EUROPEAN
COMMISSION

Brussels, 5.3.2014
SWD(2014) 78 final

PART 1/2

COMMISSION STAFF WORKING DOCUMENT

Macroeconomic Imbalances – Germany 2014

Results of in-depth reviews under Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances

Germany is experiencing *macroeconomic imbalances, which require monitoring and policy action*. In particular, the current account has persistently recorded a very high surplus, which reflects strong competitiveness while a large amount of savings were invested abroad. It is also a sign that domestic growth has remained subdued and economic resources may not have been allocated efficiently. Although the current account surpluses do not raise risks similar to large deficits, the size and persistence of the current account surplus in Germany deserve close attention. The need for action so as to reduce the risk of adverse effects on the functioning of the domestic economy and of the euro area is particularly important given the size of the German economy.

More specifically, relatively low private and public sector investment together with subdued private consumption over a longer period contributed to modest growth, falling trend growth, increased dependence of the economy on external demand and the build-up of the external surplus. The challenge is, therefore, to identify and implement measures that help strengthen domestic demand and the economy's growth potential. Higher investment in physical and human capital, and promoting efficiency gains in all sectors of the economy, including by unleashing the growth potential of the services sector, which would also contribute to further strengthening of labour supply, are central policy challenges.

Excerpt of country-specific findings on Germany, COM(2014) 150 final, 5.3.2014

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EXECUTIVE SUMMARY AND CONCLUSIONS

In the Alert Mechanism Report (AMR) published on 13 November 2013, the Commission decided to conduct an In-Depth Review (IDR) of the German economy to determine whether imbalances exist. In particular, the dynamics of Germany's external position warranted further investigation with a view to better understanding the role of certain domestic features and financial flows, for the current account developments. To this end this In-Depth Review provides an economic analysis of the German economy in line with the scope of the surveillance under the Macroeconomic Imbalance Procedure (MIP). The main observations and findings from this analysis are:

- **Germany has recorded a large current account surplus of about 6-7% of GDP since 2007. The surplus has remained stable throughout the crisis and is not projected to fall below 6% over the coming years.** In fact, even if projected by the Commission services to recede slightly, there is a risk that the surplus could grow even further. The expansion of Germany's current account surplus can predominantly be traced back to the private sector. It owes both to an increase in households' net savings and to firms turning from being borrowers to becoming lenders in net terms. A current account surplus is in line with the structural characteristics of the German economy. However, the pace at which it has been accumulated and its persistence even during a time of adjustment within the euro area cannot be explained by factors that usually drive the current account. This is *a priori* a sign that the country's economic resources are not being allocated fully efficiently, which ultimately could be to the detriment of German economic welfare.

- **The IDR shows that the German current account surplus does not lend itself to one explanation, but domestic economy developments are crucial in explaining Germany's persistent and large current account surplus.** The surplus is the result of an interplay of various factors and developments in Germany as well as globally and among its euro area partners, which affected saving and investment in the domestic economy. Over the course of a decade these factors caused household savings to increase and have tamed consumption growth, while at the same time denting business investment and driving up firms' net savings. Regarding public sector developments, a persistently low and declining level of public sector investment stands out. The result has been muted domestic demand and a weaker growth performance than what could have been attained with a more balanced growth pattern.

- **External drivers have also contributed to the surplus by increasing the demand for German exports and strengthening capital exports**. The increase in the German current account surplus coincided with the introduction of the euro, which reduced sovereign risk premia across the euro area, while financial market integration in the EU progressed and some euro area countries were catching-up. The current account position has also been supported by the increase in the size of the single market due to EU enlargement and the expansion in world trade. Moreover, before the crisis, competitiveness gains from labour costs and prices resulted in a rising surplus with euro area trading partners. In the aftermath of the recent crisis, Germany's price competitiveness recovered with respect to industrialised economies outside the EU, facilitating a redirection of exports towards the rest of the world. Germany's trading prowess is supported by the strong export focus of its manufacturers and their success in reaping the benefits of globalisation through global value chains that enhance non-price competitiveness. Additionally, many German manufacturers are leaders in niche markets. While these reasons explain the strength of Germany's exports, relatively subdued import growth has also contributed to the size and persistence of the country's trade surplus. Still, the current account surplus vis-à-vis the rest of the euro area has nearly halved since the peak in 2007.

- **Households' consumption and investment patterns reflected the situation of unusually subdued domestic demand, most markedly so until the crisis.** Anaemic growth in disposable income caused sluggish private consumption growth. This in turn was due to high unemployment, significant wage moderation and a fall in the total amount of hours worked.

These developments in part reflect policies, which should be seen in the context of Germany's post-reunification situation. Changes to the social security system and fiscal incentives encouraged households to save more, which coincided with rising income inequality and increasing precautionary savings, also reflecting uncertainty. These factors raised the household saving rate. Higher household savings need not result in a rising current account surplus if they are used to finance higher investment. This did not happen in Germany, where weak income growth, adverse demographics and the effects of the property bubble in the 1990s caused subdued residential investment.

- **The decline in business investment has also contributed significantly to Germany's current account surplus.** Investment in Germany has been significantly lower than in the rest of the euro area, although the gap has narrowed moderately in recent years. Business investment in buildings and civil engineering facilities in particular has been consistently low. Low trend growth in Germany, relatively restrictive bank lending conditions in the beginning of the 2000s and pressure on companies to improve their balance sheet and to earn a higher return on their investments all reduced the incentive for domestic investment. Nevertheless, the *continued* weakness of business investment in recent years is at odds with highly supportive conditions for capital formation, such as healthy corporate balance sheets, very low interest rates and a stronger cyclical position. While uncertainty as a consequence of the crisis is one reason why companies hold back on investment, there is a tangible risk that persistently low investment by companies could hamper Germany's economic growth in the longer run.

- **A rise in corporate sector savings explains a large part of the rise in Germany's current account surplus.** The savings of non-financial companies peaked in 2010, but the saving rate remains at an unusually high level. The increase in company savings has taken place amid a strong increase in operating profit before the crisis that was supported by wage restraint. Rather than investment, the increase in savings was used to acquire financial assets and reduce debt. A range of factors motivated this, such as a desire to hold more liquid assets, a voluntary reduction of companies' dependence on bank financing, strengthened capital requirements, the initially weak balance sheets of especially SMEs and changed company structures and strategies due to globalisation. Corporate tax reforms also had an impact by further raising companies' incentives to retain a larger part of their earnings.

- **Public sector investment has been falling for a long time in Germany, resulting in a sizeable investment gap compared to the euro area accumulating over time.** The low investment rate in particular reflects the gradual scaling back of public infrastructure investment, for both maintenance and expansion of infrastructure. This has occurred almost entirely at the level of municipalities, due also to limited funding, which investment planning and financing mechanisms have not been able to remedy. Moreover, despite a slight increase in expenditure, education spending in Germany remains low by international standards, particularly for primary and lower secondary education. Although Germany's overall fiscal stance is appropriate, its public sector has not in all respects invested sufficiently in the future growth and efficiency of the economy.

- **In the pre-crisis period, international financial integration and low profitability prompted many German banks to focus on foreign investment and accept higher risk**. The rapid pace of global economic and financial integration pulled the expansion of German banks' international activity before the crisis. Low profitability at home, where growth was among the weakest in the EU, also incited many German banks to focus on foreign investment. The financial crisis eventually revealed an imbalance in the form of excess risk-taking that German banks had accumulated in their foreign investment positions. In this sense a misallocation of capital had occurred. In the aftermath of the financial crisis, deleveraging pressure led to a retreat from foreign investment. However, the lower foreign lending by German banks in recent years has not

led to any noticeable increase in domestic credit provision, despite banks' excess liquidity and low lending rates. Recent surveys show that there are no serious credit constraints. Therefore, the continued weakness in credit growth seems to be the result of low demand rather than credit supply constraints.

- **While the observed developments are not exclusively policy-induced, policies have impacted on outcomes.** Various structural reforms, including those undertaken to restore competitiveness after the boom and bust that followed re-unification, have delivered significant long-term gains in terms of job creation and sound public finances. These reform choices were considered necessary and have overall proven beneficial for Germany. At the same time, they have had, in some instances, unintended effects and impacted saving and investment decisions in a way that has contributed to a low-growth trajectory.

The IDR discusses the policy challenges stemming from the analysis. A number of elements could be considered:

- **Since Germany's large and increasing external surplus stems primarily from a lack of domestic demand, it would be important to identify and implement measures that help strengthen domestic demand and the economy's growth potential.** Germany's low and falling trend growth demonstrates that the reliance on external demand as the main driver of growth does not secure the country's future economic potential. The capacity to grow in the future, provide jobs and ensure rising living standards in an era of ageing and fierce global competition depends crucially on bolstering domestic sources of future growth, in particular via private and public investment.

- **Additional measures appear needed to address the backlog in public investment and in particular to step up infrastructure investment**. Given the sound public sector balance sheet, Germany would be well-advised to use the window of opportunity provided by very low interest rates to invest in sound future-oriented projects. In particular, it will be important to further strengthen recent years' increase in infrastructure investment and education spending. Given that the bulk of the investment backlog is at the municipal level, a reform of fiscal relations between layers of government may be needed to ensure a sustainable funding of public infrastructure.

- **Steps to further reduce disincentives to work would be welcome, with a view to supporting labour supply and raising the income of workers, in particular those at the bottom of the income distribution**. As recommended to Germany under the European Semester, challenges include a reduction of the relatively high tax burden on labour (especially on low-wage earners), reviewing the favourable fiscal conditions of mini-jobs to eliminate possible distortions, and reducing disincentives for second earners to increase their working hours.

- **More efficient corporate taxation and further steps to improve the business environment would support private investment.** It would be useful for Germany to review the effects of its tax system, e.g. a possible discouragement of companies from paying out dividends and the impact of taxation on different types of financing. Avoiding policy steps that may have a negative impact on investment will be important. A credible and cost-effective strategy for the "*Energiewende"* would have a long-lasting positive effect on investment. Also, mapping out initiatives that could ensure investment and productivity growth in the services sector is a challenge with large potential gains. Further efforts to develop the services sector may enhance domestic demand in Germany and could have a positive effect on wages and real consumption. Reducing the administrative burden also remains important.

- **Appropriate conditions should be secured in order to enable wage growth to further contribute to domestic demand.** Real wages have risen in recent years, reflecting favourable economic and labour market conditions**.** The new government has announced plans for introducing a general minimum wage. In detailing the proposal, it will be important that the level and scope of the minimum wage take into account the potential impact on employment.

- **Germany is encouraged to ensure that the banking sector has sufficient loss absorption capacity to withstand economic and financial shocks and to address any impediments to further consolidation**. Full implementation of the new capital requirements and follow up of the forthcoming comprehensive capital needs assessment will be essential. Renewed activity of, in particular large, German banks on international markets would contribute to reversing the fragmentation of the EU banking market. For all German banks, it may be appropriate to reduce the exposure to financial intermediaries and to refocus on channelling domestic savings to the real economy.

- **An increase in aggregate demand in Germany would raise growth domestically, but would also entail the additional benefit of helping the economic recovery in the euro area.** Potential risks to growth in the euro area remain. Countries remain at different positions in the adjustment process, which limits their ability to contribute to growth. Spillovers from higher domestic demand in Germany could support overall aggregate demand in the euro area. An increase in German public and private investment and steps to open up and further develop services and energy markets would have a positive effect on domestic growth, while at the same time providing a positive impetus to the rest of the euro area.

1. INTRODUCTION

On 13 November 2013, the European Commission presented its third Alert Mechanism Report (AMR), prepared in accordance with Article 3 of Regulation (EU) No. 1176/2011 on the prevention and correction of macroeconomic imbalances. The AMR serves as an initial screening device helping to identify Member States that warrant further in depth analysis to determine whether imbalances exist or risk emerging. According to Article 5 of Regulation No. 1176/2011, these country-specific "in-depth reviews" (IDR) should examine the nature, origin and severity of macroeconomic developments in the Member State concerned, which constitute, or could lead to, imbalances. On the basis of this analysis, the Commission will establish whether it considers that an imbalance exists in the sense of the legislation and what type of follow-up in terms it will recommend to the Council.

The AMR suggested the need to look more closely at whether Germany is exhibiting macroeconomic imbalances of an external and internal nature. On the external side, the AMR highlighted that the current account surplus has persistently been high and is expected to continue being so over the next years. The German surplus accounts for most of the euro area's surplus. The surplus reflects higher savings than investment in the German economy. Regarding domestic demand, the household saving rate is among the highest in the euro area and private sector deleveraging has continued. Against this background, an in-depth analysis of certain domestic features, including financial flows, and of their role for the sectorial savings-investment balances appears warranted. To this end, in line with the scope of the surveillance under the Macroeconomic Imbalance Procedure (MIP), this IDR takes a broad view on the German economy during the period where the current account surplus built up and in recent years where it has remained persistently high.

Chapter 2 provides a first overview of the general macroeconomic developments. Chapter 3 looks more in detail into the main imbalances and risks from the perspective of saving-investment patterns in the various parts of the German economy. This is followed by an analysis of the role and functioning of the financial sector in Chapter 4, and a discussion of the drivers of Germany's trade performance in Chapter 5 Chapter 6 discusses policy considerations.

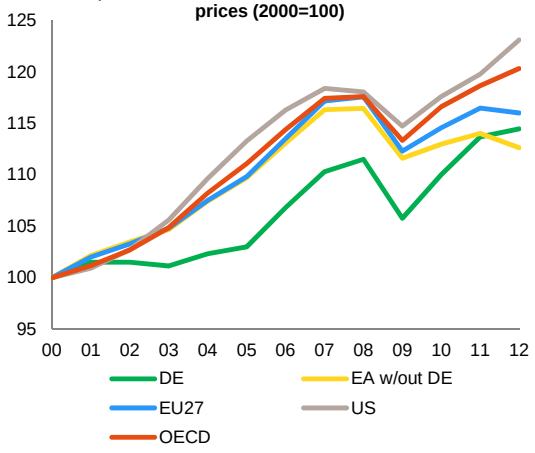
2. MACROECONOMIC DEVELOPMENTS

Growth and labour market performance

Germany's economy weathered the economic crisis remarkably well. After the severe slump of 2008/09, it enjoyed a rapid rebound in 2010-11 followed by more moderate growth in 2012-13 (Graph 2.1). The latest Commission forecast projects private consumption to remain a key driver of the German economy in the coming years, as it has been in the aftermath of the crisis, notably since 2011. Amid reduced uncertainty, pent-up investment demand is also expected to gradually be unleashed.

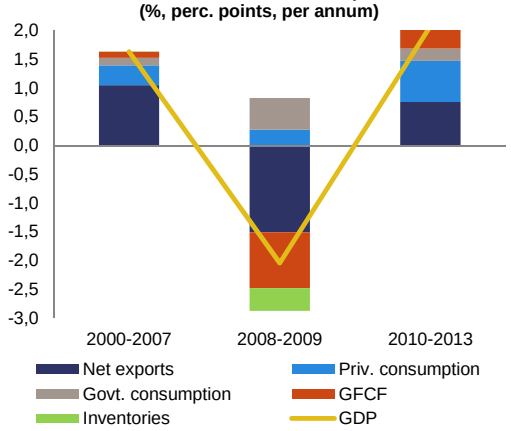
In a longer term perspective, however, Germany still has room for improving and rebalancing its growth performance. The relative resilience shown by the economy during the crisis was due to a previous prolonged adjustment process to correct unfavourable post-reunification developments. This involved wage moderation to restore cost competitiveness, labour market reforms to address high structural unemployment, and public and private sector balance sheet repair, following the 1990s construction boom. This process took place in conditions of high growth of other euro area countries. At the same time, growth was until recently largely driven by external demand, while domestic demand was marked by low private and public investment, and muted private consumption growth, also on the back of stagnating real wages (Graphs 2.2 and 2.3).

