective, the improvement in the public sector's fiscal position was already a key contributor to higher savings and current account dynamics in the aftermath of the crisis (Graph 2.1.3). With a further increase in general government savings by 0.4 pps. to 3.2 % of GDP, driven partly by lower interest spending, this was again the case in 2014 (Graph 2.1.4) and continued in 2015. At the same time, public sector gross capital formation has continued its slight but steady decline in the post-crisis period, falling by a further 0.1 pps. of GDP to a low 2.2 % of GDP in 2014 despite the widely recognised backlog in public investment. Section 2.5 reviews developments in public sector investment in more detail, highlighting, in particular, the investment backlog in municipal and transport infrastructure.

Graph 2.1.4: General government (% of GDP)



Source: European Commission.

Corporate investment remained rather weak despite favourable conditions. Essentially reflecting higher savings, the German non-financial corporation (NFC) sector was a main contributor to the building up of the current account surplus as the sector moved into a net lending position in the years before the crisis. More recently, its savings-investment gap continued to widen slowly but steadily by 0.4 pp. of GDP per year in 2012-2014 (Graph 2.1.5). Notably, amid favourable conditions for investment including very favourable financing conditions, the share of the sector's investment in GDP saw no increase in 2014 (stable at 10.5 % of GDP). At the same time, its savings share increased by 0.4 pps. to 12.6 % of GDP despite slightly lower profitability. Resuming a post-crisis trend, firms reduced the share in gross value added (GVA) of pay-outs such as dividends,¹¹ leading to the increase in savings.

Firms have partly used high excess savings to make financial investments in equity holdings. As explained in the 2015 country report, there are indications that these equity acquisitions are not motivated by a search of short-term profits. They seem rather of a strategic nature, i.e. meant to support the holding firm's business activity by establishing a lasting relation with the other firms. The aim could be to establish strategic ties with

other firms that are linked to the international value chain of the investing firm. At the same time, corporate deleveraging may also have been supported by tax reforms undertaken in the 2000s which have made retained earnings relatively more attractive as a source of funding.

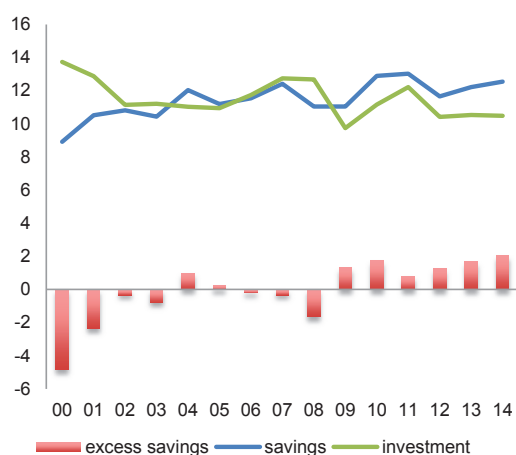
Germany's lower investment in some parts of construction stands out in relation to other euro area Member States. Construction investment, including both residential and non-residential investment, accounted for the bulk of the observed investment gap in relation to the euro area (see Graph 1 in Box 1.1). As explained in the 2014 country report, the decline in residential investment before the crisis followed the reunification-related boom. Similarly, part of the fall in non-housing construction investment can be explained by the preceding boom, e.g. the earlier hike in construction of infrastructure and buildings in East Germany. However, continued weakness, especially in non-housing investment, may be also an indication of existing regulatory and administrative barriers as well as some inefficiencies in the tax system (see Box 1.1 for further details). Investment in machinery and equipment has remained weak in the post-crisis years. This is likely to be related to a number of factors including still free capacity and uncertainties. There also remain a number of bottlenecks, including entry barriers in the services sector, remaining weaknesses in the business environment and some corporate taxation features. At the same time, as explained in more detail in the 2015 country report, there is a strong positive correlation between German investment in machinery and equipment and goods exports, with the German manufacturing sector accounting for a significant proportion of both aggregates. This pattern could reduce the scope for a current account rebalancing based on machinery and equipment investment. This is because it is unlikely that a significant expansion in the latter would be observed without an associated increase in exports.

Households continue to be the sector with the highest excess savings. Against the background of its traditionally high saving rate, the *household sector* accounted for 61 % of Germany's total excess savings in 2014 (non-financial corporate sector: 27 %, general government: 14 %, financial corporate sector: -1 %). Households' investment has been stable at 6.3 % of GDP since 2011, while the sector's savings increased slightly (by 0.2 pps.

¹¹ Technically, the share of net distributed income of corporations in the sector's GVA decreased.

to 11.1 % of GDP) in 2014 (Graph 2.1.6). Thus, even if housing investment has reinvigorated in recent years, there has been no significant impact on housing investment as a proportion of GDP. Neither the low interest environment nor the high level of savings appear to have had a substantial impact.

Graph 2.1.5: **Non-financial corporate sector (% of GDP)**



Source: European Commission.

Graph 2.1.6: **Households and NPISH (% of GDP)**



Source: European Commission. Note: NPISH stands for non-profit institutions serving households

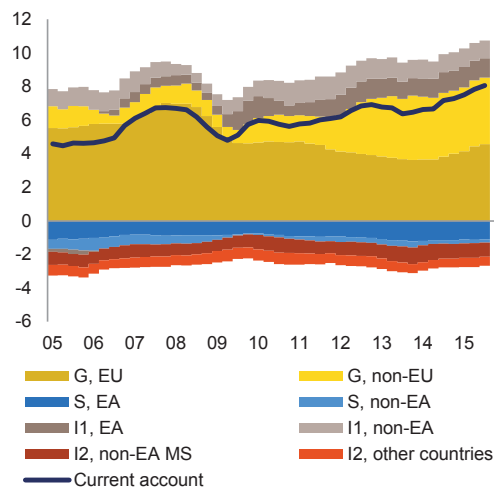
Current account developments

The German current account balance has lately mostly been driven by foreign trade in goods.

This component has been primarily responsible for the widening of the current account surplus since 2009. Germany is a net importer of services (chiefly from other euro area countries), a net payer of foreign transfers (mostly to the non-euro area Member States) and a net earner of primary income, with more than half of the balance stemming from the euro area (Graph 2.1.7). The latest current account developments largely reflect the trends in net trade in goods and — to a lesser extent — developments in other components whose share of GDP has tended to vary less.

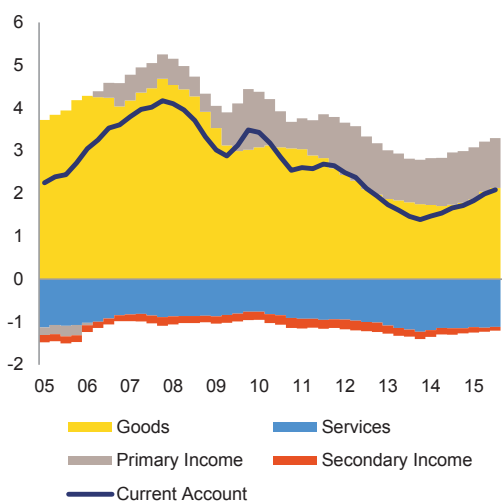
The surplus in trade in goods has been on the rise in 2014-2015 and is expected to remain at high levels over the medium term. After levelling off at just below 7 % of GDP over 2012-2013, the net goods trade resumed its upward trend, is expected to have exceeded 8 % of GDP in 2015 and should remain broadly stable until 2017. The rise in the trade surplus to 8.5 % of GDP in the year ending in the third quarter of 2015 was driven by trade with non-euro area Member States (+0.6 pps. of GDP compared with 2013), followed by the trade with the rest of the euro area (+0.4 pps. of GDP). By contrast, the trade surplus with the rest of the world has remained broadly stable (an increase of 0.1 pps. of GDP). As a result, since late 2014, Germany's trade surplus with the EU has remained higher than its surplus with non-EU countries (Graph 2.1.7).

Graph 2.1.7: **Current account and component balances, (% of GDP, four quarter moving average)**



Source: Deutsche Bundesbank, European Commission.
Note: G — goods, S — services, I1 — primary income, I2 — secondary income.

Graph 2.1.8: **Current account and component balances in relation to the euro area, (% of GDP, four quarter moving average)**



Source: Deutsche Bundesbank, European Commission.

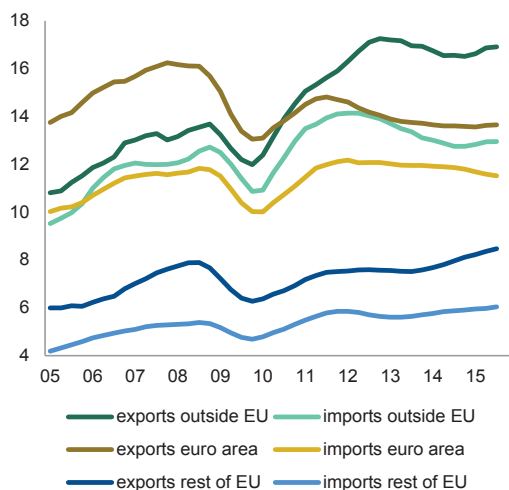
Euro area

The trend decline in the trade surplus in relation to the euro area has come to a halt, driven to a large extent by bilateral trade with the Netherlands. Since late 2013, the narrowing of Germany's current account surplus in relation the rest of the euro area and the EU as a whole has

come to a halt (Graph 2.1.8). In relation to the euro area, this reverses the steady narrowing of the trade and current account surplus that has been taking place since 2007. The widening of the trade balance in relation to the euro area is mostly driven by weakening import intensity, whereas export intensity has stayed roughly unchanged since late 2013 (Graph 2.1.9). The inclusion or not of the Netherlands in the calculation of the euro area aggregate changes the timing of and makes less pronounced the reversal of the rebalancing in trade between Germany and the euro area. No notable change took place in the trade balances with the other euro area countries over 2014, but in the course of late 2014 and 2015 the goods balance in relation to the euro area (excluding the Netherlands) rose (0.2 pps. of GDP) on account of somewhat stronger exports and weaker imports of machinery and equipment (Graph 2.1.10).

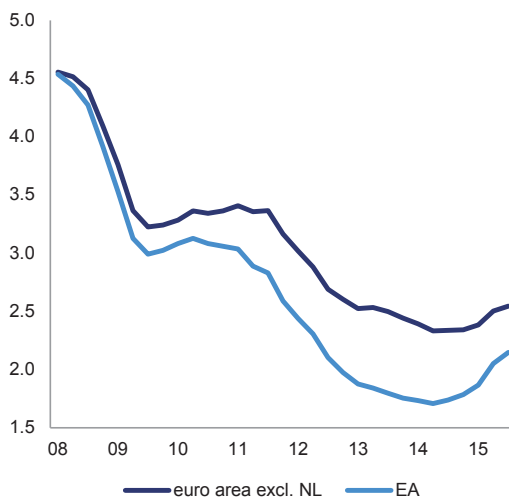
The latest weakening of imports from the euro area particularly affects the surplus countries: the Netherlands, Belgium and Austria. It also continues a medium-term trend of a weakening intensity of imports from the larger countries, e.g. France and Italy. By contrast, import intensity in relation to Spain has remained quite stable. Germany remains a key destination for euro area exports. It remains the largest single-country importer of euro area products in the world. Euro area imports amount to a larger percentage of GDP (import intensity) than in other large EU economies (such as France, Italy, Spain and the UK).

Graph 2.1.9: Trade in goods (balance of payments) (% of GDP, four quarter moving average)



Source: Deutsche Bundesbank, European Commission.

Graph 2.1.10: Goods balance in relation to the euro area (% of GDP, four quarter moving average)

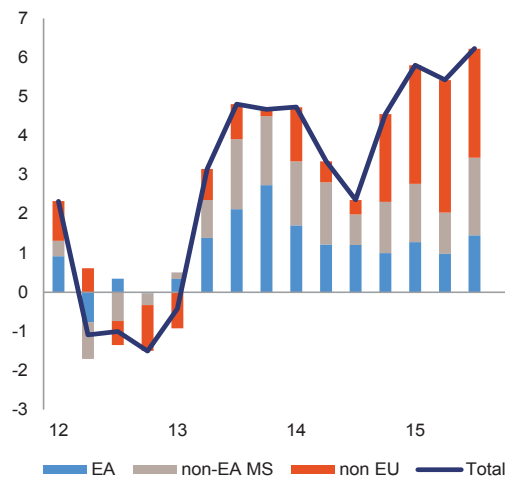


Source: Deutsche Bundesbank, European Commission.

Amid the overall strengthening of imports, imports from the euro area are losing market share in Germany. The latest reported quarters (Q1-Q3 2015) indicate a reinvigoration of overall import dynamics since mid-2014 (Graph 2.1.11). At the same time, there has been a relative slowdown in imports from the euro area and a tangible rebound in the growth of imports from the other EU countries and non-EU countries (Graph 2.1.9). One sector characterised by these dynamics

is the machinery and equipment sector, possibly indicating a further change in the German supply chain.

Graph 2.1.11: Real import growth and contributions by trading area (% y-o-y)

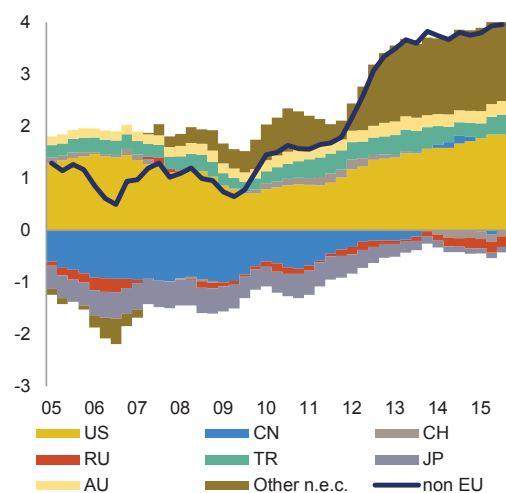


Source: European Commission.

Non-euro area Member States

Trade with non-euro area Member States has intensified with somewhat stronger performance of exports. Compared with 2013, both export and import intensity in relation to the non-euro area Member States have increased, but with exports prevailing (Graph 2.1.9). The strong rebound in UK investment demand has driven the increasing exports to EU countries outside the euro area. The trade balance with the region has increased by 0.6 % of GDP since late 2013. The bulk of it (0.5 pps. of GDP) is accounted for by trade with the UK, in particular in machinery, electronics and transport equipment. This is consistent with the developments in UK investment spending in 2014-2015. Import intensity with regard to central European countries has strengthened recently. Germany has been increasing its imports from central European countries that are in the process of catching up with the average EU growth rate (Poland, the Czech Republic, and Hungary), most notably of machinery and equipment. At the same time, imports from UK, Sweden and Denmark as a proportion of GDP have weakened or stayed flat.

Graph 2.1.12: Goods balance (balance of payments) in relation to non-EU countries (% of GDP, four quarter moving average)

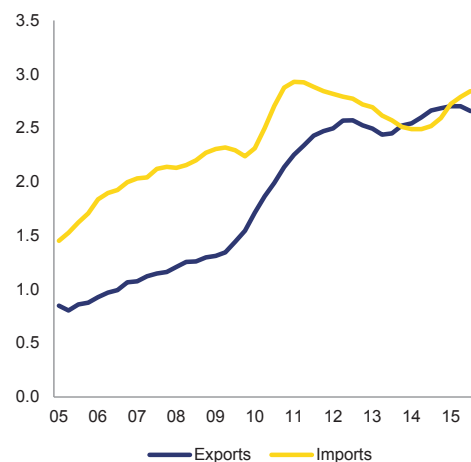


Source: Deutsche Bundesbank, European Commission.

Other countries

The trade surplus in relation to non-EU countries continued to expand, but more slowly. The trade surplus in relation to China and Russia, which are experiencing economic slowdowns or even recession, has weakened (Graph 2.1.12). German manufacturing has strong ties with China. According to estimates based on the latest world input-output tables (2011) around 10% of the value added of machinery and equipment production is accounted for by trade with China. The Chinese slowdown is reflected in a dampening of German exports to China and a relapse of net exports to the country into negative territory (Graph 2.1.13). On the one hand, German (net) exports of machinery and equipment to China are weakening, while imports of various goods categories from China are growing again after having declined somewhat in the post-crisis period. By contrast, in relation to the US and many other countries, the trade surplus has strengthened, reflecting the flexibility of German exporting industries.

Graph 2.1.13: Trade flows (balance of payments) with China (% of GDP, four quarter moving average)

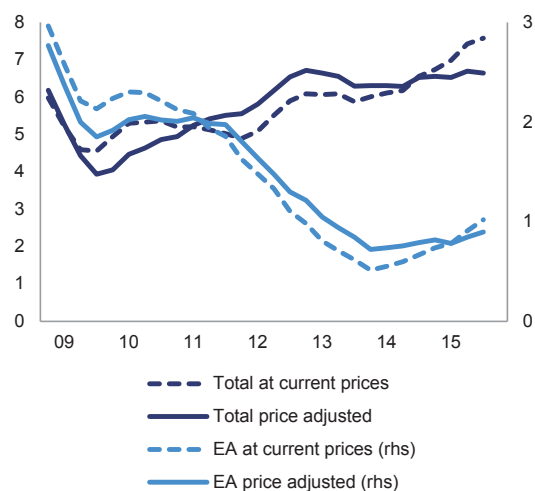


Source: Deutsche Bundesbank, European Commission.

Volumes and values

Adjusting for price developments makes the ongoing expansion of Germany's surplus in trade in goods and services appear more moderate. Comparing national accounts data on volumes and values of exports and imports of goods and services illustrates the effects of terms of trade (Graph 2.1.14). German exporters have been facing a mildly deflationary price environment. On the other hand, the deflation of imports has been even stronger, resulting in significantly positive terms of trade overall. Energy prices seem to have played a major role. The volume of net imports of fuels, lubricants and related products has remained largely unchanged, whereas their value has been declining dramatically since 2013. The role of energy prices is also confirmed by the balances in relation to the major trading areas. The trade balance in relation to non-EU countries, where the energy component is the largest, is most sensitive to price adjustments. Energy prices have some impact, including on the balance in relation to the euro area, in particular through bilateral trade with the Netherlands. By contrast, the trade balance with the non-euro area EU Member States has been least affected. Box 2.1.1 explores additional aspects of the impact of international prices on Germany's external balance.

Graph 2.1.14: External balance of goods and services
(ESA2010)
(% of GDP, four quarter moving average)



Source: European Commission.

From a savings-investment perspective, the widening of the current account surplus in 2014 was driven by higher savings, in particular by the public sector and non-financial corporations. No sector saw an increase in its investment share. From a foreign trade perspective, the German current account surplus continued to widen in 2014-2015 reflecting weaker growth of imports from the euro area, strengthening trade with the rest of the EU and a slight expansion of the surplus in relation to the rest of the world. Cheaper energy imports explain a significant part of the widening surplus in trade in goods in relation to the euro area and the non-EU countries. However, due to its structural nature, the surplus is not expected to fall significantly in the next few years even when temporary factors will fade away.

Box 2.1.1: **Oil price and exchange rate effects on the German current account balance**

The further widening of Germany's trade balance in 2014-2015 has been to a large extent affected by oil price and exchange rate effects. Since the second half of 2014, there has been a strong decline in the oil price and a pronounced depreciation of the euro exchange rate. Both developments have impacted Germany's trade balance via different transmission channels and time lags. Those effects explain to a large extent the strong increase in Germany's current account surplus in 2014 and 2015, but not completely.

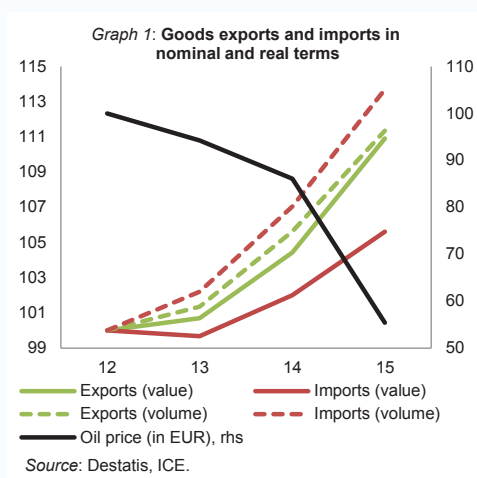


Table 1: Simulation - impact of declining oil prices on the trade balance

Oil price shock in USD Terms				
	2014	2015	2016	2017
Oil price ^{a)}	-8.3	-50.9	-67.1	-61.0
Oil (volume) ^{b)}	0.3	3.3	7.3	10.0
Terms of Trade ^{b)}	1.0	3.7	4.1	3.8
Trade Balance (%GDP) ^{c)}	0.1	0.8	1.1	0.8
Oil price shock in EUR Terms				
	2014	2015	2016	2017
Oil price ^{a)}	-8.7	-41.2	-59.7	-52.2
Oil (volume) ^{b)}	0.2	2.4	5.9	8.2
Terms of Trade ^{b)}	0.7	3.0	3.8	3.4
Trade Balance (%GDP) ^{c)}	0.1	0.6	1.0	0.7
a) deviation from 2013 prices in per cent				
b) deviation from baseline scenario in per cent				
c) deviation from baseline scenario in percentage-points				

Source: European Commission.

The improvement in Germany's relative trade prices accelerated in 2015, driven by higher export prices of traded goods and a steady downward movement of import prices. Germany's terms of trade increased by more than 3 % in 2015 following improvements of around 2 % in each of the two previous years. The very strong decline in oil prices markedly contributed to the reduction of import prices. The oil price impact may have been considerably stronger in 2015 than in the two years before given that the oil price in US Dollars fell far more sharply in 2015 (-46 %) than in 2014 (-8 %) and 2013 (-3 %). However, import prices of tradable goods did not decline faster in 2015 but rather continued their downward movement at a similar pace to that of the two years before. Thus, the accelerated improvement in the terms of trade in 2015 was mainly due to an increase in export prices of Germany's traded goods after two consecutive years of decline.

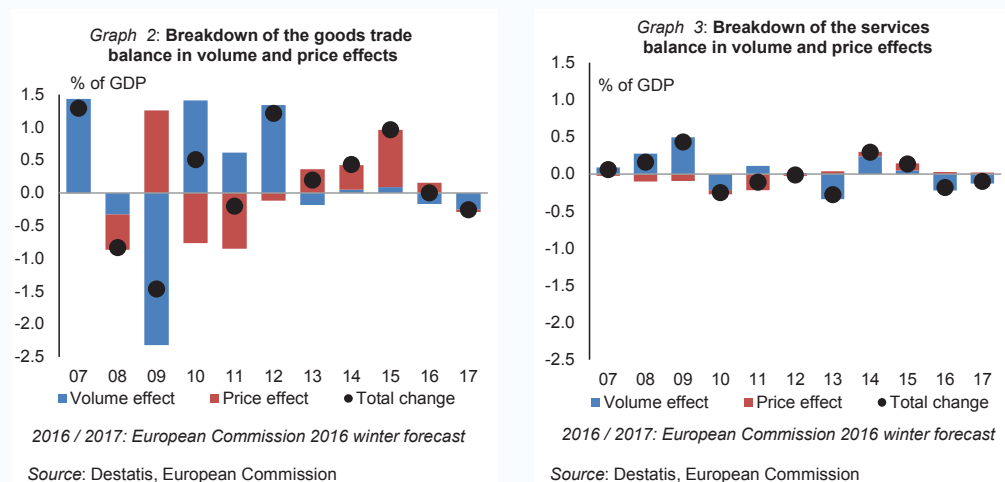
The strong increase in the German current account surplus in 2015 can be largely attributed to terms-of-trade effects. Lower import prices reduce the value of imports, which, in turn, increases the trade surplus and thus the current account surplus. This direct effect is mitigated by increased import volumes due to cheaper imports. The current account surplus increased by about 1 pp. both in 2014 and 2015. An arithmetic breakdown of the goods trade balance in volume and price effects reveals that terms-of-trade effects of traded goods accounted for about $\frac{1}{3}$ of the increase in the current account surplus in 2014 and about $\frac{4}{5}$ in 2015. When looking solely at the goods trade balance, price effects almost fully explain the increase in the trade surplus in both years (see Graph 2).¹ However, goods trade was only one of four drivers of the current account surplus in 2014. 60 % of the increase in the surplus was attributed to secondary income, primary income and trade in services, which was predominantly due to volume effects and not due to price effects

¹ A breakdown of the trade balance for the year 2014 using the Shapley-Siegel index which shows similar results can be found in Deutsche Bundesbank (2015), 'German balance of payments in 2014', Monthly Report 03/2015.

(Continued on the next page)

Box (continued)

(see Graph 3). The importance of terms-of-trade developments on the trade balance is expected to diminish in 2016-2017 as the Commission 2016 winter forecast projects a gradual stabilisation of relative trade prices.



Simulations on recent oil price developments qualitatively confirm the results of the price-volume decomposition of the increase in the trade surplus. Simulations using the Commission's newly-developed global multi-country model confirm a strong positive overall impact of the decline in oil prices on the goods trade balance (see Table 1). An isolated oil price shock as happened during the last two years leads to a small increase in the trade surplus in 2014, given that the decline in oil prices occurred only towards the end of the year, and a large additional positive impact of 0.7 pps. in 2015. Along with the Commission 2016 winter forecast projection of a continued decline in the oil price in 2016 and a reversal in 2017, the trade surplus temporarily improves further in 2016 by 0.3 pps. The depreciation of the euro by -16 % vis-à-vis the US Dollar in 2015 lowered the reduction of the oil price if measured in euro terms. Taking this into account, the simulated increase in the trade surplus is smaller and amounts to +0.5 pps. in 2015, which is only half of the actual increase in the goods trade surplus.

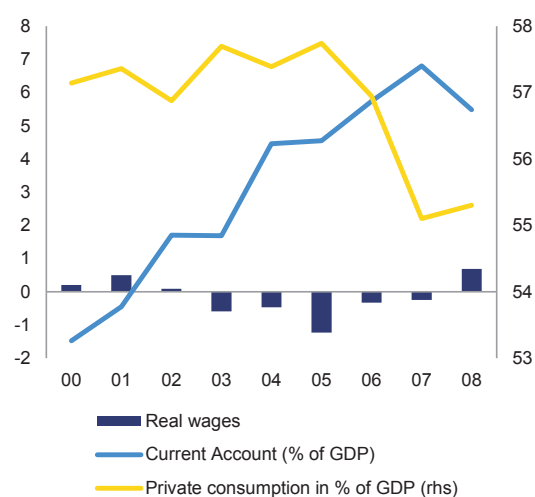
The depreciation of the euro exchange rate may have supported German exports but is nonetheless expected to have had only a limited impact on the trade balance in 2015. Germany's effective nominal exchange rate depreciated by -3.8% in 2015. The euro depreciation supports German exports to non-euro area Member States. However, the exchange rate elasticity of German exports is comparatively low, partly because of their high non-price competitiveness. Moreover, the resulting increase in import prices reduces the positive impact on the trade balance. QUEST simulations suggest that positive and negative effects of the euro depreciation on the trade balance may broadly offset each other in the short term. As trade volumes adjust more fully to increased price competitiveness in the medium term, the positive export effect prevails.

Terms-of-trade effects have so far not significantly changed the structural determinants of Germany's high current account surplus. Germany's high current account surplus reflects the underlying macroeconomic imbalances identified in this in-depth review. In the absence of positive terms-of-trade effects, the German current account surplus could have been somewhere between 7 % and 8 % of GDP in 2015 instead of 8.8 % according to official data. This would still be above the 6 % threshold of the MIP scoreboard (see Graph 2.1.14 for a comparison of price and non-price adjusted external balances of goods and services). Overall, while the terms-of-trade effects have been significant in driving the further widening of the German current account surplus especially in 2015, this has to be analysed in the context of a high structural component.

2.2. WAGE DYNAMICS

A prolonged period of wage moderation in Germany coincided with the steady build-up of the current account surplus. From 2000 to 2008, nominal wages grew at an annual average rate of around 1.1 %. In a context of positive inflation, this prolonged moderation resulted in a marked decline in real wages, which fell by an average annual rate of 0.5 %. Wage developments play an important role in influencing household savings and consumption decisions (see Section 2.1). Thus, via their impact on domestic demand, wage dynamics also have an influence on the high current account surplus in Germany (Graph 2.2.1).

Graph 2.2.1: **Developments in real wages, private consumption and the current account**

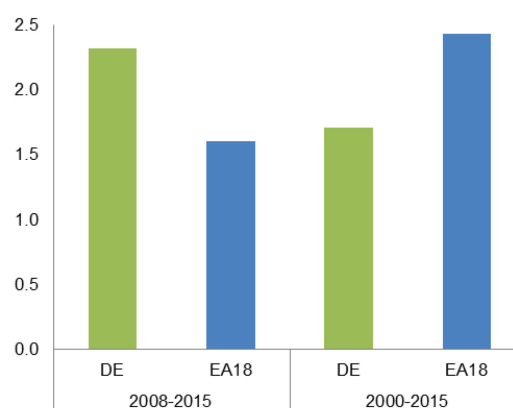


Source: European Commission. Note: Real gross wages and salaries per employee for the total economy deflated by the private consumption deflator.

Wage growth has accelerated as the labour market has tightened. After weathering the initial post-Lehman shock, nominal wages have grown at an average annual growth rate of around 2.3 % from 2008-2015, exceeding the euro area average excluding Germany (Graphs 2.2.2 and 2.2.4). Nominal wage growth weakened in 2013 against a background of subdued economic growth, but later rebounded. Real wage growth also improved, reflected in an annual average growth rate of over 0.8 % from 2008-15, again exceeding the euro area average excluding Germany (Graphs 2.2.3 and 2.2.4). However, over the whole period (2000-2015), the growth rate of wages (both in nominal

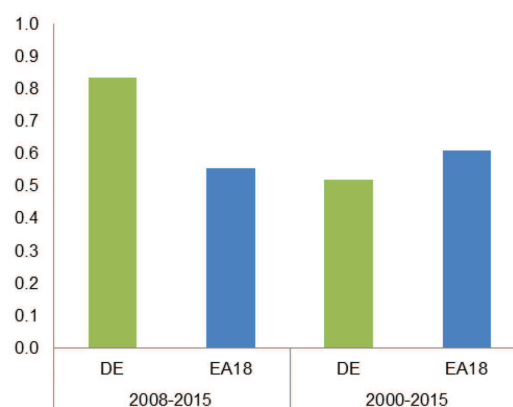
and real terms) undershot the euro area average (Graph 2.2.2 and Graph 2.2.3).

Graph 2.2.2: **Nominal wages (average annual growth, %)**



Source: European Commission. Note: EA18: euro area countries as of January 2015 with 19 members excluding Germany. Gross wages and salaries per employee for the total economy. Data for 2015 is based on the Commission 2016 winter forecast.

Graph 2.2.3: **Real wages (average annual growth, %)**



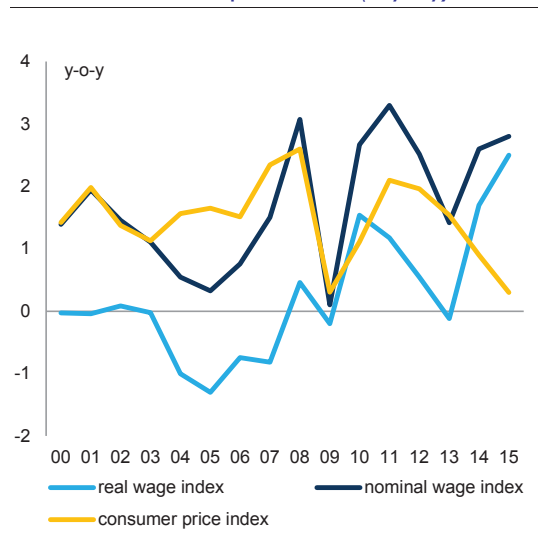
Source: European Commission. Note: EA18: euro area countries as of January 2015 with 19 members excluding Germany. Real gross wages and salaries per employee for the total economy deflated by the GDP deflator. Data for 2015 is based on the Commission 2016 winter forecast.

The more dynamic wage growth as witnessed in recent years is a welcome development and there is room for further wage growth in Germany. Taking into account past adjustments, continued wage growth appears sustainable according to the ‘Golden Wage Rule’.¹² This rule provides a theoretical framework for wage developments at the macroeconomic level in the euro area. According to this rule, nominal wages in each country should grow at a rate equal to national medium-term productivity growth plus the central bank’s inflation target. If productivity growth remains constant at the 2000-2015 annual average growth of just above 1%, simple calculations¹³ suggest that real wages would need to grow at 2% per year to reach the Gold Rule ‘equilibrium level’ by 2022, at 3% per year to reach it by 2018, or at a rate of 4% or 5% to achieve equilibrium level by 2017 or 2016, respectively. For nominal wages to converge with the Golden Rule they would need to grow at 4% until 2025 or at 5% until 2020. In combination with the historically low unemployment rate, these figures show that, on average, there is room for continued wage growth in Germany. Still, the Golden Wage Rule is only one approach for identifying desirable wage growth. Certainly, the negotiated pay agreements should take into account the specific situation in each sector (Box 2.2.1). The recently introduced minimum wage resulted in wage adjustments particularly at the bottom end of the wage distribution (see Section 3.2) while the overall effect on wages was more limited.

¹² The Golden Rule, also named Fordian tradition, applies if countries are starting from a position of ‘equilibrium’. If there is ‘disequilibrium’, i.e. when wages are below or above ‘equilibrium’ levels, there should be a wage bonus in current account surplus countries, and wage restraints in current account deficit countries. Watt, A (2007), ‘The role of wage-setting in a growth strategy for Europe’, P. Arestis, M. Baddeley and J. McCombie (eds.) *Economic growth. New directions in theory and policy*, Edward Elgar: 178-199.

¹³ The calculations are based on annual average labour productivity growth (per hour, total economy), annual average real and nominal wage growth, average annual HICP (harmonised index of consumer prices) inflation for Germany and for the euro area (changing composition, i.e. derived from the membership at a particular point in time) for the period 2000-2015. Results derived from these calculations should be taken as a rough indication rather than as proof.

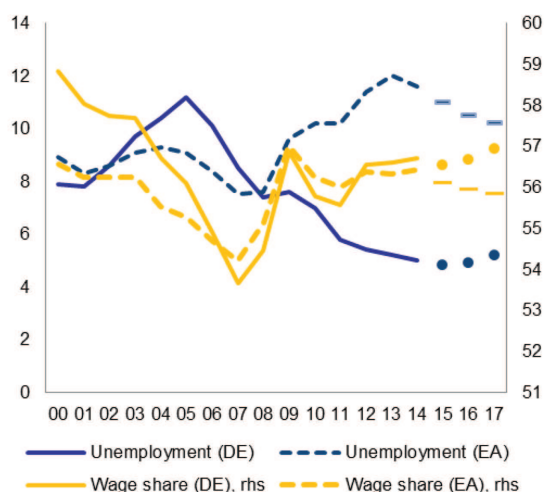
Graph 2.2.4: **Development of real and nominal wage and consumer prices indices (% y-o-y)**



Source: Destatis. Note: Gross monthly earnings, including bonuses of full-time, part-time and marginally employed workers in the manufacturing and services sector.

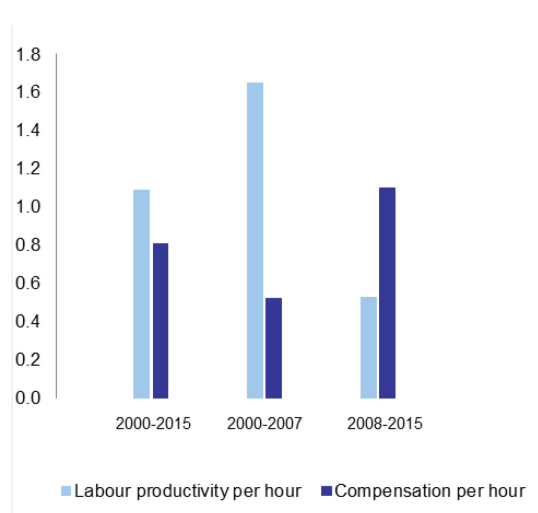
Even though unemployment is at historically low level, the wage share has not increased. In general, very low unemployment rates may strengthen the bargaining power of employees and so exert a push factor on wages. By contrast, despite having one of the lowest unemployment rates in the EU, after 2011 the adjusted wage share in Germany (as a % of GDP and as a % of net national income) remained both stable and in line with the euro area average (Graph 2.2.5). There is, however, some divergence, with the wage share projected to increase somewhat in Germany while declining in the euro area. There are various factors that may explain the relatively subdued growth of the wage share despite strong labour market developments: (i) labour market reforms, (ii) high business net profits; (iii) weaker trade union coverage; (iv) decreasing productivity growth in the services sector; and (v) more pronounced job mismatches and part-time work. One or a combination of these factors might have led employees to favour certain aspects (e.g. job security) over higher wage increases.

Graph 2.2.5: Unemployment rate and wage share



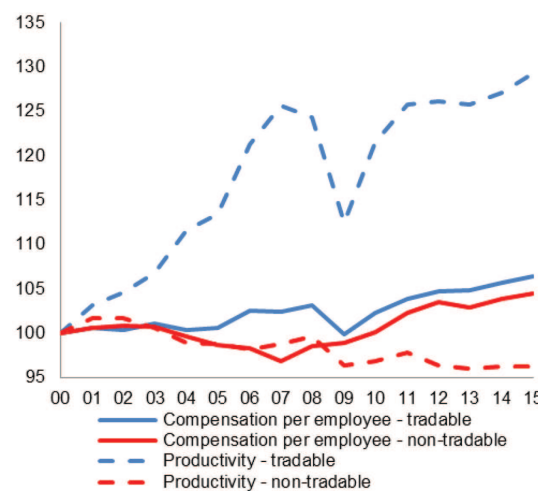
Source: European Commission. Note: adjusted wage share is defined as labour income share expressed as % of GDP at current market prices. Adjusted for changes in the incidence of self-employment. EA stands for euro area as of January 2015 with 19 members. Data for 2015-2017 is based on the Commission 2016 winter forecast.

Graph 2.2.6: Labour productivity and real compensation per hour (average annual growth in periods)



Source: Destatis, European Commission

Graph 2.2.7: Labour productivity and real compensation per employee in tradable and non-tradable sectors (2000 = 100)



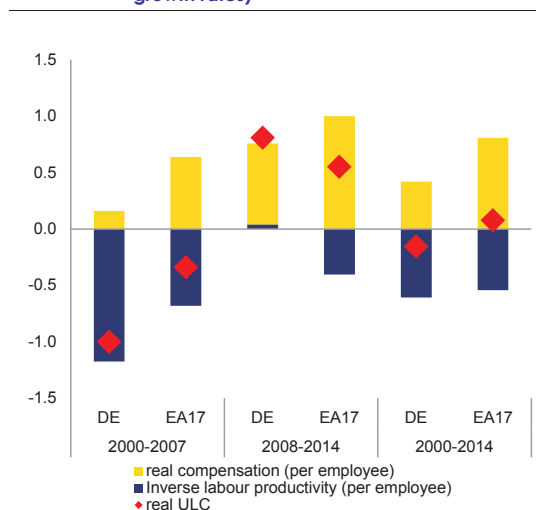
Source: European Commission.

Despite more recent wage increases, in a longer perspective wage growth has lagged behind productivity growth, especially in the tradable sector. The 2000-2007 period saw real labour productivity per hour outstrip real compensation per hour by a significant margin, and while this has somewhat reversed since 2008, for the whole period from 2000-2015 a sizeable gap still remains (Graph 2.2.6). These developments were largely driven by the tradable sector, where productivity continued to grow faster than real wage costs (measured by compensation per employee) even after the crisis. In the non-tradable sector, the gap has in fact widened in the other direction, with productivity falling while wage growth accelerated after 2008 (Graph 2.2.7) (see Section 2.6).

As a result, since 2000 real unit labour cost developments in Germany have been on average below the euro area. While the average annual growth in real unit labour costs in Germany was visibly lower relative to the euro area average in the period 2000-2007 (Graph 2.2.8), they grew more strongly between 2008 and 2014 than the euro area average. This was driven by a combination of stronger real wage growth and

lower productivity growth. The picture for 2000-2014 shows that the growth rate of German real unit labour costs remained below the euro area average due to both real wage and productivity developments. Some signs of rebalancing can be observed for the period 2008-2014. In particular, since 2012, nominal unit labour costs increased more strongly in Germany than in other euro area countries gradually reducing Germany's relative price competitiveness.

Graph 2.2.8: Real unit labour costs, labour productivity and real compensation (average annual growth rates)

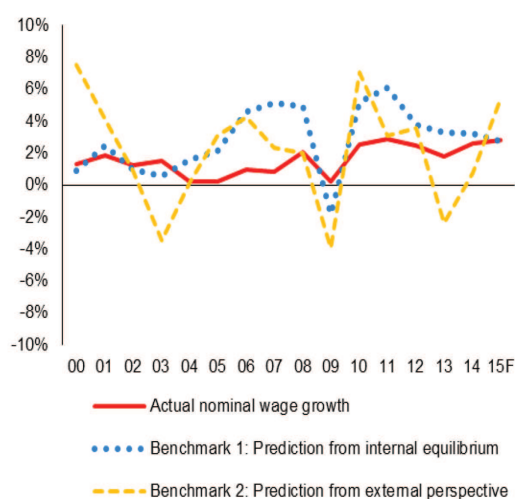


Source: European Commission. Note: EA17: euro area until January 2015 with 18 members excluding Germany.

Strong wage growth would be justified by benchmarks that take into account country-specific economic fundamentals.¹⁴ After 2003 wage growth in Germany was below predictions reflected by benchmark 1, although the gap has narrowed in the last year (see definition of both benchmarks under Graph 2.2.9). This benchmark is based on economic fundamentals such as price and productivity developments as well as unemployment (Graph 2.2.9). For much of the pre-crisis period, wage growth has also been below the rate that would have ensured a stable evolution in price competitiveness as measured by the real effective exchange rate (benchmark 2). This

resulted in increased price competitiveness as well as lower unemployment and contributed to the large current account surplus. The levels of benchmark 1 and benchmark 2 suggest that under the current macroeconomic and labour market conditions there appears to be further room for wage growth without endangering Germany's price competitiveness, in particular in view of ongoing very low inflation trends.

Graph 2.2.9: Actual nominal wage growth and wage benchmarks



Source: European Commission. Note: Benchmark 1 takes into account the price level, labour productivity and unemployment. Benchmark 2 assumes a constant value of the real effective exchange rate (REER) calculated on the basis of unit labour costs. Forecast data (F) is based on the Commission 2015 autumn forecast.

¹⁴ Arpaia, A. and Kiss, A. (2015), 'Benchmarks for the assessment of wage developments: Spring 2015', Analytical Web Note 2/2015.

Box 2.2.1: Collective wage agreements in Germany

With close to 60% of employees working in companies covered by collective agreements (sectoral and firm-level agreements), agreed wages represent an important indicator of overall wage dynamics. In 2014 German agreed wages including special payments grew by 3.2% on the previous year. Actual earnings grew slightly more moderately. Key reasons for this negative wage drift were smaller bonus payments due to economic uncertainties. Many of the collective agreements negotiated in 2014 included wage increases in two increments, the first of which was around 3% and the second of around 2.5%. According to preliminary data from the Federal Statistical Office in Germany, agreed wages grew by about 2.1% (y-o-y) including special payments as part of the collective agreements, while 2.5% (y-o-y) without special payments in 2015.

Bonuses and other special payments (*Sonderzahlungen*) are more important in certain subsectors and introduce some flexibility into the wage setting process. For example, in contrast to other subsectors bonuses represented a significant fraction of gross salaries in the production of vehicles and motors and in the manufacturing of chemical and pharmaceutical products at the beginning of 2014. This is an indication of a longer-term approach among export-oriented firms to contain fixed costs by having a higher variable component in view to maintain cost competitiveness.

Structural changes in wage bargaining dynamics may also contain wage growth. From 1996 to 2013 the coverage of sectoral level agreements (*Flächentarifvertrag* or *Branchentarifvertrag*) among employees declined from around 70% to 52% in western Germany and from 56% to 35% in eastern Germany. More and more sector-level collective agreements have introduced derogation clauses such as "opening clauses" in employment contracts that allow "opt outs" at the firm-level, thereby allowing the company to respond to growing differentiation and to competitive pressures. In addition, a shift can be observed towards firm-level agreements (*Firmentarifverträge* or *Hausvertrag*). The coverage of sectoral level agreements slightly increased in 2014 (to 53% in West Germany and 36% in East Germany), and government measures for easier extension of collective agreements also point into this direction, but it is too early to say if this corresponds to a trend change.

In 2015, the Act on Collective Bargaining Unity (*Tarifeinheitsgesetz*) was adopted. This act ensures that in the case of overlapping and conflicting collective agreements in a company, in the overlapping patch only the agreement with the largest trade union (in terms number of members) should be applicable. However, this rule will only be applied in case social partners are not able to settle the conflict by themselves.

It is not clear, whether trade unions will continue to seek significantly higher wage increases in the future. Agreed wages in Germany grew on average by around 3% in 2014 (see Box 2.2.1), followed by average wage increases of around 2.5% in 2015. This was due both to still recovering economic expectations and a stronger focus by trade unions on qualitative aspects such as arrangements for phased retirement and training. Moreover, in early 2015, wage developments were muted by 'zero months'. These months with pay freezes were a widespread part of the most recent pay settlements. Despite recent sectoral calls to raise wages (e.g. German engineering union *IG Metall* was reportedly

preparing to seek a marked wage increase in the plastics industry of around 5% in March 2016; in mid-February 2016, the public sector union *Verdi* made a claim for 6% wage increases for the around 2 million public sector employees in Germany), past developments — combined with a very low interest rate environment — suggest that trade unions can be expected to be more cautious in striving for higher collectively agreed wages in the long run.

In addition, the large number of refugees might put downward pressure on certain wage groups in Germany. Past experiences have shown that there may be a negative impact on wages of certain

groups of German-born workers, typically among the low-skilled workers born in Germany and recent immigrant workers. At the same time, the literature also shows a positive distributional effect on (higher-paid) German-born workers that complement the additional workforce. Thus, the overall effect on wages in Germany will depend to a large extent — among others things — on the skill complementarity of the inflow, in other words on the substitutability of the refugees with immigrant and German-born workers (see Section 2.7, 3.2 and 3.3).¹⁵

Notwithstanding past adjustments, the above analysis indicates that there is scope for further wage increases in Germany. Even if a slight acceleration in the compensation of employees (per head) is projected for 2016 and 2017 in the Commission 2016 winter forecast, wage dynamics are not as strong as previously projected. Continued dynamic wage growth would be in line with benchmarks and could take place without endangering Germany's price competitiveness.¹⁶

¹⁵ Constant, A. F. (2014), 'Do migrants take the jobs of native workers?', IZA World of Labour, no. 10. Peri, G. (2014), 'Do immigrant workers depress the wages of native workers?' IZA World of Labour, no. 42. Aiyar, S. et al (2016), 'The Refugee Surge in Europe: Economic Challenges', IMF SDN/16/02.

¹⁶ European Commission (2016), 'European Economic Forecast Winter 2016', European Economy, Institutional Paper, no. 020.

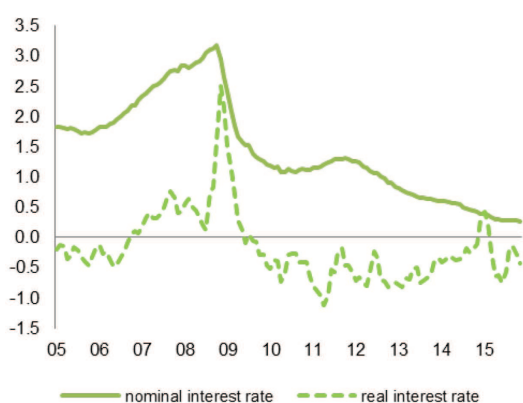
2.3. IMPACT OF THE LOW INTEREST RATE ENVIRONMENT ON HOUSEHOLD SAVINGS AND CONSUMPTION

Since the onset of the financial and economic crisis, Germany has experienced a very low interest rate environment, which could have been expected to affect the savings and consumption decisions of households. While the phenomenon of low interest rates is not unique to Germany, there are certain characteristics of the German economy, in particular high saving rates among households (see Section 2.1), which warrant further analysis. This is of particular relevance in the context of macroeconomic imbalances.

The savings and consumption pattern of German households in a low interest rate environment

Germany has experienced phases of negative real interest rates also in the past. The changes in real interest rates should in theory determine households' intertemporal substitution decisions. In previous episodes, a decline in real interest rates was often caused by cyclical factors and disappeared after no more than two years. However, the current situation is exceptional given that both the real and nominal interest rates are close to zero or negative. Low real rates today have persisted for a longer period, in particular for bank deposits (Graph 2.3.1).

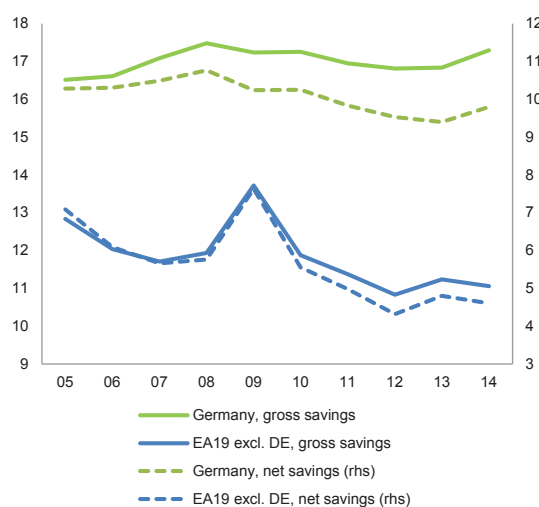
Graph 2.3.1: Interest rates on bank deposits in Germany



Source: European Central Bank. Note: nominal interest consists of a weighted average of stock of overnight deposits, deposits redeemable at notice and deposits with agreed maturity; real ex ante interest rates include two-years-inflation expectations. Latest data point November 2015.

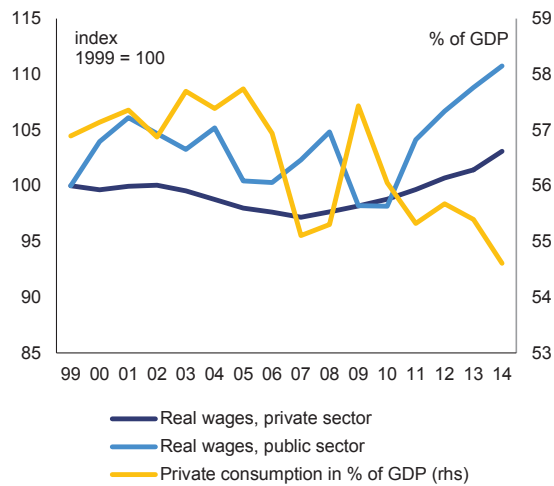
The household saving rate in Germany has declined temporarily during the crisis but rebounded again after 2013. Compared with the rest of the euro area, the household saving rate is noticeably higher in Germany and, in addition, has remained more resilient during the crisis (Graph 2.3.2). However, after a build-up of savings before 2008, net and gross saving rates have both fallen in Germany during the crisis. This was consistent with former business cycles in Germany where households saved less to smooth their consumption in times of subdued economic activity. Since 2013, saving rates have started to pick up again, though net savings still remain below pre-crisis levels. In spite of a solid increase in real wages, the propensity to consume continues to fall while the propensity to save continues to rise (Graph 2.3.3).

Graph 2.3.2: Net and gross saving rates of German and euro area households (% of disposable income)



Source: European Commission. Note: Net saving rate excludes consumption of gross fixed capital formation. EA19: euro area countries as of January 2015.

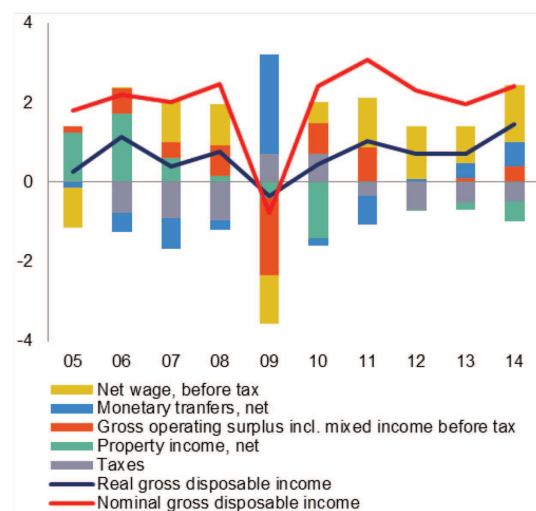
Graph 2.3.3: Real wages and private consumption



Source: European Commission. Note: Real wages and salaries per employee deflated by the private consumption deflator.

Aggregate savings have been supported by rising real disposable income of households. Real gross disposable income has remained robust even during the crisis and recovered quickly, driven by buoyant net labour income (Graph 2.3.4). At the same time, unlike in the pre-crisis period, property income has not added to the disposable income of households. This is mainly due to lower interest income, which has acted as moderate drag on gross household savings.

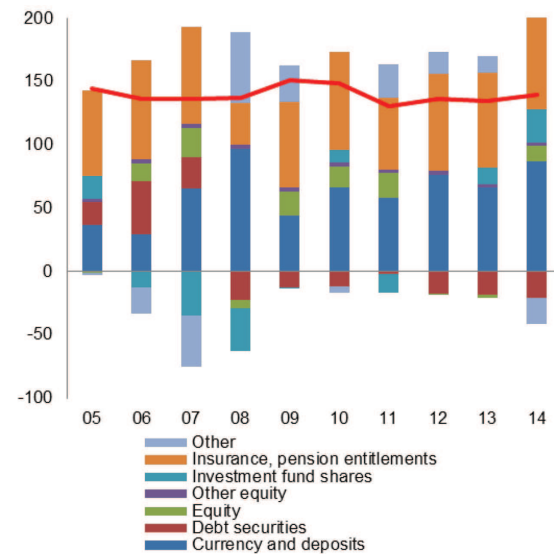
Graph 2.3.4: Real and nominal gross disposable income of German households (y-o-y, %)



Source: European Commission.

German households show a preference for liquidity, even when faced with declining interest rates. There is no clear sign that households are responding to lower interest income by considerably diversifying into higher yielding/riskier assets (e.g. equity) in order to maintain the same level of expected returns. On the contrary, since 2008, German households have continued to increasingly acquire currency and deposits as well as insurance and pension entitlements (Graph 2.3.5). At the same time, they have reduced their holdings of debt securities in line with declining nominal returns and have recently started acquiring investment fund shares (see Section 2.1 for details on the excess savings by sectors).

Graph 2.3.5: Acquisition of financial assets by German households



Source: European Commission. Note: in billion euros.

Changes in the statutory pension insurance are also likely to have intensified households' propensity to save. As pointed out by the 2014 in-depth review, the 2001 pension reform (*Riester-Reform*) implied a gradual reduction of the replacement rate under the statutory old-age pension scheme, in line with demographic developments.¹⁷ The 2014 reform (respectively *Mütterrente and Rente mit 63*) aimed at improving pension benefits and early retirement conditions

¹⁷ European Commission (2014), 'IDR Macroeconomic imbalances - Germany 2014', European Economy. Occasional Papers 174.

for certain groups. On the other hand, it implied a higher pension contribution rate for the active labour force and a lower average replacement rate. This contributed to a further decrease in the average replacement rate – already projected to be among the lowest in the OECD for future retirees.¹⁸ Longer life spans and lower public pension rates are likely to have raised the need for private savings, thereby increasing the household savings rate. Recent steps taken to improve incentives for later retirement – if primarily aimed at promoting part-time work of older workers – may only partly offset this negative impact of the last pension reform (see Section 3.2).

Developments in household borrowing in the low interest rate environment

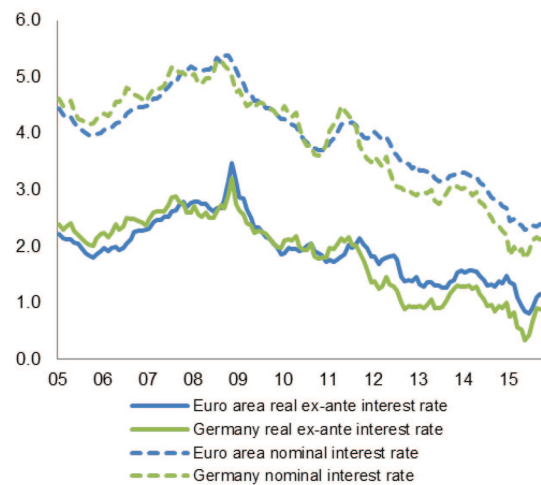
A relatively low level of household borrowing over an extended period is the main feature that distinguishes German household net saving rates from other Member States. While gross financial asset acquisition is broadly comparable to the euro area over the long term, the incurrence of financial liabilities through loans has remained considerably lower than in other Member States without strong housing price volatility. Although low interest rates stimulated households' credit demand, the uptick in new borrowing since 2011 has remained at a relatively subdued level.

German households continue to engage in passive deleveraging, with new borrowing remaining considerably below nominal GDP growth. Household net savings are thus not only reflected in the acquisition of financial assets, but also in debt reduction. While the pre-crisis decline in household loans has been countered by increases since 2010, credit flows to the household sector remain below 1% of GDP. Despite household debt being among the lowest in the OECD with 54% of GDP, it continues to decline compared to household income.

Somewhat increased household credit growth since 2008 has been largely driven by increased demand for house building loans (see Section 3.5). The cost of new borrowing for house purchases in both real and nominal terms has been

consistently below the euro area average since 2011 (Graph 2.3.6). Contrary to the pre-crisis period, it has been lower in Germany than in the group of euro area countries that developed in a comparable way (Graph 2.3.7). Given stronger credit growth, it appears that German households are trying to 'lock in' the current low interest rates for house purchases (Graph 2.3.8). However, contrary to new loans, interest rates on outstanding household loans in Germany remain higher than the euro area average and in most neighbouring countries where fixed-rate mortgages are prevalent. This may be related to the feature that fixing interest rates for at least ten years is the most common practice in mortgage-based borrowing and the flexibility to benefit from the low interest rate environment through early re-mortgaging may be affected by comparatively high refinancing costs.¹⁹

Graph 2.3.6: **Cost of borrowing for house purchase loans for households in Germany and the euro area**



Source: European Central Bank. Note: ex-ante real interest rate is composed of the nominal interest rates (Annualised agreed rate, AAR / Narrowly defined effective rate, NDER) over 10 years minus 10-year inflation swap rate. House purchase loans (new business) exclude revolving loans and overdrafts, convenience and extended credit card debt. Latest data point October 2015.

¹⁸ OECD (2015), 'Pensions at a glance 2015: OECD and G20 indicators', OECD Publishing, Paris.

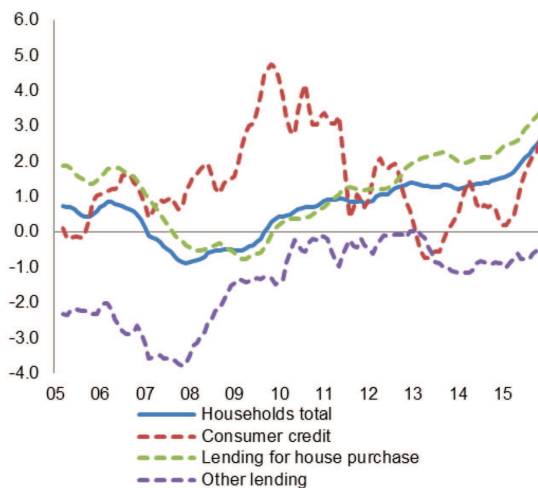
¹⁹ German legislation does not regulate the fees for early payback of fixed-rate mortgages within 10.5 years, while it sets a zero limit for payback thereafter (§ 489.1(2) BGB). The demanded fees for early payback before this period are high compared to other EU Member States. For more details on legal details of loan agreements please see: German Civil Law Code, Article 489.

Graph 2.3.7: Cost of borrowing for house purchase loans for households in selected euro area countries



Source: European Central Bank. Note: nominal interest rates (Annualised agreed rate, AAR / Narrowly defined effective rate, NDER) over 10 years. House purchase loans (new business) exclude revolving loans and overdrafts, convenience and extended credit card debt. Latest data point October 2015.

Graph 2.3.8: Monetary financial institutions balance sheets growth rates in Germany (% change)



Source: Deutsche Bundesbank. Note: Latest data point November 2015.

Rising house prices have less scope to support private consumption in Germany given the relatively low home ownership rate and certain inefficiencies in the mortgage market. In theory, for property owners, higher house prices should support consumption through positive wealth

effects and by increasing the value of the collateral and, thus, the ability of the consumer to borrow. However, as Germany has the lowest rate of home ownership in the euro area (Table 2.3.1), the wealth effects are relatively limited. In other words, the ability to borrow against rising house prices in Germany is very constrained. This is amplified by the fact that mortgage equity withdrawals²⁰ are not used to a strong extent such as in the UK or US where it contributes to strong housing wealth effects on consumption.²¹ Although the data have to be interpreted with caution, it is evident that while mortgage equity withdrawals are negative in the selected euro area countries Germany is consistently the lowest among these economies (Graph 2.3.9). A possible explanation for this observation could be that in recent years private households have progressively used their own current resources for financing house purchases or home improvements. Although cross-country differences may remain (i.e. cost considerations, supply conditions), certain loan products (for example, in France and Malta) allow consumers to withdraw equity from their houses via home equity loans or lines of credit and hence "cash-out" refinancing.²²

²⁰ Mortgage equity withdrawals refer to the practice of households to take on debt that is secured on the housing stock but not invested in it, using it instead to finance consumption spending, and the acquisition of other assets or the repayment of unsecured debt. This is possible whenever the value of the property exceeds the outstanding amount of loans drawn against it, while the existence of collateral (the house) would normally lead to terms that are more favourable than unsecured debt.