Graph 2.1: **Gross Domestic Product in constant prices (2000=100)**



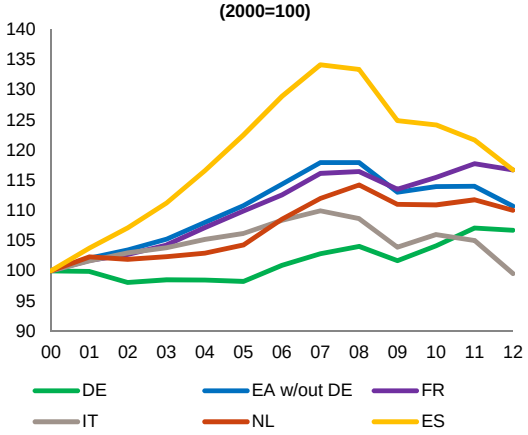
Source: Eurostat, Com. serv. calculations

Graph 2.2: **Average annual GDP growth and contributions of demand components (%, perc. points, per annum)**



Source: Eurostat, Com. serv. calculations

Graph 2.3: **Domestic demand in constant prices (2000=100)**



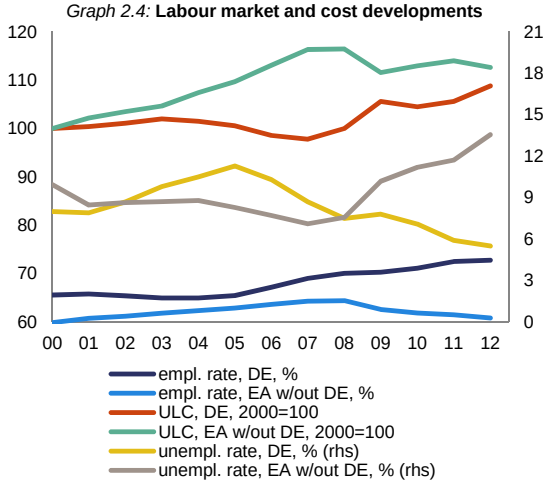
Note: Includes inventories

Source: Eurostat, Com. serv. calculations

Morose labour market conditions in the early 2000s gave way to a sustained upswing in employment growth, with unemployment declining to well below the euro area average. Job creation has been significantly more vigorous than in the euro area since the mid-2000s, resulting in declining unemployment and growing employment rates (Graph 2.4). Contained unit labour costs for most of a decade enabled continuous job growth, but the share of long-term unemployed remains high and increasingly difficult to reduce. The sustained advances in the employment rate mask job market disparities with a growing share of non-regular contracts. The at-risk of poverty rate has increased by 1% over the past five years, but this and other standard social

indicators have been in line with or more favourable compared to the euro area average.

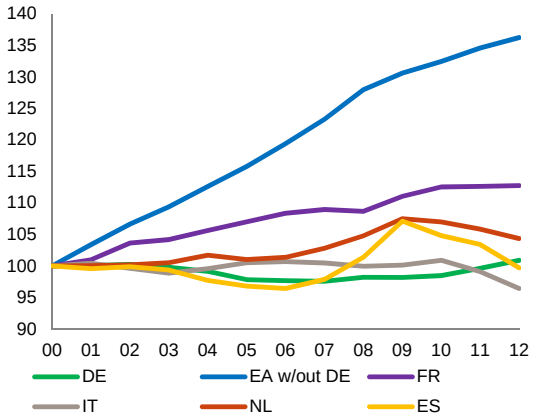
Graph 2.4: **Labour market and cost developments**



Source: Eurostat, Com. serv. calculations

Real wages fell for a decade but have grown more rapidly than in the euro area since 2010. On the back of weak labour market conditions and in the context of far-reaching reforms, real wages decreased in the early and mid-2000s (Graph 2.5). In the aftermath of the crisis, the record-low unemployment rate and rising labour demand has yielded robust growth in the compensation of employees. Together with contained inflation, this has supported real wage growth.

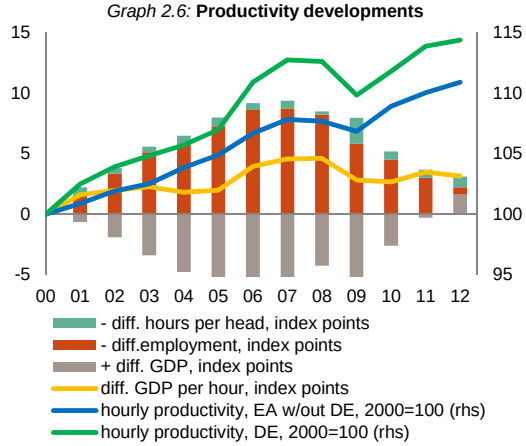
Graph 2.5: **Real wages (2000=100)**



Note: Wages and salaries per employee deflated with the private consumption deflator
Source: Eurostat, Com. serv. calculations

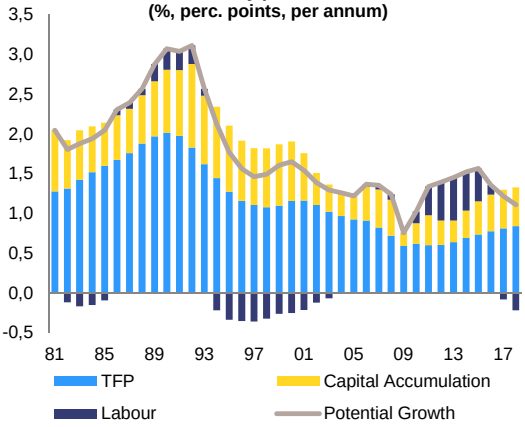
Wage restraint has kept unit labour cost growth low, but the German economy has at the same time sustained a certain hourly productivity edge over euro area-peers, despite increasing employment of low-skilled workers (Graph 2.6). The economic adjustment has borne fruit, strengthening in the first instance Germany's international competitiveness and eventually re-starting domestic demand.

Graph 2.6: **Productivity developments**



Note: Real GVA per hour worked. Decomposition of cumulated productivity differential DE-EA
Source: Eurostat, Com. serv. calculations

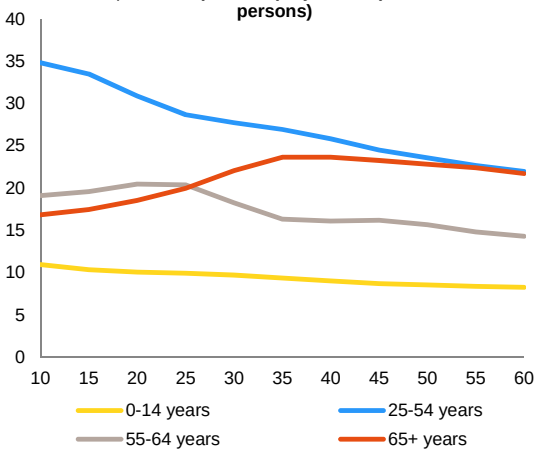
Graph 2.7: **Potential output growth and contributions by production factors (%, perc. points, per annum)**



Source: Eurostat, Com. serv. calculations

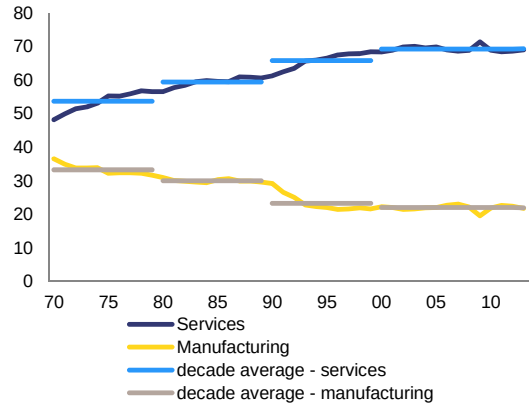
Germany's potential growth has declined markedly and demographic change is a key challenge going forward. A spurt in labour supply helped prop up potential growth in the aftermath of the crisis compensating still modest investment (Graph 2.7 and Table 2.1). However, intensifying population ageing is imminent (Graph 2.8).

Graph 2.8: **Population projections (in million persons)**



Source: EPC (AWG), Com. serv. calculations

Graph 2.9: **Main components of GVA by type of activity (% of total GVA)**

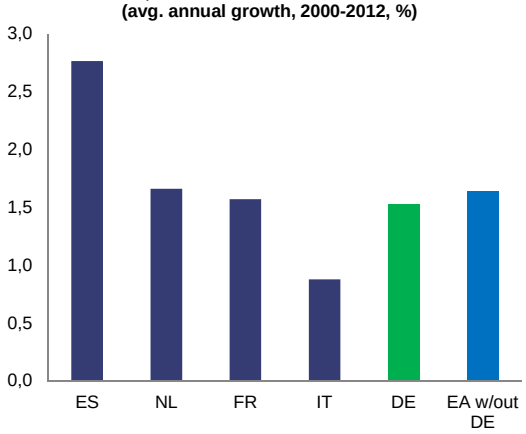


Note: Data prior to 1991 refer to West Germany
Source: AMECO

Sectoral developments

Germany's manufacturing sector has maintained a strong position, while productivity growth in the services sector has stagnated. Since 2000, manufacturing has maintained a near-stable share in gross value added, contrary both to earlier decades and to other highly industrialised economies (Graph 2.9). At the same time, the services sector's performance appears weak in international comparison, suggesting that a significant potential remains untapped (Graph 2.10).

Graph 2.10: **Value Added in services (avg. annual growth, 2000-2012, %)**



Source: BEA, Eurostat, Com. serv. calculations

On the back of a growing trade surplus, Germany's current account balance strengthened by more than 9% of GDP between 2000 and 2012. It is not projected to decline substantially any time soon. ([1]) In the aftermath of the financial and economic crisis, the surplus with the euro area countries has declined (Graph 2.11). This has been more than outweighed by an increasing surplus with the rest of the world, especially emerging economies. Strong export competitiveness and the ability to redirect exports have proved valuable in a challenging external

([1]) See European Commission (2014b).

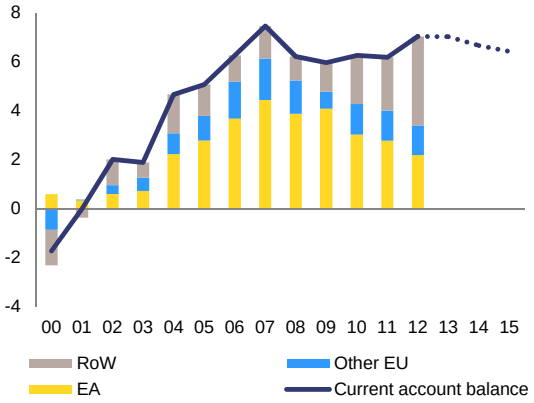
Table 2.1:
Potential growth

	Potential growth (annual % change)	Total labour contribution	o.w. persons	o.w. hours/empl.	Capital accummulation	TFP
1981-90	2.3	0.0	0.7	-0.6	0.6	1.6
1991-00	2.0	-0.2	0.3	-0.5	0.8	1.4
2001-10	1.2	0.0	0.3	-0.3	0.4	0.9
2011-18	1.4	0.3	0.4	-0.1	0.4	0.7

Source: Commission services

demand environment. At the same time, limited import growth has also contributed to the external surplus.

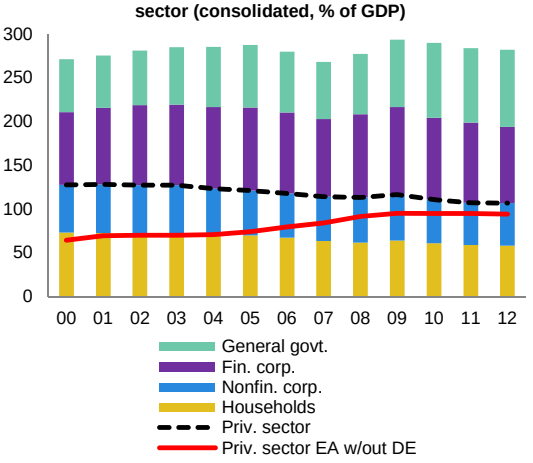
Graph 2.11: **Current account balance by geographical counterpart (% of GDP)**



Source: Bundesbank, Eurostat, Com. serv. calculations and projections

Private debt developments are of little concern, but public debt should be kept on a steady downward trend. Private sector indebtedness is significantly below euro area peers', with continuous deleveraging for more than a decade. Fiscal consolidation has helped rein in public debt.

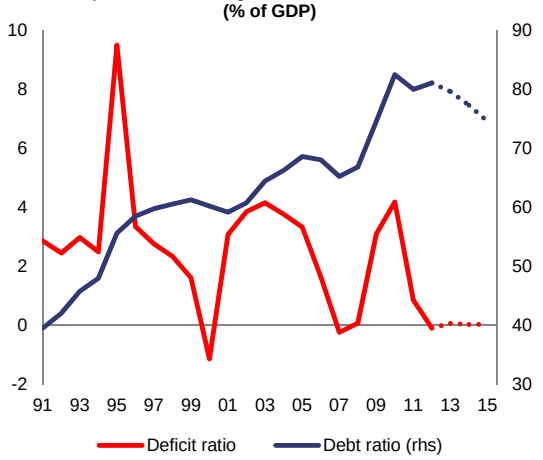
Graph 2.12: **Composition of debt by institutional sector (consolidated, % of GDP)**



Source: Eurostat, Com. serv. calculations

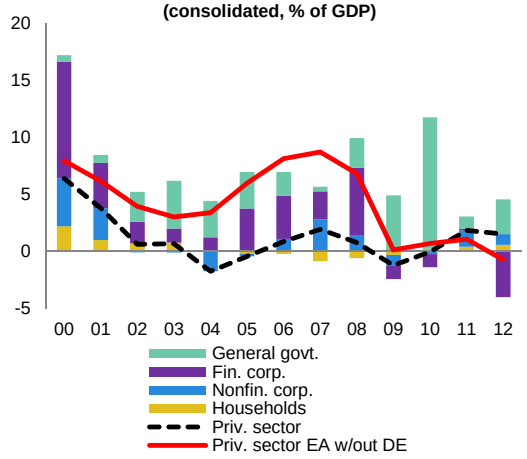
Credit growth has been subdued and remains muted in spite of very favourable financing conditions. The provision of credit to the household and corporate sector has been negligible for over a decade. Net credit continues to expand at a comparatively slow pace in spite of healthy balance sheets and very favourable financing conditions, which should have been supportive to more buoyant private demand.

Graph 2.13: **General government deficit and debt (% of GDP)**



Source: Eurostat, Com. serv. calculations

Graph 2.14: **Credit flows by institutional sector (consolidated, % of GDP)**



Source: Eurostat, Com. serv. calculations

More than 20 years after reunification, economic East-West disparities remain significant. Although slowly narrowing, wide gaps in economic performance persist most notably in unemployment rates and per capita income.

Recommendations to Germany under the European semester have focused on the need to strengthen domestic sources or potential growth. Complementing the earlier surveillance work, this in-depth review examines in particular how certain domestic features impact on sectoral savings-investment balances and thereby

determine the dynamics of Germany's external position.