²¹ European Central Bank (2009), 'Housing finance in the euro area', p. 77.

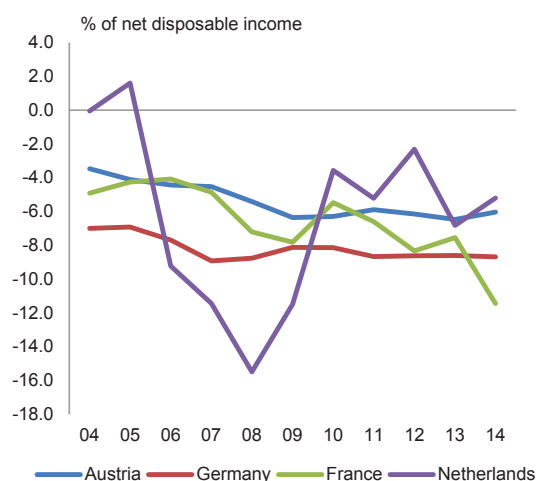
²² Home equity loans include mortgage equity withdrawal loans and have very limited diffusion in the euro area. European Central Bank (2009), 'Housing finance in the euro area', p. 73.

Table 2.3.1: Features of the German property market in an international comparison

	Owner occupation rate ^{a)}	Outstanding residential loans to disposable income of households ratio ^{a)}		Loan-to-value ratio ^{a)}	Share of loans w/ floating rate in 2007 ^{b)}
		in 2002	in 2013		
Germany	52.6	78.3	65.5	79.0	15.0
France	64.3	33.8	64.6	n.a.	15.0
Italy	73.0	16.4	33.5	67.3	47.0
Austria	57.3	26.2	44.9	n.a.	61.0
Ireland	69.6	76.0	110.2	n.a.	67.0
Spain	77.7	54.8	90.4	57.0	91.0
Netherlands	67.4	148.7	217.5	70.0	18.0
UK	64.6	90.0	119.2	75.0	n.a.
USA	66.1	75.7	82.1	n.a.	47.0

Source: a) European Mortgage Federation (2013, 2014), b) German Council of Economic Experts (2013) in Molzahn, A. (2016 forthcoming), 'The German housing market — being well on the way?', European Commission, European Economy, Economic Briefs.

Graph 2.3.9: Mortgage Equity Withdrawals in selected euro area countries



Source: European Central Bank. Commission services calculations. Note: equity withdrawal is defined as the difference between the annual net financial transactions flows in loans to households for house purchases and annual gross fixed capital formation in dwellings (ESA2010).

Consumer credit in Germany has shown some signs of strengthening in recent years. Following some volatility during the crisis, as of 2014 loans for consumption accelerated as part of a stabilising economic recovery in the euro area.²³ In 2014, the average amount that people borrowed for consumption also rose. For the first time, the number of new instalment loans worth over 10 000

²³ Schufa Holding AG (2015), 'SCHUFA Kredit-Kompass 2015 — Empirische Untersuchung der privaten Kreditaufnahme in Deutschland'.

euros was higher than those worth less than 1 000 euros. Moreover, requests by banks to Schufa (*Schutzgemeinschaft für Absatzfinanzierung*) for credit assessments of borrowers increased by 7 % compared with 2013. This points to a stronger interest of consumers in comparing credit conditions offered by different institutions.

Nonetheless, consumer credit remains relatively insignificant in Germany from a macroeconomic perspective. In addition, the penetration of consumer credit has also fallen since 2009, with a ratio of outstanding credit to consumption dropping from 17 % to 14 % in 2014, due in particular to more overdraft facilities being offered by German banks.²⁴ Consumer credit and other lending make up only 1/5 of total household credit. Other lending (e.g. credit for education or for setting up a business by self-employed people) is around three times higher than consumer loans. By comparison, lending for house purchases (in terms of outstanding loans) is around 4/5 of total household credit.

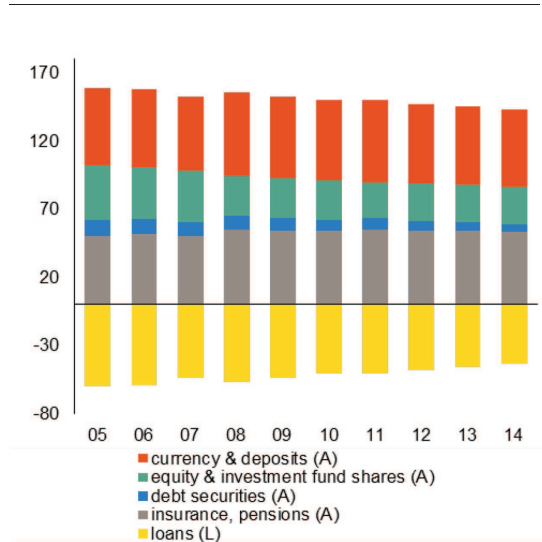
Adjustment to the low interest rates in households' financial assets

Although real returns for households on financial portfolios remain positive, households' investment income has fallen due to a preference for liquidity. German households hold a significant fraction of their assets in the form of

²⁴ Credit Agricole (2015), 'Overview of the European consumer credit market in 2014: Outstandings stabilise after five years of contraction', Press Release: Crédit Agricole Consumer Finance.

currency and deposits and other fixed-income assets (Graph 2.3.10). As a result of their clear investment tendency, they have earned very low nominal returns on a significant part of their portfolios in recent years. A more balanced portfolio allocation *ex ante* could have helped to safeguard real returns.

Graph 2.3.10: Households' balance sheet by instrument in Germany (% of total net financial assets)



Source: European Commission.

Recent research shows that the real return for German households on a typical private portfolio was on average just over 1.5 % per annum between 2008 and the beginning of 2015.²⁵ This return was lower than the pre-crisis average, but higher than in several other periods since the early 1990s. Since 2012, the average real return of a standard portfolio was around 2 %, in spite of currency and deposits having yielded negative real returns since the post-crisis years. Despite a lower proportion of equity in the average portfolio, they have contributed roughly half of total real returns since 2012. Insurance products have contributed slightly less in spite of their large and growing weight in the portfolio.

German households show no signs of diversifying their portfolios towards financial instruments that yield higher returns. In times of economic uncertainty, German investors favour the traditional virtues of caution over (riskier)

²⁵ Deutsche Bundesbank (2015), 'Monthly Report October', pp. 13-32.

short-term profits.²⁶ In fact, since 2007 German households have decreased their holdings of equities, despite rising share prices and the low returns on interest-bearing assets. The share of cash and deposits held by private households increased during the period 2007 to 2014 from 35.5 % to 39.3 %. The share of insurance, pension and scheme guarantees went up from 32.6 % to over 36.8 %. At the same time, the share of securities (including unlisted and listed shares, debt securities, other equity, other, investment fund shares) decreased from 31.9 % to 23.9 % despite positive valuation effects (although equity investment increased somewhat in 2015).

By hardly adjusting their portfolio allocation in response to the low nominal and real interest rates, households tend to forego higher expected returns. Simulation results from a scenario analysis suggest that German households forego annually around 0.2 % of household net wealth (defined as net financial wealth and housing wealth of households) if the low interest rate phase lasts five years and the average interest rate gap is 2%.²⁷ The findings point out that the average annual return on a broadly diversified share portfolio could be significantly higher than the one resulting from investments in safe short-term bonds. This suggests households could counterbalance low interest rates by a more diversified portfolio allocation.

The lack of diversification stems from several factors including macroeconomic uncertainty and risk aversion. Next to traditional factors leading to under-diversified portfolios (such as high transaction and search cost, preferential tax treatment of certain assets, lack of information about investment opportunities as well as investors' lack of financial sophistication), risk aversion seems to have a significant effect on the propensity of German households to hold an incomplete asset portfolio.²⁸ This seems to hold

²⁶ German Savings Banks Association (2015), 'Vermögensbarometer 2015'.

²⁷ Brühl, V. and Walz, W. (2015), 'Das anhaltende Niedrigzinsumfeld in Deutschland', CFS Working Paper Series, no. 506. The analysis shows the cumulative effect of low interest rates on the asset accumulation of private households. The interest gap is defined as the gap between interest rate gap between the low interest rate level and an alternative "normalised" interest rate level.

²⁸ Barasinska, N., Schaefer, D. and Stephan, A. (2012), 'Individual risk attitudes and the composition of financial portfolios: Evidence from German household portfolios',

independently of the level of wealth of a household. Households are also less likely to add risky assets to their portfolio if safety needs have not been met. Deutsche Bundesbank research highlights that the significant increase in time deposits has been driven not only by the household sector's liquidity preference. It was also influenced by its pronounced and persistent aversion to risk in the face of an uncertain macroeconomic environment.²⁹

Other factors might further explain the behaviour of German households, including negative experiences associated with past investment decisions. Evidence for Germany suggests that people with negative experiences of capital market products remain sceptical and will tend to invest less in such financial instruments in the future.³⁰ These results are more pronounced in households with lower financial literacy. This observation is underpinned by the fact that — following the financial crisis — private households distanced themselves from decisions involving risk. They significantly reduced their 'direct' capital market exposure in favour of an 'indirect' exposure (by intermediation of a financial expert).³¹

The Quarterly Review of Economics and Finance 52, pp. 1-14.

²⁹ Deutsche Bundesbank (2015), 'Monthly Report October', pp. 13-32.

³⁰ Bucher- Koenen, T. and Ziegelmeier, M. (2013), 'Once Burned, Twice Shy? Financial Literacy and Wealth Losses During the Financial Crisis', *Review of Finance* 18, pp. 2215-2246. See also Thaler, R. (1994), 'Psychology and Savings Policies', *American Economic Review* 84, pp. 186-192. Malmendier, U. and Nagel, S. (2011), 'Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?', *The Quarterly Journal of Economics* 126, pp. 373-416.

³¹ Deutsche Bundesbank (2015), 'Monthly Report October', pp. 13-32.

2.4. FINANCIAL STABILITY OF LIFE INSURERS

German life insurers and pension funds manage close to a third of household assets but provide relatively little direct financing to the private sector. 31% of German households' gross financial asset acquisition goes towards life insurers and pension funds, a share that is comparable to the euro area. The sector thus plays an important role in managing excess household savings (see section 2.3). However, life insurers' concentrate their portfolio on safe and liquid assets, and as German insurers present a relatively high exposure to banks, the sector plays an only indirect role in supporting public and private investment. This is of particular relevance in Germany given its investment needs (see Box 1.1). The remainder of this section focuses primarily on the financial stability issues in relation to the life insurer's sector.

Sector stability in view of low interest rates

The decrease in interest rates (and more particularly the so-called "risk-free rate") has affected many life insurers in the EU, especially in Germany, that were exposed to interest rate risk. A life insurer has typically liabilities with a long duration. If these liabilities are not fully hedged with assets of a similar duration, the insurer is exposed to interest rate risk. According to the European Insurance and Occupational Pensions Authority (EIOPA), German life and health insurers in the scope of the 2014 Stress Test presented in December 2013 assets' duration of around 10 years and liabilities' duration of around 20 years, which resulted in a duration gap of 10 years, one among the highest in the EU³². Such a large duration gap coupled with the significant decline of interest rates has negatively affected German insurers' Solvency II regulatory capital ratios. However, these duration values present some limitations, such as the correlation between with-profit guarantees and interest rates and the difficulty to define duration for certain classes of

assets like shares: they must be interpreted with caution and cannot be considered as a direct proxy of interest rate risk³³.

The regulatory shift from Solvency I to Solvency II leads to an earlier recognition of market changes on the insurers' solvency position. Under the old EU insurance directives Solvency I, the decrease in the interest rate would not immediately translate into lower regulatory capital ratios. In contrast, under the new forward-looking and risk-sensitive Solvency II regime, which is scheduled to enter into force as from January 2016, the effect is recognized much earlier, as soon as the interest rate curve moves, because assets and liabilities cash-flows are discounted with the risk-free interest rate curve. The longer the duration of an asset, the more sensitive it is to variations in the interest rate. As a consequence, when interest rates decrease, liabilities with long duration will increase much more than assets with shorter duration, which will automatically result in lower own funds. Lower own funds under the Solvency II regime do not necessarily imply immediate viability issues, but if they fall below certain regulatory thresholds, the insurer will need to take some actions to improve its Solvency II ratios. Currently, in Germany, the average guaranteed interest rate on life insurance contracts amounts to about 3.0%³⁴ and is decreasing only slowly, as the legacy portfolio expires and is progressively replaced by contracts with lower guaranteed interest rate. In contrast, the

³² EIOPA insurance stress test report 2014, p103.

³³ Durations cannot always be interpreted as sensitivities of market values against changes in interest rates because they do not take into account the variability of future cash flows. Indeed, an interest rate change does not only affect the discounting of future cash flows but their amounts themselves, especially for future profit participations that play an important role in the German life insurance sector. On the asset side there are also some instruments where durations cannot be interpreted as sensitivities, or can hardly be defined at all (e.g. equity). A potentially more meaningful duration concept would be based on sensitivities of assets and liabilities (to interest rate change) but cannot be reliably derived from public statistics.

³⁴ Fitch (2015), 2016 Outlook: German Life Insurance, p. 2.

Table 2.4.1: BaFin's surveys of German insurers' regulatory capital position

Regulatory capital gap according to BaFin	Without transitional measures	With transitional measures
Reference date: December 2013	25% of companies (10% market share)	A handful of companies (less than 1% market share)
Reference date: December 2014	Almost 50% of companies	

Source: BaFin

average investment return of the asset portfolio decreases faster, since German life insurers' assets typically have a shorter duration than their liabilities.

Solvency II includes a number of measures to ensure a smooth transition from Solvency I, which will largely mitigate the impact of regulatory changes on German insurers' solvency ratios. New valuation rules are being gradually introduced over a period of 16 years and will typically result in a decrease in the value of insurers' liabilities and an increase in their own funds. These transitional measures are designed to allow for sufficient time to adapt to the new Solvency II rules. Under the assumption that the low interest rate environment persists, German life insurers would exhibit a regulatory capital gap of EUR 12bn that will need to be continuously filled by raising capital or, more likely, by reducing the risk exposure over the next 16 years. While their absence would translate into almost half of German life insurers not meeting their Solvency II capital requirement³⁵ and a capital gap of EUR 12 billion, their introduction allows most of life insurers to be Solvency II compliant³⁶ (see Table 2.4.1). The sensitivity of German insurers towards tightening interest rates can be seen in the increase of the number of insurers with a regulatory capital gap (without transitional measures) between 2013 and 2014. Insurers with an insufficient SCR-

coverage without transitional measures will have to present plans to BaFin about how they intend to achieve a sufficient SCR-coverage at the end of the transitional period, and will have to report at least yearly on the progress of these plans.

The German life insurance market is not at risk as a whole. In 2014, life insurance premiums still grew by 3.1% to EUR 93.7 billion, and rating agencies consider that rated German life companies are able to meet policyholders' guarantees. There is a risk that a failure or any stigmatization of vulnerable insurers would have reputational consequences for the sector. Nevertheless, the ability for such a failure to impact the market more broadly would be low given the nature of insurance liabilities, the ability to manage these liabilities in a run-off mode and the tools available to the German authorities. According to BaFin, vulnerable insurers do not display common features: they present very different market shares, different business models and different ownership structures. All of them meet the Solvency I capital rules, but the picture under Solvency II is quite different.

Large German insurers are generally rated above BBB by rating agencies or the market, which indicates some level of trust by the analysts and the investors. Some companies present relatively low Solvency I ratios, which are often related to the management of capital within insurance groups and do not necessarily indicate fragilities. In many cases, the absence of disclosure of the Solvency I ratio in the annual reports does not allow to draw any meaningful conclusion. However, the best metric to assess the insurers' solvency is the Solvency II ratio. These Solvency

³⁵ At EU level, about 19.2% of (life and non-life) insurers covered by EIOPA stress test fell short of Solvency II requirement at year end 2013, according to EIOPA insurance stress test report 2014.

³⁶ BaFin (2015), "New BaFin survey confirms: German life insurers prepared for Solvency II", press release on 29 July 2015.

II ratios should be published by 20 May 2017 at the latest and will allow analysts and investors to better evaluate insurers' solvency.

Potential insurance companies' distress might impact financial stability and the broader economy through various transmission channels. According to the Bundesbank³⁷, "it can affect banks directly, as insurers are an important source of funding for them. In mid-2015, German insurers held 37% of their total investment in the banking sector. This interconnectedness and the risks resulting from it have diminished perceptibly in the wake of the financial crisis. At the end of 2011, this share of the insurers' investment portfolio had still amounted to 47%. Studies bear out that the systemic importance of insurers has lessened since the crisis".

Importantly, German regulators have taken a number of measures to address the interest rate issue. In 2011, the authorities introduced the *Zinszusatzreserve*, an additional reserve complementary to the usual mathematical provisions³⁸ for long-term products with high guaranteed interest rates. At the end of 2015, the *Zinszusatzreserve* was expected to reach a total of EUR 32 billion (vs. EUR 21.3 billion in 2014). It implicitly lowers the guaranteed interest rate from 3.10% to 2.82%.

As the interest rate environment has continued to deteriorate, Germany passed in 2014 the comprehensive Life Insurance Reform Act. This Act aims at stabilising the life insurance sector in Germany by stopping unwarranted outflows of funds from life insurers' assets, in order to ensure that the funds are still available to meet policyholders' claims. Concretely, this act includes a reduced obligation to share unrealized gains with policyholders upon expiry of their contract, strict

restrictions on dividend payments, and a reduction of the minimum guaranteed rate on new contracts. The Act is expected to have significantly positive effects on the sector's solvency, according to BaFin simulations. The investor's perspective may however be different. While the rating agency Fitch acknowledges that "the removal of the requirement for exiting policyholders to participate in the unrealised capital gains on bond portfolios and the reduction in the maximum guaranteed interest rate (from 1.75% to 1.25%) from 2015 is positive for companies, other measures, including the increase in policyholder participation in the risk result, are negative and reduce managements' flexibility"³⁹.

The statutory German insurance guarantee scheme Protektor was set up to take over the portfolios of insolvent insurers if needed and to ensure that promises to policyholders can be fulfilled. Founded in 2004 on an already existing private and voluntary initiative, the statutory German insurance guarantee scheme is delegated by law to a privately managed and owned company, *Protektor Lebensversicherungs-AG*⁴⁰. Its purpose is to take over the portfolios of insolvent life insurers and ensuring their continuation by managing them or transferring them, fully or partly, to another insurer. Protektor's shareholders are the German life insurers organised within industry association, the Gesamtverband der Deutschen Versicherungswirtschaft (GDV). They put up the initial share capital and, by bilateral agreement with Protektor, provide guarantees for further capital contributions. The target capital corresponds to 0.1% of the German life insurers' net reserves (EUR 885 million in 2013), and additional special contribution can be required for another 0.1%. The target capital was reached in 2010. Under certain conditions, additional capital

³⁷ Bundesbank (2015), Financial Stability Review 2015, p. 42.

³⁸ Technical reserves/provisions consist of different kinds of provisions. Mathematical provisions are one of them: they are the provisions that insurers must constitute to meet the guarantees of their life policies.

³⁹ Fitch (2015), German Life Insurance Dashboard – Autumn 2015.

⁴⁰ Oxera (2007), Insurance guarantee schemes in the EU, Final Report prepared for European Commission.

can be raised to reach a total capacity of 1% of the net insurance technical reserves (i.e. EUR 8.6bn end 2014). Under this system, the failure of a single undertaking can be absorbed by the German insurance market. The system is however not equipped to deal with a long-term decline of the overall solvability of the market in a prolonged low interest rate environment. The statutory scheme does not receive any contributions from the state, and does not benefit from any guarantees or explicit provisions by the state to meet their obligations in case of funding shortfall. It is allowed by law to borrow, but no credit facility has been established. All German life insurers as well as branches of life insurers based outside the EU are required to participate in the scheme. Branches of EU companies, however, are not allowed to participate in the scheme. Pensionskassen similar to life insurers are allowed to participate in the scheme on a voluntary basis.

BaFin, the sector's supervisor, has a number of tools and powers to ensure financial stability.

BaFin carries out its supervisory tasks with a three-step approach. The basic step is the analysis of the undertakings using their regular reporting. Multi-year projections on a local GAAP basis are included as well. This monitoring process allows for early recognition of vulnerable insurers and an efficient organisation of supervisory actions. If need be, BaFin contacts insurers to define the corrective measures that need to be implemented, like a reduction of policyholders' participation in profits or the acquisition of hybrid capital. The procedure climaxes in crisis management closely monitored by BaFin, who can prohibit weak players to offer the maximum guaranteed interest rate for new contracts and can oblige them to choose a lower level more in adequacy with their prospects. In extreme circumstances, BaFin has the power to reduce guaranteed interest rates on existing contracts. However, the supervisor considers more convenient to transfer the portfolio to the insurance guarantee scheme without any haircuts if possible. In the event of such a transfer, changes to contractual terms are possible to facilitate the process.

All these tools and measures taken together, in particular the insurance guarantee scheme, make an "insurance run" on any given German life insurer rather unlikely.

Massive surrenders of insurance contract (the so-called "insurance run") are exceptional but not impossible and they have been seen in the past in some countries, but they are much less likely than bank runs for a number of reasons. For instance, insurance contracts are much less liquid than banks' deposits. Surrendering an insurance contract usually takes some time and paperwork. And it is also often financially costly, through much higher tax rates on the benefits and penalty fees contractually imposed by the insurer. Also, while a positive correlation between interest rates and surrender rates makes sense from a theoretical point of view, it is not necessarily verified in the reality. Over the last 30 years Germany has experienced several severe increases in interest rates without any measurable effect on surrender rates. In any case, BaFin's last prognostic survey showed that German life insurers would be able to withstand a scenario combining severe increases both in interest rates and surrender rates. It confirms that the main risk for the sector is by far the persistence of the low interest rate environment.

German life insurers have also taken various actions to address the challenges facing the sector.

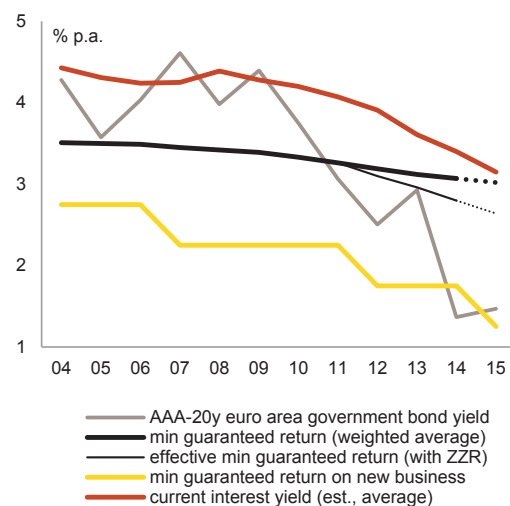
According to BaFin, life insurers are starting to move away from traditional life insurance policies and offer products with alternative guarantees (lower guarantees during the lifetime of the contract and focus on the guarantee at maturity) or unit-linked products that are eligible for government subsidies. Theoretically, some insurers could be tempted to increase their investments in more risky assets in order to meet the high guaranteed interest rates promised to policyholders, although regulatory requirements do not seem to allow for a substantial increase of risk and the de-risking of the asset portfolio is one of the measures employed to reduce the regulatory capital gap. Fitch nonetheless explicitly flagged this risk for at least two rated life insurance undertakings. Still, BaFin considers that a

significant increase in risk taking by the German life insurance sector as a whole is not evident.

Legal framework and macroeconomic impact

The peculiarities of German life insurance liabilities partly owe to fiscal incentives. Before 2004, substantial income tax deductions only advantaged traditional life insurance contracts with guaranteed returns and several other regulatory features. In 2004, such benefits were restricted to legacy contracts, for which they remain applicable until contract expiration. In order to encourage third pillar retirement savings, the *Riester* system applies since 2002, which provides direct subsidies to life insurance contributions as well as several other narrowly defined savings products such as deposits.⁴¹ Later, the subsidy system was not only widened to some forms of owner-occupied housing (2008), but also to certified unit-linked products with tight capital guarantees during contract lifetime. In contrast, subsidies and tax allowances are not available for pension plans with lower guarantee elements that are common in some EU Member States.⁴² Both pre- and post-2004, fiscal incentives thus played a non-negligible role in concentrating third-pillar savings on a particular class of life insurance products, which is partly responsible for the high average guaranteed return, and affects portfolio allocation. High average guaranteed returns exacerbate the duration mismatch of assets and liabilities, as average effective yields have declined faster than average guaranteed returns (see Graph 2.4.1).

Graph 2.4.1: German life insurance average returns



Source: Assekurata and ECB (for average government bond spot yields). *Note:* Current interest yield' refers to the 'Überschussbeteiligung' of a sample of 30 life insurers, weighted average. 'Effective minimum guaranteed return (with ZZR)' refers to the average guaranteed return after taking into account *Zinszusatzreserve* requirements. Dotted lines display the trend of the average guaranteed returns.

⁴¹ European Commission (2015), Country Report Germany 2015, COM(2015) 85 final.

⁴² In particular, end-time capital guarantees that are below 100% of pay-ins are not eligible. In the same vein, withdrawing savings for housing renovation lead to the repayment of fiscal advantages, while markets for several alternative tools to complement retirement savings, such as reverse mortgages, barely exist.

Table 2.4.2: Asset allocation of life insurers and pension funds, 2014

	EA	DE	NL	FR	UK	US
Total financial assets, EUR trn*	8.7	2.3	1.8	2.3	3.9	17.5
of which life and composite insurance (%)	43	46	26	89	43	19
% of total assets:						
Equity shares	11	9	10	11	19	35
of which financial sector	0	1	1	0	-	1
of which foreign listed	2	0	7	1	-	-
Domestic financial sector debt (ex funds)	22	32	11	30	7	5
of which deposits	9	23	1	2	4	1
Domestic government debt	22	8	13	25	16	14
Other debt	13	12	15	15	24	22
of which domestic private sector	5	4	8	4	4	-
of which foreign bonds	8	4	7	9	13	-
of which unknown/unallocated	0	4	0	1	8	1
Investment funds	27	35	41	19	27	18
of which foreign	1	0	3	-	-	-
Miscellaneous	4	3	7	0	6	6
% direct exp. to domestic fin sector (incl funds)	49	68	53	49	35	24
% direct exposure to private and foreign	23	20	24	26	43	56

Source: National accounts data of ECB, OECD, Bundesbank, DNB, Banque de France, ONS, Federal Reserve Board.

Note: For euro area countries, 'domestic' refers to the euro area. Share of life insurance refers to 2013 data.

* Total financial assets refers to partly consolidated figures, namely total financial assets on a non-consolidated basis, excluding insurance technical reserve assets. Domestic money market funds are included within the financial sector.

German life insurers' assets are strongly concentrated on safe debt, and provide little direct funding to the private sector. Since guaranteed returns are binding during the contract lifetime, the sector has to ensure the guarantees by allocating even more of its portfolio to investment-grade debt assets than in comparable countries without that feature, which leaves less room for direct investment in corporate debt or equity.⁴³ The sector thus remains invested in banking sector debt (equally distributed between mortgage-backed bank bonds and other bank debt), as well as mutual funds. On aggregate, the German pension fund and insurance sector thus provides considerably less direct financing to the private and government sectors than reference economies, which highlights their relatively low yield potential (Table 2.4.2). Consequently, the set-up of the insurance sector channels household savings towards financing banks (which are decreasing their loans to the

private sector % of GDP), and bond funds, whereas it contributes little direct financing the corporate and government sectors, in comparison to euro area peers (Table 2.4.2).⁴⁴ While little funding of the private sector is a general feature of most life insurers in the euro area, the German sector stands out in relying most on indirect funding via the financial sector.

The measures necessary to address the sector's low interest challenge may exacerbate the German savings-investment gap. The sector has increased the duration of its assets from 8 years in 2011 to 10 years in 2014, mainly due to a portfolio reallocation away from short term bank loans towards more long-term bond investment funds.⁴⁵

⁴⁴ Note that Table 2.4.2 refers to market values for the entire pension fund and insurance sector on an internationally comparable basis, whereas the ratio of 37% mentioned before refers to this figure refers to values for life insurers only.

⁴⁵ GDV (2015), *Statistisches Taschenbuch der Versicherungswirtschaft 2015*, Table 44. Note that this

⁴³ See e.g. Harlow (1991), 'Asset Allocation in a Downside-Risk Framework', *Financial Analysts Journal*, for a general description.

Addressing past valuation changes has increased life insurers' focus on safe and liquid assets in order to ensure their liabilities are met. The required increase in provisions to address low market yields will further restrict the scope of life insurers to invest in illiquid assets with higher returns, such as loans and non-listed equity. In addition, the *Zinszusatzreserve* addresses the liability vulnerabilities stemming from guaranteed returns, but may have further implications for portfolio allocation. Economically, the *Zinszusatzreserve* can be considered a cost element and thus effectively lowers the average guaranteed return (Graph 2.4.1). This buffer thus ensures sustainability partly through decreasing liabilities, but also limits the remaining portfolio available for higher-yielding, riskier assets such as equity, and thus negatively affects policyholders' return prospects. The importance of the buffer is set to increase: Industry simulations⁴⁶ suggest that even with market yields moderately increasing from 2016, *Zinszusatzreserve* requirements could reach EUR 100 billion by 2019. The associated cost could further impact on the attractiveness of life insurance as a savings instrument, and thus the customer inflow and surrender/cancellation rates.⁴⁷

similar contracts remains considerably below long-term average. In response, equalizing the fiscal treatment of guaranteed vs unit-linked contracts with end-date guarantees would allow for the conversion of guaranteed-return contracts towards unit-linked ones and thus could free up more sector capital to earn higher returns from illiquid long-term investment such as domestic equity or project financing.

The resulting decrease in effective guaranteed returns may reduce the attractiveness of traditional life insurance to the household sector, despite fiscal advantages. So far, the stagnation of *Riester* contracts since 2011 may point to reduced attractiveness, but aggregate life insurance contributions in 2014 rose to surpass their 2010 record. Increasing pay-ins on high-return legacy contracts remains attractive for households, while the inflow of new *Riester* and

shift will help to insure against future interest rate volatility, but not compensate for past duration effects.

⁴⁶ Assekurata (2015), *Marktausblick Lebensversicherung 2015/2016*.

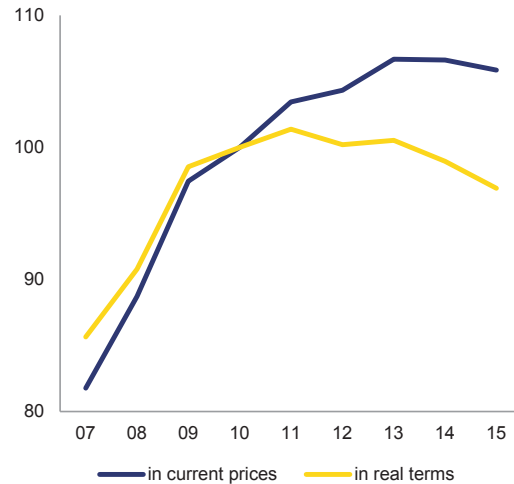
⁴⁷ Note that a 2015 landmark case eases the conditions for customers revoking a considerable share of contracts initiated 1994-2007 without cancellation fees (Federal Court of Justice (BGH) judgement 07.05.2014 - IV ZR 76/11, following a 2013 European Court of Justice ruling).

2.5. PUBLIC INVESTMENT AND FEDERAL FISCAL RELATIONS

Public investment has remained subdued in nominal and real terms and significantly below the euro area average. Based on the 2014 in-depth review, which identified a public investment backlog, especially at municipal level, the Council recommended to Germany in 2014 and 2015 to increase public investment in infrastructure, education and research.⁴⁸ While in current prices public investment showed moderate growth of, on average, 1.4 % of GDP in the period 2010-2015, in real terms it has been falling in recent years (Graph 2.5.1). In 2015, public sector gross fixed capital formation decreased by 0.7 % of GDP in nominal terms and 2.1 % in real terms. The Commission 2016 winter forecast projects public investment to gain some momentum in 2016 and 2017, in view of the measures already adopted by the federal government. Overall, public sector gross fixed capital formation as a proportion of GDP has been on a slight but steady decline in the post-crisis period (Graph 2.5.2) and remains significantly below the euro area average (excluding Germany as well as Spain and Ireland, as these two countries with significant construction booms are excluded to avoid skewing the average), even though the gap narrowed from 1.6 % of GDP in 2009 to 1.0 % in 2015 (see Graph 1 in Box 1.1).

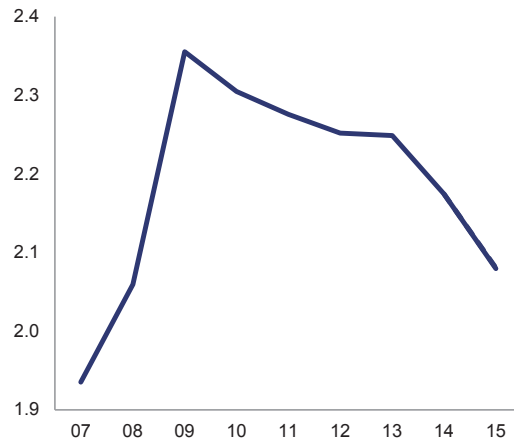
The efforts to strengthen public investment have not initiated a clear upward trend in gross investment at any level of government, while net investment has remained markedly negative at municipal level. Gross fixed capital formation as a proportion of GDP at municipal level was on a downward trend at the beginning of the decade. A moderate increase in municipal investment in recent years was more than offset by a fall in federal investment (Graph 2.5.3). In contrast, public investment by the federal states has remained fairly stable. Net fixed capital formation has continued to remain markedly negative at municipal level, confirming indications of chronic underinvestment (Graph 2.5.4). Net investment at general government level also turned negative again in 2014.

Graph 2.5.1: Gross fixed capital formation of general government in current prices and real terms (index 2010 = 100)



Source: Destatis, European Commission.

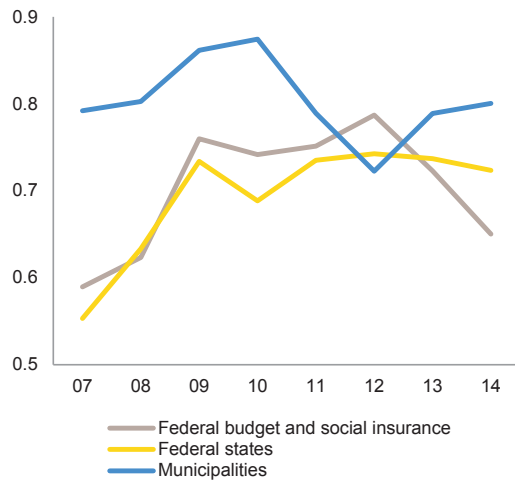
Graph 2.5.2: Gross fixed capital formation of general government (% of GDP)



Source: Destatis, European Commission.

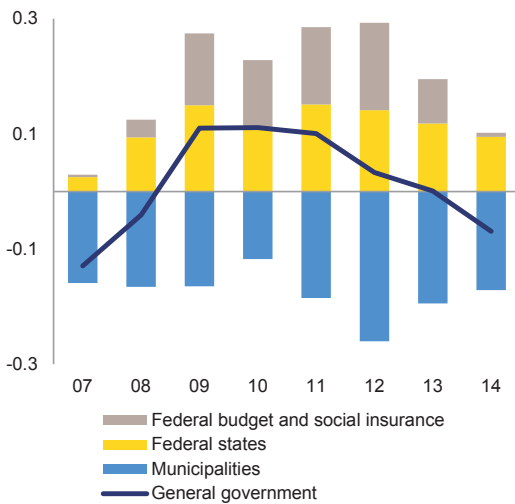
⁴⁸ European Commission (2014), 'Macroeconomic imbalances — Germany 2014', European Economy, Occasional Papers, No 174.

Graph 2.5.3: Gross fixed capital formation by layer of government (% of GDP)



Source: Destatis, European Commission.

Graph 2.5.4: Net fixed capital formation by layer of government (% of GDP)

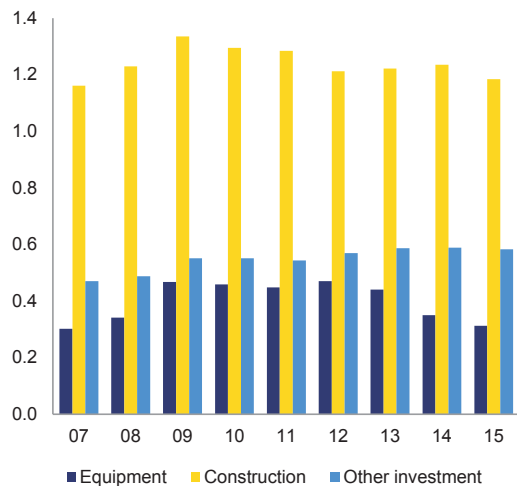


Source: Destatis, European Commission.

The measures initiated have not yet led to higher public sector investment in construction and equipment. The slight decline in public sector gross investment as a proportion of GDP in the post-crisis period was due to lower investment in construction — of which about 96 % was in non-housing construction in 2015 — as well as in equipment (Graph 2.5.5). Although the measures taken to boost infrastructure investment seem to

have contributed to stabilising public sector construction investment in recent years, they have not resulted in a clear upward trend. On the other hand, a slight trend increase can be observed in other investment, which comprises intellectual property, including research and development, software and databases, and copyrights. As regards government functions, gross investment as a proportion of GDP has in recent years moderately increased in general public services, been rather stable in education, but fallen in the areas of economic affairs and defence.

Graph 2.5.5: Gross fixed capital formation of general government by investment category (% of GDP)

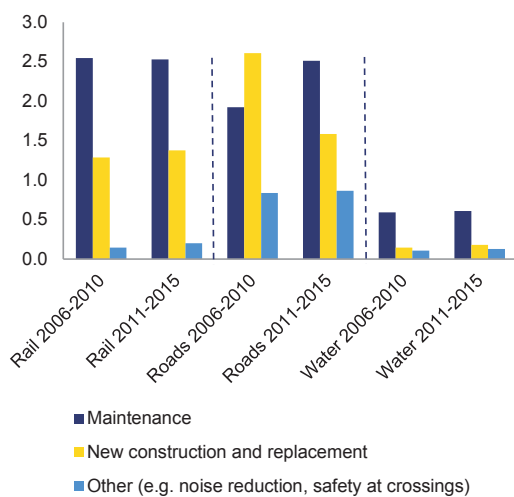


Source: Destatis, European Commission.

Investment at federal level main transport modes has been largely sustained with a notable exception of the investment in new road infrastructure. For all main transport modes, investment in maintenance at federal level was maintained in the period 2011-2015 compared with the period 2006-2010. It is well above the funding provided for the expansion of infrastructure (Graph 2.5.6). Federal investment in the expansion and replacement of transport infrastructure was upheld for railways and waterways. By contrast, federal investment in new road infrastructure did not keep up with the increasing maintenance requirements of an ageing road network. The railway sector received a relatively large share of investment in relation to its market share of all transport modes

of 9 % of freight and 7 % of passenger transport, compared with market shares of road transport of 85 % and 75 %, respectively. Over the whole period from 2006-2015, it received about EUR 39 billion or 43 % of total transport infrastructure funding at the federal level. Around $\frac{2}{3}$ were spent or budgeted for maintenance and $\frac{1}{3}$ for new construction and replacement. In addition, in the period 2006-2010, 60 % of relevant EU funds, or approximately EUR 900 million, was spent on railway infrastructure, followed by 36 % invested in roads and 4 % in waterways.⁴⁹

Graph 2.5.6: Federal investment in transport infrastructure for the periods 2006-2010 and 2011-2015 (billion EUR)



Source: Federal Ministry for Transport, Construction and Urban Planning (2012), 'Investitionsrahmenplan 2011-2015 für die Verkehrsinfrastruktur des Bundes (IRP)', European Commission.

Further measures already adopted by the federal government were expected to come into effect in the second half of 2015 or in early 2016. It was announced, even before the adoption of the 2015 country-specific recommendations that an additional EUR 10 billion was to be allocated in 2016-2018 mainly to transport and IT infrastructure, energy efficiency, climate and flood protection, and urban development. The same is

⁴⁹ Federal Ministry for Transport, Construction and Urban Development (2012), 'Investitionsrahmenplan 2011-2015 für die Verkehrsinfrastruktur des Bundes (IRP)'.

true of a special fund of EUR 3.5 billion that will be disbursed over the period 2015-2018 to support investment in municipal infrastructure. This includes hospitals, transport, IT and educational infrastructure, urban development, the energy efficiency infrastructure and climate protection. In the second half of 2015, the federal government agreed to contribute additional funds of, on average, just under EUR 2 billion annually over the period 2016-2019. This money is targeted to finance local public transport, expand social housing and fund energy-saving renovations of buildings, and to improve energy efficiency in industry and in the municipalities. In view of the large influx of refugees, the federal government also adopted plans to provide tax incentives by granting a temporary degressive depreciation for private investment in rental housing in areas with tight housing markets. In addition, EUR 1.3 billion out of the total proceeds from auctioning broadcast spectrum of around EUR 5 billion in 2015 have been made available to the federation and the federal states to provide incentives for investment in broadband expansion. As regards the federal budget, funds earmarked for investment increased by 2.1 % in 2015 and 5.4 % in 2016. In particular, federal spending on transport infrastructure has been increased from an average of around EUR 10 billion annually over the period 2010-2014 to EUR 12.3 billion in 2016 (Table 2.5.1). The federal government expects total gross public investment to rise by an average of around 4 % annually in the period up to 2019.

These measures still do not appear to bring about a sustainable upward trend in public investment and to meet infrastructure investment requirements. Overall, these measures would amount to an average of about EUR 7 billion or 0.2 % of GDP annually over the period 2016-2018. Although this is a step in the right direction, this still falls short to meet the additional annual public investment requirement of $\frac{1}{2}$ to 1 % of GDP (EUR 15-30 billion) identified in the 2014 in-depth review. The planned increase in federal transport infrastructure investment still does not match the annual requirement of at least additional

EUR 7 billion

Table 2.5.1: **Planned federal investment in transport infrastructure (in EUR billions)**

	Federal roads	Federal waterways	Federal railways	Combined and other traffic	Total
2014	5.1	1.0	4.2	0.1	10.5
2015	5.1	1.0	4.6	0.1	10.8
2016	6.2	1.0	5.0	0.1	12.3
2017	6.6	1.1	5.0	0.1	12.8
2018	6.7	1.0	5.6	0.1	13.4

Source:Federal Ministry of Transport and Digital Infrastructure (2015), 'Aktionsplan Güterverkehr und Logistik - nachhaltig und effizient in die Zukunft'.

suggested in the 2014 in-depth review to overcome the investment backlog in Germany's transport infrastructure.⁵⁰ While transport infrastructure will also be eligible for the municipal investment fund set up by the federal government, this may not be sufficient to tackle the funding gap for, in particular, federal state, county and municipal roads and local public transport. Projections of future demand for transport services suggest further investment needs.⁵¹ Moreover, the pace of implementation of transport infrastructure projects has in the past fallen short of plans. An independent high level expert commission on increasing investment in Germany confirmed the diagnosis of an investment backlog in public infrastructure, cumulated notably in financially weak municipalities. It came up with a number of proposals to improve the situation. These have however not yet been translated into concrete policy measures, however (Box 2.5.1).

Despite more spending at federal level, overall education and research expenditure has only slightly increased in recent years and may have fallen short of the national target of 10 % of GDP. Total consolidated public and private expenditure on education and research increased slightly from 9.1 % of GDP in 2012 to 9.2 % in

2013.⁵² Hence, there remains a gap to the national target of 10 % of GDP that the federal government and the federal state governments agreed to meet by 2015. Federal spending on education and research was planned to increase by 10.3 % in 2015 and is budgeted to rise by a further 5.8 % in 2016. General government expenditure on education as a proportion of GDP has remained stable at around 4.3 % since 2009 and therefore well below the EU average (5.0 % in 2013). An increase at federal level has been offset by slightly lower expenditure by the federal states that contribute the majority of education expenditure (Graph 2.5.7). The increase at federal level in recent years reflects the additional funds provided by the federal government to support the federal states in financing childcare facilities, schools and higher education institutions. Public expenditure on research and development has remained stable at around 0.8 % of GDP in recent years. Total gross domestic public and private expenditure on research and development accounted for around 2.8 % of GDP in 2013 and 2014. Therefore, the Europe 2020 target of 3 % research and development spending has almost but not fully been achieved. Germany's research and development intensity was the fifth highest in the EU and remained behind that of Japan and South Korea.

⁵⁰ Similarly, updated data from the European Commission found that the annual underinvestment in rail and road infrastructure was around 0.15 % of GDP in 2013 (European Commission (2014), 'Infrastructure in the EU: Developments and Impact on Growth', European Economy, Occasional Papers, No 203).

⁵¹ The German Federal Ministry of Transport and Digital Infrastructure projects that from 2010 to 2030 there will be a 19 % passenger volume increase for rail and 10% for road, and a 43 % increase in freight transport volume for rail, 39 % for heavy vehicles and 23 % for shipping.

⁵² Federal Statistical Office (2015), 'Bildungsfinanzbericht 2015'.

Box 2.5.1: Barriers to financing and implementation of transport infrastructure investment in Germany

Germany has so far relied mainly on traditional state funding of transport infrastructure investment and has made only limited use of alternative funding instruments. Traditional state financing – by far the predominant way of financing transport infrastructure in Germany – ensures reliable funding and project management experience both at administrative and contractor levels. On the other hand, publicly financed and managed projects have involved frequent time and cost overruns, as has been the case in current projects such as the new Berlin International Airport or the railway project ‘Stuttgart 21’.¹ User charges for heavy vehicles do not finance specific infrastructure projects, but flow into the general federal budget and thereby contribute indirectly to about one third of road infrastructure investment. Specific funds for transport infrastructure investment that can be combined with user charge models, as applied in Austria or Switzerland, have not been used in Germany.² Contractual models, such as between the federal government and *Deutsche Bahn* acting as the railway infrastructure manager (*Leistungs- und Finanzierungsvereinbarung*), can allow for target-setting, penalties in the event of contractual infringements and a high degree of financial stability for multi-annual planning. However, the lack of a single contractual partner managing the infrastructure makes it currently impossible to apply this model to the German road sector.

Public-Private Partnerships (PPPs) have also not been used to a substantial extent in Germany. This also reflects criticism that such projects might incur higher financing costs than through traditional state finance and may not consistently be more efficient.³ However, provided there is a proper contractual framework, PPPs could in principle incur significantly lower costs over the entire project cycle than traditional projects. This could be achieved by bundling planning, construction and operation in the hands of a specialised company, providing contractual incentives to meet the cost and time specifications of a project, specifying the quality in which an infrastructure investment has to be returned after a certain concession term to provide an incentive for maintenance as well as by (partially) shifting risks from the public side to a private party. PPPs could be particularly interesting for large and time-consuming projects with a potential for cost overruns. A recent survey conducted at municipal level shows an overall positive acceptance of PPP with ‘average’ or ‘good’ evaluations by 44% and 30% of respondents, respectively.⁴

Complex responsibilities, administrative bottlenecks and complicated planning procedures are important barriers to investment. Complex planning responsibilities across the different levels of government result from the constitutional allocation of competences. In particular, municipalities are in charge of municipal transport infrastructure and the federal government has limited legal possibilities to contribute. Important bottlenecks also result from a limited administrative capacity of municipalities, such as due to staff shortage and insufficient specialist knowledge. An important reason for time overruns is

¹ A study on large-scale projects has identified average cost overruns of 73% for finished projects, due to unforeseen risks, political interference and the complexity of planning interfaces (Kostka, G. and N. Anzinger, 2015, ‘Large infrastructure projects in Germany: A cross-sectoral analysis’, Working Paper, Hertie School of Governance).

² For example, the Austrian ASFINAG, 100% property of the Austrian Federal Republic, is organised as a private company and financed through highway charges. It is not funded by the public budget but is equipped with a state guarantee. It is considered to allow for higher infrastructure investment, better documentation and the combination of public sector advantages (low financing cost) with private sector advantages (flexibility, efficiency).

³ German Federal Court of Auditors (2013), ‘*Gutachten des Bundesbeauftragten für Wirtschaftlichkeit in der Verwaltung zu Wirtschaftlichkeitsuntersuchungen bei Öffentlich-Privaten Partnerschaften (ÖPP) im Bundesfernstraßenbau*’.

⁴ Federal Ministry for Economic Affairs and Energy (2015) ‘*Online-Befragung zeigt großen kommunalen Investitionsbedarf*’, Monatsbericht 5/2015.

(Continued on the next page)

Box (continued)

complicated and lengthy legal and administrative procedures.¹ Public authorities have also shown a tendency to favour new projects at the expense of maintaining existing infrastructure, though this has changed in recent years at least at the federal level and federal state transport ministers have agreed to make maintenance a priority going forward.²

An independent high-level expert commission confirmed the diagnosis of an infrastructure investment backlog in Germany and made a number of proposals to improve the situation.³

Accordingly, a permanent National Investment Pact for Municipalities should complement the already established temporary fund supporting investment in financially weak municipalities. It also proposes the creation of a specialised infrastructure advisory body for supporting regional and local authorities in the planning procedure. A Federal Transport Infrastructure Company – to be financed primarily by user charges – could independently plan and manage construction and maintenance of the federal road infrastructure on the basis of a lifecycle approach. Additional funding for federal road infrastructure could be tapped by allowing private investors to invest in a Federal Infrastructure Fund. Finally, the efforts to increase infrastructure investment should be accompanied by a systematic efficiency and quality assessment of infrastructure projects, given that assessment schemes such as the Public Investment Management Assessment (PIMA) Index⁴ are currently not systematically used to evaluate public investment projects in Germany.

¹ For example, the average overall planning period for road infrastructure in Germany is considered to be about 5 years, including about 2 years for planning (3 years for routes with tunnels), 2 years for planning approval, and another year for decision making (Deutsches Verkehrsforum, 2005, *‘Bürokratieabbau – Beschleunigung von Planungs- und Genehmigungsverfahren für Verkehrsinfrastruktur’*, Positionspapier).

² Conference of Transport Ministers (2015), *‘Beschluss-Sammlung der Verkehrsministerkonferenz am 8./9. Oktober 2015 in Worms’*.

³ Federal Ministry for Economic Affairs and Energy (2015), *‘Increasing investment in Germany – Report prepared by the expert commission on behalf of the Federal Minister for Economic Affairs and Energy, Sigmar Gabriel’*.

⁴ International Monetary Fund (2015), *‘Making public investment more efficient’*, IMF Staff Report.

There is fiscal space available in Germany for more public investment. In 2015, Germany recorded a headline budget surplus of 0.5 % of GDP and a structural surplus of 0.8 % of GDP, hence remained 1.3 % of GDP above the medium-term budgetary objective. The Commission 2016 winter forecast projects Germany to continue complying with the medium-term objective with a margin of around 0.8 % of GDP in 2016 and 0.5 % in 2017. Similarly, Germany’s Draft Budgetary Plan for 2016 aims to overachieve its medium-term objective during 2016-2019 with a margin of ½ to 1 % of GDP, although extra spending for refugees was not yet fully factored in (Table 2.5.2). Over the same period, the federal government also plans to comply with a margin of about ¼ to ½ % of GDP with the deficit ceiling for the federal budget set by the national ‘debt brake’, without factoring in extra spending for refugees. Moreover, sovereign bond yields have fallen sharply since end-2013 and — with 10-year rates

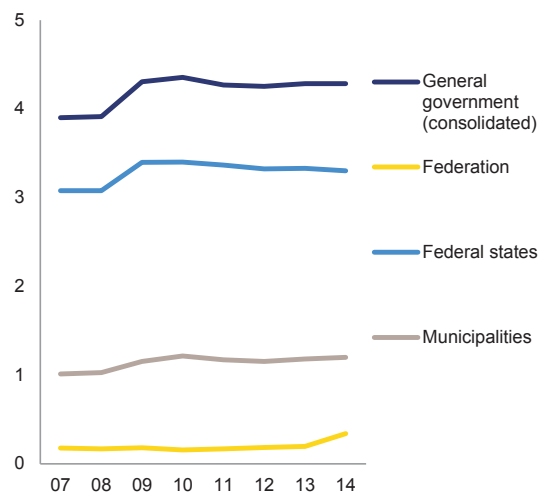
standing at 0.35 % on 1 February 2016 — still remain well below their long-term averages of 4.0 % (average over the period 2000-2010). This has contributed to lower interest spending and therefore to the available fiscal space. Moreover, low interest rates also mean that the social returns of long-term infrastructure projects and other comparable investments that enhance long-term efficiency largely outweigh the borrowing costs.

Table 2.5.2: Budgetary projections compared with European and national deficit ceilings (% of GDP)

	2016		2017		2018	2019
Requirements of the stability and growth pact¹						
	DBP	COM	DBP	COM	DBP	DBP
General government balance	0	0.1	1/4	0.0	1/4	1/2
Deficit ceiling	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Difference	3	3.1	3 1/4	3	3 1/4	3 1/2
Structural balance	0	0.3	1/4	0.0	1/4	1/2
Medium-term objective	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Difference	1/2	0.8	3/4	0.5	3/4	1
National 'debt brake' for federal budget²						
Structural balance	0.10		0.10		0.10	0.00
Structural deficit ceiling	-0.35		-0.35		-0.35	-0.35
Difference	1/2		1/2		1/2	1/4

Source:1) German Draft Budgetary Plan for 2016 (DBP), European Commission 2016 winter forecast (COM); 2) Federal Ministry of Finance (2015), 'Eckwertebeschluss der Bundesregierung zum Regierungsentwurf des Bundeshaushalts 2016 und zum Finanzplan 2015 bis 2019'.

Graph 2.5.7: Public expenditure by government sector on education (COFOG) in % of GDP



Source: Destatis, European Commission.

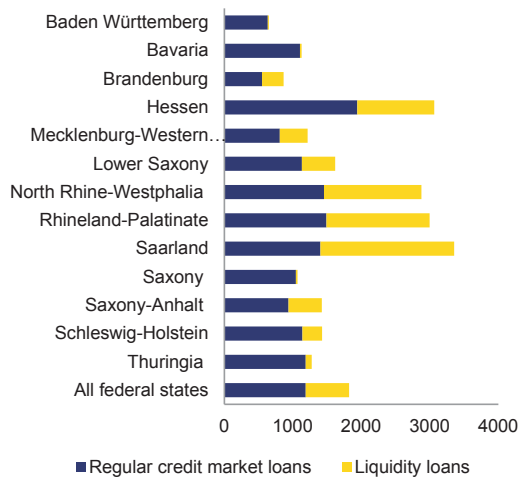
While an investment backlog at municipal level has emerged overall, the financial capacity and investment activity of municipalities varies strongly across federal states. Financially weak municipalities tend to devote a higher budget share to social spending, leaving less scope for investment. In particular, there appears to be considerable negative correlation between spending on accommodation allowances for low-income earners and the long-term unemployed and

municipal investment.⁵³ Moreover, despite overall balanced municipal budgets in recent years, a number of municipalities have increasingly made use of short-term loans (*Kassenkredite*) to finance structural deficits rather than for their purpose of bridging liquidity shortages. This can be partly explained by a high number of recipients of social benefits, which puts a strain on municipal budgets. On the other hand, the use of short-term liquidity loans by municipalities is higher in those federal states which are highly indebted and provide lower transfers to local authorities within their internal municipal equalisation scheme.⁵⁴ The recourse to liquidity loans has been particularly pronounced in Saarland, Rhineland-Palatinate and North Rhine-Westphalia, while it has been virtually absent in Saxony, Baden-Württemberg, Bavaria and Thuringia (Graph 2.5.8). This indication of financial distress partly corresponds with the investment activity of municipalities. In particular, North Rhine-Westphalia and Saarland have also recorded the lowest municipal investment per inhabitant of all the federal states (Graph 2.5.9).

⁵³ Arnold, F., R. Freier, R. Geissler and P. Schrauth (2015), 'Large and lasting regional disparities in municipal investments', DIW Economic Bulletin, No 42-43/2015.

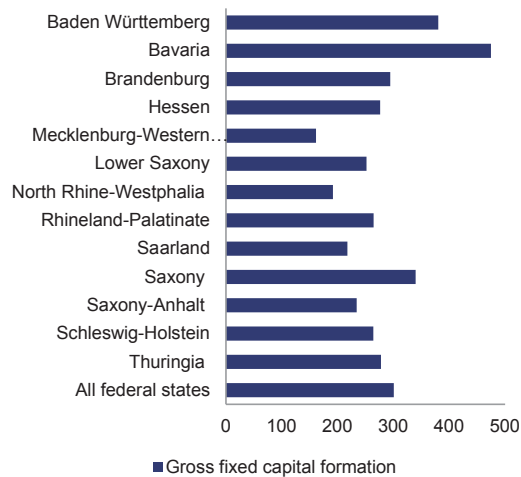
⁵⁴ Gröpl, C., F. Heinemann and A. Kalb (2010), 'Die Zweckentfremdung des kommunalen Kassenkredits — eine rechtlich-ökonomische Analyse', Perspektiven der Wirtschaftspolitik 11(2), 178-203.

Graph 2.5.8: Average debt level of municipalities 2012-2014 in EUR per inhabitant by federal state (except city states)



Source: Destatis, European Commission.

Graph 2.5.9: Average annual municipal investment 2012-2014 in EUR per inhabitant by federal state (except city states)



Source: Destatis, European Commission.

Despite relief in the past years due to good labour market conditions and earmarked federal funding, some social expenditure still constrain the investment activity of municipalities. Federal legislation can impose tasks on lower levels of government without providing an adequate financial endowment. This is in line with the constitutional principle that spending responsibility follows administrative responsibility, but may have contributed to rising social expenditure and the financial distress of a number of municipalities.⁵⁵ On the other hand, the federal government has increasingly taken over the funding of social expenditure. This includes consolidating long-term unemployment benefits and welfare benefits and partly taking over accommodation allowances. Since 2014, the federation fully finances the basic security in old age and for people with reduced earning capacity and, since 2015, financial assistance for students and trainees.

⁵⁵ German Council of Economic Experts (2004), *'Erfolge im Ausland — Herausforderungen im Inland'*, Jahresgutachten 2004/05; German Council of Economic Experts (2006), *'Widerstreitende Interessen — ungenutzte Chancen'*, Jahresgutachten 2006/07; German Council of Economic Experts (2014), *'Mehr Vertrauen in Marktprozesse'*, Jahresgutachten 2014/15.

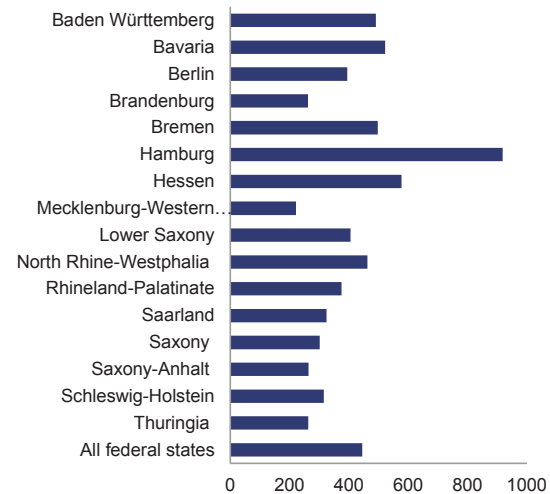
As in the past years, the federation continues to support the expansion of childcare facilities. Recently, the federal government agreed to take over the costs for refugees estimated at EUR 670 per applicant per month. It has also announced plans to further relieve municipalities of social expenditure of EUR 5 billion annually as from 2018. The expenditure to be considered in this context still needs to be specified as initial plans to take over the funding for the integration of disabled people have been abandoned. In the meantime, the federal government is providing relief to municipalities of in total EUR 4.5 billion over the period 2015-2017. The federal government temporarily increases the contribution to the financing of the accommodation costs of long-term unemployed and the municipalities' share in value added tax revenues.⁵⁶ Nevertheless, municipalities still have to fund some social cash benefits that are uniformly regulated across the federation and might therefore be better suited to funding at federal level. This includes partly the accommodation allowance for low-income earners or the accommodation allowance for the long-term unemployed.

⁵⁶ Federal Ministry of Finance (2015), *'Bund unterstützt Kommunen auf vielfältige Weise'*, Monatsbericht 12/2015.