Table 2.2:
Key economic, financial and social indicators - Germany

							Forecast		
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Real GDP (yoy)	3.3	1.1	-5.1	4.0	3.3	0.7	0.4	1.8	2.0
Private consumption (yoy)	-0.2	0.8	0.2	1.0	2.3	0.8	0.9	1.5	1.8
Public consumption (yoy)	1.4	3.2	3.0	1.3	1.0	1.0	1.1	1.5	1.2
Gross fixed capital formation (yoy)	4.7	1.3	-11.7	5.7	6.9	-2.1	-0.8	4.1	4.4
Exports of goods and services (yoy)	8.0	2.8	-13.0	15.2	8.0	3.2	0.6	4.9	6.8
Imports of goods and services (yoy)	5.4	3.4	-7.8	12.5	7.4	1.4	1.3	5.9	7.6
Output gap	1.9	1.8	-4.2	-1.3	0.6	-0.1	-1.1	-0.8	-0.4
Contribution to GDP growth:									
Domestic demand (yoy)	1.0	1.2	-1.5	1.8	2.7	0.2	0.5	1.9	2.0
Inventories (yoy)	0.8	-0.1	-0.7	0.4	-0.1	-0.5	0.1	0.1	0.0
Net exports (yoy)	1.5	0.0	-3.0	1.7	0.7	1.0	-0.3	-0.2	0.0
Current account balance BoP (% of GDP)	7.4	6.2	6.0	6.3	6.2	7.0	.	.	.
Trade balance (% of GDP), BoP	7.0	6.2	4.9	5.6	5.2	6.0	.	.	.
Terms of trade of goods and services (yoy)	0.5	-1.5	4.2	-2.1	-2.3	-0.4	1.4	0.3	0.0
Net international investment position (% of GDP)	26.5	25.5	34.0	35.4	33.7	41.5	.	.	.
Net external debt (% of GDP)	-4.1	-1.6	-7.8	-5.9	-2.9	-9.4	.	.	.
Gross external debt (% of GDP)	143.1	148.8	149.4	156.8	157.9	162.5	.	.	.
Export performance vs. advanced countries (5 years % change)	.	.	.	.	.	.	.	.	.
Export market share, goods and services (%)	.	.	.	.	.	.	.	.	.
Savings rate of households (Net saving as percentage of net disposable income)	11.0	11.5	10.9	10.9	10.4	10.3	.	.	.
Private credit flow (consolidated, % of GDP)	.	.	.	.	.	.	.	.	.
Private sector debt, consolidated (% of GDP)	.	.	.	.	.	.	.	.	.
Deflated house price index (yoy)	-3.6	-0.3	0.8	-0.9	1.4	1.8	.	.	.
Residential investment (% of GDP)	5.3	5.2	5.3	5.3	5.7	5.8	5.8	.	.
Total Financial Sector Liabilities, non-consolidated (yoy)	6.0	2.0	-1.1	0.2	2.2	4.4	.	.	.
Tier 1 ratio (1)	.	8.8	10.2	11.3	11.6	13.8	.	.	.
Overall solvency ratio (2)	.	13.0	14.3	15.3	15.8	17.4	.	.	.
Gross total doubtful and non-performing loans (% of total debt instruments and total loans and advances) (2)	.	1.9	2.7	2.4	1.6	1.7	.	.	.
Employment, persons (yoy)	1.7	1.2	0.1	0.5	1.4	1.1	0.6	0.5	0.6
Unemployment rate	8.7	7.5	7.8	7.1	5.9	5.5	5.3	5.2	5.1
Long-term unemployment rate (% of active population)	4.9	4.0	3.5	3.4	2.8	2.5	.	.	.
Youth unemployment rate (% of active population in the same age group)	11.9	10.6	11.2	9.9	8.6	8.1	7.9	.	.
Activity rate (15-64 years)	75.6	75.9	76.3	76.6	77.2	77.1	.	.	.
Young people not in employment, education or training (% of total population)	8.9	8.4	8.8	8.3	7.5	7.1	.	.	.
People at-risk poverty or social exclusion (% total population)	20.6	20.1	20.0	19.7	19.9	19.6	.	.	.
At-risk poverty rate (% of total population)	15.2	15.2	15.5	15.6	15.8	16.1	.	.	.
Severe material deprivation rate (% of total population)	4.8	5.5	5.4	4.5	5.3	4.9	.	.	.
Persons living in households with very low work intensity (% of total population)	11.5	11.7	10.9	11.2	11.2	9.9	.	.	.
GDP deflator (yoy)	1.6	0.8	1.2	1.0	1.2	1.5	2.2	1.6	1.7
Harmonised index of consumer prices (yoy)	2.3	2.8	0.2	1.2	2.5	2.1	1.6	1.4	1.4
Nominal compensation per employee (yoy)	0.8	2.1	0.1	2.4	3.0	2.6	2.0	2.8	3.1
Labour Productivity (real, person employed, yoy)	1.5	-0.1	-5.2	3.5	1.9	-0.4	-0.1	.	.
Unit labour costs (whole economy, yoy)	-0.8	2.3	5.6	-1.1	1.0	3.1	2.2	1.6	1.7
Real unit labour costs (yoy)	-2.3	1.5	4.4	-2.1	-0.2	1.6	-0.1	0.0	0.0
REER (ULC, yoy)	-1.5	0.0	3.4	-4.4	0.1	-1.2	4.2	2.4	0.6
REER (HICP, yoy)	1.3	0.5	1.0	-5.2	-0.7	-3.2	2.2	1.5	-0.7
General government balance (% of GDP)	0.2	-0.1	-3.1	-4.2	-0.8	0.1	-0.1	0.0	0.0
Structural budget balance (% of GDP)	-0.9	-0.8	-0.8	-2.2	-1.0	0.3	0.6	0.5	0.2
General government gross debt (% of GDP)	65.2	66.8	74.5	82.5	80.0	81.0	79.6	77.3	74.5

(1) domestic banking groups and stand-alone banks.
(2) domestic banking groups and stand alone banks, foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches.
Source: Eurostat, ECB, AMECO.

3. IMBALANCES AND RISKS

The in-depth review of the various sectors of the Germany economy from a savings-investment perspective confirms that a nexus of domestic economy features are central for having increased household savings and tamed consumption growth, while at the same time denting business investment and driving up the net lending of the non-financial corporate sector. The rise in the surplus in the first half of the 2000s to the level that by and large still prevails can predominantly be traced back to the private sector. The contribution from the household sector was particularly pronounced in the period until the mid-2000s, driven by a simultaneous increase in gross savings and a gradual decline in gross fixed capital formation, mostly residential investment. The contribution from non-financial corporations was largest in the early 2000s and again in recent years, but reflects a prolonged period of increased savings and reduced investment. The underlying economic reasons for the persistently very high surplus in recent years remain unclear and the level of the current account surplus appears to be far higher than what is implied by the structural characteristics of the German economy. Moreover, as Germany's trading partners will recover from their currently low level of demand, Germany's current account surplus could further increase. Not all of the observed developments are policy-induced and where policies have significantly impacted on outcomes, they partly reflect reform choices that were considered necessary. At the same time, policies may have had unintended effects or been calibrated in a way that has made a low-growth-trajectory emerge, characterised by sub-par investment and consumption. Also, within an overall appropriate fiscal stance, Germany's public sector has not in all respects invested sufficiently in the future growth and efficiency of the economy, notably by under-prioritising public infrastructure and education.

The analysis of the household sector finds symptoms of an unusually subdued absorption for a protracted period of time during the 2000s. Anaemic growth in disposable income lay behind the sluggish private consumption growth, explained by a negligible contribution of labour income, especially in the first half of the 2000s. This in turn relates to the intensification of Germany's wage moderation during the 2000s and a fall in the total volume of work, caused by several factors: high unemployment, a fall in the number of people in regular employment and a gradual decline in average hours worked. The compound effect of these developments dented private consumption growth. The Hartz reforms have improved the functioning of Germany's labour market, yet by various channels also contributed to reducing wage growth and may also indirectly have contributed to reducing labour income per person. The significant decline in the wage share associated with these trends at the same time impacted consumption dynamics negatively. Households' investment also bears signs of a low absorption path and their investment rate has picked up only since 2010. Housing demand was held back by weak income growth and by adverse demographics, which together with the "wearing off" of earlier construction boom imbalances explain the protracted decline in house prices. Since real house prices declined, wealth effects may have hampered private consumption growth and further dented housing investment. The analysis also points to key factors that explain why the household saving rate rose markedly in the pre-crisis period and has remained high: A hike in precautionary savings due to increased awareness of the demographic challenges facing the German economy. The effect on savings is likely to have been amplified by the necessary pension reform and by fiscal incentives to build up third pillar pension schemes. Finally, increased income inequality entailed a shift in the income distribution towards income brackets with a higher saving rate, also due to the increasing weight of property income in disposable income.

The analysis of the German corporate sector shows that for most of the 2000s, the investment rate was much lower than in the rest of the euro area and the gap has narrowed only moderately since the onset of the crisis. The continued weakness of business investment is at odds with highly supportive conditions for capital formation, notably healthy corporate balance sheets, favourable financing conditions and stronger cyclical position. In particular business investment in buildings and other civil engineering production facilities has been consistently low. On the contrary, machinery and equipment investment is not central to Germany's investment gap, due also to the pivotal role played by the export-oriented manufacturing sector for this type of investment. Various structural factors are likely to have dampened business investment, such as the decline in trend growth, initial excess capacity and balance-sheet repair after the burst of the dot-com bubble. Also, globalisation in a broad sense is likely to have played a role by heightening the required return on domestic investment. This coincided with tighter corporate financing conditions in Germany in the early 2000s and following the onset of the financial crisis. Heightened uncertainty may have held back investment in recent years, but there at the same time seems to be a real risk that the investment weakness has become entrenched. Rising savings of non-financial corporates have made the largest individual contribution to the build-up of the current account surplus. Higher

(Continued on the next page)

Box (continued)

savings were relatively more important than the decline in business investment in explaining the move of the non-financial corporate sector into a net lending position. Having peaked in 2010, the saving rate of the sector remains at an elevated level. The increase in firms' savings reflects an out-of-the ordinary increase in operating profitability in the pre-crisis period on the back of increasing competitiveness, fuelled by wage restraint. Corporates have been retaining a larger part of their earnings, using them to reduce indebtedness and, more pronouncedly, to acquire financial assets. This reflects the increasing internationalisation of companies, with enterprises covering part of the funding needs of foreign affiliates. Regulatory tightening incentivising balance sheet adjustment and companies reducing their dependence on banks also played a role. The latter appears to have been partly voluntary and partly reflected tightened credit conditions by banks. Crisis-related uncertainty also contributed to the development, with firms holding more liquid assets. Corporate tax reforms further incentivised profit retention relative to paying out dividends. The overall slow pace of German firms' balance sheet expansion could reflect differences in growth strategies, but may also indicate a lack of investment opportunities.

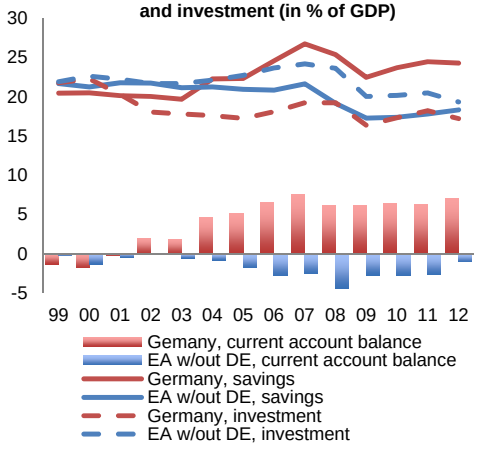
Public sector investment has been falling for a long time in Germany and net investment has been negative in the last decade, resulting in a sizeable investment differential to the euro area having cumulated over time. The low investment rate in particularly reflects the gradual scaling back of public infrastructure investment, which appears as an anomaly even when taking into account the preceding construction boom. The fall in public investment has taken place almost entirely at the level of municipalities and seems to result from funding limitations, which existing investment planning and financing mechanisms have not been able to remedy. Evidence suggests that investment has been insufficient to maintain the quality of Germany's transport infrastructure and that giving this considerable priority would be required to overcome the backlog. Also, the level of investment in human capital appears on the low side, in particular regarding primary and lower secondary education. At the same time, the overall fiscal stance cannot generally be considered as having been overly restrictive during the period when the current account surplus built up.

3.1. A PERSPECTIVE ON GERMANY'S CURRENT ACCOUNT SURPLUS

Dynamics in both savings and investment contributed to the build-up of the excess savings ([2]), which were mirrored in Germany's persistent current account surplus. The current account balance is often analysed by looking at trends in the balance of trade in goods and services and the income balance. While it is useful to understand trends in trade flows (see Chapter 4), key insights about the underlying economic forces in the various parts of the economy can be gained by analysing sectoral developments in national savings and investment.

The build-up of the current account surplus in the period until 2007 reflected both a trend increase in savings and a decline in investment relative to GDP. These dynamics contrast with developments at the euro area ([3]) level, where the saving share remained broadly flat while a slight increase in investment relative to GDP was observed. After a crisis-related fall in savings and investment in both Germany and the euro area, both aggregates have followed a parallel movement in Germany, implying a broadly unchanged current account balance.

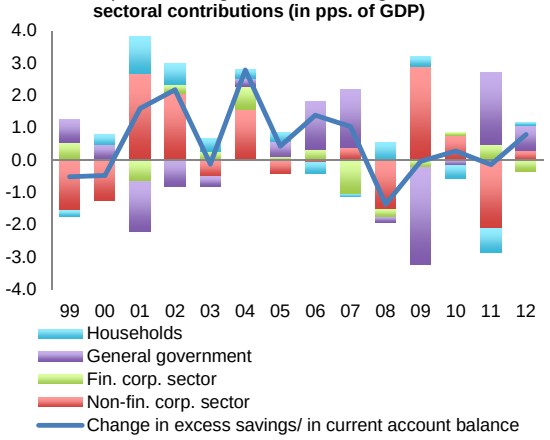
Graph 3.1: **Current account balance, national savings and investment (in % of GDP)**



Source: Eurostat

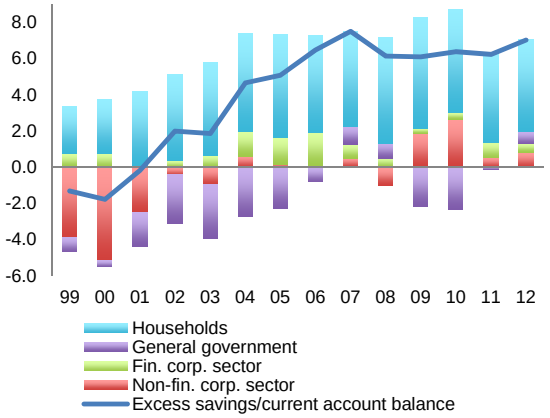
([2]) Defined as saving minus investment.
([3]) Excluding Germany.

Graph 3.2: **Change in excess savings and sectoral contributions (in pps. of GDP)**



Source: Eurostat

Graph 3.3: **Sectoral excess savings and currrent account balance (in % of GDP)**



Source: Eurostat

All domestic sectors contributed to the increase in excess savings in 2000-2007. The build-up of the current account surplus was initially driven by private sector excess savings dynamics, while public sector developments partially offset this. The level of excess savings was especially high in the household sector, also reflecting a traditionally high saving rate which gives an indication that Germans appear to be relatively patient and willing to shift consumption over time. ([4]) By contrast, excess savings *dynamics* were to a large extent driven by the non-financial corporate sector. The net lending position of the public sector started to improve in 2004 and became the main driver of the further widening in the current account surplus in 2005-2007, when the private sectors' contributions subsided. Overall, the improvement in the current account balance by 9.3 pps. of GDP in the period 2000-2007 was largely driven by higher savings (see Table 3.1). The non-financial corporate sector's contribution to this was especially large. ([5]) In the aftermath of the crisis, the net lending position of the non-financial corporate sector and the consolidation of public finances are the main reasons for the surplus having remained at 6-7% of GDP.

The underlying economic reasons for the persistently very high surplus remain, however, difficult to explain. Based on an analytical approach that decomposes the German current account into different factors (see annex 2), it appears that the surplus in recent years has reached a level well-above what is implied by the common "fundamental" determinants of current accounts. Within the model, fundamentals such as relative GDP/worker, (low) expected growth, the (tight) fiscal stance, and (tight) credit can explain a German current account surplus, but not the large part of its level or its persistence, as shown in Table 3.2. Although methodologically difficult to calculate, the analysis is qualitatively in line with other attempts to examine the German surplus. Table 3.2 summarises the results of other studies based on comparable methodology. The literature thus confirms the view that a substantial part of the German surplus remains unexplained.

Moreover, adjusting for the position in the business-cycle, Germany's current account surplus could increase further. The decomposition analysis shows that at 7% of GDP in 2012, the surplus was lower than an estimate of its cyclically-adjusted level, which was around 8%.

([4]) For instance, based on a survey comprising a sample of 45 countries, Wang et al. (2010) find that German students show the highest 'patience' in choosing between an instantaneous and a later higher return. Similarly, De Castro Campos et al. (2013) find that cultural variables including the importance attributed to trust and thriftiness are important in explaining intra-euro area heterogeneity in private saving rates. Buetzer et al. (2013) also find that imbalances in the euro area may partially reflect differences in social/cultural preferences.

([5]) This is somewhat sensitive to the reference year. For instance, comparing 2001 and 2007, the non-financial corporate sector and the general government sector made broadly equal contributions of close to 3 pps of GDP to the 6.5 pps increase in overall savings, which in turn drove the 6.6 pps improvement in the current account balance.

Table 3.1:
Change in current account and contribution of savings and investment by sector, in pps. of GDP

		Change		
		2012-2007	2007-2000	2012-2000
Total economy	Excess savings/current account balance	-0.5	9.3	8.8
	Savings	-2.5	6.2	3.8
	Investment	-2.0	-3.0	-5.0
Non-financial corporate sector	Excess savings	0.3	5.7	6.0
	Savings	-2.1	4.8	2.7
	Investment	-2.4	-0.9	-3.3
Financial corporate sector	Excess savings	-0.3	0.0	-0.3
	Savings	-0.1	-0.4	-0.5
	Investment	0.1	-0.4	-0.2
General government	Excess savings	-0.3	1.3	1.0
	Savings	-0.2	0.9	0.7
	Investment	0.1	-0.4	-0.3
Households	Excess savings	-0.2	2.3	2.1
	Savings	0.0	0.9	0.9
	Investment	0.2	-1.4	-1.2

Source: Eurostat, Commission services

This is due to the fact that although Germany has effectively closed its output gap, its partners remain below their respective potential output. This implies that as Germany's trading partners recover from their currently low level of demand, Germany's current account surplus could increase further.