Limited revenue autonomy of federal states and municipalities narrows the scope for public investment. The federal states and municipalities are largely dependent on revenue from joint taxes (personal income tax, corporate income tax and value added tax) shared between the federation, federal states and municipalities. This limits the scope to increase revenue and implies that the federal states will need to ensure compliance with the constitutional ‘debt brake’ almost entirely through adjustments on the expenditure side. Moreover, tax revenue accounts for only about one third of overall municipal revenue, while transfers from the federation and the respective federal states and administrative fees contribute two thirds. The local trade tax (*Gewerbesteuer*) is the most significant tax for which municipalities can autonomously set the tax rate. It however appears rather unsuitable for the local level, given that its tax base is mobile, strongly cyclical and unequally distributed across municipalities⁵⁷ and federal states (Graph 2.5.10). By contrast, the recurrent municipal real estate tax (*Grundsteuer*), although more suitable for the local level given its immobile tax base, accounted for only about 15 % of municipal tax revenue in 2014 (see Section 3.1).

⁵⁷ Revenue from the local trade tax amounted to more than EUR 1 000 per capita for about 3 % of all municipalities in 2011, while about half of the municipalities collected less than EUR 145 per capita. Statistische Ämter des Bundes und der Länder, 2014, ‘*Steuern regional: Ergebnisse der Steuerstatistiken*’, Ausgabe 2014.

Graph 2.5.10: Average annual local trade tax revenue 2012-2014 in EUR per inhabitant by federal state

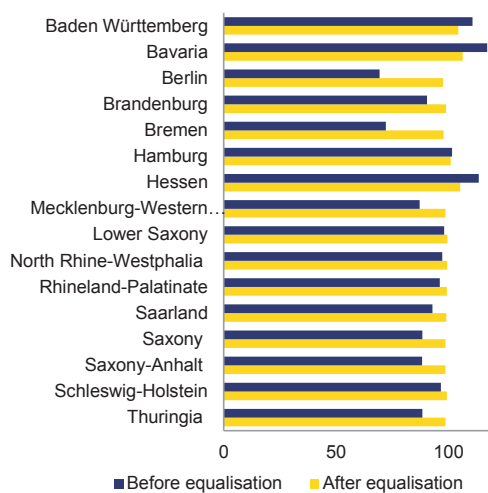


Source: Destatis, European Commission.

The current design of fiscal equalisation is complex and tends to reduce incentives to improve revenue in individual federal states, which may also affect overall resources for public investment. The financial capacity of individual federal states — the sum of all revenues of a federal state and 64 % of the revenues of its municipalities — is equalised in several steps. Joint tax revenue is allocated between the federation and the federal states as well as among federal states. This includes a partial redistribution of value added tax revenue to federal states with below-average per capita tax revenue. This is complemented by transfers from financially strong to financially weak federal states within the fiscal equalisation scheme (*Länderfinanzausgleich*) in the narrower sense as well as general and special-need supplementary federal grants. The latter include most notably significant transfers to the East German federal states. Overall, fiscal equalisation strongly reduces the differences in the financial capacity across federal states. It thus contributes to the constitutional objective of ensuring equal living conditions across the federation (Graph 2.5.11). However, the fiscal equalisation scheme is complex and tends to reduce incentives for the federal states to improve their own revenue base. Only a minor share of additional tax revenue benefits the state where it is

generated. Large parts just reduce the equalisation contributions by other states and the federation. Especially financially weak federal states have limited scope for improving their financial position through higher revenue.⁵⁸ This would tend to structurally affect the municipal and federal state resources for investment outlays.

Graph 2.5.11: **Financial capacity before and after horizontal equalisation and general supplementary federal grants in 2014 in per cent of average federal state and municipal tax revenues**



Source: Federal Ministry of Finance (2015), 'Bund/Länder-Finanzbeziehungen auf der Grundlage der Finanzverfassung', Ausgabe 2015.

In 2014, negotiations between the federation and the federal states were launched on a reform of federal fiscal relations, which recently resulted in a compromise proposal. The key element of the proposal agreed among the federal states is to largely equalise regional differences in the financial capacity through the horizontal allocation of the federal states' share in joint value added tax revenue. This would replace the current equalisation scheme in the narrower sense based on transfers among the federal states. A higher

share of the federal states in joint value added tax revenue at the expense of a lower federal share would overall enable a reduction in the contribution of wealthier states to equalisation, while ensuring that no state is put in a worse position. Additional federal transfers are proposed to reduce differences in financial capacity at municipal level. There are plans to partly shift legislative powers on the integration of disabled people to federal states so as to align it with their funding responsibility. The plans also include additional consolidation assistance for the highly indebted Saarland and Bremen. In turn, the role of the Stability Council would be strengthened in monitoring compliance with the 'debt brake,' which by 2020 will become fully binding for the federal states.

The proposal would involve simplified horizontal fiscal equalisation, but remains vague in terms of further disentangling spending competencies and falls short of increasing revenue autonomy. Overall, the proposal would simplify horizontal fiscal equalisation, which may contribute to increased transparency. Additional federal funds would increase the scope of federal states and municipalities for budget consolidation and public investment. A strengthened Stability Council and targeted consolidation assistance should contribute to effective enforcement of the 'debt brake' at federal state level. Aligning legislative powers and funding responsibilities on the integration of disabled people at the level of the federal states and municipalities would be conducive to more efficient spending. However, the proposal does not specify alternative ways to further relieve municipalities of social expenditure as planned. The proposal also falls short of more fundamental changes in terms of increased tax autonomy of the federal states and their municipalities.

⁵⁸ For example, 18½ % of additional income tax revenue in 2013 would have remained in North Rhine-Westphalia after all stages of fiscal equalisation, but only 6½ % in the case of Bremen. Deutsche Bundesbank (2014), 'The reform of financial relations in the German federal system', Monthly Report 9/2014.

2.6. COMPETITION IN SERVICES

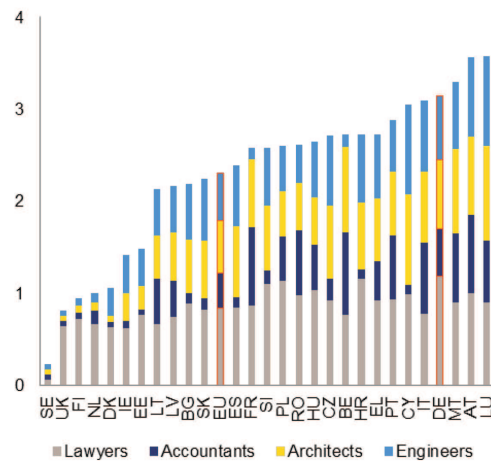
Restrictions on entry into the service market and the practising of professions weighs on overall business dynamics. There has been limited reform progress in these areas. A notable step is the abolition of mandatory fixed tariffs for tax advisers. An internal process to gauge the scope for reform of professional services regulation was abandoned in the face of opposition from vested interests. The regulatory restrictions in place may have perpetuated uncompetitive market practices, in particular high price mark-ups, and have negatively impacted productivity in the sector (see Box 2.2.1 in the 2015 country report on the developments in productivity by sectors). The inefficiencies in this sector may negatively affect other sectors in the economy given its important role as intermediate input. This section will explore the potential broader economic effects of these restrictions.

The action plan submitted by Germany as a result of the mutual evaluation on access and practise requirements for regulated professions gives no indication of a more general willingness to modernise regulated professions and adapt them to new economic challenges. Germany has actively participated in the mutual evaluation on access and practise requirements for regulated professions. The action plan submitted by Germany as a result of this exercise concludes that there is little need for reform and announces a limited number of actions for certain professions, in particular for business services. However, as 33 % of the German labour force are working in regulated professions,⁵⁹ which is the highest share of all the Member States (EU average: 21 %), changes to the regulatory framework could have a major impact on the sectors concerned.

Business services are an economically important sector, impacting business dynamics, competitiveness and growth opportunities in the broader economy. Approximately 80 % of German manufacturers offer services in addition to their products; 40 % of the value added of a good manufactured in the EU stems from services. Almost 16 % of the value created by German manufacturing is created by business services

inputs alone. Improving the performance of services and in particular business services would therefore help German manufacturing industry as well.

Graph 2.6.1: Overall restrictiveness score of professional services regulation by Member State



Source: European Commission.

Germany is characterised by relatively strict product market regulation in professional services. An in-depth assessment of the regulation of business services published by the Commission in October 2015⁶⁰ showed that Germany is the country with the fourth most restrictive regulation in the EU (Graph 2.6.1). Particular problems in business services stem from: restrictive authorisation requirements; restrictions on legal form, shareholding and multidisciplinary activities; insurance requirements; and tariff restrictions. The inspection of the OECD's Product Market Regulation (PMR) indicator for professional services also reveals that Germany has a relatively strict regulatory framework, above the EU average (see Graph 2.6.2). For example, the OECD PMR index for the sector combining legal, accounting, architectural and engineering services equals 2.65 for Germany (on a scale from 0 to 6, with higher values indicating stricter regulation). In the United Kingdom and Sweden, the EU countries with the lowest restrictiveness scores, these values are 0.82 and 0.55 respectively, hence also among the

⁵⁹ TNS Opinion (2015), 'Measuring the prevalence of occupational regulation: ad-hoc survey for the European Commission', April 2015, to be published.

⁶⁰ European Commission (2015), Business services — Assessment of Barriers and their Economic Impact.

Table 2.6.1: Productivity gains of a simulated reform of professional services in Germany

	Legal activities	Accounting activities	Architecture and engineering
PMR in DE	3.56	2.6	2.219
PMR in UK	0.79	1.75 (1)	0.365
Change in PMR in a closing-the-policy-gap scenario	-2.77	-0.85	1.854
Impact on business churn	4.84%-point	1.49%-point	3.24%-point
Impact on AE	0.16	0.049	0.107
DEs predicted AE after the reform	-0.12	-0.03	0.07
AE in UK	0.06	0.15	0.06
Impact on labour productivity (%)	12.70%	3.70%	8.20%

Source: ECFIN calculations using OECD product market regulator (PMR) data. Note: (1) Best performer is Denmark, but for consistency we use the UK as the benchmark country.

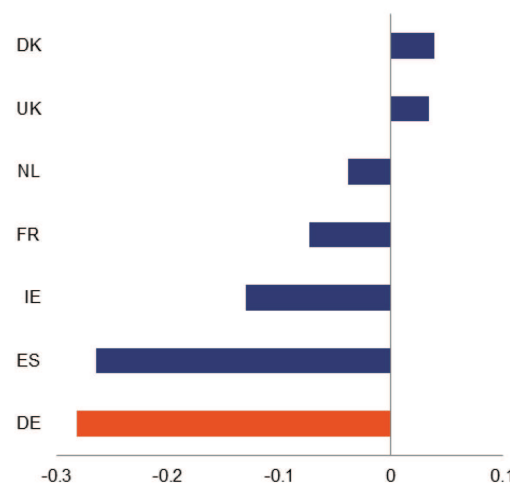
this is a radical reform generating a very strong improvement of sectoral performance, which will also be macro-relevant. A similar exercise for the other two sub-sectors delivers a productivity gain of 3.7 % for accounting activities⁶⁹ and 8.2 % for architecture and engineering. The simulated reforms here are substantial, while econometric inference can be used for predicting the impact for small changes in the reform variables, hence the results in the table should be treated with some caution.

The implementation of best practice policies in Germany could substantially reduce or eliminate the performance gaps in productivity and competitive pricing. This can be seen from a comparison of Germany's predicted allocative efficiency after the reform and allocative efficiency in UK in Table 2.6.1. For example in legal activities, the predicted allocative efficiency after the reform in Germany would improve by 0.16 to -0.12, while it is 0.06 in the UK, if it were fully eliminated for engineering and architecture. Table 2.6.2 presents estimated mark-up reductions

down by a factor 0.73, in line with empirical results in European Commission (2013), Product Market Review 2013: Financing the real economy, European Economy where an increase in allocative efficiency by 1 %-point was found to correspond with an increase in the level of labour productivity of 0.73 %. Also, as adjustment takes time, a gradual phasing in of this shock is assumed (5 years) in the QUEST simulations.

⁶⁹ The relatively small reform benefit obtained for accounting activities is due to the fact that the performance in the country which is used here as the benchmark (the UK) is not particularly strong. The country with the least restrictive regulatory framework is Denmark, with a PMR of 0.96. If Germany would reach the Danish level of the PMR, the labour productivity gain in accounting activities is estimated to be almost 10 %.

Graph 2.6.5: Allocative efficiency in legal services (2012)



Source: European Commission.

of a similar closing-the-policy-gap scenario, where it is again assumed that Germany would have the level of the PMR in professional services as in the UK.⁷⁰ Using the associated reduction in the PMR in combination with the results from the Commission study would predict a reduction of mark-ups in professional services from 20 % to 11 %, thereby almost completely eliminating the performance gap with the UK, with a mark-up in professional services of 10 %.⁷¹

⁷⁰ It should be noted that the sectoral PMR for professional services used in Table 2.8.2 is the composite of the PMR for the more disaggregated sectors used in Table 2.8.1.

⁷¹ European Commission (2015), 'Estimation of service sector mark-ups determined by structural reform indicators', Economic Papers 547.

Table 2.6.2: **Mark-up reductions of a simulated reform of professional services in Germany**

PMR in professional services in DE	2.65
PMR in professional services in UK	0.82
Change in PMR in a closing-the-policy-gap scenario	-1.83
Impact on mark-up	-0.094
Mark-up in DE	0.2
Mark-up in DE in a closing-the-policy-gap scenario	0.106
Mark-up in UK	0.1

Source: ECFIN calculations using OECD product market regulator (PMR) data.

Table 2.6.3: **Examples of differences in regulatory framework between Germany and the UK in legal activities**

Examples of questions in PMR survey	DE	UK
For how many tasks does the legal profession have an exclusive or shared exclusive right?	9	2
Entry requirements in the legal profession - If relevant compulsory practice is required, 'how many years' duration?	2 years	1 year
Are there restrictions on inter-professional cooperation (e.g. partnerships, associations, joint ventures)? - Legal profession	cooperation allowed between comparable licensed professionals	all forms of cooperation allowed

Source: OECD PMR.

Dynamic general equilibrium model simulations demonstrate significant macroeconomic benefits in terms of higher investment and output from reducing the restrictiveness of professional services regulations. Reforms in professional services can be expected to raise productivity and lower profit margins (price mark-ups) in these sectors. The following provides an assessment of the potential macroeconomic implications based on simulations with a 3-region (Germany, rest of euro area, rest of world) version of the European Commission's QUEST model.⁷² The simulations use the econometric estimates for the labour productivity gains⁷³ and mark-up reductions⁷⁴ resulting from lowering the PMR index to the chosen benchmark levels for Sweden, the UK and the EU as input. The labour productivity and mark-up effects are scaled by the share of legal activities, accounting, and architecture and engineering in total GDP to obtain aggregate labour productivity and mark-up shocks. The labour productivity and mark-up effects are phased in gradually over a period of 5

years, reflecting the fact that the effects of reforms tend to need time to materialise fully. Graph 2.6.6 presents the effects of labour productivity increase and mark-up decline to illustrate their relative contribution.

The results suggest long term GDP gains in Germany when aligning the regulatory framework to that of least restrictive Member States. Consumption is 0.2-0.3 % higher than baseline within 5 years and 0.7-0.8 per cent higher than baseline at the end of a 50 year horizon. The investment increase is more pronounced (2 % compared with baseline) and takes shorter time to unfold driven by higher returns on capital (see Graph 2.6.6). Employment remains nearly unchanged. The impact of the reform on the trade balance is very modest: the impact of trade volume adjustment is mitigated by countervailing price effects. Obviously the effect of more limited reforms (e.g. overcoming the gap with respect to the EU average) would also be significantly smaller.

The improved economic outcomes relate predominantly to the price mark-up reduction. Employment and investment react more strongly to the mark-up reduction whereas increased productivity has a dampening impact on factor demand. If there is an improvement in labour productivity, the demand increase is more consumption-driven.

⁷² A detailed description of the model structure can be found e.g. in Vogel, L. (2014), 'Non-tradable sector reform and external rebalancing in monetary union: A model-based analysis', *Economic Modelling*, vol. 41(C), pp. 421-434.

⁷³ European Commission (2014), 'The economic impact of professional services liberalisation', *Economic Papers* 533.

⁷⁴ European Commission (2015), 'Estimation of service sector mark-ups determined by structural reform indicators', *Economic Papers* 547.

2.7. EURO AREA ADJUSTMENT AND SPILLOVERS

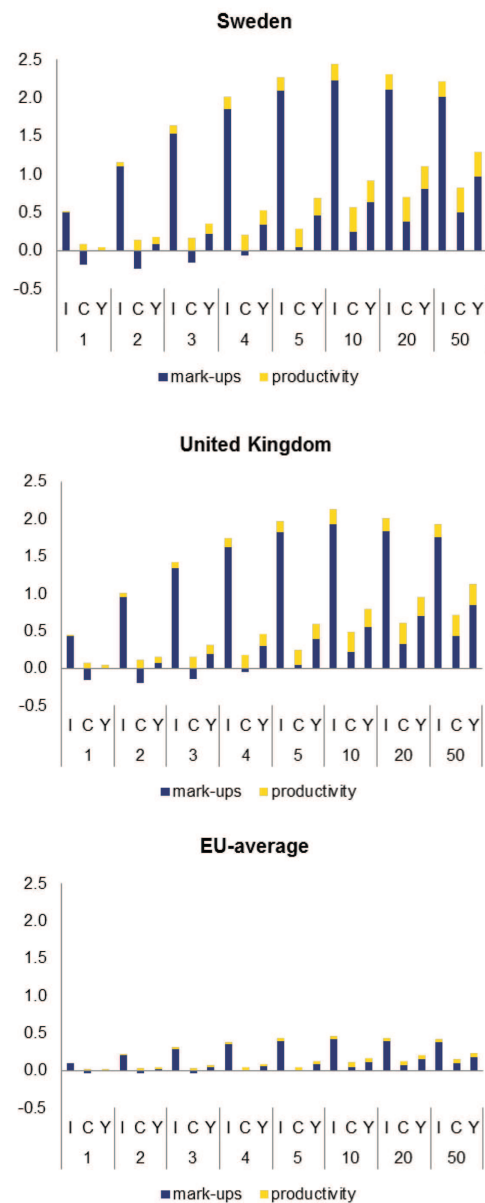
Professional services regulation reform has the potential to bring about an increase in domestic demand. This section has illustrated only two, but critical and complex channels through which the impact unfolds: mark-ups and productivity. The total reform effect could actually be stronger than the sum of the mark-up and productivity effects if one takes into account the effects of the interlinkage between the two channels.⁷⁵ Nevertheless, these results are a clear demonstration of the importance of competitive pricing in business services to the overall functioning of the economy.

Planning regulations may create entry barriers in the retail sector. Although not covered by the analysis above, the retail sector is also characterised by strict regulation as evidenced by the OECD PMR indicator, where Germany appears as the sixth most restrictive Member State with a score of 2.71 on a restrictiveness scale from 0 to 6 (the most restrictive Member State scoring 4.54). The Commission assessment from October 2015⁷⁶ confirmed the existence of restrictive establishment regulations with negative impact on retail market structure and dynamics. In particular, planning rules for large outlets and implementation measures of spatial planning at the federal state or at regional level create obstacles for business models favoured by the consumers.

⁷⁵ A reduction in mark-ups may lead to lower productivity firms exiting the market. This would in turn improve allocative efficiency through a reallocation of resources to more productive firms and to a further increase in growth.

⁷⁶ European Commission (2015), Assessment of retail establishment barriers and their economic impact.

Graph 2.6.6: Effects of professional services liberalisation



Source: European Commission. **Note:** Simulated effects over time on investment (I), consumption (C) and GDP (Y) of productivity improvements and reduced mark-ups from reducing the restrictiveness of Germany's service market regulations (PMR index) to the levels in Sweden, the UK and the EU average (% over pre-reform baseline)

Trade and financial linkages between Germany and other EU countries

Germany is a key export destination for many EU Member States, while the EU also remains of crucial importance for German exporters. German-bound exports are of major significance to Hungary, Slovakia and the neighbouring countries of Czech Republic, the Netherlands, Austria and Luxembourg, accounting for 14-23 % of their respective GDPs⁷⁷. The share is smaller but still significant for the majority of remaining Member States. Notably the larger EU Member States — France, Italy, the United Kingdom and Spain — all show export linkages in the range of 3-4 % of GDP.⁷⁸ In turn, EU markets continue being an important destination for German exporters despite their increased diversification in terms of geographical destination. Exports of goods and services are key to the German economy, having represented 47 % of GDP in 2015. 58 % of total exports still went to EU markets in 2014 despite the trend increase in exports going to the rest of the world. France remains the top destination for German exports, having received exports amounting to 4.0 % of German GDP in 2013. Other key EU markets include the United Kingdom, the Netherlands, Austria and Italy, with figures ranging between 2.1-3.4 % of German GDP.

Outward and inward financial spillovers are potentially significant given quantitatively important total financial linkages and banking sector exposures between Germany and other EU Member States. Exposures to Germany's foreign liabilities and assets as a share of the respective country's GDP are particularly high for a number of smaller EU Member States (e.g. Ireland at 95 % for assets and 105 % for liabilities in 2012, and also the Netherlands and partially Malta and Austria). But they are of quantitative importance also for a wider group of Member States including some of the largest ones. For

instance, exposure to German gross foreign liabilities ranged from 15-35 % of their respective GDP in 2012 for nine Member States, including the United Kingdom and France. The latter two were also among the seven Member States for which German foreign assets as a source of funding accounted for 20 %-35 % of their respective GDP.⁷⁹ In terms of inward spillovers from other EU Member States, Germany has the highest financial exposure to the foreign assets and liabilities of Luxembourg, the United Kingdom, France and the Netherlands (between 12 % — 24 % of German GDP in 2012 for liabilities and very similarly for assets), while exposures to a wider group of EU Member States are also quantitatively significant.

Economic spillovers and euro area macroeconomic policy perspective

Addressing existing economic challenges primarily benefits Germany but is also warranted in a euro area policy perspective.

The persistently high current account surplus in Germany partly reflects remaining weaknesses in domestic demand, notably underinvestment. Addressing them would foster growth and employment in Germany. In addition, it would also help maintain a coordinated stance to foster growth and limit downward price pressures at the euro area level. Indeed, the ongoing moderate recovery in the euro area is projected to continue but it remains fragile and subject to increased external risks, making domestic demand all the more vital to the recovery.

Tackling imbalances in a coordinated manner is particularly important in supporting the recovery in the euro area. In a context of low growth, nearly zero inflation and very accommodative monetary policy in the euro area, a coordinated approach is warranted to tackle imbalances while supporting the recovery. The risk of protracted low growth and low inflation at euro area level should be mitigated. This holds

⁷⁷ Data for 2013.

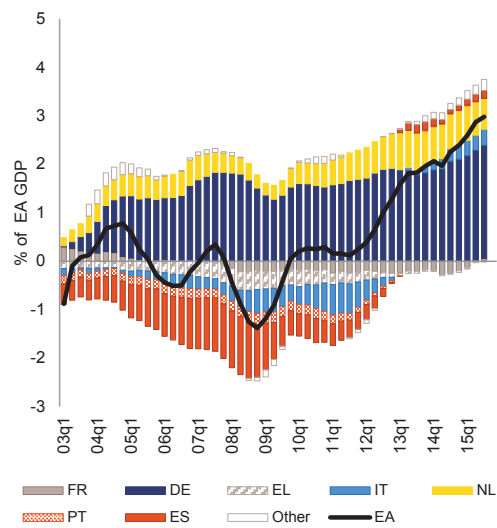
⁷⁸ When measured in value added terms (i.e. excluding the value of imports embedded in gross exports and thus measuring the value of exports that is added by the respective country) exports to Germany remain significant for many geographically-close EU countries, most notably the Czech Republic and Hungary, reflecting integration into global value chains. Data in value added terms also confirm the picture of increasing diversification in Germany's export markets, with France, the UK, Italy, Austria and Spain being the main EU destination countries accounting for around 1.0 %-2.2 % of German GDP each.

⁷⁹ Some EU Member States' banking sectors are also significantly exposed to Germany, notably the Netherlands, followed by Sweden, Italy and Austria (between 9 %-19 % of their respective GDP). Conversely, the German banking sector's EU exposure is also important, with foreign claims to the UK, France, Italy and Spain having accounted for 20 % of German GDP in 2014 (of which UK: 11 %).

especially for countries that are better placed to support investment consistently with available fiscal space and a positive savings-investment balance. It is to be noted that for Germany to implement as a priority measures that help channel excess savings towards the domestic economy and thereby boost domestic investment would be in line with the current Council Recommendation on the economic policy of the euro area. Contributing to a much needed boost to euro area demand would help ease the trade-off faced by highly indebted Member States, thereby sustaining euro area growth and inflation, which in turn would have positive repercussions for growth in Germany.

Given the strong trade linkages analysed above, German import demand has the potential to have a considerable impact on growth and employment in other Member States, especially through international production chain linkages. The EU and euro area partners concerned thus benefit from Germany's competitiveness and the resulting export prowess, also in view of the high import content of German exports. However, they are exposed — together with Germany — to risks relating to the extent of the latter's reliance on external demand as a growth driver. Similarly, they are also exposed to Germany's low potential growth. A more balanced growth path resulting from a strengthening of domestic growth sources and potential growth in Germany would therefore contribute to put the rebalancing process on a more stable footing by making it more symmetrical. As discussed further below, model simulations indeed show non-negligible scope for positive demand shocks in Germany to contribute to strengthening euro area demand. In addition to the increase in investment, a positive shock to wages in Germany, in view of the room for further wage growth as discussed in Section 2.2, could also sustain euro area GDP in a similar manner.

Graph 2.7.1: Contributions to euro area current account balance (in % of euro area GDP)



Source: European Commission.

In turn, improved economic conditions in the EU are key for Germany, particularly amid the current weakening of emerging markets. As discussed, euro area and EU economies remain key export destinations for Germany. Helping sustain their recovery is therefore in Germany's interest, in particular in the context of the current weakening of growth and import demand seen in emerging markets. Strengthening domestic sources of growth and potential growth in Germany is therefore undoubtedly in the common interest. At the same time, the German external surplus accounts for three quarters of the overall euro area surplus - its recent increase more than offsetting the rebalancing on the side of some of the deficit euro area Member States (Graph 2.7.1). Given this large share in the euro area's current account surplus (Graph 2.7.1), efforts by Germany would also help to contribute to the G20 objective of strong and sustainable global growth over the medium term, including through a lasting reduction in global imbalances.

Strengthening investment would be particularly beneficial. In addition to sustaining demand in the short term, private and public investment that raises productivity and seizes the economic efficiency gains embedded in new capital would shift the German economy to a more dynamic growth path. Importantly, strengthening potential

growth through investment is one of the key ways to limit the detrimental effect of demographic change (see Section 1). At the same time, the euro area would benefit considerably also in view of the high import content of investment goods. Against the background of the backlog in public investment, stepping up relevant plans appears particularly pertinent. Investment spending is a variable influencing aggregate imbalances which is directly controlled by the authorities with the apparent fiscal space for doing so. Moreover, stepping up public investment could also further improve conditions for and thereby strengthen private investment.

Simulations show sizeable effects of an increase in German public investment in the current environment. Commission simulations based on the QUEST model⁸⁰ show that stimulus through higher public investment can have considerable effects especially in situations where, as under the current circumstances, monetary policy is constrained by the zero lower bound. In such a setup, raising public investment by 1 % of GDP would boost German GDP by ¾% on impact and 1 ¼ % after ten years, compared with the baseline. The German current account surplus would be reduced by ¼ pp. At the same time, spillovers to the rest of the euro area would also be visible. In particular, GDP in the rest of the euro area would increase by ¼ % relative to the baseline after two years and slightly more in the long run. By contrast, the effects on the rest of the euro area's current account balance are likely to be small, peaking at 0.1 % in the short run.

Spillovers related to refugee inflow

The strong influx of refugees into Europe implies major inward spillovers to Germany that will have a substantial impact on its economy. The arrival of a large number of refugees constitutes a multidimensional shock that will affect the dynamics of the German economy both in the short and long term. Domestic demand (notably consumption and investment), public finances, labour market and wage dynamics,

productivity and potential growth are all likely to be affected. Analysing the implications of this significant shock to German economy as well as its effects on the rest of the euro area through outward spillovers, including via trade linkages, is therefore of key importance. This section discusses the main transmission channels and provides a tentative quantification of short to medium-term effects in a scenario analysis based on simulations in the Commission's QUEST model.

In the short term, immigration boosts domestic demand and GDP growth through higher public expenditure, for which there is fiscal space. Immediate expenditure needs stimulating growth, including through government consumption, include accommodation costs, healthcare costs and benefits.⁸¹ While public expenditure for accommodating and integrating refugees is difficult to predict, current estimates suggest overall costs of around ¼% of GDP in 2015 and ½% of GDP in 2016, excluding additional spending for public administration and education. Current projections still suggest sufficient scope to cover the expected higher costs within the boundaries of the Stability and Growth Pact and the national fiscal framework. The boost to domestic demand resulting from the fiscal expansion should also benefit the euro area through higher German import demand.

Private consumption, private housing investment and government expenditure for integration measures are set to rise gradually, adding to positive demand spillovers. Accepted refugees are eligible for integration measures as well as for means-tested welfare benefits increasing the disposable income of households and fostering private consumption. Expenditure for integration measures like language courses or professional training for accepted refugees will also add to real GDP over the medium to long term. Private property investment could also be stepped up to meet increased housing demand. Again, positive spillover effects on the rest of the euro area are to be expected.

Refugees' gradual integration in the labour market will depend on their skills and on policy

⁸⁰ A description of the model can be found in Kollmann et al. (2014), What drives the German current account? And how does it affect other EU member states?, European Commission, European Economy, Economic Papers, no. 516.

⁸¹ Later, more spending will also be required on labour market integration measures, means-tested welfare benefits, public administration, childcare and education.

support. Refugees can enter the German labour market under certain conditions three months after their arrival (see Section 3.3) and without any special restrictions after 18 months. However, there are indications that only a small fraction of refugees have the professional skills to directly enter the German labour market, necessitating language and professional training measures. Thus, the ease and speed of their labour market integration is likely to depend both on their professional skill level and on the appropriate design of the policy response. While higher labour supply will support potential growth, the number of refugees in employment is expected to increase only gradually, resulting in a temporary increase in unemployment. The increase in labour supply implies some downward pressure on wages (see Section 2.2), which is likely to boost competitiveness.

QUEST simulations also suggest a boost to German GDP and employment with slight spillovers to euro area growth. The simulations⁸² of the impact on Germany and on the rest of the euro area, respectively, of the current refugee inflow to Germany suggest a considerable boost to German real GDP of up to 1.0 % cumulatively by 2020, both directly (through fiscal expansion) and more significantly through the effect on labour supply and employment. The increase in domestic demand also leads to a net positive spillover effect on euro area real GDP in the order of 0.1% in the simulations. The size of this net effect is limited by the simultaneous negative spillover caused by a decrease in German real wages, which boosts competitiveness and exports in the model.