From a sectoral perspective, an in-depth analysis is required to decipher the heterogeneous developments over time (Graphs 3.4-3.7). A differentiated look at respectively savings and investment patterns in each sector is required, not least since the broadly constant excess savings in the aftermath of the crisis mask important swings at sectoral level. In the *non-financial corporate sector*, excess savings in the very early 2000s reflected a marked decrease in investment combined with an equally steep rise in savings, whereas later, the pick-up in investment dampened the effect of the further increase in savings. After countervailing movements in the context of the 2009 recession and ensuing rebound in 2010, both shares have seen a parallel decrease in the most recent past. In the *financial corporate sector*, fluctuating savings combined with a slight trend decline in investment have led to large swings in excess savings. As far as *households* are concerned, their excess savings rose markedly in the first half of the 2000s, when the sector reduced its investment while increasing savings. Since then, investment has seen a very slight pick-up

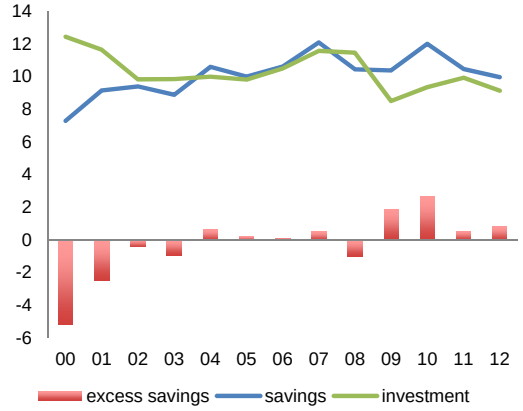
Table 3.2:
German fundamental current account estimates from various sources

Approach	Unexplained part of German surplus	Fundamental CA (if stated)	Policy gap CA (if stated)	Implied Cyclical impact	Demographic impact (if stated)	Refers to:	Notes	Source document
Current account norm approaches								
IMF art IV 2013 EBA (modern)	**5.5**	*1.8*	0.8	1.1	1.3	2012	normative 'policy gap': refers to effect due to policy variables differing from 'desirable' levels	IMF (2013): Germany, 2013 article IV consultation, IMF country report No. 13/255, p. 46, and IMF Pilot External Sector Report 2013
IMF art IV 2013 CGER	**3.3**	*1.4*	-	-2.3	-	2012	The CGER cyclical adjustment is the 5-year ahead forecast	IMF (2013): Germany, 2013 article IV consultation, IMF country report No. 13/255, p. 46
ECFIN (current estimates)	**5.1**	*at most 2*	1.6	-0.9	0.4	2012 (from 2013 spring forecast)	positive 'policy gap': refers to the contribution from policy variables	ECFIN Ares note (2013): Updated estimates of cyclically-adjusted current account balances, current account norms and equilibrium REER, May 2013
Bundesbank 2011	**6.6**	-	-	-	-	1994-2009	The unexplained part is a country fixed effect	Bundesbank (2011): Monatsbericht Oktober 2011, p. 53
Barnes et al. (2010)	**3.6**	*2.5*			ca. 2	2004-2009		Barnes, Lawson and Radziwill (2010): Current account imbalances in the euro area: a comparative perspective. OECD ECO/WKP(2010)82, p.18.
ECFIN Surplus Study 2012	**4.8**	*1.2*	-	-0.05	0.4	2009-2011	Figures from the published estimation, which did not mention the value for DE	Hobza, Nogueira Martins, and Zeugner (eds., 2012): Current account surpluses in the EU, European Economy 2012/9, p.81
Decressin and Stavrev (2009)	**3.1**	*2.5*	-	-	-	2007		Decressin and Stavrev (2009): Current Accounts in a Currency Union. IMF working paper 09/127
Cheung et al. (2010)	**ca. 4**	*ca. 2*	-	-	under 0.5	2004-2008		Cheung, Furceri and Rusticelli (2010): Structural and Cyclical Factors behind Current-Account Balances. OECD Economics Department Working Papers 775
NIIP-stabilizing targets								
IMF art IV 2013 NFA-stabilizing	**3.9**	*3.1*	-	-		2012		IMF (2013): Germany, 2013 article IV consultation, IMF country report No. 13/255, p. 46
ECFIN NIIP Stabilizing 2013	**5.8**	*1.2*	-	-		2012 (from 2013 autumn forecast)		European Comission (2013): External Sustainability: Recent Developments, Note to LIME

Source: Commission services

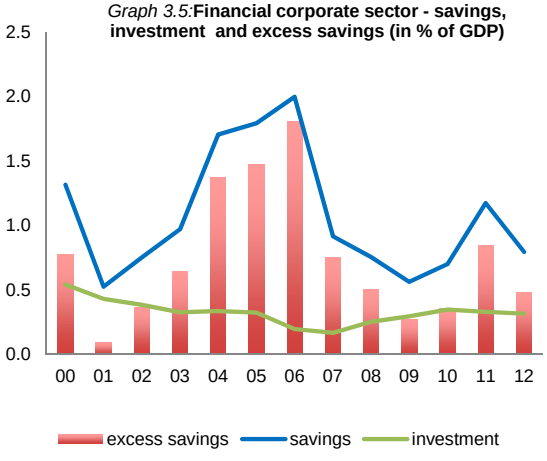
while savings peaked in 2008, resulting in a slight reduction in households' excess savings since 2009. Finally, *general government* excess savings were largely driven by saving dynamics, which in turn reflected both changes in the fiscal stance and cyclical effects. At the same time, the public investment share in GDP saw a trend decrease. Summing up, a complex interplay of savings and investment trends with marked sectoral differences has shaped aggregate excess savings and current account dynamics.

Graph 3.4: **Non-financial corporate sector - savings, investment and excess savings (in % of GDP)**



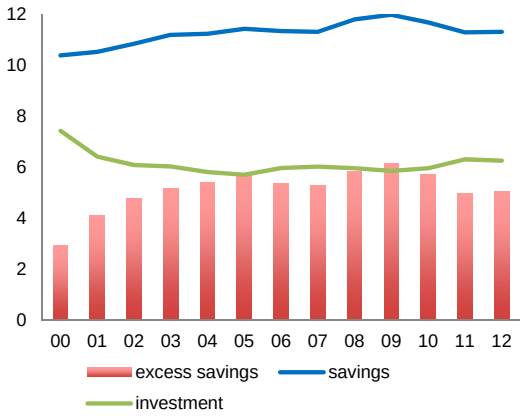
Source: Eurostat

Graph 3.5: **Financial corporate sector - savings, investment and excess savings (in % of GDP)**



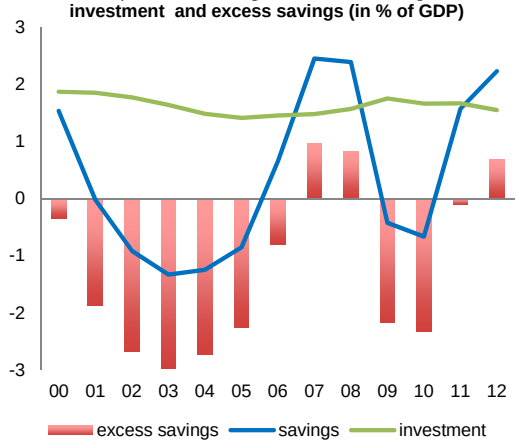
Source: Eurostat

Graph 3.6: **Households and NPISH - savings, investment and excess savings (in % of GDP)**



Source: Eurostat

Graph 3.7: **General government - savings, investment and excess savings (in % of GDP)**

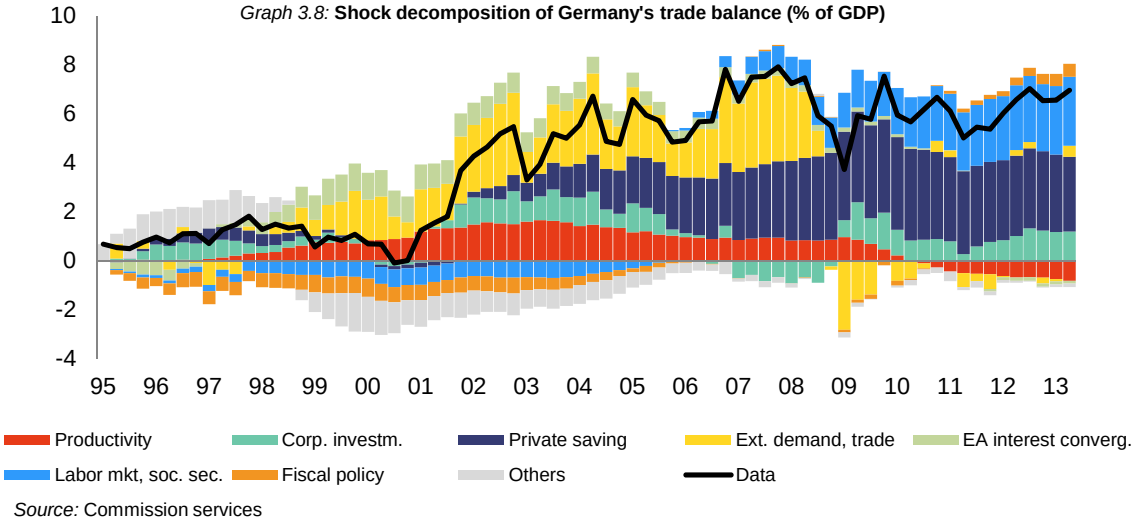


Source: Eurostat

A model-based analysis supports the view that the saving and investment behaviour of domestic economic agents has been an important determinant of the surge in Germany's current account surplus. An estimated multi-country version of the European Commission's QUEST macroeconomic model allows quantifying the relative importance of different drivers for the build-up and persistence of Germany's trade surplus, which has been the main contributor to the strengthening of the current account. ([6]) The model framework allows the trade surplus development to be considered in conjunction with other features in the German data over the sample period, such as stagnant investment, increased savings, and low inflation and output growth. The contribution of the

([6]) For details see Annex and Kollmann et al. (2014).

Graph 3.8: **Shock decomposition of Germany's trade balance (% of GDP)**



Source: Commission services

possible drivers is fundamentally determined by the estimated size and sign of the associated shocks to the model and their transmission to the various endogenous variables.

The model-based analysis shows that the German trade surplus does not lend itself to a mono-causal explanation, but rather represents a sequence of demand and supply shocks. These shocks have had a varying quantitative importance over time for the German trade balance, which has been driven by domestic and foreign factors alike. More precisely, according to the model-based analysis (see annex) the main forces driving the German trade balance can be summarised as follows:

In the period 2001-04, expanding foreign demand in the rest of the euro area and the rest of the world played an important role for the *rise* in the trade balance, but domestic demand factors were also at play. The impact of external demand expansion was complemented by a deterioration of corporate financing conditions which coincided with the end of the "dot-com" boom and widened the savings-investment gap from the investment side. A shock to private savings made an increasingly important contribution to the trade surplus since 2002. The decline of risk premia in the rest of the euro area in the context of EMU contributed to Germany's trade surplus by promoting capital outflows, but does in itself not explain the steep increase in the surplus after the year 2000.

During 2004-08 an increasing contribution came from an apparent shock to savings, which implied lower domestic demand and kept the trade balance surplus *persistently* high. The model-based analysis gives ground to believe that the savings shock originated in developments in the labour market and social security system. A prolonged fall in real wages and the impact of reduced benefit generosity (a key element in the German labour market reforms) appear to have made a positive and growing contribution to the trade surplus by strengthening the price competitiveness of German exports and initially dampening domestic demand. Strong foreign demand leading to high exports continued to play a large role, while improving corporate sector financing conditions worked in the direction of supporting investment and lower trade surplus after 2005.

After 2009, the contribution of external demand has declined and the positive contribution of the savings shock has stabilised, while the surplus has been upheld by the impact of earlier reforms. After a temporary reduction in 2009, associated with the fall in external demand in the global recession, the German trade surplus has returned to and persistently remained at *pre-crisis* levels. The contribution of external demand has declined compared to the pre-2009 period particularly as a consequence of demand contraction in the rest of the euro area. Hence, the decline in Germany's trade surplus with other euro area Member States in recent years has seen in isolation contributed to reduce the current account

surplus, as has to a lesser extent an abating contribution from the savings shock, but these changes in bilateral trade flows have on the whole not had a major impact on the current account position. The model-based analysis suggests that this is because the surplus has been upheld at pre-2009 levels by the growing impact on wages and labour supply of the reforms to the unemployment and social benefit system. Tighter financing conditions for firms during the financial crisis have also contributed to the trade surplus by reducing domestic investment demand. The effect of interest rate convergence in the euro area has vanished with the widening of euro area interest spreads over German rates. Finally, fiscal policy shocks have played a fairly limited role for the German trade surplus according to the model estimates, tending to reduce the aggregate savings-investment gap until 2005, and contributing positively to the surplus since 2011 on the back of the fiscal consolidation.

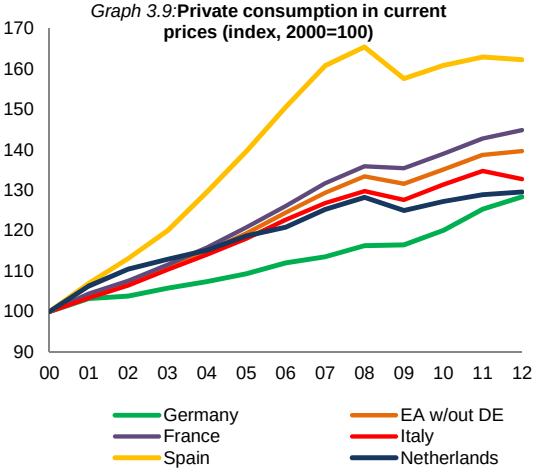
The high level of current account surplus, including during a period of significant swings in world trade and the composition of global import demand, give support to the notion that the drivers of the surplus are first and foremost found in the saving and investment behaviours of domestic economic agents. A sector-by-sector analysis is therefore at the centre of understanding the nature of Germany's surplus and identifying possible imbalances in the German economy. In this light, the following sections aim at a closer look at consumption, savings and investment patterns in the different sectors of the German economy in order to further explore the underlying drivers of the surplus.

3.2. A CLOSER LOOK AT HOUSEHOLD CONSUMPTION AND SAVINGS

German households' net lending as a share of gross disposable income is several times higher than the euro area average and the household sector's ([7])contribution to the economy's net lending position explains a large part of the current account surplus. Analysing consumption dynamics is therefore essential to examine if inefficiencies have resulted in overly subdued private consumption growth or if other factors have raised the household saving rate to a level that might have contributed to excessively subdued domestic demand dynamics.

Private consumption growth was slow in the 2000s compared to the euro area. Nominal and real consumption growth was slow even taking into account that the euro area average ([8]) was impacted by developments in countries which were experiencing unsustainable domestic demand booms (Graphs 3.9 and 3.10). Lower consumer price inflation in Germany than in the euro area explains some of the gap, but the pattern of significantly slower relative growth remains valid when looking at consumption volumes. With private consumption being the largest component of domestic demand, sluggish household consumption was a main reason for Germany's relatively weak growth performance throughout much of the 2000s.

Graph 3.9: **Private consumption in current prices (index, 2000=100)**

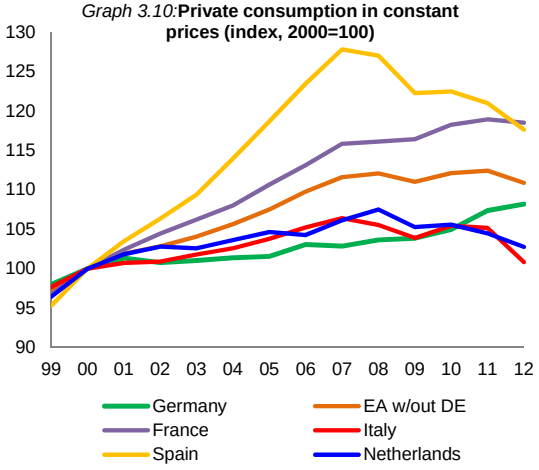


Source: Eurostat

([7]) Here and in the remainder of the section, this refers to the sector households including non-profit institutions serving households (NPISH).

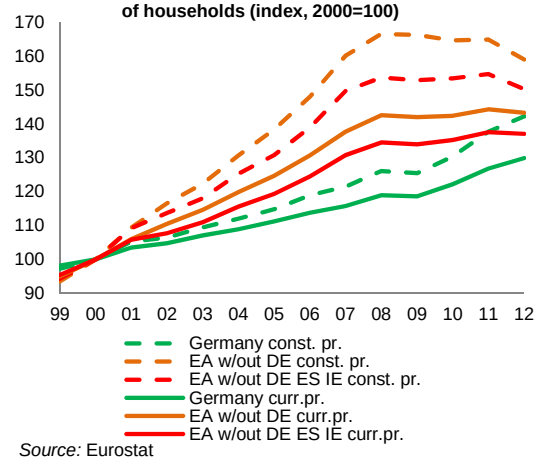
([8]) Unless otherwise specified, the euro area average in this section refers to the EA17 excluding Germany.