The German current account balance narrows only slightly in the simulations. After an initial slight increase, the German surplus decreases by 0.1 % — 0.2 % of GDP. The limited size of the net reduction reflects the partially offsetting effects of the simultaneous increases in German domestic demand and competitiveness. For the same reason,

the overall effect on the euro area current account balance is negligible in the simulations.

The results point to a temporary worsening of German public finances, while stronger GDP growth lowers euro area public debt ratios. Regarding the public finances, the initial negative impact on the German position in the simulations is gradually mitigated by higher tax revenue from increased GDP and employment once the refugees' labour market integration progresses. Still, this entails an overall negative effect on public budgets for some time, with a deficit-increasing effect peaking at around ¾% of GDP in 2018. In the rest of the euro area, the simulation results point to higher nominal GDP growth slightly reducing public debt-to-GDP ratios.

Simulated macroeconomic and fiscal effects are sensitive to immigrants' skill levels and successful policy measures fostering their labour market integration. The level of skills can be considered a proxy for the readiness for access to the labour market.⁸³ In turn, different paths regarding labour market participation proxy for the successful design of the policy measures fostering labour market integration. In an optimistic simulation scenario, it was assumed that the skills distribution is identical to the existing distribution in Germany (skill-neutrality), while participation is high. In a more pessimistic second scenario, it was assumed that participation is low due to relatively unsuccessful labour market measures, while all refugees are low-skilled. The latter assumption concerning the skill distribution may be closer to reality as there is ample evidence that even if refugees are formally well-qualified, they often lack country-specific skills (e.g. language, recognition of qualifications).⁸⁴ With employment boosted by 1.3 % by 2020, the cumulative effect of immigration on German real GDP would amount to 1.0 % by 2020 in the more optimistic scenario. With a lower increase in employment (0.7 %), the impact on GDP would be significantly lower (0.4 %) in the more pessimistic scenario, thus highlighting the importance of policies facilitating immigrants' labour market integration. Given

⁸² Simulations were made in a 3-region (Germany, rest of euro area, rest of world) version of the Commission's QUEST model, a detailed description of which can be found in Roeger, W., J. Varga and J. in 't Veld (2008), 'Structural Reforms in the EU: A simulation-based analysis using the QUEST model with endogenous growth,' European Economy — Economic Papers 351.

⁸³ This obviously also depends on numerous other factors, e.g. language skills, gender and age.

⁸⁴ Brücker, H. et al. (2015), 'Flüchtlinge und andere Migranten am deutschen Arbeitsmarkt: Der Stand im September 2015', IAB Aktueller Bericht 14/2015.

variations also in the negative spillovers from higher German competitiveness, the cumulated effects on euro area employment (0.1 %) and real GDP (0.1 %) are similar in both scenarios.

2.8. MIP ASSESSMENT MATRIX

This macroeconomic imbalance procedure (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 2.8.1: MIP assessment matrix (*) — Germany

	Gravity of the challenge	Evolution and prospects	Policy response
Imbalances (unsustainable trends, vulnerabilities and associated risks)			
External surplus	<p>Germany has a persistently large current account surplus which reached 8.7 % of GDP in 2015 and which is partly structural in nature.</p> <p>The persistence of the German surplus reflects weak investment dynamics (see Section 1 and 2.5), strong competitiveness in manufacturing, and high revenues from private investment abroad. Accumulated surpluses have resulted in a large positive Net International Investment Position. All sectors of the economy contribute to the excess of national savings to investment (see Section 2.1).</p> <p>The German market is an important export destination for other euro area Member States, in particular for countries integrated into German firms' production chain. While euro area partners benefit from Germany's success in trading, weak domestic investment, low potential growth and reliance on weakening external demand instead pose risks to Germany and amplify the euro area demand shortfall. As deleveraging pressures still weigh on EU growth, strengthening domestic demand in Germany would benefit both Germany and its euro area and EU partners</p>	<p>The German surplus is projected to persist at more than 8 % of GDP in the medium term. Low energy prices and exchange rate developments do to a large extent, but not completely explain the further increase in 2014-15. The weakness in domestic demand partly contributes to an increasing surplus in relation to the euro area, as German imports from the euro area stagnate (see Section 2.1). The uncertain external environment and a still fragile euro area recovery point to increased risks concerning the implications of existing German imbalances for euro area growth.</p> <p>Private consumption has recently strengthened, but several factors may hamper future growth. The low interest rate environment has not translated into significant changes in households' saving patterns that would further strengthen consumption (see Section 2.3). An extended period of dynamic wage growth would support private consumption, without endangering Germany's competitiveness (see Section 2.2).</p> <p>There is a risk of an entrenched weakness in</p>	<p>The policy response so far is inadequate. Some steps were taken to increase public investment, but they appear insufficient to address the investment backlog in infrastructure, education and research.</p> <p>Germany has used its available fiscal space to a very limited extent to strengthen investment, in spite of exceptionally favourable financing conditions.</p> <p>No significant measures were taken to remove sector-specific barriers, improve the efficiency of the tax system, or reduce high the high tax wedge. Further, reducing disincentives to work remains important to sustain labour supply and limit the effect of ageing on long-term potential growth but notably also with a view to strengthening labour income and domestic demand.</p> <p>Further progress regarding service sector reform to unleash the sector's growth potential could also help strengthen investment over time (see Section 2.6).</p>

(see Section 2.7).

investment. Private sector investment has been weak. The continued weakness notably in machinery and equipment investment, (see Section 1 and Box 1.1) which still has not caught up with pre-crisis levels, is noteworthy given the supportive conditions. Net fixed public capital formation has turned negative again. Public investment has been falling in recent years (both in nominal and real terms) and the public investment gap compared to the euro area is narrowing only at a slow pace (see Box 1.1). No reversal of the markedly negative net investment at municipal level is visible. Current federal fiscal relations do not seem to have contributed to ensure adequate public investment at the level of municipalities.

Conclusions from IDR analysis

- Germany runs a persistently large current account surplus reflecting savings in excess of investment in both the private and public sector. Continuously weak domestic investment could constrain potential growth in the long-term, which combined with reliance on external demand, could entail macroeconomic risks and affect the rebalancing and growth prospects of the rest of the euro area given its aggregate demand shortfall.
- Risks have increased given the persistence of weak investment, which represents a drag on growth and requires close monitoring. More specifically, subdued investment and private consumption contributed to the build-up of the external surplus. While private consumption has strengthened somewhat, the weakness regarding private and public investment appears entrenched. Public investment has been falling despite the available fiscal space and favourable financing conditions.
- Steps taken to increase public investment do not appear to bring about a sustainable upward trend at any level of government and to meet the infrastructure investment gap. Further action would be required to do so and to facilitate conditions for private investment, including by unleashing the services sector's growth potential and by improving the of the tax system's efficiency.

(*) 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.

3. ADDITIONAL STRUCTURAL ISSUES

In addition to the macroeconomic imbalances and adjustments issues addressed in Section 2, this section provides analysis of other structural macroeconomic and social challenges, taking into account the recent policy response. Focusing on the policy areas covered in the 2015 country-specific recommendations, this section analyses issues related to taxation, notably relatively high corporate taxation and tax burden on labour, especially for low wage earners, which reduces incentives to work and households' disposable incomes. Second, it analyses labour market, social policies, and education policies pointing to challenges including fully utilising the existing labour and skills potential in view of demographic challenges. Several policies that are key for long-term growth and resource efficiency are also analysed in this section. Finally, given the importance of financial intermediation for investment, this section discusses the main challenges facing the financial sector.

3.1 TAXATION

Corporate taxation remains high overall, complex, and includes inefficiencies, which may also affect private sector investment. The overall income tax burden on corporations remains high in Germany. The corporate income tax rate stood at 15 % in 2015. However, when including the local trade tax (*Gewerbesteuer*) and the solidarity surcharge, the top statutory tax rate on corporate income reached 30.2 %. This was substantially above the non-weighted EU average of 22.8 %. The effective average tax rate is 28.2 % compared with a non-weighted average of 21.1 % for the EU.⁸⁵ The 2015 country report found that previous tax reforms supported corporate deleveraging and made retained earnings more attractive as a source of funding. However, the debt bias — the difference in the impact of taxation on the cost of capital between investments funded by debt and investments funded by new equity — was still the eighth highest in the EU in 2015.⁸⁶ Moreover, inefficiencies arise from the local trade tax due to the inclusion of non-profit aspects in the tax base. The complexity of corporate taxation contributes to the relatively high cost of paying taxes, amounting to 218 hours in 2014 compared with an EU average of 186 hours.⁸⁷

Positive effects of limited income tax relief on households' income and consumption might be largely offset by expected increases in employees' social contributions. The tax wedge

for low wage earners remains among the highest in the EU, reducing their take-home pay and consumption possibilities. Moreover, it has an impact on work incentives (see Section 3.2). The minimum personal income tax allowance and child allowances have been increased in two steps in 2015 and 2016 with a view to aligning the allowances with the adjusted subsistence level in line with existing law. The single parent allowance was also increased in 2015. Moreover, the income tax brackets have been adjusted to offset the impact of fiscal drag — i.e. unintended across-the-board *de facto* tax increases owing to inflation — that occurred in the years 2014 and 2015 and which resulted in a reduction of households' real disposable income. This step was taken based on the first issue of a tax progression report that will be published every two years.⁸⁸ Overall, this should slightly reduce the tax wedge, which would support households' incomes and consumption. It should also increase incentives for low-qualified workers to join the labour market and for part-time workers to increase working hours, and thereby increase their earnings and consumption possibilities. The compensation for fiscal drag remains a discretionary measure to be decided on the basis of the tax progression reports. In 2016, the overall contribution rate for healthcare is expected to increase slightly as individual health insurers are expected to increase their extra premiums for employees, a development that appears likely to continue in the coming years to cover growing healthcare cost. Moreover, the contribution rate for long-term care will increase

⁸⁵ ZEW (2015), 'Effective tax rates in an enlarged European Union', Intermediate Report 2015.

⁸⁶ Computations based on cost of capital data published in ZEW (2015), 'Effective tax rates in an enlarged European Union', Intermediate Report 2015.

⁸⁷ Hours are measured for a case study company. World Bank, 2016, 'Doing Business 2016: Measuring Regulatory Quality and Efficiency'. Washington, DC: World Bank.

⁸⁸ Federal Ministry of Finance (2015), 'Bericht über die Wirkung der kalten Progression im Verlauf des Einkommensteuertarifs für die Jahre 2013 bis 2016 (Erster Steuerprogressionsbericht)'.

by another 0.2 pps. in 2017 to finance additional long-term care services that result from a new definition of care dependency (*Pflegebedürftigkeitsbegriff*).

Disincentives persist for second earners and mini-job holders to expand labour participation.

Apart from still insufficient availability of full-time childcare facilities and all-day schools, joint taxation of income for married couples (*Ehegattensplitting*) and free health insurance coverage for non-working spouses are likely to be important factors that can discourage second earners — in many cases women — from taking up a job or increasing the number of hours worked. The overall effect of joint income tax splitting on labour supply — relative to individual taxation — is estimated to correspond to the loss of 161 000 full-time-equivalent working mothers with children under 12 years, and a gain of 33 000 full-time-equivalent working fathers. Yet, the government-mandated expert study that confirmed these findings in 2013 has not been followed up.⁸⁹ This contributes to a low proportion of women working full-time and one of the lowest numbers of hours worked on average by women in the EU, despite a high female employment rate (see Section 3.3). In 2014, a second earner increasing his/her income from 33 % to 67 % of the average wage lost 47.9 % of the extra earnings through taxation, compared with 38 % on average in the EU.⁹⁰ The exemption of mini-jobs from personal income tax and in many cases from all employee social contributions also discourages workers from moving into jobs with earnings above the mini-job threshold of EUR 450 per month. This disincentive is in many cases even stronger for spouses subject to joint income taxation.

More growth-friendly revenue sources are still relatively little tapped.

The share of relatively growth-friendly consumption taxes and recurrent taxes on property in total taxation remained stable between 2007 and 2014 at around 28-29 %, which is low compared with an average of around 32-

33 % in the EU.⁹¹ At 19.9 % in 2014, the implicit tax rate on consumption remained below the average of the EU. On the other hand, Germany is not among the Member States with the highest ‘actionable’ value added tax policy gap (11.6 % in 2013 against 12.4 % on average for the EU). This indicator measures the forgone revenue due to reduced rates and exemptions that are result of discretionary policy choices as a percentage of theoretical revenue at standard rate.⁹² The standard value added tax rate of 19 % is below the arithmetic EU average of around 21½ %.

The trend of increasing real estate transfer taxes has continued, instead of relying more on less distortive recurrent property taxes.

The latter amounted to only 0.4 % of GDP in 2014 compared with an EU average of 1.6 % of GDP. After Berlin, Lower Saxony, Schleswig-Holstein and Bremen in January 2014, Hessen in August 2014 and Saarland and North Rhine-Westphalia in January 2015, Brandenburg also increased the real estate transfer tax in July 2015. Although a reform of the recurrent municipal real estate tax (*Grundsteuer*) was part of the coalition agreement and announced in the 2014 National Reform Programme, no concrete action has been taken so far, and it was no longer included in the 2015 National Reform Programme.

The level of environmental taxes has also remained relatively low.

In 2014, it amounted to 2.0 % of GDP compared with 2.5 % in the EU. However, this does not include the surcharge paid by electricity consumers to finance the expansion of renewable energy (see Section 3.4), which is not considered a tax. The implicit tax rate on energy — the ratio between energy tax revenues and final energy consumption — is slightly below the EU average. Transport taxes and taxes on pollution and resources also remain slightly below the EU average. Environmentally harmful tax expenditure persists, such as energy tax reductions, exemptions for businesses, the favourable tax treatment of diesel relative to petrol, and the favourable taxation of company cars.

⁸⁹ Prognos (2014), ‘Endbericht — Gesamtevaluation der ehe- und familienbezogenen Maßnahmen und Leistungen in Deutschland’.

⁹⁰ Second earner with two children and principal earner at 100 % of the average wage. European Commission, OECD, 2015, ‘Tax and benefits indicators database’.

⁹¹ European Commission (2014), ‘Taxation trends in the European Union — Data for the EU Member States, Iceland and Norway’.

⁹² CASE and CPB (2015), ‘Study to quantify and analyse the VAT gap in the EU Member States — 2015 Report’, TAXUD/2013/DE/321.

Structural shortcomings and delayed modernisation result in relative underperformance of the tax administration.

The tax administration is carried out by the 16 independent tax administrations of the federal states. Compared with other revenue collection bodies in OECD countries, the German tax administration invests relatively little in information technology and performs below average in a range of efficiency-related indicators. This notably includes the size of office network, e-filing, average staffing levels, total administrative costs and total costs/net revenue.⁹³ The recently adopted law on the modernisation of taxation procedures provides for improvements concerning electronic filings, in particular pre-filled electronic tax returns. Moreover, based on a joint discussion paper adopted in November 2014, the federal government and the federal state governments have continued the process towards uniform tax administration software that was initiated in 2007. However, this does not include an automatic exchange of data between the tax administrations, which could improve the efficiency of tax audits. Furthermore, disincentives for tax collection may arise from the current allocation of tax revenues and the design of the horizontal fiscal equalisation scheme (*Länderfinanzausgleich*), given that significant parts of additional tax revenues resulting from tax inspections are redistributed to other federal states (see Section 2.4). Enhanced cooperation between the federal states and in some areas possibly by centralisation, including by strengthening the role of the Federal Central Tax Office (*Bundeszentralamt für Steuern*), as envisaged by the coalition agreement of the current federal government, would be beneficial for the efficiency of the tax administration.

⁹³ OECD (2015), 'Tax Administration 2015: Comparative Information on OECD and Other Advanced and Emerging Economies', OECD Publishing, Paris.

3.2. LABOUR MARKET AND SOCIAL POLICIES

Labour market

Germany has a well-performing labour market, with low unemployment and high employment rates, and increasing real wages. The unemployment rate is low overall (4.6 % in 2015), and the employment rate increased to 77.8 % in the first three quarters of 2015. Featuring one of the highest ratios in the EU, Germany reached its Europe 2020 national employment target. The increase in employment was coupled with real wages increases, also reflecting the one-off effect of introducing the statutory national minimum wage and the strengthening of the economy. However, this increase has not yet made up for the impact of restrained wage growth at the beginning of the 2000s (see Section 2.2).

Cooperation among social partners helps to underpin good labour market outcomes. For several decades, the employees' participation in the management of large companies has become the norm, with representatives of workers sitting on companies' supervisory boards (*Mitbestimmung*). Social partners are regularly consulted in Parliament hearings regarding matters of their concern. They are also involved in the European Semester process, along with the national Parliament and regional Parliaments. However there is scope for involvement throughout the whole process.

Germany however faces the significant medium- and long-term challenge of population ageing and related labour and skills shortages. Germany's working-age population (between 20 and 64 years of age) is projected to decline by 11.4 % by 2030 (annual average: -0.8 %). To alleviate the negative impact on potential growth, a better use of labour resources is needed. There is scope to increase the labour market participation of women and older workers, and to activate and integrate the long-term unemployed and people with a migrant background. Recent net migration and the current influx of refugees are contributing to an increase in the size of the working-age population, but this will alleviate the economic impact of demographic ageing only if their labour market integration is successful.

Women remain underutilised in the labour market, as reflected in high gender pay and

overall earnings⁹⁴ gaps. The female employment for the age group 20-64 in Germany was relatively high at 73.6 % in the first three quarters of 2015. However, the employment rate for women in full-time equivalent posts only amounted to 56.6 % in 2014, due to a high share of part-time work at 47 %, often characterised by lower hourly wages. Mothers of young children (0-6 years) are particularly affected; their employment rate gap was almost twice the EU average in 2014. Such a strong impact of parenthood on labour market participation is partly a result of the limited availability of quality full-time childcare, all-day schools and long-term-care, as gaps remain despite recent progress: more than 40 % of young women report that looking after children or adults with a disability were the main reasons for working part-time.

In addition, certain aspects of the tax, social security and family benefit systems continue to present disincentives for second earner labour market participation. As discussed in Section 3.1, characteristics of the tax system and health insurance discourage second earners from taking up a job or increasing the number of hours worked. Furthermore, there is no evidence so far that the marginal burden approach between spouses (*Faktorverfahren*) is effectively creating more balanced work incentives for both members of the couple, and there have been some calls for it to be reformed.⁹⁵

Despite representing an increasing share of the German working-age population, people with a migrant background remain an underutilised resource. In particular, citizens from outside the EU have substantially lower labour market outcomes than German-born workers. The number of people with a migrant background in Germany rose to 16.4 million (20.3 % of the population) in 2014 and is expected to increase further due to the current high inflows, including of refugees (see Section 1). However, the gaps between employment rates of EU and non-EU nationals are high. In the first three quarters of 2015, the employment rate of non-EU nationals (20-64

⁹⁴ With 45.3 %, Germany had one of the highest overall gender gaps in earnings in the EU in 2010.

⁹⁵ Federal Ministry for Economic Affairs and Energy (2015), 'Potenziale nutzen — mehr Fachkräfte durch weniger Arbeitsmarkthemmnisse.'

years) was 57.0 %, considerably below that of German nationals (79.4 %). Women are particularly affected, with an employment gap of 30 pps. between German and non-EU nationals. Lower employment is accompanied by higher unemployment rates,⁹⁶ and by higher inactivity rates, which is also true of young people with a migrant background (see also Section 3.3).

Despite very low rates of youth unemployment and of young people not in education, employment or training (NEET), young people with a migrant background face a significantly higher risk of unemployment or inactivity. To improve the school-to-work transitions for vulnerable groups and to implement a comprehensive Youth Guarantee, Germany has stepped up measures such as the establishment of Youth Employment Agencies and assisted vocational training. However, there is no strategic approach yet to reaching out to non-registered young people who are NEET and increasing their registration with employment services or other Youth Guarantee providers. Furthermore, there are indications that the transition system would benefit from a better systematisation of the contents and political coordination.⁹⁷

Employment prospects of older workers have improved but extending working lives remain challenging. The employment rate of persons aged 55-64 increased rapidly from 45.5 % in 2005 to 65.6 % in 2014, the second highest rate in the EU, although around one $\frac{1}{5}$ of this increase was due to temporary demographic cohort effects. The duration of working lives also increased significantly (+3 years between 2004 and 2014). However, extending working lives requires incentives for later retirement and smart lifelong learning policies as skills tend to deteriorate with age, particularly in the absence of proper access to sufficient training. In Germany, the participation of older adults (55-64 years) in more intense types of learning (excluding on the job training), was only 3 % in 2014 (EU average: 5.9 %). Older adults in Germany are also substantially disadvantaged in

accessing learning as compared with the overall population (only 7.9 % adults aged 25-64 participated in learning).

First steps have been taken to improve incentives for later retirement following the expansion of early retirement options by the last pension reform. The pension reforms implemented starting from 2014 put an additional strain on the sustainability of the pension system and affect intergenerational income distribution. They have improved pension benefits and early retirement conditions for certain groups, in particular a pension supplement for those having raised children born before 1992 (*Mütterrente*). The reform also introduced the possibility of retirement without pension reduction two years ahead of the statutory retirement age if contributions have been paid for 45 years (*Rente mit 63*). These benefits are financed through a higher pension contribution rate for the active labour force and a lower average replacement rate, which is likely to further incentivise private savings (see Section 2.3). In the first year after the introduction of this scheme, the number of employed people in the age bracket 63-65 decreased by 27 500, but the number of unemployed people in the same age bracket also decreased by 12 500. In order to provide incentives to work longer part-time, the governing coalition has agreed to introduce the so-called *Flexi-Rente*. Key aspects envisaged are to provide voluntary health check-ups for mid-40s to prepare for longer working lives, allowing pensions to increase for people working above the age of 67 and to eliminate the burden on employers to contribute to the unemployment insurance in that case. The total cost is expected to be around EUR 380 million annually and the legislative procedure to be completed during 2016. Primarily aimed at promoting part-time work of older workers, the *Flexi-Rente* may only partly offset the negative impact of the last pension reform

Despite the positive developments on the labour market, since 2011 the number of the registered long-term unemployed has remained at about 1 million. Although the share of long-term unemployed among the labour force is low compared with the EU average (Germany: 2.1 %, EU: 4.6 % in the first three quarters of 2015), it remains higher than in other Member States with low unemployment rates, such as Austria, Denmark, Finland and Sweden. While the

⁹⁶ Non-EU nationals are almost three times as much affected by unemployment as nationals (12.1 % vs 4.2 % in the first three quarters of 2015).

⁹⁷ Authoring Group Education Reporting (2014), *Bildung in Deutschland 2014*, p. 11; Teil E Berufliche Ausbildung, p.97, 98, 118.

government has made the fight against long-term unemployment a priority of its labour market and social policy, the per capita integration budget for the long-term unemployed recipients of unemployment benefit II (*Eingliederungsleistungen*) was reduced by around 48 % between 2010 and 2014.⁹⁸ Between 2009 and 2012, the activation rate for all registered unemployed declined from 27.8 % to 19.8 %. In 2014, only 17 % of the participants in active labour market policy measures were long-term unemployed, whereas their share among all registered unemployed is around 37 %. A significant proportion of long-term unemployed people suffer from multiple placement barriers such as low skills and lack of language skills, health problems, care obligations or age-related problems. However, due to the enforced focus on short-term performance and financial efficiency, most of the case managers in the local employment services tend to concentrate their integration efforts on those groups with the lowest integration barriers.⁹⁹

A high tax burden on labour continues to reduce take-home pay and thereby impacts negatively on households' incomes and consumption, especially for low wage earners. While measures have been taken that should slightly reduce personal income taxation, the burden of social security contributions is expected to increase further (see Section 3.1). Inactivity and unemployment traps are high. There are low financial gains from entering employment once the increase of taxation and social security contributions and the reduction in income benefits have been taken into account. Part-time traps are also high, pointing to low gains from increasing working hours. Financial disincentives to working more are particularly strong for workers in mini-jobs.

The statutory national minimum wage boosted wages at the bottom of the distribution, in particular in eastern Germany. The introduction of the nationwide minimum wage of EUR 8.50 per hour on 1 January 2015 had a different impact in

eastern and western Germany. Increases were particularly pronounced for workers in eastern Germany, and especially for the low-skilled, and those in atypical employment (mini-jobs, part-time work).

Table 3.2.1: **Increases in average gross monthly earnings by specific areas/groups in 2015**

West Germany	2.50%
East Germany	3.90%
Full-time workers	2.60%
Part-time workers	3.00%
Unskilled workers	4.10%
Minijobbers	4.70%

Source: Destatis.

The initial fears that the introduction of the minimum wage would lead to significant employment losses have not materialised.¹⁰⁰

Employment continued to increase at a similar pace as in 2014, while the reduction in unemployment actually accelerated, along with increases in real earnings, partly thanks to low inflation (Graph 3.2.1). Overall, when comparing data from the Federal Employment Agency for November 2014 and November 2015, the increase of standard employment (employment subject to social security contributions) was much stronger (+757 000) than the parallel decrease in the number of mini-jobs (-103 000). The reduction in the number of mini-jobs was due both to increased exits and less entries.¹⁰¹ In particular, there has been a reduction in mini-jobs and a particularly strong increase in standard employment in some relatively labour-intensive service sectors, such as wholesale and retail trade, catering and accommodation, or transportation and storage. More than half of the decrease in mini-jobs can be explained by persons changing directly into standard employment. This substitution effect can be interpreted largely as an adjustment by enterprises in response to the introduction of the general statutory minimum wage, driven by interactions with tax rules: one incentive from the

⁹⁸ European Commission calculations based on statistics of the Federal Employment Agency.

⁹⁹ Federal Court of Auditors (2012), *Mitteilung an die Bundesagentur für Arbeit über die Prüfung der Steuerung der Zielerreichung in den strategischen Geschäftsfeldern I und Va*. Bonn.

¹⁰⁰ IAB (2016), *Arbeitsmarktspiegel: Entwicklungen nach Einführung des Mindestlohns*. IAB Forschungsbericht 1/2016.

¹⁰¹ Groll, D. (2016), *Mindestlohn: Hinweise auf Jobverluste erhärten sich*. Wirtschaftsdienst, 2016/2

employer's perspective relates to lower non-wage labour costs (20.7 % instead of 30.9 %). Furthermore, the administrative and documentation requirements for mini-jobs have become more onerous.¹⁰²

Graph 3.2.1: **Changes in employment, unemployment and real earnings, before and after the introduction of the minimum wage**



Source: Destatis, European Commission. *Note:* employment data for 2015 is based on the Commission 2016 winter forecast.

Mini-jobs nevertheless still cover about 7 million employees. Enhancing the transition to standard employment could help make a better use of the working-age population, in particular among women and the unemployed. According to a report from Institute for the Study of Labor (IZA), abolishing the mini-job scheme and the *Ehegattensplitting* altogether would create 49 000 full-time equivalents.¹⁰³ According to recent research, mini-jobbers are often denied workers' rights¹⁰⁴ such as paid leave or sick pay.

The impact of the minimum wage on in-work poverty is positive but limited, due to the interaction with the tax and benefits systems. In-work poverty has steadily increased in Germany over the last years (2005: 4.8 %, 2014: 9.9 %) and is now higher than the EU-28 average (9.6 % in

2014). The general minimum wage is intended to increase the income of low wage earners, thus contributing to reducing inequality, preventing an increase in in-work poverty and increasing household consumption and domestic demand. However, the positive impact of the minimum wage on net disposable incomes may be limited by the tax wedge and lower social benefits, if it results for instance in the withdrawal or reduction of income top-ups (*Aufstockung*). The Institute for Employment Research (IAB) estimates that household net equalised income of minimum wage earners receiving top-ups has increased on average by EUR 10-12 per month, suggesting some positive impact of the minimum wage on in-work poverty and the creation of additional work incentives. In any case, the increase through paid wages rather than through income top-ups creates simpler and more direct incentives and reduces public subsidies for low-paid jobs.

In-work poverty is not only linked to the level of wages but also to work intensity. The share of part-time in employment increased by more than 5 pps. over the last ten years and stands now markedly above the EU average (26.9%; EU 19.6% in the first three quarters of 2015), even more so for women (see above). Increasing the work intensity of households would contribute to reducing in-work poverty. If all part-time work was replaced by full-time, this would halve the risk of in-work poverty (with 14.9 % for part-time, but only 7.5 % for full-time).

Social policy and social protection

Despite the favourable labour market situation, poverty and social exclusion are increasing. The overall at-risk-of-poverty rate rose from 12.2 % in 2005 to 16.7 % in 2014 (EU average: 17.2 %). Particularly vulnerable are the unemployed, for whom the at-risk-of-poverty rate has sharply increased to become the highest in the EU (2005: 40.6 %, 2014: 67.4 %). The housing cost overburden rate stood at 15.9 % in 2014 (EU average: 11.4 %) and persistent poverty has exceeded the EU average since 2011 (10.6 % in 2013, EU average: 9.1 %), indicating that the poor are relatively likely to remain in poverty. The at-risk-of-poverty rate in old age is also above the EU average (16.3 % in 2014; EU: 13.8 %) and the number of people at risk of old-age poverty is

¹⁰² Deutsche Bundesbank (2015), Monthly Report August.

¹⁰³ Eichhorst W, et al. (2012), *Geringfügige Beschäftigung: Situation und Gestaltungsoptionen*. IZA Research Report 47.

¹⁰⁴ Stegmaier J. et al. (2015), *In der Praxis besteht Nachholbedarf bei Minijobbern*. IAB Kurzbericht, 18/2015.

expected to increase in future years. Overall, the impact of social transfers (excluding pensions) in reducing poverty declined from 47.2 % in 2005 to 33.2 % in 2014 and is below EU average (34.1 %). While relative poverty has therefore increased, severe material deprivation has nevertheless remained broadly stable, oscillating around 5% (4.6% in 2005 and 5.0% in 2014).

Minimum income schemes have been gradually expanded, gaining importance as a source of income support.¹⁰⁵ At the end of 2014, 7.55 million people or 9.1 % of the total population received minimum income benefits. After a constant decline in these two figures between 2006 and 2012, they began to rise again in 2013 with a shift in recipient trends: the number of recipients receiving basic income support for jobseekers declined. At the same time, there has been an increase in the number of recipients receiving the old-age income benefits and benefits for those with reduced earning capacity. Non-take-up is a challenge in ensuring the effectiveness of these income benefits, with empirical studies indicating that between $\frac{1}{3}$ and $\frac{2}{5}$ of eligible beneficiaries do not apply.