Graph 3.10: **Private consumption in constant prices (index, 2000=100)**



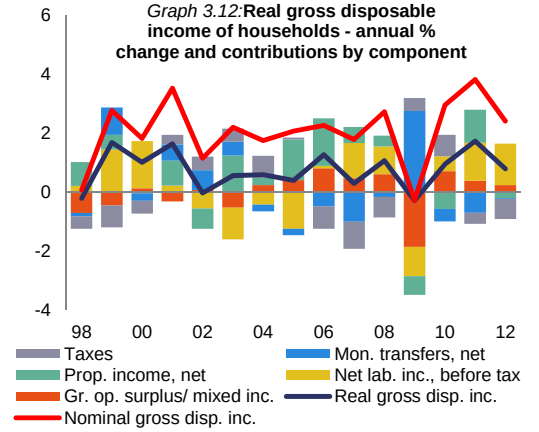
Source: Eurostat

Graph 3.11: **Nominal and real disposable income of households (index, 2000=100)**



Source: Eurostat

Graph 3.12: **Real gross disposable income of households - annual % change and contributions by component**



Source: Eurostat , Com. serv. calculations

Much slower growth in households' disposable income ([9]) in Germany than elsewhere in the euro area explains the weakness in consumption. Throughout most of the 2000s, real disposable income growth in Germany was low, averaging 0.7% in 2000-2007, less than half of the euro area average of 1.7%. It accelerated only after the recession in 2009, averaging 1.2% in 2010-2012, outpacing the euro area average (-0.9%). Households' subdued real disposable income growth in the pre-crisis years is largely explained by a negligible, partly even negative, contribution of labour income (Graph 3.12). Post-reunification imbalances were reflected in weak labour market developments ([10]). With the unemployment rate peaking at above 11% in 2005, net labour income made on average no contribution to disposable income growth in 2000-2007. Pension income (the bulk of monetary transfers) saw minimal increases, reflecting slow growth in wages and salaries and the effects of pension reform steps. Hence, net property income was almost exclusively the driver of disposable income growth before the crisis. A breakdown by components reveals that it was mainly driven by distributed income of corporations on the back of a strong trend increase in corporate profitability in Germany (see Section 3.2.3).

The muted labour income dynamics resulted in property and entrepreneurial income growing very rapidly up to the crisis (Graph 3.13), denting private consumption. ([11]) The corresponding decline in the adjusted wage share was very pronounced in Germany (Graph 3.14). ([12]) As the propensity to consume out of

([9]) This section discusses two main macroeconomic drivers of private consumption: *disposable income*, which determines households' ability to spend in the medium term, and their preferences regarding the allocation of consumption over time, reflected in their *saving* behaviour.

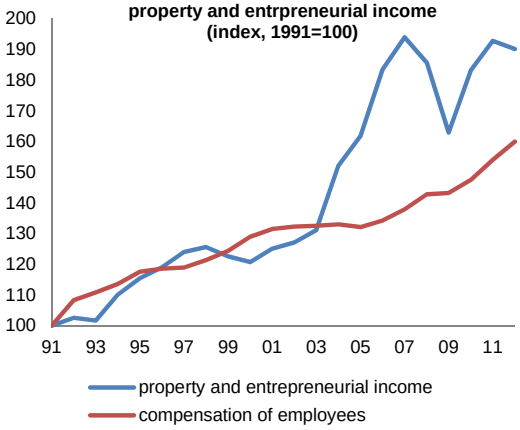
([10]) See European Commission (2007). Eppendorfer and Stierle (2008) found that employment and wages were the key drivers of slow consumption growth in the first half of the 2000s.

([11]) Part of property and entrepreneurial income is included in households' disposable income (notably self-employed income and distributed corporate profits). Yet to the extent that participation in corporate profits through equity holdings etc. is quantitatively more important for households with higher overall income (see also Brenke (2011) for microdata on Germany), the changing factor income distribution also implied a widening of market-income inequality, with implications for consumption dynamics.

([12]) For a longer-term perspective, see Sachverständigenrat (2012).

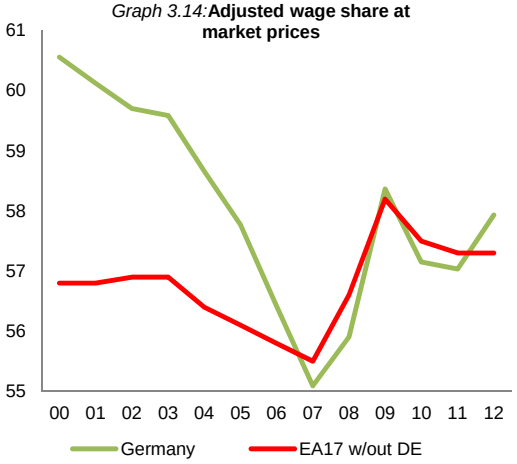
wages is well above that out of capital income, the steep fall in the wage share over a longer period of time is likely to have exercised a downward pressure on household consumption (see for example the review of recent literature by Papadia, 2013). Since reaching its historic trough in 2007, the German wage share has recovered somewhat, in line with developments at the euro area level, and has recently developed more dynamically. Comparing wage share and unemployment rate in Germany suggests some role for the labour market reforms implemented in the first half of the 2000s. The wage share has also been falling in most other industrialised economies, inter alia due to labour-saving technical progress through ICT-related to innovation and via a decrease in workers' bargaining power (OECD, 2012a). However, these factors are common to all euro area Member States. To the extent that the powerful labour market and social security reforms (see Box 3.1) resulted in higher employment, but not necessarily in higher income, they could be a partial explanation behind the fall of the wage share in Germany (Sachverständigenrat, 2012) and the overall weak evolution in labour income.

Graph 3.13: **Compensation of employees and property and entrpreneurial income (index, 1991=100)**



Source: Destatis

Graph 3.14: **Adjusted wage share at market prices**



Source: AMECO

The low contribution of labour income to disposable income growth occurred partly as a result of a fall in the total volume of work in the first half of the 2000s. The volume of total hours worked in Germany remains at the level of the early 2000s despite high employment rates (Graph 3.15). While the average hours worked per employee is trending downwards like in other euro area countries, the rise in part time work and in particular the decrease in full time work explain to a large extent the decrease in the total volume of work in the first half of the 2000s. In other euro area countries the volume of total hours worked increased sharply before the crisis, but has also decreased afterwards (Graph 3.16). The average working hours in part-time jobs remains among the lowest in the euro area, while the average hours worked by full-time workers is among the highest in the euro area.

The high tax burden on low-wage earners and fiscal disincentives for second earners discourages from taking up a job or working more hours. The tax wedge for workers earning 50 % and 67 % of the average wage is among the highest in the EU (single person without children, data for 2012). Inactivity and unemployment traps are also relatively high. The high labour taxation at low income levels tends to reduce the volume of work of low-wage earners through higher labour costs and weaker work incentives. Moreover, the joint taxation of income for married couples (*Ehegattensplitting*) and the free public health-insurance coverage for non-working spouses

Box 3.1: Increasing flexibility in the German labour market

A number of labour market reforms resulted in higher flexibility in the German labour market. On the one hand, the use of non-regular contracts spread following a gradual liberalisation over the last decades of temporary agency work, fixed-term contracts, part-time work and so-called mini-jobs. On the other hand, while the employment protection legislation of permanent contracts remained strict, company-level flexibility increased substantially. The traditional system of sectoral, multi-employer bargaining at the regional level lost ground, as coverage of sectoral agreements among employees declined between 1996 and 2012 from 70 % to 53 % in West Germany and from 56 % to 36 % in East Germany. The use of opening clauses increased, allowing firms to deviate from collective agreements. Opening clauses were used to protect employment in exchange of concessions on payment or working conditions (*alliances for jobs*). ([1]) For instance, the use of working time accounts has increased significantly and in 2010 around half of workers had a working time account, while paid overtime has gradually decreased. ([2])

The *Hartz* reforms (2003-2005) gave rise to a far-reaching reform of the unemployment and social benefit system accompanied by a reorganisation of employment services. The duration of unemployment insurance benefits was reduced, the criteria for declining job offers were tightened, and the wage-related assistance scheme for unemployed who had exhausted the unemployment insurance benefits was merged with the social assistance scheme, leading in sum to a reduction of benefits for long-term unemployed. The number of long-term unemployed markedly decreased during the second half of the last decade, but there are still more than one million and long-term unemployment remains higher than in other countries with low unemployment rates, such as Austria or the Scandinavian countries. ([3])

The reforms are likely to have contributed to reducing reservation wages. ([4]) At the same time, higher matching efficiency would be expected to have improved the clearing of skills supply and demand in the labour market, especially over time. The reforms significantly improved job creation in a labour market, that was characterised by high unemployment rates and decreasing employment, exercising downward pressure on wage growth. At the same time, the *Hartz* reforms favoured a stronger use of non-regular work, thereby cilitating the emergence of jobs remunerated at below two-thirds of the median wage. On balance, as pointed out by International Monetary Fund (2006a), the slower wage growth in Germany compared with the euro area, which started in response to the imbalances that had built up during the post-reunification boom and was reinforced by the following labour market reforms, appears to have been "simultaneously a symptom of adjustment as well as a cause of slower domestic demand".

Going forward, Germany faces important challenges in the labour market in view of demographic change. In particular, a shrinking workforce is expected to affect Germany's potential growth. Shortages of skilled workers are already emerging in various sectors and regions. As recommended to Germany under the 2013 European Semester, the demographic impact could be cushioned among others by increasing the labour force participation or the number of hours worked among certain people, including second and low-wage earners. Raising the educational achievement of disadvantaged people and maintaining appropriate activation and integration measures, especially for the long-term unemployed, would also improve the employability of workers.

([1]) According to Eichhorst and Marx (2009), the spread of opening clauses is explained by the diminishing power of German trade unions and represents a shift of bargaining power away from sectoral interest representation towards work councils.
([2]) Zapf (2012).
([3]) The integration of the remaining long-term unemployed into the labour market is increasingly difficult. According to the Federal Employment Agency, in 2011 around half of the long-term unemployed had no vocational training and 40 % of them were 50 years or older (Bundesagentur für Arbeit, 2011).
([4]) See Burda and Hunt (2011).

discourage women in particular from participating in the labour market or increasing the number of hours they work. The pension reform proposals of the new federal government including additional benefits for certain groups of pensioners, imply that the contribution rate could not be further reduced in 2014 as initially planned and will increase in the medium term, raising further the tax burden on labour with a potentially negative impact on employment and income in particular of low-wage earners. The allowance for families with children under three who do not make use of formal childcare facilities (*Betreuungsgeld*) may create an additional disincentive to work for parents. The still insufficient availability of full-time childcare facilities and all-day schools is also

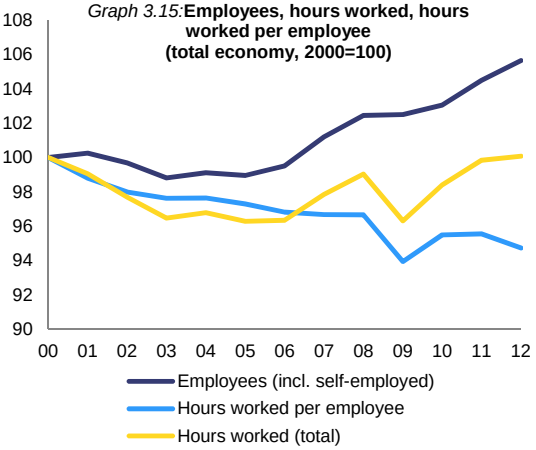
an obstacle to full-time labour participation of parents.

Germany's labour market has changed profoundly in the direction of more differentiated employment conditions, which has created many jobs while exercising downward pressure on wages. The situation in Germany's labour market at the beginning of the last decade was marked by high and rising unemployment, with regular employment on a downward trend (Graph 3.17). Far-reaching reforms were undertaken (see Box 3.1) and from the mid-2000s the situation improved and both regular and atypical employment have since increased (Graph 3.17). Employment relationships based on non-regular contracts, including part time jobs, have been growing in importance since the 1990's, but rose markedly during the mid-2000s.([13]) Part-time represents close to one fourth of all employees in 2012) ([14]) and is more widespread among women.

The total number of people working in so-called mini-jobs, i.e. jobs with a monthly wage lower than EUR 450 is high. ([15]) The group of employees working only in mini-jobs has increased only slightly since the 2003 reform, while the group of employees with a job subject to social contributions and a mini-job increased strongly over the whole period. This suggests that the 2003 reform did not occur at the cost of standard full-time employment, even if there is some evidence that regular jobs are crowded out by mini-jobs, in particular in small companies. ([16])

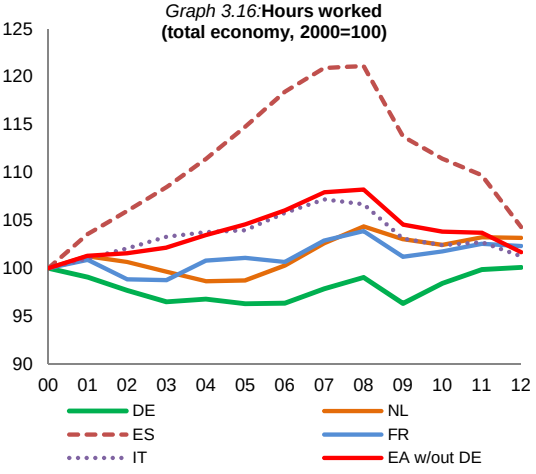
The favourable fiscal conditions of mini-jobs may create some distortions, for instance by causing lower upward wage mobility, discouraging people from increasing the number of hours they work, or increasing involuntary part-time work by discouraging companies from opting for other types of contract. ([17]) Furthermore, the reforms have had an effect on wage formation by keeping reservation wages in check (see Box 3.1)

Graph 3.15: **Employees, hours worked, hours worked per employee (total economy, 2000=100)**



Source: Destatis, Com. serv. calculations

Graph 3.16: **Hours worked (total economy, 2000=100)**



Source: AMECO, Com. serv. calculations

([13]) According to the definition of the Federal Statistical Office, non-regular work includes the so-called "mini-jobs", part-time (20 or less hours per week), fixed-term and temporary agency work. There are overlaps among the four groups. A significant share of people with mini-jobs are not included in this definition of atypical work, for instance students or pensioners. Using a different definition of atypical work (notably defining full-time employment from 31 hours per week onwards and excluding temporary agency work), the Sachverständigenrat (2012) estimates that the share of atypical work in 2005-2011 has been stable between 31% and 33%.

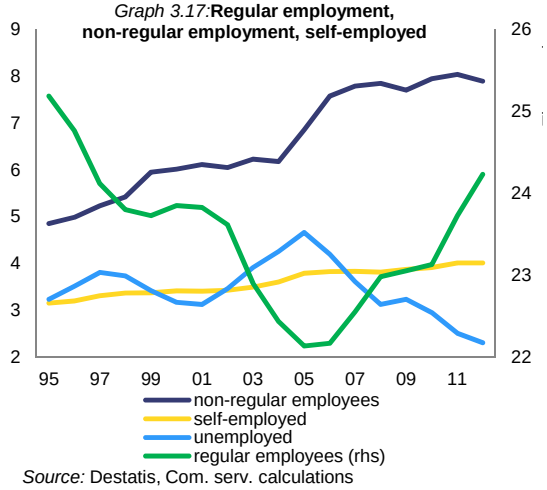
([14]) Based on data from the Mikrozensus (Federal Statistical Office), including part time employees working less than 32 hours per week.

([15]) Almost two thirds of people with a mini-job had only a mini-job and the rest had also a job subject to social contributions. Out of the 4.9 million working only in mini-jobs in 2011, 35 % were housewives/househusbands, 22 % pensioners, 20 % students and 11 % unemployed. (Körner et al. (2013)).

([16]) Hohendanner and Stegmaier (2012).

([17]) Two thirds of the 4.9 million people working only in a mini-job are women (Körner et al. (2013)), which appears to be related to the joint income taxation system. While income below the mini-job threshold of EUR 400 per month (EUR 450 as of 2013) is exempted from income tax, if the income is above that threshold, the full income is subject to the (joint) income tax (Bundesministerium für Familie, Senioren, Frauen und Jugend (2012)).