Old-age poverty is expected to increase. The standard pension within the statutory pension scheme has increased at a rate below inflation from 1990 to 2014, contributing to a decrease in the real value of pensions. Today, someone who retires after a 30-year career on two thirds of average earnings is entitled to a net pension equal to only 74 % of the poverty threshold. The replacement rate of the statutory pension scheme has been reduced from 52.9 % in 2001 to 48.9 % in 2013, and it will be further reduced to 43.7 % by 2030.

The number of beneficiaries receiving a means-tested minimum income for retirees (*Grundsicherung im Alter*) nearly doubled. From around 257 000 at its introduction in 2003, it increased to around 512 000 people in 2014. Second- and third-pillar schemes, especially the state-subsidised *Riester* pension, were supposed to counterbalance the declining trend in public

pension entitlements. Yet, their take-up and coverage is currently too low to compensate fully for the loss in the value of public pensions. Overall, only 70 % of the total workforce has taken up either a private or an occupational pension, with take-up rates stagnating. Coverage is particularly low among people who are at high risk of insufficient accrual of public pension benefits such as low wage earners or people with an interrupted employment history. The adequacy of pension incomes is further negatively impacted by the current low level of interest rates, which jeopardises the effectiveness of private pension schemes. Moreover, the gender pension gap is the highest in the EU (at 47.6% vs 39.1% on average in 2014) and older women have a higher risk of poverty than men, partly because of long career interruptions and low work volume.

The adoption of the announced life performance pension (*Lebensleistungsrente*) and the announced strengthening of the occupational pension system are still pending. The plans for a *Flexi-Rente* are not sufficient to protect most of the people who are at risk of old-age poverty. Rates of enrolment in second- or third-pillar pension schemes are also currently too low to significantly alleviate this risk. Many people are not fully aware of the different pension entitlements they have acquired in all pillars and what they can expect upon retirement.

Several laws on healthcare have been adopted in recent months, aimed at increasing cost efficiency, but also at expanding care services. The Act to strengthen the provision of healthcare (*Versorgungsstärkungsgesetz*) aims for example to provide incentives to attract doctors to undersupplied regions (notably rural areas), facilitate the start-up of new healthcare centres, and further develop the performance audit for pharmaceuticals. The Act on disease prevention and health promotion (*Präventionsgesetz*) aims to generate long-term gains in efficiency through 'returns on prevention'. The Act on hospital care (*Krankenhausstrukturgesetz*) provides for financial bonuses to hospitals delivering high-quality medical care and reduced cost reimbursements if care is of low quality. It also aims to encourage hospitals to specialise more and to further reduce

¹⁰⁵ The minimum income schemes consist in: Basic income support for job seekers (Hartz IV), current assistance towards living expenses outside of institutions, needs-based pension supplement in old age and in the event of reduced earning capacity, basic support for refugees, and war victim assistance.

the number of hospital beds.¹⁰⁶ The law on improving palliative care (*Hospiz- und Palliativgesetz*) aims to make palliative care an explicit component of standard care in the statutory health insurance and to expand nationwide the provision of specialised palliative care, particularly in rural areas. Moreover, the second Act to consolidate long-term care (*Pflegestärkungsgesetz*) entered into force. It includes a new definition of care dependency (*Pflegebedürftigkeitsbegriff*) which expands long-term care services to mental health disorders, such as dementia. In order to finance the additional expenditure, the long-term care contribution rate will be increased by 0.2 pps. as of 2017 (see Section 3.1), when the expanded care services will also come into effect.

¹⁰⁶ In 2013, Germany was among the Member States with the highest number of hospital beds, with 529 beds per 100 000 inhabitants compared to an EU average of 355 beds.

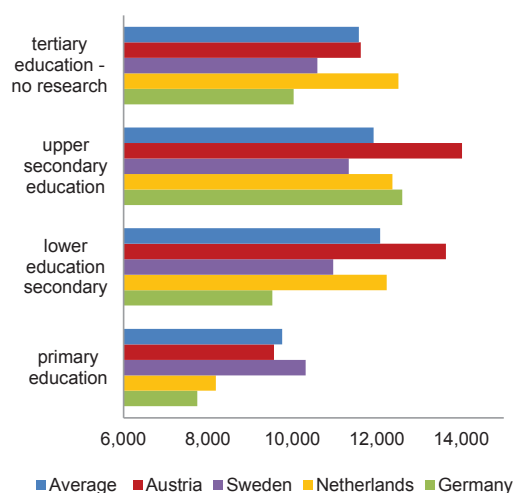
3.3. EDUCATION POLICY

Further loosening the link between the socioeconomic background and educational achievement remains a crucial challenge in Germany, in particular in view of integrating the newly-arrived refugees. Despite an increase at federal level, general government spending on education as a proportion of GDP has remained stable and well below the EU average in recent years (see Section 2.5). Germany invested less in primary education and tertiary education (excluding R&D; as a percentage of national GDP), compared with the OECD average in 2012 (Graph 3.3.1).¹⁰⁷ Germany is among those OECD countries where educational achievement remains highly correlated with parents' qualifications. Moreover, the German Education Report 2014 identified the lack of a clear strategy for all-day schools. There is also unmet demand by region and by school type. The weak educational performance of people with low socioeconomic status increases the potential risk of further aggravating the existing skills gap in Germany.

Investing in education, in particular early education and all-day schools, supports potential growth and strengthens equal opportunities for young people early in their education. The participation of children aged four and over in early childhood education and care has risen steadily from 85.9 % in 2003 to 97 % in 2013 (EU average 93 %), however there are still not enough places for children below the age of three years. This is reflected in an unmet demand of over 180 000 missing places. Between 2006 and 2014, the total number of children under three years in early childhood education and care has more than doubled with an increase from 13.6 % to 32.9 %, but 41.5 % of parents are currently seeking available places in early childhood education and care facilities according to a 2015 government report. Federal states and municipalities are responsible for providing early childhood education and care. The availability of places differs considerably between different federal

states and municipalities. Germany's 2014 Education Report identifies raising and ensuring quality in early childhood education and care as a priority. The challenges relate to defining adequate staff ratios,¹⁰⁸ group structures, timetables and the ratio between permanent staff and those with fixed-term contracts. For the period 2016-2018, the federal and regional authorities plan to invest an additional EUR 550 million to further increase the supply of available places, and have embarked on a process to ensure and to increase the quality of early childhood education and care.¹⁰⁹ However, the demand for all-day school places exceeds supply, which is reflected in a shortage of about 2.8 million places.

3.3.1: Annual education expenditure by level of education in selected OECD countries in 2012



Source: OECD. Note: Annual expenditure per student by educational institutions for all services. In equivalent USD converted using purchasing power parities (PPPs) for GDP, based on full-time equivalents.

Despite slight improvements, students' performance is still strongly affected by their respective socioeconomic background. The early school leaving rate decreased from 11.9 % in 2010

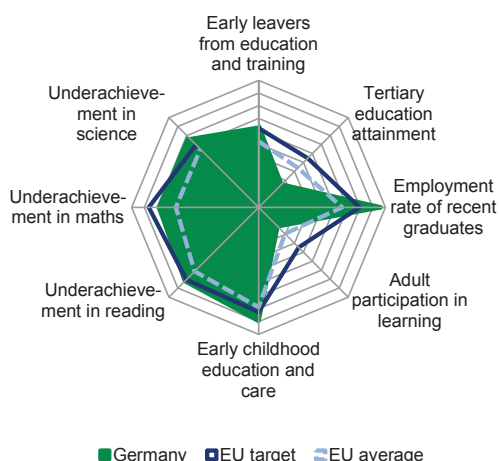
¹⁰⁷ Germany kept spending at only 5.1 % of GDP compared to 6.1 % of GDP spending as OECD average in 2011. Part of the difference can be explained that not all spending on the particular dual system in Germany is captured by this statistics. Another important factor is that Germany has a negative demographics and only 30.5 % of the population is below 30 years compared to the OECD average of 38.7 % in 2011. *Bildungsfinanzbericht 2011*, p. 19.

¹⁰⁸ There have been some quality improvements measured by staff ratios notably in Baden-Württemberg, Hamburg, Rhineland-Palatinate and Saxony-Anhalt. Eastern federal states continue to have structurally higher staff ratios of 1 staff member to 6.1 children in the category under three years than western ones (1 to 3.6) and 12.4 children to 1 staff in the four to six age group (western German: 8.9 to 1).

¹⁰⁹ Federal Ministry of Family Affairs, Senior Citizens, Women and Youth (2015), 'Frühe Bildung weiterentwickeln und finanziell sichern', Communiqué.

to 9.5 % in 2014, which is below both the EU average (11.1 %) and the national target of the Europe 2020 strategy (10 %) (Graph 3.3.2). However, despite a slight narrowing of the gap in recent years, the drop-out rate of foreign nationals is significantly higher than that of German nationals. The performance of the first generation with a migrant background improved by 33 pps in 2012, but is still lagging behind that of non-migrants by about 1.5 school years. Outcomes between the first and the second generation do not differ significantly; however, the performance gap between them narrows to only 1.25 school years for the latter generation. Germany is still one of the OECD countries that have limited upward educational mobility (ranked 22).

Graph 3.3.2: Education and training in Germany and EU

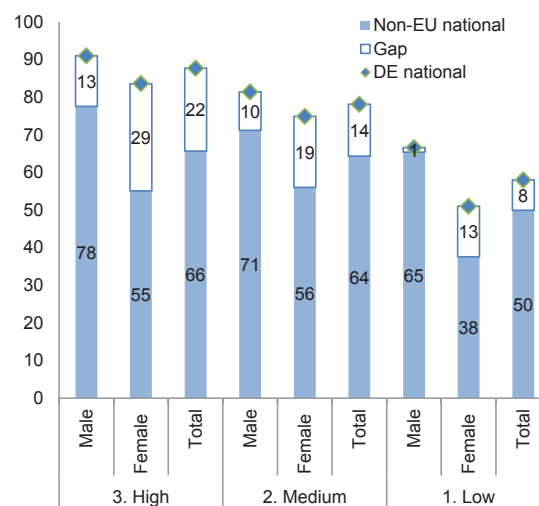


Source: European Education and Training Monitor (2015) Country Analysis, Germany.

People with a migrant background have lower qualifications compared with German nationals and are not always employed at a level that fully exploits their skills. In 2014, 13.4 % of people with a migrant background had no school qualifications and 38.4 % had no professional qualifications (compared with 1.7 % and 14.5 % respectively of German-born citizens). Moreover, there are particularly strong barriers to using the skills of highly educated non-EU nationals, with an employment gap of 23 pps (Graph 3.3.3). While the recognition of qualifications awarded abroad paves the way for an improved use of the potential

of migrants,¹¹⁰ the number of recognitions based on the Recognition Act of 2012 remains modest: 13 200 in 2014 compared with a potential of around 300 000.

Graph 3.3.3: Employment rate (20-64) for non-EU nationals by gender and qualification level, compared with German nationals in 2014



Source: European Commission.

Education is a key element in facilitating the integration of the unusually large number of refugees.¹¹¹ Integrating into the education system the unusually large numbers of young refugees who stay and providing a successful transition to the labour market will be key challenges for Germany in the short to medium term. In 2014, 32 % of refugees were below 18 years and 50 % between 18 and 35 years. The age distribution is presumably similar among the more than 1 million persons who sought protection in Germany in 2015. Preliminary indications suggest that these refugees have a relatively lower educational level compared with German-born citizens.¹¹² The Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany (*Kultusministerkonferenz*) expects additional 325 000 pupils from refugees to be integrated into the school system in 2015, requiring additional expenditure of about EUR 2.3

¹¹⁰ Report on the Recognition Act (2015), p. 15.

¹¹¹ German Council of Economic Experts (2015), Annual Report 2015/16, p 261,

¹¹² Institut für Arbeitsmarkt- und Berufsforschung, IAB (2015), "Asyl- und Flüchtlingsmigration in die EU und nach Deutschland", Aktueller Bericht, no. 8, p. 8

billion annually. The German Federal Ministry of Education announced plans to implement two policy packages intended to both extend and complement existing integration measures. With funding of EUR 130 million, the first package consists of three key measures related to the school system, namely supporting the acquisition of language skills, recognising skills and abilities and integrating people into training and work. The second package (EUR 100 million) focuses on integration instruments related to the higher education system.¹¹³ This package also identifies skills and abilities, provides technical and language teaching but also offers integration measures on the university campus. It will also support pilot activities for innovative solutions on skills assessments and facilitate access to tertiary education. In addition to the government, the social partners and civil society are also taking decisive action that complements public education initiatives with measures such as language tuition, education advice, and vocational education and training.

Further measures have been taken to promote individual support for, and the training and upskilling of refugees. Legislative amendments in November 2015 established integration courses for refugees with subsidiary protection. Substantial additional resources from the Public Employment Service (*Bundesagentur für Arbeit*) for the provision of language courses and additional advice for refugees are planned. Granting early access to the Public Employment Service, language courses and skills assessment, or the promotion of training opportunities and improved adult learning remain crucial aspects for the labour market integration of refugees.

¹¹³ Federal Ministry for Education and Science, BMBF (2015), ‘*Erstes und Zweites Maßnahmenpaket für Flüchtlinge: Deutsch lernen und berufliche Bildung*’.

3.4. NETWORK INDUSTRIES AND POLICIES FOR LONG-TERM GROWTH AND RESOURCE EFFICIENCY

Better regulation and administration

In 2015, the Federal Government took significant measures under its Better Regulation initiative, but there is still scope for further reducing the administrative burden.

The World Bank ranks Germany 21st out of 189 for doing business. Nevertheless, there is still scope to further improve the business environment. Germany assesses the administrative burden and compliance costs of newly proposed regulations and publishes an annual implementation report on its Better Regulation initiative. In June 2015, the index of administrative costs compiled by the national statistics office fell below the initial mark established in 2012 for the first time. In 2015, the statutory minimum wage and corresponding documentation requirements resulted in additional costs for businesses. However, the Federal Government also adopted significant new measures to reduce administrative burden, in particular a ‘one in, one out’ rule for new regulations that impose costs on businesses. It also adopted exemptions from reporting obligations for start-ups and measures to support the uptake of electronic invoicing and archiving. The Law *Bürokratieentlastungsgesetz* on reducing administrative burden, which introduced the main changes, was passed by parliament in July 2015 and took effect as of January 2016. A new survey will measure businesses’ and citizens’ perceptions of public services in specific circumstances (the ‘life events’ approach). There is still scope for further improving the business environment for small and medium-sized enterprises (SMEs), including by a more efficient tax system, reforms of tax administration and better coordination across federal states as well as by facilitating cross-border transfers of the registered office (of German companies abroad or of foreign companies to Germany), which companies currently find difficult and costly due to a lack of national rules and procedures.

The availability of online public services remains below the EU average and falls short of business needs. Efficient online public services could contribute to further reducing administrative burden. However, Germany is still one of the EU countries with the lowest online interaction between public authorities and citizens (23rd out of 28 Member States). An e-government strategy was adopted in August 2014 as part of the Digital Agenda 2014-2017 bill, to foster the digital

transformation of the public administration. The main challenge now is to implement the strategy accordingly. An act to promote e-government was adopted in July 2013, to foster the digital transformation of the public administration. Germany’s federal structure implies specific challenges in this context. For example, the ‘points of single contact’ differ considerably between federal states in terms of functionality and information provided, as well as the possibility to complete procedures online. A well-structured system of points of single contact that reflects business needs, rather than administrative structures, increases the usability and accessibility of information. The systems at national, regional and local level could be further aligned, both regarding back-end infrastructure and front-end navigation. The availability of e-procedures could be further improved, both for domestic and foreign users.

The value of contracts published by the German authorities under EU procurement legislation remains low despite ongoing efforts.

Competitive and transparent public procurement procedures are essential for successful public investments. By encouraging cross-border tendering they can contribute to rebalancing external trade. The procurement market in Germany is differentiated. The administrative system is efficient, with contracts being awarded on average after 58 days, 11 days faster than the European Economic Area (EEA) average of 69 days. Also, the proportion of contracts for which there was only one bidder is 3 % lower than the EEA average. Finally, the rule to divide contracts into lots eases access for SMEs. Bidders seem relatively satisfied with the tender procedures (duration, definition of needs by contracting authorities, quality award criteria). Public authorities generally pay their bills to businesses promptly. The perception of bid rigging and uncompetitive behaviour in public procurement is low. On the other hand, the value of business opportunities in public procurement published EU-wide and thus open to businesses across Europe and in Germany (EUR 31 billion in 2014) is only the fourth largest in Europe, about 25 % of the figure for the UK, about half the one for France and at about the same level as Poland. German public procurement open to businesses across the EU amounts to only 1.1 % of its GDP, whereas the

EU average is 4.4 %. It has consistently been the most closed market in Europe. In addition, the lack of reliable data on the public procurement market is a serious hindrance to policymaking and a consistent investment strategy. Germany is currently working on the design of a database, but no significant information is expected before 2018. The level of e-procurement is still low and there are many different systems competing on a local level, making access to contracts burdensome for businesses. Lately, the Federal IT Council decided to make the use of a central interface (*XVergabe*) mandatory. When fully operational, this will significantly reduce complexity. Germany makes limited use of aggregated purchasing, hence competitive bidding, below the central federal level (2% lower than the average of the European Economic Area). The complex legal system with a different legal basis for each type of public procurement contract risks deterring new entrants. Germany also has one of the lowest rates of publication of business opportunities in public procurement. Overall, Germany is taking steps in the right direction, but no visible increase can be so far observed in terms of the ratio of public procurement open to EU-wide bidding. In addition, the number of complaints to the Commission for non-publication has not yet decreased. Finally, the reasons behind the low value of contracts published under EU procurement legislation are not clearly identified.

Competition in the railway sector

The competitiveness of the German railway market has not improved significantly. Barriers for new entrants remain in place especially in the long-distance rail passenger segment and discourage market entry of potential competitors to the incumbent. As a result, the market share of new entrants in the long-distance passenger market is stagnating at around 1 %. The high level of track access charges remains one of the main obstacles for new entrants. According to the Commission's assessment¹¹⁴, track access charges for intercity passenger services in Germany are the highest of all Member States. They are also higher than in the freight and regional segments where market shares and number of competitors to the incumbent are

considerably higher. This situation is expected to further deteriorate once the ongoing revision of the track access charges by the German infrastructure manager *DB Netz* is completed. In addition, the legal framework may also be hindering competition. Germany has been referred to the European court in 2013 for failure to separate financial flows between operators and infrastructure managers and for failure to ensure that public funds paid for the provision of public passenger transport services are shown separately in the relevant accounts. After that, Germany has tried to address some of the concerns of the Commission by concluding an infrastructure financing agreement between the Federal government, DB holding and the infrastructure manager. However, the system of profit transfer agreements at holding level remains in place and transparency of financial flows within the holding does not yet seem to be ensured to a satisfactory extent. The current legal arrangements in Germany still do not provide for a comprehensive prohibition of using public funds paid to one of the subsidiaries of the holding to cross subsidise passenger and freight train services open to competition, even in other Member States. Another factor hindering competition is the continuing absence of a rolling stock leasing market or a market for used vehicles.

Energy, climate and resource efficiency

The reform of renewable energy stabilised costs, but needs careful monitoring. Germany reformed its support framework for renewable energy in 2014 through the revised Renewable Energy Act that entered into force on 1 August 2014. The reform is intended to control costs, especially by introducing binding corridors for expansion of renewables. The reform prioritises support for the least expensive renewable energy technologies (onshore wind and photovoltaics) and obliges larger renewable producers to sell their electricity directly on the market. The reform has resulted in a slight decrease of the renewable energy surcharge in 2015 compared with 2014. Despite a slight increase of the surcharge in 2016 to 6.35 ct/kWh, the cost of procuring renewable electricity (wholesale price plus surcharge) has been generally stable. Future cost developments need to be monitored carefully, in particular with a view to the ongoing support of existing installations and

¹¹⁴ European Commission (2014), Fourth report on monitoring development in the rail market,

the further expansion of offshore wind energy. It remains challenging to better integrate renewables into the market and to create market-based incentives for allocating new generation capacities, moving from a feed-in tariff into a tendering process. Exemptions for large sections of the industry from the renewable surcharge further add to the electricity bill of other industrial consumers and households and tend to distort price signals. In particular, as discussed in the 2015 country report, these higher electricity costs have a direct negative impact on households' net disposable income. In the future, using auctions as the standard procedure for allocating support and partially opening the support scheme are expected to bring costs further down.

Energy infrastructure development is being pursued, but faces significant delays.

Approximately 30 % of projects for the development of the highest voltage grid identified in 2009 in the Energy Network Expansion Act have been implemented. The initial target of 50 % by 2016 was lowered to 40 %, but it is uncertain whether this target will be met. The national network development plans include projects aiming at removing existing bottlenecks. However, most of the projects are still in the early stages, adding to the public investment backlog (see Sections 1 and 2.5.). Public opposition and the lack of determined action by regional governments have significantly delayed implementation. The political decision in July 2015 to favour underground high-voltage electricity lines is expected to help overcome some of the public resistance, but it will also require new planning procedures which could further delay the expansion of the electricity grid, significantly increase investment costs and consequently impact consumer prices.

The increasing share of electricity from renewable sources in Germany has created additional challenges for network management and grid stability, increasing the need for internal and cross-border expansion of the electricity grid. Increasing electricity supply and demand imbalances between northern and southern Germany, which will not be removed by new infrastructure development in the next years, have increased the structural network congestion both within Germany and with its neighbours. The current national arrangements for congestion

management and bidding zone definition in central Europe do not take properly into account actual congestion, leading to limitations of cross-border flows of electricity. There is still no regional solution for the management of current congestion problems that would be agreed among all affected countries. Further cross-border interconnections, especially the implementation of the Projects of Common Interest with Poland, Austria, Belgium, the Netherlands and Norway would improve links to the electricity network of neighbouring countries and increase security of supply. There is also scope to further increase the transport capacity of the gas network, in particular from north to south and the distribution systems in southern Germany as well as to improve its interconnectivity with neighbouring countries, including reverse flows.

Efforts to coordinate energy policy with neighbouring countries have been stepped up.

Regular roundtable discussions on regional cooperation for promoting security of electricity supply and renewable energy take place involving neighbouring Member States and the Commission. Furthermore, the reformed Renewable Energy Act includes an opening clause for also supporting renewable electricity produced outside Germany. In July 2015, the Federal Ministry of Economic Affairs and Energy published a White Paper on electricity market design, which sets out the direction in favour of an energy-only market. In this context, regional cooperation should be further increased between Germany and its neighbouring Member States, thereby promoting cost-effectiveness and security of electricity supply. These principles also need to be reflected in the electricity market legislation planned to be in place in spring 2016.

Planned energy efficiency measures risk being insufficient to allow Germany to deliver on its policy targets.

In December 2014, the federal government presented, together with a Climate Action Plan 2020, the National Energy Efficiency Action Plan (*NAPE*), which lists a range of measures aiming to address the potential shortfalls in Germany's energy efficiency targets. These measures include setting up a fund with the KfW (*Kreditanstalt fuer Wiederaufbau*) Development Bank providing low interest loans for refurbishment and energy tax breaks. Nevertheless, Germany risks failing both its energy efficiency

target notified to the EU as well as its more ambitious national target. Energy intensity in industry remains below the EU average, while energy intensity in the residential sector is still above EU average. The implementation of the federal government's strategy for energy efficiency in the construction sector presented in October 2015 is therefore of key importance. The final energy consumption in the transport sector increased in 2014, due to the increase in the total mileage of passenger and goods road transport, which was not compensated for by efficiency gains.

Germany is on track to meet its 2020 target in the non-Emission Trading System (ETS) sector by a very small margin. The achievement of the domestic 40 % reduction of economy-wide greenhouse gas emissions may be at risk. For the first time after three years, German greenhouse gas emissions are expected to decrease in 2014 to 912 Mt CO₂ from 952 Mt in 2013. According to its most recent projections, Germany is on track to meet its 2020 target in the non-ETS sector by only a very limited margin and therefore may need to implement additional measures, including those foreseen in the Action Programme for Climate Protection 2020 (*Aktionsprogramm Klimaschutz*) and the *NAPE*. As regards the domestic -40% emission reduction target, which also includes ETS emissions, the 2014 projections identified a gap of 5-8% by 2020. The Action Programme is not sufficient to meet this domestic objective and, therefore, needs to be complemented by additional measures.

Resource efficiency is a key driver of innovation and competitiveness. Companies have an economic interest in resource efficiency. Raw material costs account for about 45 % of production costs in industry. Germany has one of the highest shares of exports of environmental goods within the EU and green technologies, products and services play an increasingly important role. Resource efficiency is also an important driver of innovation and competitiveness and plays a crucial role for the manufacturing sector to open up new markets. Germany has a leading position with respect to eco-innovation and the German environmental technology industry is highly competitive. Leading eco-innovation areas include circular economy and renewable energy technologies. Germany aims to become the most

resource-efficient economy in the world by 2020. The National Resource Efficiency Programme aims at minimising negative environmental impacts while securing economic growth and higher productivity by further improving the environmental performance of the German economy, largely based on incentives and voluntary solutions. Overall, the industry's environmental performance is good, but there is scope for further improvements. Public authorities, spending nearly EUR 260 billion a year on buying products and services can set significant incentives in this respect. Indeed, German authorities are increasingly taking innovation and environmental aspects into account in their procurement procedures, for example by requiring high standards of energy efficiency performance though further efficiency gains could be made. Competence centres for sustainable and innovative public procurement have been established to share best practice.

Digitisation

Digitisation offers new business opportunities and is a key driver of competitiveness. Striving for a leading position in this field will require effective implementation of the 'Digital Agenda' and 'Industrie 4.0' initiative, including enhancing the digital infrastructure, promoting the digitisation of the economy, and strengthening IT security and digital skills. Germany's 'Industrie 4.0' initiative facilitates an industry-driven dialogue, bringing together, in particular, the engineering, electronic and ICT industries organised under a common platform launched in March 2015. The aim of this platform is to develop recommendations for a policy framework that stimulates the emergence of new business models and that encourages industry to tap the considerable potential for optimisation of production and logistics. In addition, the platform will demonstrate the potential of digitisation especially with regard to SMEs by providing case studies. There are also other new services in important areas such as mobility, health, climate and energy. The key role played by the digitisation is also reflected in a number of other public and private initiatives, such as the eCompetence Network, which helps companies, particularly SMEs, to use modern ICT applications.

Germany is performing less well (below the EU average) in the uptake of fast broadband

services, where there are considerable investment needs. Germany is fully covered by basic broadband services (including fixed, mobile and satellite networks). The German government is planning to provide fast broadband (50 Megabits per second) internet to all rural and urban areas by 2018. This plan is included in the German government's first Digital Agenda 2014-2017 presented in 2014. The plan aims to expand fast broadband coverage through a variety of technologies on the market, including mobile-based LTE (long term evolution). As regards next generation access (NGA) connections, the incumbent's strategy during the last year has mainly been focused on deploying infrastructure based on VDSL-vectoring technology that allows for high speed connections of up to 100 Mbps. By 2016, Deutsche Telekom plans to provide 65 % of households with a broadband connection based on vectoring technology. The deployment of fibre (FTTH/B) lines, especially in small cities and rural areas, continued to be carried out almost entirely by alternative operators. If Germany wants to move towards ultrafast broadband technology, more investments in fibre networks will be necessary. Although fixed-line operators have in recent years upgraded their legacy copper and coaxial cable networks, ultrafast networks will need to install fibre connecting directly to business and household premises.

Research, development and innovation

Germany is one of the EU's innovation leaders, but regional disparities remain and securing its competitive position in the future is challenging.

The main challenges for Germany's R&I system include: counteracting the trend of weakening innovation activities in German SMEs; improving the framework conditions for and supply of venture capital; and counteracting adverse trends in human capital availability due to demographic developments.¹¹⁵ Germany has the largest research and innovation (R&I) system in Europe and the EU Innovation Union Scoreboard 2015 classifies Germany as an innovation leader. Germany is close to achieving its R&D expenditure target of 3% of GDP (see Section 2.5), although some other leading innovative economies such as Japan and

South Korea are investing even more. Firms in medium-high-tech manufacturing sectors, such as the automotive industry, are the largest R&D investors. However, the R&D intensities¹¹⁶ of high tech sectors such as ICT and pharmaceuticals are lagging behind those in the US. Considerable disparities remain at regional level. Regional clusters and smart specialisation strategies are the main tools to address such disparities. In recent years some indicators on SME innovation performance, such as the percentage of a company's turnover that is spent on innovation, seem to have deteriorated.

Continued investment in education, R&D, and innovation is essential to securing Germany's competitive position in the future.

While much has been done to further strengthen Germany's R&I performance, through the update of the High-Tech Strategy for example, and to create innovation-friendly framework conditions, especially for SMEs, some experts (e.g. the Commission of Experts for Research and Innovation¹¹⁷) are calling for an even bolder innovation policy and for the R&D intensity target to be increased to 3.5 % of GDP.

¹¹⁶ Business expenditure on R&D (BERD) as % of value added in the sector.

¹¹⁷ Commission of Experts for Research and Innovation (2015), Report 2015.

¹¹⁵ Research and Innovation Observatory (2015), RIO Country Report 2015 (forthcoming).

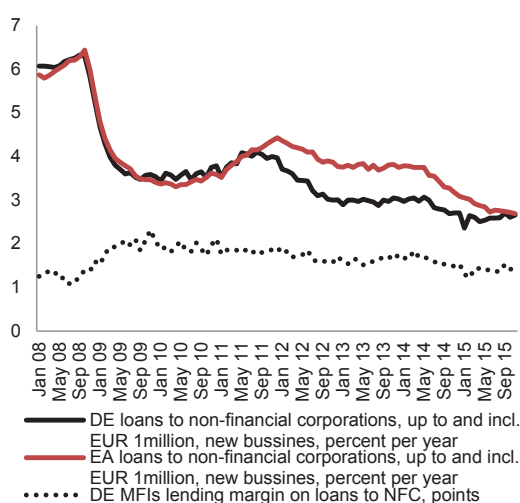
3.5. FINANCIAL SECTOR

Banking sector

Germany has a diversified banking sector with relatively low concentration and relatively high competition. The banking sector has three pillars: cooperative banks, public-owned savings banks, and private commercial banks. Each pillar dominates roughly a third of the market. With almost EUR 8 trillion assets, equal to almost 260 % of GDP, the sector is medium-sized and significantly smaller than that of France (390 %), for instance, or the Netherlands (370 %).

The stability of the banking sector has improved in recent years with banks raising new equity and retaining earnings. The Tier 1 capital ratio rose to 15.6 % by end June 2015 (Common Equity Tier 1 ratio to 14.2 %), markedly above the euro area average. Meanwhile, the leverage has continued to decline and loan-to-deposit (98 %) and non-performing loans (2.5 %) ratios remain at prudent levels compared with EU levels (Table 3.5.1). The gap to meet the Basel minimum leverage ratio requirement has almost been closed with less than EUR 1 billion of additional Tier 1 capital left to raise on aggregate for the biggest banks.

Graph 3.5.1: Evolution of interest rates



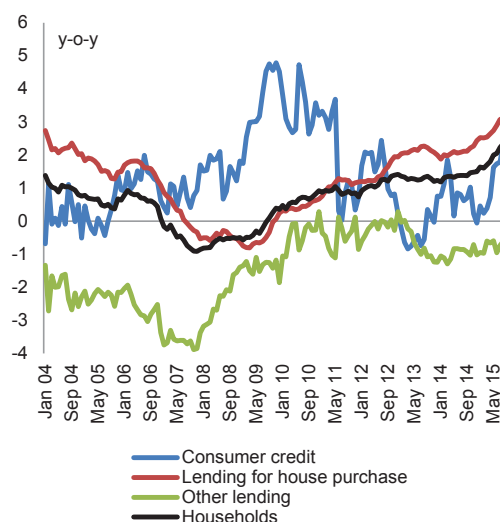
Source: European Central Bank

Market-driven consolidation of the public banking sector has remained timid. *Landesbanken* and saving banks hold considerable share of total bank assets (12 % and 14 %, respectively, at the end of 2015 according to

Deutsche Bundesbank. As discussed in the 2014 country report, *Landesbanken* had a rather poor track record in allocating credit and experienced significant losses during the financial crisis even though steps have since been taken that improved the sector's governance and overall soundness. Nevertheless, further market-driven consolidation of the public banking sector would be warranted to provide for a clearer separation of possible public interest objectives and operational bank business.

Sustaining profitability remains the biggest challenge for German banks. Low earnings hamper banks' ability build up capital, which reduces the risk-bearing capacity of the banking sector and may entail risks for lending to the real economy also given the recent financial market turmoil. With German banks, and particularly the smaller credit institutions, having a strong interest-driven business model and — due to competition — often limited success in increasing income from fees and commissions, the ongoing low interest rate environment will likely make this challenge even greater (Graph 3.5.1). To face up to this challenge and still serve the credit needs of the real economy, banks will have to improve their efficiency by reducing costs. The cost-to-income ratio of over 70 % is significantly higher than the euro-area average. Further consolidation of the banking sector — including among the savings and cooperative banks — and reduced dependence on intermediation margins seem viable options for addressing these challenges. This is even more important as the interest rate risk coefficients have increased, in particular for savings banks and cooperatives.

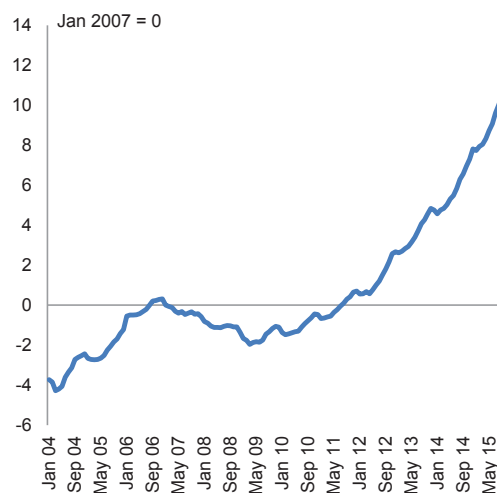
Graph 3.5.2: Annual change of different household loan categories



Source: European Central Bank

There are no indications of unsustainable trends in the German property markets. House prices are increasing rather fast in several cities in marked contrast to the price stagnation in rural areas. Despite a recent acceleration in the growth of housing loans (3.8 % year-on-year in October 2015, Graph 3.5.2) the overall outstanding stock of mortgages is only 10.5 % above its January 2007 value (Graph 3.5.3). Given that nominal GDP has grown faster than housing loans, the latter has actually fallen if expressed relative to the former (Graph 3.5.4). This is in line with Germany’s relatively low private sector indebtedness. As German households traditionally take out fixed-rate mortgages, the banks’ mortgage stock still earns 3.38 % (Section 2.3).

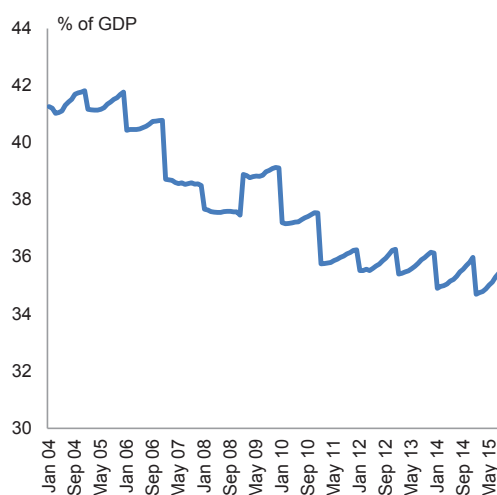
Graph 3.5.3: Housing loan stock evolution



Source: European Central Bank

Financing conditions for corporates are largely favourable. Interest rates charged to companies were broadly in line with the average until 2010. In 2011 they diverged as Germany became a safe haven for liquidity and since then rates have been lower than the euro-area average and stood at 2.6 % in October 2015. At the same time, banks’ net-interest margins on corporate lending continued to be maintained at around 1.5 %.

Graph 3.5.4: Housing loans in % of GDP



Source: European Central Bank

The venture capital market in Germany remains underdeveloped in international comparison. Due to low unemployment, emerging skill shortages and demographic trends, the number of entrepreneurs is expected to decline further. Improving the access to venture capital is an important element in stimulating entrepreneurial activity in Germany. Venture capital is a subset of private equity and refers to investments made to support the pre-launch, launch and early-stage development phases of a business. It is of particular importance in innovative fields such as high-tech manufacturing and biotechnology. Yet the venture capital market in Germany appears to be performing below its potential and has consistently been significantly smaller than that of other Member States and international competitors, such as the US or Israel. In 2014, venture capital investments accounted for 0.023 % of GDP in Germany, compared with 0.038 % in the UK, 0.029 % in France, 0.38 % in Israel and 0.28 % in the US.¹¹⁸ In Germany, the amount of venture capital investments has been stagnating since 2009 at about EUR 700 million per year (Graph 3.5.5). In 2014, venture capital investments in Germany were slightly higher than in France, yet well below the UK and Ireland. Within Germany, investments are particularly concentrated in the federal states of Berlin and Bavaria, while their sectoral focus is in particular on life sciences, communication technology and content, as well as computer and consumer electronics. Later-stage financing seems to be more problematic than early-stage (seed and start-up) financing. More firms in Germany receive seed financing compared with the EU average. Conversely, later stage venture capital financing is less pronounced in Germany (21 % of venture capital financed firms and 39 % of venture capital provided) when compared with Europe as a whole (29 % of venture capital financed firms and 43 % of venture capital provided).¹¹⁹

Stepping up efforts in the field of growth financing is essential to improve conditions for entrepreneurship in high-tech sectors and knowledge-intensive services (see Section 3.4). In the current legislative period, the German

government has already launched a range of measures to improve conditions for venture capital. These include the creation of the ERP/EIP growth fund equipped with EUR 500 million, a top-up for the ERP/EIF-Venture-Capital-*Dachfonds* (fund-of-funds) to EUR 1.7 billion (including EUR 300 million for business angels), and tax exemption for the German government's INVEST grant for venture capital. The issue paper approved on 16 September 2015 covers a number of measures to further promote venture capital investment and to support new, innovative and fast-growing companies in particular. For example, the INVEST grant scheme is planned to be extended considerably from 2016 onwards.¹²⁰

A review of the regulatory framework for venture capital could contribute to stimulating private investment, also from foreign investors.¹²¹ Some tax-related framework conditions may limit the size of the market for venture capital in Germany, such as the rules on tax loss carryforwards (*Verlustvortrag*) or the value added tax on funds management services.¹²² Moreover, in contrast to many other countries, institutional investors, such as pension funds, which could serve to anchor investors in venture capital projects, are missing in Germany. To this end, the German government recently decided that KfW will again operate as an anchor investor, equipped with EUR 400 million. However, a holistic review of the regulatory framework for venture capital, as planned in the coalition agreement and the issue paper adopted in September 2015, would be a welcome step and could contribute to stimulating private investment and entrepreneurship and to increasing Germany's international competitiveness as a location for venture capital investments. One should, nevertheless acknowledge that there are other factors influencing entrepreneurial activity, such as

¹²⁰ The limit per investor on the amount of investment eligible for the grant will be doubled to EUR 0.5 million annually. Additionally, a tax refund will be granted on capital gains from INVEST financing.

¹²¹ There is a home bias of venture capital investments in Germany: 77 % of venture capital comes from German private equity funds. German Council of Economic Experts (2015), Annual Economic Report 2015-2016.

¹²² Commission of Experts for Research and Innovation, Report 2015, <http://www.e-fi.de>.

¹¹⁸ OECD (2014), Entrepreneurship Financing Database.

¹¹⁹ Research and Innovation Observatory (2015), RIO Country Report 2015 (forthcoming).

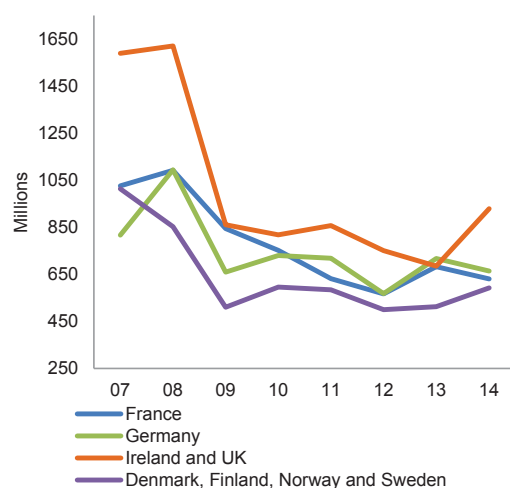
Table 3.5.1: Financial soundness indicators

	2007	2008	2009	2010	2011	2012	2013	2014	Last	Date
Total assets of the banking sector (% of GDP)	302.1	308.1	302.2	321.9	310.5	298.6	266.9	267.6	262.7	Nov 15
Share of assets of the five largest banks	22.0	22.7	25.0	32.6	33.5	33.0	30.6	32.4	32.4	2014
Foreign ownership of banking system	11.0	11.5	10.7	10.9	11.5	12.2	11.2	11.7	11.7	2014
Financial soundness indicators:										
non-performing loans (%)	2.7	2.9	3.3	3.2	3.0	2.9	2.7	2.3	2.3	2014
capital adequacy ratio (%)	-	13.6	14.8	16.1	16.4	17.9	19.2	18.0	18.1	2015Q3
profitability - return on equity (%)	6.5	-2.5	5.0	8.8	13.0	10.8	7.5	7.2	7.2	2014
Private credit growth (y-o-y)	4.1	4.4	0.0	0.0	2.0	1.1	0.5	1.3	2.4	Nov 15
Lending for house purchase (y-o-y)	-0.5	-0.6	0.2	0.7	1.2	1.9	2.0	2.4	3.4	Nov 15
Loan to deposit ratio	92.1	89.6	87.6	84.7	83.4	82.5	80.1	79.2	78.5	Nov 15
CB liquidity as % of liabilities	4.4	5.3	4.0	2.2	1.8	1.7	1.4	1.6	0.9	Nov 15
Private debt (% of GDP)	100.7	103.6	107.4	107.1	103.3	102.7	103.0	100.4	100.4	Jul 15
Gross external debt (% of GDP)										
Public	20.1	33.5	37.7	42.5	47.4	49.8	45.7	48.9	44.2	Jun 15
Private	25.3	40.3	41.5	42.9	43.7	41.5	40.7	40.2	41.2	Jun 15
Credit default spreads	-	13.9	37.4	32.2	44.8	32.7	14.9	12.7	7.7	2015
number of branches	39777	39531	38851	39494	37853	36239	36155	35284	35284	2014
% change 2007-Last										-11.3

Source: European Banking Authority (EBA), European Central Bank (ECB), Eurostat, Bank for International Settlements (BIS), International Monetary Fund (IMF), World Bank;

market characteristics, and cultural and demographical aspects.¹²³

Graph 3.5.5: Venture capital investments compared with European peers (EUR millions)



Source: European Private Equity and Venture Capital Association

¹²³German Council of Economic Experts (2015), Annual Economic Report 2015-2016.

ANNEX A

Overview table

Commitments

Summary assessment ⁽¹²⁴⁾

2015 Country-specific recommendations (CSRs)	
<p>CSR 1: Further increase public investment in infrastructure, education and research. To foster private investment, take measures to improve the efficiency of the tax system, in particular by reviewing the local trade tax and corporate taxation and by modernising the tax administration. Use the ongoing review to improve the design of fiscal relations between the federation, <i>Länder</i> and municipalities, particularly with a view to ensuring adequate public investment at all levels of government.</p>	<p>Germany 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):</p> <ul style="list-style-type: none"> • Limited progress in increasing public investment in infrastructure. While so far no sustainable upward trend in public investment could be observed, the federal government has adopted several measures to increase infrastructure investment in the years to come. However, these extra funds still appear insufficient to meet the infrastructure investment gap. • Limited progress in increasing public investment in education. Despite more spending at federal level, expenditure on education as a proportion of GDP at the level of general government has remained stable in recent years and well below the EU average. Overall public and private education and research expenditure has only slightly increased in recent years and may have fallen short of the national target of 10 % of GDP. • Limited progress in increasing public investment in research. Public expenditure on research and development remained stable at around 0.8 % of GDP in recent years, and total public and private expenditure at around 2.8 % of GDP. The federal government has budgeted further increases in research spending. • Limited progress in improving the efficiency of the tax system. The steps taken to modernise tax administration were limited to the adoption by the federal

⁽¹²⁴⁾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.

	<p>government of legislation to simplify tax administration procedures.</p> <ul style="list-style-type: none"> • Limited progress in improving the design of fiscal relations. A recent common proposal of the federal states for reforming fiscal relations would involve simplified fiscal equalisation, but remains vague in terms of further disentangling of spending competencies and falls short of increasing revenue autonomy.
<p>CSR 2: Increase incentives for later retirement. Take measures to reduce high labour taxes and social security contributions, especially for low wage earners, and address the impact of fiscal drag. Revise the fiscal treatment of mini-jobs to facilitate the transition to other forms of employment.</p>	<p>Germany has made limited progress in addressing CSR 2:</p> <ul style="list-style-type: none"> • Limited progress in increasing incentives for later retirement. There are proposals to improve incentives for later retirement (<i>Flexi-Rente</i>), but they have not been formalised yet. It remains to be assessed how effective these proposals can be in counteracting the incentives for early retirement introduced in 2014. • Limited progress in reducing labour taxation and fiscal drag. The positive impact on households' incomes and consumption from the slight increase in minimum income tax allowances and compensation of fiscal drag might be largely offset by higher social contributions from employees. • No progress revising the fiscal treatment of mini-jobs to facilitate the transition to other forms of employment. There has been transition to other forms of employment as a by-product of introducing the minimum wage. Standard employment has also been made less costly to businesses. The fiscal treatment of mini-jobs has not been revised.
<p>CSR 3: Take more ambitious measures to stimulate competition in the services sector, in particular in professional services, by eliminating unjustified restrictions such as legal form and shareholding requirements and fixed tariffs. To this end, conclude the ongoing domestic review of these barriers and take follow-up measures. Remove the remaining barriers to competition in the railway markets, in</p>	<p>Germany has made limited progress in addressing CSR 3:</p> <ul style="list-style-type: none"> • Limited progress in eliminating unjustified restrictions in professional services. Germany has agreed to abolish mandatory fixed tariffs for tax advisers. The action plan submitted by Germany as a result of mutual evaluation on access

particular in long-distance rail passenger transport.	<p>and practise requirements for regulated professions announces a limited number of actions for certain professions.</p> <ul style="list-style-type: none"> • No progress in removing the remaining barriers to competition in the railway markets. Directive 2012/34/EU establishing a single European railway area will be transposed in 2016 but changes in track access charges will be introduced only in 2017 or later.
Europe 2020 (national targets and progress)	
Employment:	
Employment rate of the population aged 20-64 years: 77 %	77.8 % in the year ending in September 2015
Employment rate of the population aged 55-64 years: 60 %	65.8 % in the year ending in September 2015
Employment rate of women: 73 %	Employment rate of women: 73.5 % in the year ending in September 2015
Increased involvement of youth, the elderly, low-qualified and migrants	Proportion of young people (15-29) not in employment, education or training: 9.7 % of respective age group (OECD, 2013), (falling since 2005)
R&D:	
R&D expenditure of 3 % of GDP, of which 2/3 private	2.8 % (2014 and 2013), of which 0.8 % public sector in 2013
Greenhouse gas emissions (in non-ETS sectors): 2014: -6 %, 2020: -14 % compared to 2005	Greenhouse gas emissions from sectors not covered by the Emissions Trading Scheme fell by 10 % between 2005 and 2014. According to the latest national projections, and taking into account existing measures, the target is expected to be exceeded by 1 pp.: -15 % in 2020 compared with 2005.
Renewable energy target: Overall: 18 % Transport: 10 %	<p>In 2014, the share of energy from renewable sources in gross final energy consumption reached 13.8 % (Eurostat). This is above the renewable share set out in the indicative trajectory under the EU Renewables Directive 2009/28/EC.</p> <p>With a 6.6 % share of renewable energy sources (RES) in transport in 2014, Germany</p>

	is progressing well towards 10 % RES target in transport.
<p>Indicative national energy efficiency target: Annual improvement of energy intensity (energy productivity) by 2.1 % p.a. on average until 2020. The absolute level of energy consumption in 2020 was determined to be at 276.6 Mtoe (primary energy consumption) or 194.3 Mtoe (final energy consumption).</p> <p>Germany set itself a more ambitious target in 2010 (Energy Concept: reduction of energy consumption from 2008 to 2020 by 20 %)</p>	<p>Germany adopted a comprehensive National Energy Efficiency Action Plan (December 2014) and a strategy to improve the energy efficiency in buildings (<i>Energieeffizienzstrategie Gebäude</i>, October 2015) to address the substantial energy saving gaps vis-à-vis its rather ambitious targets. Primary and final energy consumption has decreased by roughly 4 % from 2013 to 2014, however to a large extent due to climatic reasons.</p>
<p>Early school leaving:</p> <p>Early school leaving target: <10 %</p>	<p>Early leavers of education and training (percentage of the population aged 18–24 with at most lower secondary education and not in further education or training): 9.8 % in 2013 and 9.5 % in 2014.</p> <p>Germany achieved the target in 2014.</p>
<p>Tertiary education:</p> <p>Tertiary education target: 40 % (EU 2020) or 42 % (national target).</p>	<p>Tertiary educational attainment: 32.9 % in 2013 and 31.4 % in 2014, compared with an EU-average of 37.9 %.</p> <p>Germany has not achieved the EU target of 40 %. However, the national target of 42%, which includes International Standard Classification of Education (ISCED) 4, has already been met.</p>
<p>Poverty/social exclusion:</p> <p>Target on the reduction of population at risk of poverty or social exclusion in number of persons: Risk-of-poverty or social exclusion target: 20 % reduction in the number of long-term unemployed by 2020 as compared with 2008 (i.e. reduction by 320 000 long-term unemployed).</p>	<p>The number of long-term unemployed decreased by 623.000 in 2012, 658.000 in 2013 and 674.000 in 2014 as compared with 2008. The number of long-term unemployed decreased by around 44 % between 2008 and 2014.</p> <p>Germany has already fulfilled the national Europe 2020 poverty target.</p>

ANNEX B

MIP scoreboard

Table B.1: **MIP scoreboard**

			Thresholds	2009	2010	2011	2012	2013	2014
External imbalances and competitiveness	Current account balance, (% of GDP)	3 year average	-4%/6%	6.0	5.7	5.8	6.2	6.4	6.9
	Net international investment position (% of GDP)		-35%	25.1	25.8	23.4	28.8	34.9	42.3
	Real effective exchange rate - 42 trading partners, HICP deflator	3 years % change	±5% & ±11%	2.9	-3.7	-4.9	-8.9	-1.9	-0.3
	Export market share - % of world exports	5 years % change	-6%	-6.8	-7.9	-8.8	-16.3	-11.7	-8.3
	Nominal unit labour cost index (2010=100)	3 years % change	9% & 12%	8.1	7.5	5.7	2.8	6.3	7.6
Internal imbalances	Deflated house prices (% y-o-y change)		6%	1.2	-0.9	1.4	1.8	1.8p	1.5p
	Private sector credit flow as % of GDP, consolidated		14%	-0.8	0.0	1.5	1.1	1.5	1.1
	Private sector debt as % of GDP, consolidated		133%	112.9	107.1	103.3	102.7	103.0	100.4
	General government sector debt as % of GDP		60%	72.5	81.0	78.4	79.7	77.4	74.9
	Unemployment rate	3 year average	10%	7.8	7.3	6.8	6.1	5.5	5.2
	Total financial sector liabilities (% y-o-y change)		16.5%	-6.4	-1.1	2.9	3.3	-6.2	4.2
New employment indicators	Activity rate - % of total population aged 15-64 (3 years change in p.p)		-0.2%	1.4	1.0	1.4b	0.9	1.0	0.4
	Long-term unemployment rate - % of active population aged 15-74 (3 years change in p.p)		0.5%	-2.2	-1.5	-1.1	-1.1	-1.0	-0.6
	Youth unemployment rate - % of active population aged 15-24 (3 years change in p.p)		2%	-2.5	-2.0	-1.9	-3.1	-2.0	-0.8

Flags: break in time series. e: estimated.

Note: 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)	321.9	310.5	298.6	266.9	267.6	253.6
Share of assets of the five largest banks (% of total assets)	32.6	33.5	33.0	30.6	32.4	-
Foreign ownership of banking system (% of total assets)	10.9	11.5	12.2	11.2	11.7	-
Financial soundness indicators:						
- non-performing loans (% of total loans)	3.2	3.0	2.9	2.7	2.3	-
- capital adequacy ratio (%) ¹⁾	16.1	16.4	17.9	19.2	18.0	18.1
- return on equity (%)	8.8	13.0	10.8	7.5	7.2	-
Bank loans to the private sector (year-on-year % change)	0.0	2.0	1.1	0.5	1.3	2.3
Lending for house purchase (year-on-year % change)	0.7	1.2	1.9	2.0	2.4	3.5
Loan to deposit ratio	84.7	83.4	82.5	80.1	79.2	78.4
Central Bank liquidity as % of liabilities	2.2	1.8	1.7	1.4	1.1	1.0
Private debt (% of GDP)	107.1	103.3	102.7	103.0	100.4	-
Gross external debt (% of GDP) ²⁾ - public	42.5	47.4	49.8	45.7	48.9	43.8
- private	42.9	43.7	41.5	40.7	40.2	41.2
Long-term interest rate spread versus Bund (basis points)*	0.0	0.0	0.0	0.0	0.0	0.0
Credit default swap spreads for sovereign securities (5-year)*	32.2	44.8	32.7	14.9	12.7	7.7

(1) Latest data Q2 2015.

(2) 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)	74.9	76.5	76.9	77.3	77.7	77.8
Employment growth (% change from previous year)	0.3	1.4	1.2	0.6	0.9	0.7
Employment rate of women (% of female population aged 20-64)	69.6	71.3	71.6	72.5	73.1	73.6
Employment rate of men (% of male population aged 20-64)	80.1	81.7	82.1	82.1	82.2	82.1
Employment rate of older workers (% of population aged 55-64)	57.7	60.0	61.6	63.6	65.6	65.9
Part-time employment (% of total employment, aged 15 years and over)	26.2	26.8	26.8	27.7	27.6	28.0
Fixed term employment (% of employees with a fixed term contract, aged 15 years and over)	14.7	14.5	13.7	13.3	13.0	13.0
Transitions from temporary to permanent employment	41.0	40.7	40.2	27.5	-	-
Unemployment rate ⁽¹⁾ (% active population, age group 15-74)	7.0	5.8	5.4	5.2	5.0	4.7
Long-term unemployment rate ⁽²⁾ (% of labour force)	3.3	2.8	2.4	2.3	2.2	2.1
Youth unemployment rate (% active population aged 15-24)	9.8	8.5	8.0	7.8	7.7	7.1
Youth NEET ⁽³⁾ rate (% of population aged 15-24)	8.3	7.5	7.1	6.3	6.4	-
Early leavers from education and training (% of pop. aged 18-24 with at most lower sec. educ. and not in further education or training)	11.9	11.6	10.5	9.8	9.5	-
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	29.8	30.6	31.8	32.9	31.4	-
Formal childcare (30 hours or over; % of population aged less than 3 years)	13.0	15.0	15.0	19.0	-	-

(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	9.4	9.2	9.1	9.3	9.5	-
Invalidity	2.2	2.2	2.1	2.2	2.2	-
Old age and survivors	11.8	11.4	11.0	11.0	10.9	-
Family/children	3.0	3.1	3.0	3.1	3.1	-
Unemployment	1.8	1.6	1.3	1.1	1.1	-
Housing and social exclusion n.e.c.	0.7	0.7	0.6	0.6	0.6	-
Total	29.1	28.4	27.3	27.4	27.7	-
of which: means-tested benefits	3.5	3.4	3.3	3.3	3.4	-
Social inclusion indicators	2009	2010	2011	2012	2013	2014
People at risk of poverty or social exclusion ⁽¹⁾ (% of total population)	20.0	19.7	19.9	19.6	20.3	20.6
Children at risk of poverty or social exclusion (% of people aged 0-17)	20.4	21.7	19.9	18.4	19.4	19.6
At-risk-of-poverty rate ⁽²⁾ (% of total population)	15.5	15.6	15.8	16.1	16.1	16.7
Severe material deprivation rate ⁽³⁾ (% of total population)	5.4	4.5	5.3	4.9	5.4	5.0
Proportion of people living in low work intensity households ⁽⁴⁾ (% of people aged 0-59)	10.9	11.2	11.2	9.9	9.9	10.0
In-work at-risk-of-poverty rate (% of persons employed)	6.8	7.2	7.7	7.8	8.6	9.9
Impact of social transfers (excluding pensions) on reducing poverty	35.7	35.5	37.1	33.7	34.0	33.2
Poverty thresholds, expressed in national currency at constant prices ⁽⁵⁾	10609	10710	10730	10773	10538	10454
Gross disposable income (households; growth %)	-0.8	2.4	3.1	2.3	2.0	2.4
Inequality of income distribution (S80/S20 income quintile share ratio)	4.5	4.5	4.5	4.3	4.6	5.1

(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	-7.46	12.57	1.83	0.36	-0.24	0.34
Labour productivity in construction	-1.83	5.60	2.10	-1.06	-0.45	1.75
Labour productivity in market services	-3.92	-0.61	1.85	1.85	0.22	0.56
Unit labour costs (ULC) (whole economy, y-o-y)						
ULC in industry	12.14	-11.80	-0.34	2.89	3.28	1.24
ULC in construction	7.12	-5.20	0.79	4.71	1.64	1.24
ULC in market services	6.18	2.38	1.11	3.25	2.27	3.02
Business environment	2009	2010	2011	2012	2013	2014
Time needed to enforce contracts ⁽¹⁾ (days)	394	394	394	394	394	394
Time needed to start a business ⁽¹⁾ (days)	17.5	17.5	14.5	14.5	14.5	14.5
Outcome of applications by SMEs for bank loans ⁽²⁾	0.72	0.55	0.49	0.28	0.17	0.58
Research and innovation	2009	2010	2011	2012	2013	2014
R&D intensity	2.72	2.71	2.79	2.87	2.83	2.84
Total public expenditure on education as % of GDP, for all levels of education combined	5.06	5.08	4.98	4.84	na	na
Number of science & technology people employed as % of total employment	42	42	41	43	43	43
Population having completed tertiary education ⁽³⁾	22	23	24	25	25	23
Young people with upper secondary level education ⁽⁴⁾	74	74	76	76	77	77
Trade balance of high technology products as % of GDP	0.55	0.35	0.59	1.05	1.05	0.99
Product and service markets and competition				2003	2008	2013
OECD product market regulation (PMR) ⁽⁵⁾ , overall				1.80	1.41	1.29
OECD PMR ⁽⁵⁾ , retail				3.38	2.88	2.71
OECD PMR ⁽⁵⁾ , professional services				3.03	2.82	2.65
OECD PMR ⁽⁵⁾ , network industries ⁽⁶⁾				1.87	1.33	1.27

(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 / €	0.14	0.14	0.13	0.13	0.13	-
Carbon intensity	kg / €	0.39	0.39	0.36	0.36	0.37	-
Resource intensity (reciprocal of resource productivity)	kg / €	0.54	0.51	0.54	0.52	0.51	0.50
Waste intensity	kg / €	-	0.15	-	0.14	-	-
Energy balance of trade	% GDP	-2.4	-2.8	-3.6	-3.7	-3.5	-2.9
Weighting of energy in HICP	%	11.66	11.58	12.30	12.55	12.39	11.94
Difference between energy price change and inflation	%	-2.6	-0.8	7.0	3.6	3.2	-1.6
Real unit of energy cost	% of value added	8.0	8.3	8.4	-	-	-
Ratio of labour taxes to environmental taxes	ratio	9.7	9.8	9.5	10.0	10.5	10.8
Environmental taxes	% GDP	2.3	2.1	2.2	2.1	2.0	2.0
Sectoral							
Industry energy intensity	kgoe / €	0.12	0.11	0.11	0.11	0.11	-
Real unit energy cost for manufacturing industry	% of value added	19.7	19.1	18.4	-	-	-
Share of energy-intensive industries in the economy	% GDP	9.74	10.47	10.16	10.29	10.20	-
Electricity prices for medium-sized industrial users	€ / kWh	0.11	0.12	0.12	0.13	0.14	0.16
Gas prices for medium-sized industrial users	€ / kWh	0.04	0.04	0.04	0.04	0.05	0.04
Public R&D for energy	% GDP	0.04	0.03	0.03	0.04	0.05	0.05
Public R&D for environment	% GDP	0.03	0.02	0.02	0.03	0.03	0.02
Municipal waste recycling rate	%	77.2	78.2	79.0	83.0	86.8	-
Share of GHG emissions covered by ETS*	%	46.9	48.1	48.5	48.2	50.6	50.7
Transport energy intensity	kgoe / €	0.58	0.58	0.57	0.57	0.56	-
Transport carbon intensity	kg / €	1.47	1.45	1.44	1.44	1.44	-
Security of energy supply							
Energy import dependency	%	61.0	60.1	61.6	61.3	62.7	-
Aggregated supplier concentration index	HHI	12.8	13.4	15.7	15.9	16.1	-
Diversification of energy mix	HHI	0.24	0.24	0.24	0.24	0.25	-

Country-specific notes:

General explanation of the table items:

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 over labour taxes and GDP: from European Commission's database, '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 500–20 000 MWh 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