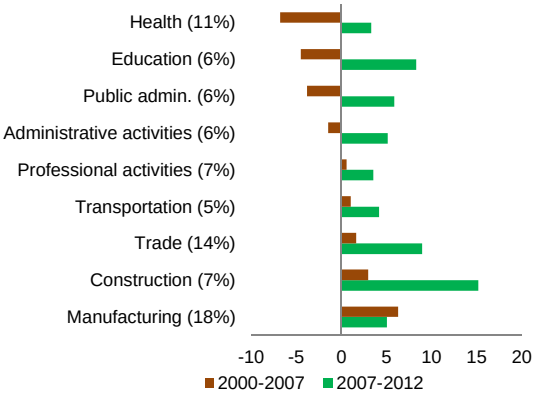
Graph 3.17: **Regular employment, non-regular employment, self-employed**



Source: Destatis, Com. serv. calculations

Wage growth in Germany has fallen significantly behind its peers and wage moderation in the services sector stands out as unusual in a euro area perspective. In recent years, wages have increased, after the long period of wage moderation. Wage moderation started already in the 1990s following the reunification shock that had resulted in strong wage increases, followed by increases in social security contributions, as well as migration, stronger competition from low-wage post-transition economies and changes in wage bargaining that shifted the bargaining power of employers and workers. During the last decade, wage dispersion has grown and hourly wages increased very moderately before picking up in recent years. This has resulted in real wages and real unit labour costs declining in the pre-crisis years before recording increases in recent years (see Graph 2.5). The overall low growth in compensation per employee has been more pronounced in the services sectors than in manufacturing and construction (Graph 3.18). As shown in European Commission (2012a), sectoral developments in Germany differed from other surplus countries. In Germany, wage moderation in the pre-crisis period was stronger in the non-tradables than the tradables sector, while compensation per employee in other surplus countries grew on average at the same rate in tradables and non-tradables (Graph 3.19). This was likely enhanced by developments in the labour market and the labour market reforms that incentivised the take up of low-paid and part-time employment. ([18]) Moreover, the share of workers earning less than two thirds of the median wage in Germany appears to be high in comparison with other European countries and has been increasing. ([19]) Using data from the Survey on Income and Living Conditions (EU-SILC), Rhein (2013) finds that in 2010 almost one quarter of employees and self-employed earned less than two thirds of the median wage, which is higher than in other European countries. Low wages are more extended among certain groups, e.g. workers with non-regular contracts and workers in certain services sector professions. ([20])

Graph 3.18: **Growth in hourly real wages by sector (%)**



Source: Eurostat, Com. serv. calculations

Note: Figures indicate size of sectors (share in total hours worked). Only sectors with highest shares are shown.

([18]) Dustman et al. (2014) argue that the flexibility of the industrial relations allowed the German industry to react to the challenges created by the reunification and the higher competition in the global economy.

([19]) The share of full time employees earning less than two thirds of the median wage increased from 19 % in 1999 to close to 23 % by 2010 (Bundesagentur für Arbeit, 2013). According to the new survey procedure this share increased moderately since 2008 and actually decreased slightly in 2012 compared with 2011. Using data from the Socio Economic Panel (SOEP) until 2008, Brenke and Eichhorst (2010) find that the share of low-wage workers grew more moderately after 2005, suggesting that the Hartz IV reform did not contribute to lower wages.

([20]) Statistisches Bundesamt (2012a). Using data from the Socio Economic Panel (SOEP), Brehmer and Seifert (2008) also find that low wages are more extended among workers with non-regular contracts, albeit not exclusively.

Table 3.3:

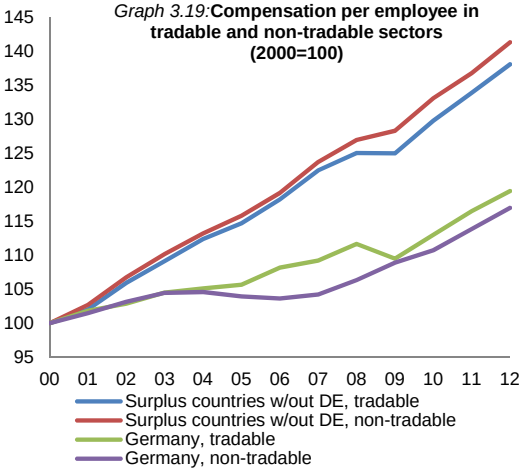
Annual average differences between the growth rate in compensation per employee and wage benchmarks

	Benchmark 1 Price competitiveness			Benchmark 2 Productivity			Benchmark 3 Fundamentals		
	1995-2003	2004-2007	2008-2012	1995-2003	2004-2007	2008-2012	1995-2003	2004-2007	2008-2012
AT	-1.9	-0.2	0.0	-0.5	-1.2	-1.6	-0.3	-1.2	-1.4
BE	-0.9	0.7	0.5	-0.1	-1.1	0.4	0.1	-0.6	-0.7
DE	-2.4	-1.9	-0.4	-0.3	-2.0	1.1	0.4	-1.9	-1.4
EE	2.3	6.2	0.1	-2.3	1.3	2.1	-0.8	4.0	-2.5
FI	-1.5	0.1	1.1	-0.9	-0.5	-2.0	-1.0	-0.4	-0.4
NL	0.5	-0.1	-0.2	0.0	-0.9	-0.3	0.1	0.6	-0.1
EA17 w/out DE	0.0	1.0	-0.5	-0.2	-0.8	-0.8	0.0	-0.2	-0.9

Source: AMECO, Com. serv. calculations

Note: non-weghted averages

Graph 3.19: **Compensation per employee in tradable and non-tradable sectors (2000=100)**



Source: AMECO, Com. serv. calculations

Germany stands out as having recorded more moderate wage dynamics than what benchmarks would indicate. ([21]) A comparison of the growth rate in compensation per employee against three wage benchmarks shows that wages in Germany grew below what could have been expected, in particular in the period that preceded the crisis (Table 3.3). First, Germany recorded lower wage growth than needed to prevent the real exchange rate from depreciating in all three sub-periods considered. Second, real compensation per employee grew well below productivity before the crisis. Third, nominal wage growth was lower than implied by average historical macroeconomic trends. The strong wage moderation in Germany over a longer period, both in comparison with other European countries and according to the three benchmarks is a sign that wage restraint possibly caused excessively subdued private consumption dynamics. Still, when comparing wage levels in Germany with benchmarks in other countries, they appear to exhibit broadly balanced positions after 2009 (European Commission, 2012a).

Germany's household saving rate is high in comparison with other major developed economies and increased by more than two percentage points up to 2008 (Graph 3.20). ([22]) The saving rate has on average stood at above 16% of disposable household income since 2000, thereby persistently exceeding the euro area average by more than 2 pps. Since 2009, a slight decline in the saving rate has occurred. From a savings-investment perspective, the increase in the household saving rate in the 2000s was one of the key factors and contributed around one quarter to the build-up of the current account surplus in the run-up to the crisis. From the perspective of the *life cycle hypothesis*, individuals build up assets (save) and run them down (dissave) over their lifetime in order to smooth lifetime consumption, independently of current income. Under this hypothesis, fundamental drivers of the household saving rate include income, wealth and real post-tax interest rates. ([23]) To the extent that losses in

([21]) For a description of the benchmarks and a discussion of factors which have contributed to wage moderation in Germany, see European Commission (2012a).

([22]) To the extent that the household sector as defined in national accounts also includes non-incorporated firms, its saving behaviour might also reflect some drivers discussed in the subsection on the non-financial corporate sector (3.4).

([23]) The largest empirical challenge to the life cycle hypothesis has been evidence of a flatter saving rate profile than implied by theory (notably for the old); this has also found to be the case in Germany (see Börsch-Supan et al., 2001).

Table 3.4:
Shares in total monthly household savings by income decile. Saving rates by income decile

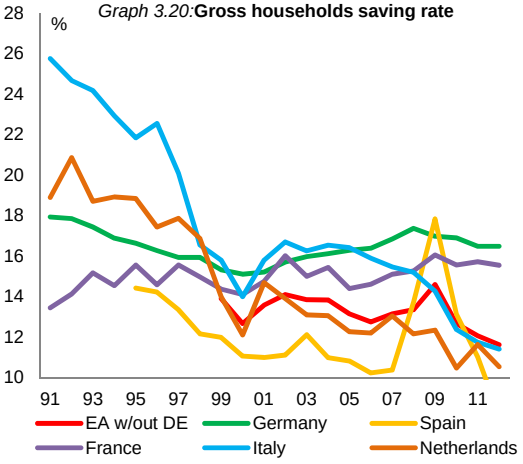
Household per income decile (monthly income)	2001		2006		2011		Saving rate (2011)
	Non weighted	Equivalent weighted	Non weighted	Equivalent weighted	Non weighted	Equivalent weighted	
lower tenth	1.0	0.8	0.8	0.7	0.5	0.5	1.8
2nd tenth	2.7	2.4	1.8	1.4	1.7	1.3	4.3
3rd tenth	4.5	3.9	3.7	3.3	3.2	2.5	6.4
4th tenth	6.1	5.4	5.3	4.7	4.7	4.1	7.9
5thtenth	7.8	7.4	6.6	5.9	5.9	6.0	8.3
6th tenth	8.4	8.8	7.9	7.8	7.4	7.8	9.0
7th tenth	10.5	10.5	9.1	9.2	9.7	10.0	9.9
8th tenth	12.2	13.0	12.0	13.1	12.4	12.5	10.7
9thtenth	16.5	17.5	16.5	16.0	16.5	17.6	11.6
upper tenth	30.3	30.2	36.2	38.0	37.9	37.7	17.0
total	100.0	100.0	100.0	100.0	100.0	100.0	11.0

Note: Equivalent-weighted taking into account the needs of households according to their size and composition, following the OECD approach (the first household member is weighted by a factor of 1; every additional member by a factor of 0.5 (> 14 yrs) or 0.3 (< 14 yrs).

Source: Brenke and Wagner (2013)

wealth or income are perceived as permanent, they reduce possible lifetime consumption – to smooth this over time, savings are increased.

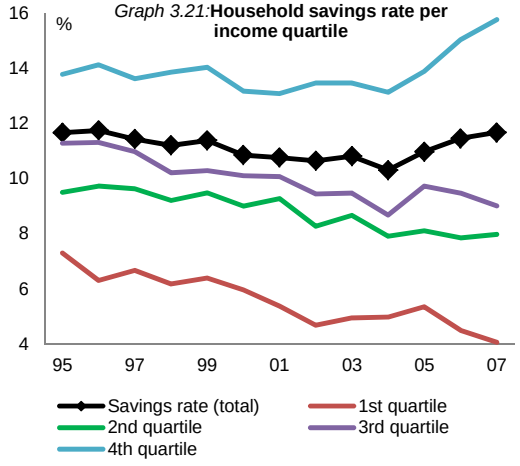
Graph 3.20: **Gross households saving rate**



Source: AMECO

Changes in the social security system in the context of demographic change and increasing precautionary savings are possible factors explaining the increase in household savings in the last decade. ([24]) The beginning of the 2000s was marked by increasing awareness of demographic change and its impact on the sustainability of the social security system. In a lifecycle-perspective, demographic change influences the saving rate by increasing the post-retirement lifespan for which wealth has to be accumulated and via the effects of a lower birth rate. ([25]) Changes to the social security system are another important factor since less generous provisions increase the need to accumulate buffers for old age.

Graph 3.21: **Household savings rate per income quartile**



Source: Stein (2009)

A major pension reform (*"Riester-Reform"*) was implemented in 2001, which implied a gradual reduction of the replacement rate under the statutory old-age pension scheme, in line with demographic developments. OECD (2013a) finds that today, net pension replacement rates in

([24]) See Klar and Slacalek (2006) and Deutsche Bundesbank (2007a).

([25]) The first effect on the saving rate is positive. The second one is likely to change as ageing advances: A lower birth rate would initially raise the household saving rate by reducing families' consumption needs, e.g. via a higher labour market participation of women. At a later stage of the ageing process, the lower saving rate of the numerous elderly is likely to dominate. Deutsche Bundesbank (2004), p. 23.

Germany for future retirees are among the lowest in the OECD. Together, these factors are likely to have raised the need for private savings in view of longer life spans and lower public pension rates, thereby increasing the saving rate. ([26]) This is supported by the fact that despite higher per capita income, German households' net financial asset stock was lower than the euro area average (see Box 3.2). In a similar vein, in the presence of uncertainty consumption smoothing in itself leads to precautionary saving. The subdued economic development and rising unemployment in Germany at the beginning of the decade may have led to an increase in perceived uncertainty and higher precautionary savings. ([27]) The compound effect of these motives for higher savings could be expected to lead to a gradual upward shift in the saving rate towards a new level, but without continuing the upward movement in the longer-term, which seems consistent with the pattern observed. Finally, negative wealth effects following the end of the dot-com bubble could also have temporarily played a role, see Deutsche Bundesbank (2007a).

Particular tax policies also influenced households' saving decisions. In context of the pension reform, measures were taken to strengthen the second and third pillar of the pension system, inter alia via tax deductions and means-tested subsidies for individuals ("*Riester-Rente*"). After a dynamic take-up of Riester-pensions in 2001-02, demand flattened temporarily but accelerated again after a design change in 2005, which is likely to have contributed to increasing savings. ([28])

Income inequality has risen in Germany, most notably during the first half of the 2000s, which is likely to also have contributed to driving up the household saving rate. ([29]) Given that the marginal propensity to save increases with income, higher concentration of income results *ceteris paribus* in higher savings. Changes in the income distribution that took place in the last decade appear therefore to have contributed to the increase in the saving rate. According to Brenke and Wagner (2013) the average saving rate in Germany was 11 % in 2011, with income-specific saving rates ranging from less than 2 % for the lowest income decile to 17 % for the most wealthy (see Table 3.4) ([30]). Out of total savings in Germany in 2011, the ten percent richest stood for close to 38 % of total savings compared with 30 % in 2001, while the lowest income groups of the population made up for a decreasing share of Germany's total savings. Stein (2009) finds that the increase in the saving rate between 2004 and 2007 is mainly due to the increase in the saving rate of the households in the highest income quartile (Graph 3.21). Over the period 2000-07, the period where the rise in the household saving rate contributed more than 2 p.p. to the improvement in Germany's current account balance, the saving rate declined for all but the wealthiest quartile of the population, which by a marked increase in its savings contributed to driving up the national saving rate. ([31])

([26]) Based on household micro data for Germany, Kolerus et al. (2012) find evidence that the introduction of the *Riester-Rente* in 2002 raised household savings rates. Moreover, based on data from a German household survey on saving behaviour, Mannheim Research Institute for the Economics of Aging (2008) reports on evidence for an increase in the importance of retirement as a saving motive between 2003 and 2007, especially by the young for who the impact of the pension reform is most pronounced.

([27]) Bartzsch (2007) finds support for this hypothesis in an estimation based on a buffer stock model of saving using German micro data.

([28]) Börsch-Supan et al. (2013) estimate that tax deductions and subsidies of 3.5 bn euros a year would have incentivised a shift of 9.4 bn euros from consumption or other forms of saving into savings earmarked for retirement and conclude that the overall impact of Riester pensions on aggregate savings net of the subsidies provided and the crowding out of other forms of saving appear to be positive.

([29]) The increase in income inequality is shown by developments in the mean and median income, indicators such as the Gini coefficient, decile ratios or income shares of different income groups. For a description of developments in income distribution in Germany see, among others, Grabka and Goebel (2013), Sachverständigenrat (2013) and Schmid and Stein (2013). These studies are based mainly on the analysis of data from the German Socio-Economic Panel (SOEP).

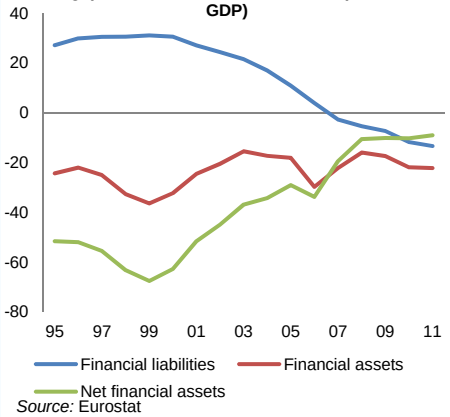
([30]) Other studies find also significant differences in the saving rates of different income groups, for instance Weber (2013) using SOEP data for 2011 and Gräf and Schneider (2011) using data from the Federal Statistical Office's 2008 Income and Consumer Survey (EVS 2008). Weber (2013) also finds differences in the saving rates across *Länder.*

([31]) DIW (2006) estimates that the shift in the net household income distribution between 2000 and 2004 contributed between 0.3 and 0.6 pp. to the increase of the aggregate saving rate. The lower value is considered as more realistic, given that saving rates of very low-income households, which are even negative in some cases, can be ascribed to short-term, and transitory income reductions and hence underestimate the actual saving rate.

Box 3.2: **Households' financial balance sheets and consumer credit growth**

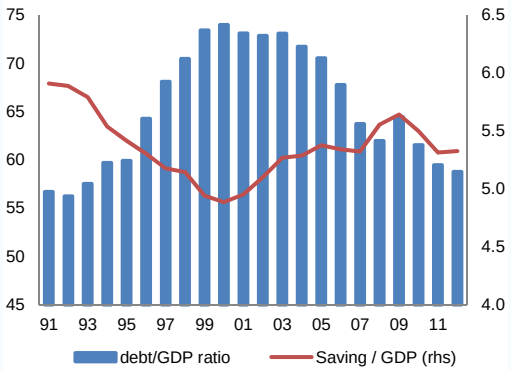
A look at German households' financial balance sheets reveals that net financial assets are lower than those of their euro area peers, although the gap has been narrowing significantly by close to 50 pps. of GDP, since its peak in the early 2000s (graph 1a). The trend in households' overall financial assets has not deviated much from the euro area. More importantly, a continuous reduction in household indebtedness in Germany together with increasing leveraging at the euro area level has reversed the difference between German and euro area households' liabilities, which are essentially loans. The remarkable deleveraging of German households' indebtedness should be seen against the background of sharply increasing household indebtedness in the post-reunification years, peaking in 2000. The household saving rate started increasing at the same moment, possibly pointing to perceived deleveraging needs.

Graph 1a: **Financial assets and liabilities - gap between DE and EA w/out DE (% of GDP)**



Source: Eurostat

Graph 1b: **Household indebtedness and saving rate (% of GDP)**



Source: Destatis

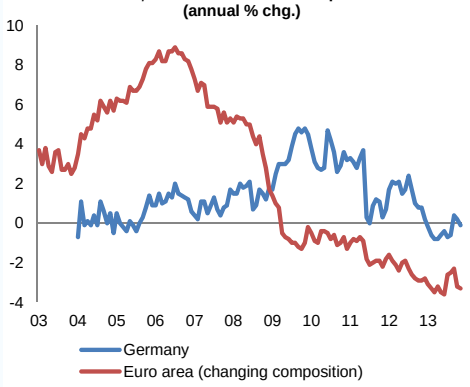
At the same time, there are noteworthy differences in the composition of assets in Germany vis-à-vis the euro area average. Currency and deposits as well as insurance technical reserves ([1]) are relatively more important assets in Germany. Also, somewhat riskier assets account for a higher share at the euro area level, with euro area households holding nearly one third of their assets in shares against less than one fourth in Germany. Deutsche Bank Research (2011) discusses why German households hold relatively less equity, notably mentioning a possible higher risk aversion. ([2]) Assuming a positive correlation between risk and return over the long-term, a relatively conservative investment strategy could ceteris paribus require a higher saving rate for a given level of asset stock desired. On the contrary, one would expect a negative correlation between household and corporate savings to the extent that households as the owners of firms "pierce the corporate veil" and understand the effect of firms' growing profitability and savings on their own future income streams. This did not hold in Germany during most of the 2000s when household and corporate savings rose in parallel.

([1]) Notably related to households' assets in life insurance and pension funds.
([2]) Bornhorst and Mody (2012) also stress the possible role of "a longer-standing risk-aversion" in Germany as explaining lower consumption growth (higher savings), which might also be reflected in the above-mentioned asset composition.

(Continued on the next page)

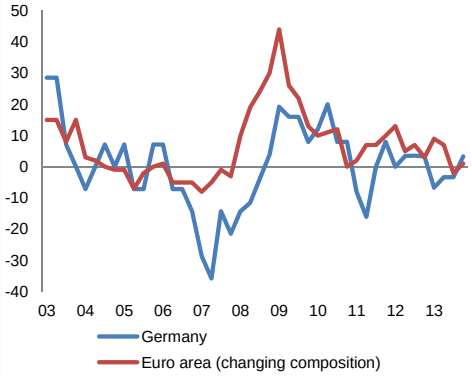
Box (continued)

Graph 2a: **Credit for consumption (annual % chg.)**



Source: ECB

Graph 2b: **Change in consumer credit standards**



Source: ECB Bank Lending Survey

There could be several reasons for the observed discrepancy in financial assets vis-à-vis the euro area. ([3]) Regarding the reduction in households' liabilities, housing loan growth decelerated in Germany in the pre-crisis period (see box). Moreover, while consumption credit boomed in the euro area in the same period, it barely expanded in Germany (graph 2a), thus not compensating for the weak disposable income growth. After a more lively development in the aftermath of the crisis, the consumer credit growth rate has recently been hovering around zero again. While it is inherently difficult to disentangle supply and demand reasons behind the weak consumer credit growth, changes in credit standards do not point to a more pronounced tightening in Germany (graph 2b) ([4]).

([3]) The historically lower level of household financial assets may relate also to the German pension system, which was assessed as relatively generous before the reforms in the 2000s (Börsch-Supan and Wilke (2004)). The relatively important role of the rental market might have further reduced the need to accumulate assets (Deutsche Bundesbank (2013a)).

([4]) Sachverständigenrat (2008) finds that consumer credit growth was mainly driven by demand side factors in Germany in 1991-2007.

A number of economic and policy developments may have played a role in explaining the trends in income inequality, although it is difficult to firmly establish the exact causality. ([32]) In conjunction with (un)employment developments, the increasing weight of capital income as compared to labour income contributed to rising inequality, as capital income is concentrated in the highest income deciles. ([33]) A number of changes in taxation and social contributions may also have played a role in reducing the effectiveness of redistribution policies. The abolishment of the wealth tax in 1997, the reduction in the top income tax rate from 53 % in 2000 to 42 % in 2004, the flat rate taxation of capital gains since 2009 and the increases in VAT standard rate and social contributions since the beginning of the 1990s may have affected the progressivity of the tax system and possibly income inequality. ([34]) ([35]) The

([32]) The Institut für Angewandte Wirtschaftsforschung und Universität Tübingen (2011) estimated that 20-30 % of the increase in inequality in the net equivalized income in Germany in the first half of the 2000s is due to changes in employment and unemployment, 40-50 % to the long-term dispersion in labour income increase and 20-30 % to changes in tax rates. For a discussion on potential factors behind the trends in income inequality, see among others, Grabka and Goebel (2013), OECD (2011a), Sachverständigenrat (2011), Schmid and Stein (2013).

([33]) Fichtner et al. (2012) simulate the saving rate in a scenario in which both labour and capital income had increased at the same pace as total disposable income did. They find a weaker increase of the saving rate, with additional consumption of up to 10 billion Euro per year between 2002 and 2011.

([34]) See for instance Schmid and Stein (2013).

([35]) On the other hand, the gradual reduction of the personal income tax rate at the entry level from 25.9% to 14%, a special 45% top rate applying to income above 250,730 euros introduced in 2007 as well as a solidarity surcharge of 5.5% and a church tax contribute to the progressiveness of the tax system. Moreover, the reduced VAT rate, which applies to a wide range of goods and services and may be

increasing share of pensioners compared to working-age population also tends to increase inequality (Grabka and Goebel, 2013).

The trend increase in the saving rate came to an end in 2008 and some of the factors which contributed to the earlier increase are probably no longer in place. By 2012, households' gross saving rate had declined by more than 1 pp. to a value recorded in the mid-2000s. Most notably, the overall state of the economy including the labour market is significantly more robust and does not seem to imply a need to increase precautionary savings, even if labour market related developments remain relevant for groups with specific difficulties, e.g. the long-term unemployed or persons that have a marginal and precarious affiliation to the labour market. Likewise, the need to save for retirement is unlikely to again exert pronounced upward pressure on the saving rate, although the pension reform proposals of the new federal government could have some effect by reinforcing the downward trend in the average replacement rate. In the long run, demographic developments are likely to gradually contribute to an increase in the household saving rate.

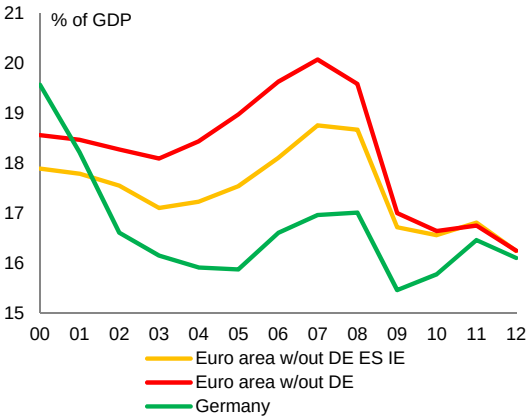
3.3. A CLOSER LOOK AT PRIVATE INVESTMENT DYNAMICS

German domestic investment has been trending down for more than a decade, coinciding with the economy's growing excess savings. Analysing investment dynamics, notably in the private sector (see Graph 3.22), can cast light on reasons why gross fixed capital formation appears to have been relatively weak since the beginning of the 2000s. Weakness in investment merits special attention because - beyond the pure contribution to aggregate demand – shortfalls in investment are potentially detrimental for the future growth potential of the German economy. Since 2000, Germany's net fixed capital formation has more than halved relative to GDP. The shares of gross and net fixed capital formation (net of depreciation) have seen a trend decrease for long, which was particularly pronounced in the first half of the 2000s and from which it has not recovered.

particularly relevant for low-income households, has remained stable at 7%.

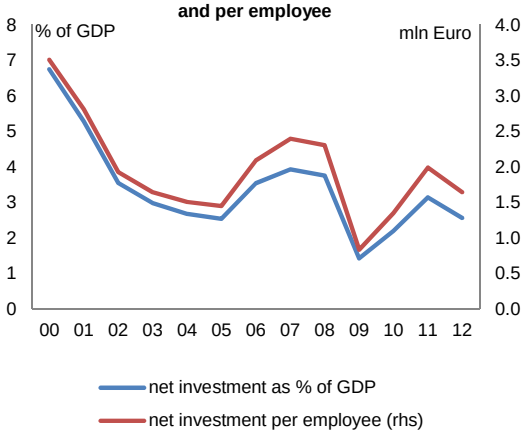
This has implied that the increase in the net capital stock has been muted over 2000-2012 and the expansion of the capital stock per employee has been rather low and on a descending trend (Graph 3.23).

Graph 3.22: **Share of private sector GFCF in GDP in current prices**



Source: Eurostat

Graph 3.23: **Net investment as share in GDP and per employee**

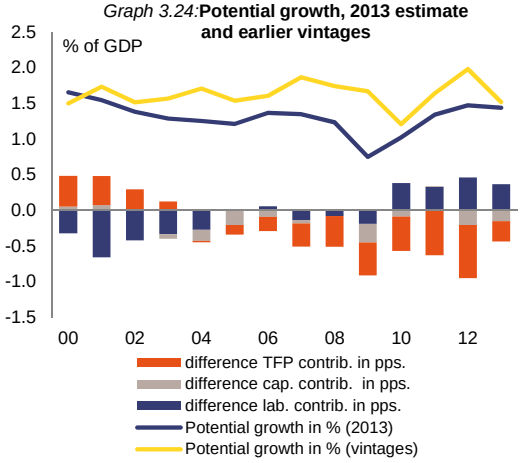


Source: Destatis and AMECO

Germany's potential growth rate has been revised down over time, largely due to receding contributions from capital and total factor productivity. In 2013, potential growth is estimated at below 1½ %, compared to 1¾ % in 2000 and more than 3% in the early 1990s. A receding contribution from capital accumulation was one of the main factors behind the gradual decline in potential growth, together with

dwindling total factor productivity (TFP) growth (see Chapter 2). This reflects a longer-lasting decline in the investment-to-potential output ratio since the early 1990's until today, which has resulted in lowering Germany's long-run growth path. The estimate of Germany's trend growth has been subject to successive downward revisions, which reflect a continuous reduction in the contribution from capital, combined with a receding contribution from labour in the first half of the 2000s and significant downward revisions of TFP growth in the second half (Graph 3.24 ([36])). TFP growth is a key driver of long-term growth, capturing efficiency gains in the overall management of economic resources and also reflecting technological progress embodied in capital. In 2012, the TFP contribution to potential growth stood at around half the value in year 2000. Going forward, higher contributions from capital accumulation and productivity growth would be necessary to dampen the effect of ageing on trend growth. This would be possible only if reversing the declining investment-to-potential output ratio, thereby shifting the German economy back onto a higher long-run growth path. A turnaround in TFP growth would underpin this development by raising the marginal productivity of capital.

Graph 3.24: **Potential growth, 2013 estimate and earlier vintages**



Source: Commission services

Germany's investment share was broadly in line with the EA17 average ([37]) in 2000. Due partly to weak private sector investment dynamics, it since fell significantly short. When excluding the euro area countries that experienced the most pronounced construction bubble, a sizeable investment gap of on average 1.9 pps has manifested itself over 2000-2012 (Graph 3.25). The first part of this period, where developments diverged significantly, coincided with the build-up of the German current account surplus. A sharp fall in the German investment share by around 4 percentage points by 2005 was only partially reversed, while the euro area investment share by contrast saw a trend increase. The divergence peaked in 2007 at close to 5 pps. A large part of this gap remains when looking at the euro area without Ireland and Spain. Since 2007, developments have reversed somewhat. The investment share saw a rebound in Germany, while it further decreased in the euro area amid difficult economic conditions in vulnerable Member States. This has contributed to a narrowing of the difference in investment rates, but the overall cumulative investment gap continues to increase. In 2012, the total and private sector investment shares remained more than three pps. below their 2000 peak. While investment volumes were also relatively weak, relative price changes played an important role since the fall in investment prices relative to output prices has been more pronounced in Germany than at the euro area level. When evaluating the subdued aggregate investment, it should also be noted that the efficiency of German investment appears relatively high. Using the Incremental Capital Output Ratio (ICOR) as an indicator, Germany can be considered among the most investment-efficient economies (Bach et al., 2013). This implies that the marginal product of capital is high in the sense that a given amount of investment generates relatively higher growth in output in Germany than in many other countries.

([36]) The graph compares the estimate of potential growth from the Commission services' autumn 2013 forecast to earlier vintages, where each data point t is taken from the year an estimate was first provided (Commission services' autumn t-5 forecast).

([37]) The euro area average, excluding Germany. In the remainder of this section, unless otherwise specified, Germany is excluded from the aggregate when discussing euro area developments.

Box 3.3: **Competition in the services sectors**

The **share of market services ([1]) in total value added is lower in Germany than in other large European economies, suggesting an important potential for further development over time.** The services sector plays an important role in the German economy, contributing to 42% of total value added and 40% of employment. Yet, this is significantly less than in other large EU economies such as France, Italy, and the UK where the value added shares are close to 49%. While the smaller size reflects Germany's specialisation in manufacturing, the services sector has been developing rather slowly (see chapter 2). Market services play a significant role for competitiveness and long-term growth as both users of intermediate inputs produced by the rest of the economy (backward linkages) and as intermediate inputs in other sectors of the economy (forward linkages). According to Commission's estimates, the output multipliers of German market services ([2]) are of the same magnitude and in some cases even larger than the ones generated by manufacturing activities. In other words, the total production generated directly and indirectly to satisfy demand for services is similar to and in some cases larger than for manufacturing activities. Moreover, recent EC JRC studies ([3]) show that the vertical integration of services into manufacturing is increasing over time in Germany and is larger than in other European countries. This is a sign that faster development and higher productivity in market services would translate in competitiveness and innovation gains in the manufacturing sector.

A number of indicators confirm that there is scope to improve the functioning of the services sector. Estimates on German services' allocative efficiency, ([4]) which is a measure of the extent to which productive factors are allocated towards their most efficient use, show that German market service sectors typically do not allocate their resources in the most efficient way and in this respect performs less well than sectors open to international competition such as manufacturing, transport and information or communication services (Graph 1). ([5]) While the German manufacturing sector outperforms the manufacturing sectors in the UK, France and Italy, German services performs worse than France and the UK, which can be considered a strong performer. Moreover, a "malfunctioning index" ([6]) for German market services indicate that there is scope for improving efficiency vis-à-vis to the country being the productivity leader in a given services sub-sector. Furthermore, looking at business dynamics, entry, exit and, consequently, churn rates in the professional services, at least in 2009, ([7]) are also lower in Germany than in other countries such as UK or France (Graph 2), suggesting that higher dynamism could make existing firms more efficient. Finally, mark ups ([8]) in Germany are lower than the EU27 average in manufacturing and construction, while higher than the EU27 average in all services sectors but wholesale and retail trade, which supports the thesis that there are benefits to reap from stronger competition.

([1]) Wholesale and retail; transport; accommodation and food services; information and communication (excluded in this calculation due to lack of data); financial and insurance; real estate activities; professional services; administrative and support services.

([2]) Commission services' estimates based on Eurostat Input-Output tables. Data refers to 2008, the more recent year available and are based on Nace Rev2 "product-by-product" Input-Output tables.

([3]) See Ciriaci, D., Montresor, S., Palma, D. (2013) and Ciriaci, D., Palma, D. (2012).

([4]) Allocative efficiency has been calculated for the year 2010, the last for which data were available.

([5]) EC(2013), Product market Review 2013, Financing the real economy. Manufacturing (C), Construction (F), Wholesale and retail (G), Transports (H), accommodation and food services (I), Information and Communication (J), real estate activities (L), professional services (M), and administrative and support services (N)

([6]) The 'malfunctioning index' in services sector captures the gap between the multi-factor productivity in a service sub-sector of a country and that of the country with the highest multi-factor productivity in that sub-sector. In the case of Germany, for instance, the index has increased over time (2001-2007) for market services which corresponds to a widening of the gap between Germany and the productivity leader (i.e. decrease in efficiency). Study by Ecorys (2010) for EC/DG ECFIN on the spillovers from malfunctioning service markets and economic performance.

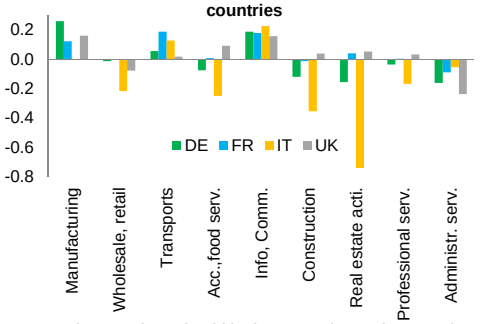
([7]) Latest available year.

([8]) Proxied by gross operating rates, that correspond to the share of gross operating surplus in turnover. Data from Eurostat for 2010.

(Continued on the next page)

Box (continued)

Graph 1: **Allocative efficiency in services, selected countries**

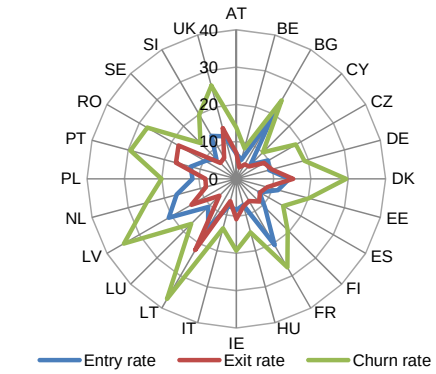


Note: Estimates of AE should be interpreted as %-increase in industry productivity connected with actual allocation of employment across firm size classes, relative to a baseline scenario in which employment is allocated randomly across different firm size categories

Source: ECFIN SPI database, Com. serv. calculations

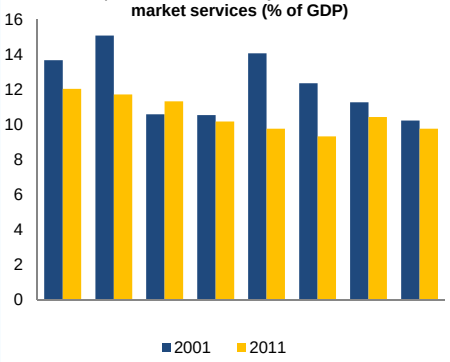
Improvements to productivity in Germany's services sector would contribute to higher efficiency, investment and growth. Fostering competition, including by addressing unjustified protection of sheltered sub-sectors, would positively affect productivity and would by various economic channels have the potential to simultaneously strengthen domestic demand and competitiveness. First, higher productivity would have a positive effect on services sector wages and at the same time consumer prices may decrease on the back of stronger competition (*consumption channel*). This would strengthen private consumption growth. Second, increasing competitiveness in the non-tradable sector would foster investment, thereby contributing to increase domestic demand and to the rebalancing of growth by gradually channelling additional economic resources into Germany's non-tradables sector (*investment channel*), which could strengthen the relatively low investment rate, both overall and in particular in many services sub-sectors (Graph 3). Given the multiplier effects, this will substantially increase the demand for inputs used to produce these services. Finally, due to the role as intermediate inputs productivity increases in services would have positive spill-overs on other sectors of the economy, including on manufacturing (*competitiveness channel*). The impact of higher competition in the services sectors on Germany's external account is ambiguous, since the productivity gains from developing the services sector also enhances exports competitiveness, but it could have a significant positive impact on the overall economic efficiency and domestic demand.

Graph 2: **Entry, exit and churn rates in Professional Services (2009, in total number of businesses)**



Source: ECFIN SPI database, Com. serv. calculations

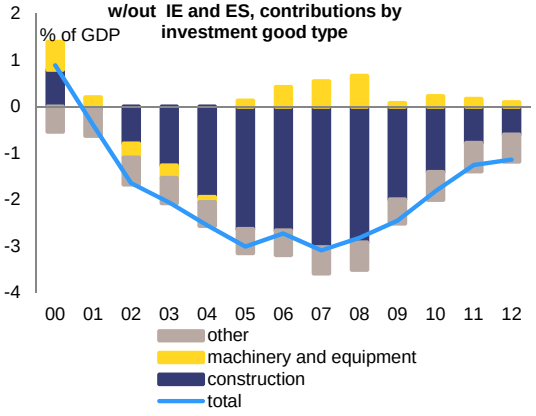
Graph 3: **Gross fixed capital formation in market services (% of GDP)**



Source: Eurostat

Note: ES - 2001 and 2010 , EA - EA w/out BE, EE, LU, MT,

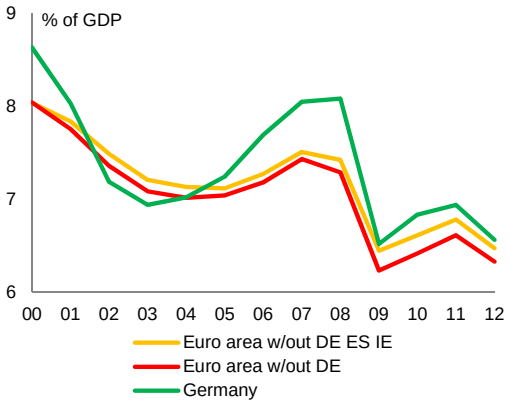
Graph 3.25: **Investment gap1 vis-a-vis EA w/out IE and ES, contributions by investment good type**



Source: Eurostat, Commission calculations

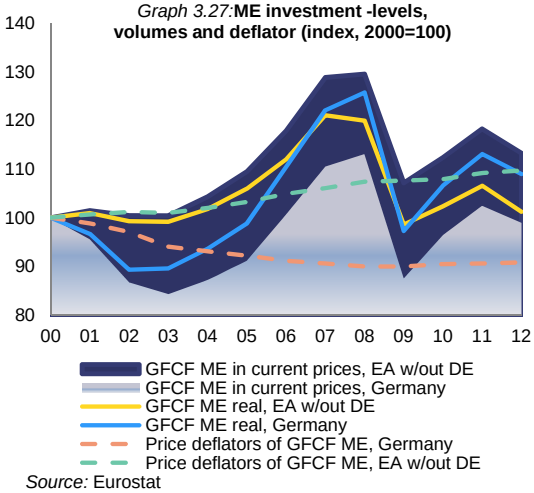
[1]Diff. in pps. between shares of GFCF in GDP in current prices

Graph 3.26: **Share of machinery and equipment investment in GDP in current prices**



Source: Eurostat

Graph 3.27: **ME investment -levels, volumes and deflator (index, 2000=100)**



Source: Eurostat

While following a comparable cyclical pattern, investment in machinery and equipment was markedly weaker in Germany than in the euro area in the early 2000s. In the aftermath of the crisis, machinery and equipment investment has not picked up as expected.([38]) The weakness in the early 2000s has to be seen against the preceding investment upswing in Germany, but it still appears to have been a rather protracted period of weakness which has contributed to the build-up of the current account surplus. To some extent the overall subdued nominal development reflected a strong trend decrease in equipment prices in Germany, which was not observed at the euro area level.

However, taking this effect into account only partially explains the decrease in German equipment investment in the early 2000s, as real investment also fell. At the same time, the upswing during 2005-2008 was more pronounced in Germany than in the euro area. Hence, seen over the full period since 2000, no persistent negative gap to the euro area is observable. That being said, while the machinery and equipment investment share was higher in Germany than in the euro area in recent years, it has remained well below what the long-term trend would imply.

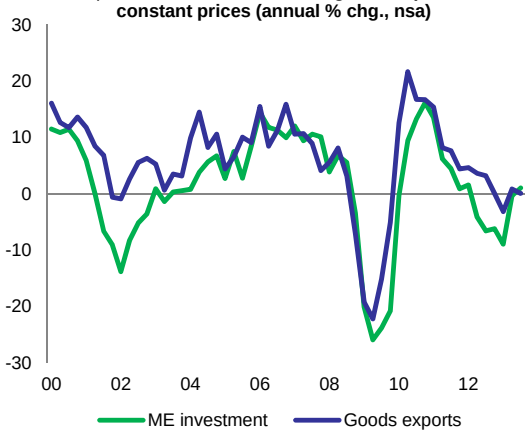
Investment in machinery and equipment is driven by a small number of key branches, notably manufacturing. A small subset of branches accounted for three quarters of the investment in 2000-2012, with manufacturing alone accounting for close to one quarter. In addition, the increasing use of leasing financing arrangements for equipment is reflected in a growing weight of "Administrative and support service activities" ([39]), which partially explains the trend decrease in the share of manufacturing in ME investment. The cyclical investment pattern closely follows goods exports and is generally shared across sectors. This indicates that the goods

([38]) The share of general government in machinery and equipment investment is low and relatively stable (on average 3.3% in 2000-2012). Therefore the ensuing discussion focuses on the private sector as key driver of machinery and equipment (ME) investment dynamics.

([39]) The branch itself appears to undertake relatively limited investment apart from the one associated with the leasing activities- , data show that leasing-financed investments accounted for around one fourth of total ME investments in 2002-2010 (Deutsche Bundesbank, 2011b).

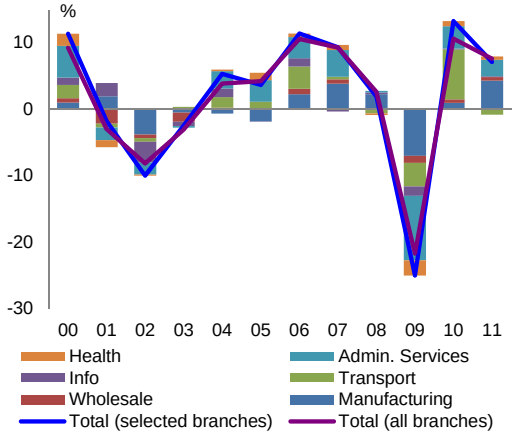
exports sector plays a pivotal role for total machinery and equipment investment across all key branches (Graphs 3.28 and 3.29). The strong drive in Germany's goods exports to its global markets may therefore explain why the investment weakness has not manifested itself for machinery and equipment throughout most of the last decade. On the contrary, the level of investment in market services remains relatively low, pointing to an important potential for further development and efficiency gains in the services sector (see Box 3.3)

Graph 3.28: **ME investment and goods exports in constant prices (annual % chg., nsa)**



Source: Eurostat

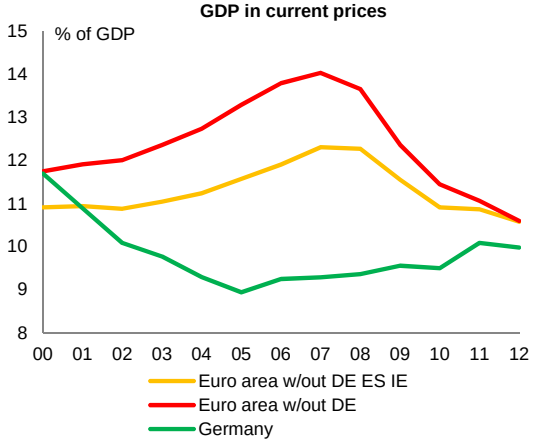
Graph 3.29: **ME investment in current prices: annual % chg. and contributions by branches**



Source: Eurostat

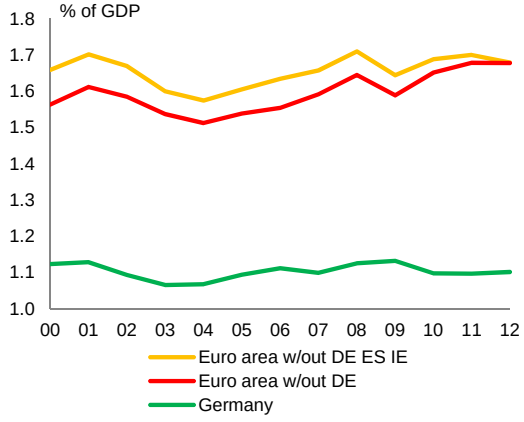
The bulk of the investment gap between Germany and the euro area is due to lower German investment in construction. A disaggregation of the investment share by investment good type shows that the significant gap in the investment share between Germany and euro area peers (excluding Ireland and Spain) is due mostly to a relative underperformance of construction investment in Germany following the reunification-related boom. Investment in other goods, which includes investment in intangible fixed assets, also appears to have been consistently weaker in Germany by a relatively stable margin and contributed on average 0.6 pp. to the aggregate investment gap in 2000-2012 (Graphs 3.30 and 3.31).

Graph 3.30: **Share of construction investment in GDP in current prices**



Source: Eurostat

Graph 3.31: **Share of other investment in GDP in current prices**



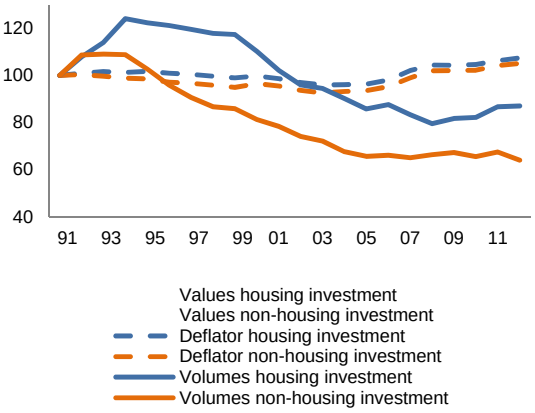
Source: Eurostat

Reunification, public subsidy schemes ([40]) and strong net migration fuelled a housing boom in the early 1990s. These factors can, however, not fully explain Germany's remarkably long-lived decline in housing investment. Housing investment represents somewhat more than half of construction investment and reflecting slack in activity after the construction boom in the early 1990s, the share in total investment declined until

([40]) For details on subsidies granted following reunification see European Commission (2007).

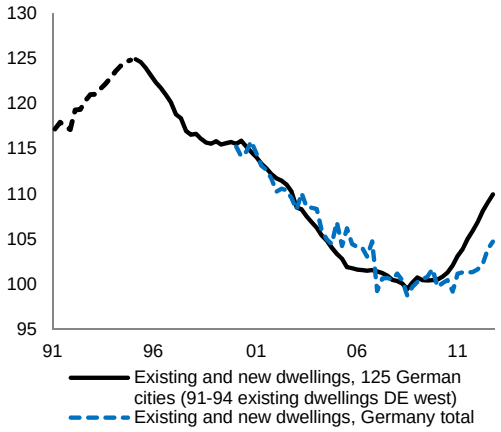
2007, which indicates that Germany's construction boom nearly two decades ago had a longer-lasting impact on the construction of new dwelling. Also, average net migration fell during the 2000s to almost one third compared to the preceding decade and net births were on a downward trend. The gradual increase in living space per head could not offset these weak demographics. While the post-reunification events and demographics are important to understand why Germany's housing investment cycle has differed from euro area trends, they cannot fully explain the protracted weakness in housing construction, which overall has expanded at a slower pace than other demand components. This suggests that demand-reducing factors, notably high unemployment and subdued growth in disposable income, have restrained housing investment. Tax policy choices may also have mattered. The elimination of tax incentives for the acquisition of owner-occupied houses as of 2005 (*Eigenheimzulage*), once the biggest single tax expenditure of the federal budget and abolished on the grounds of inefficiency and high budgetary cost, may also have impacted on private housing investment of low and middle-income households.

Graph 3.32: **Housing and non-housing construction investment to GDP ratio (index, 1991=100)**



Source: Destatis

Graph 3.33: **Real house prices (index, 2008=100)**

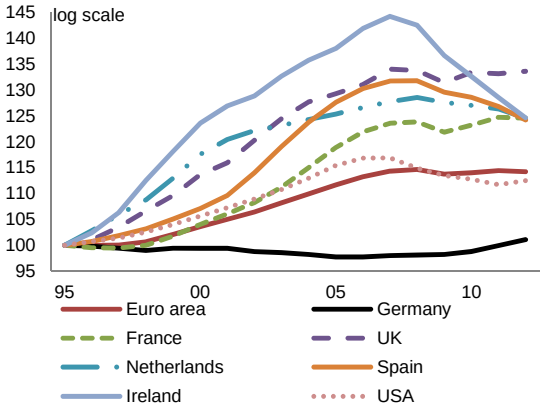


Sources: Bundesbank, Destatis

Strongly declining house prices until 2009 make Germany an outlier internationally and indicate that housing demand fell permanently short of housing supply. Moreover, weak house price developments might have hampered private consumption. The decline in nominal and real house prices in itself was a disincentive to invest in the housing market, in particular against the background of booming housing markets and price developments in other European countries. Additionally, the implicit wealth effect due to the decline in house prices is likely to have been a drag on private consumption as suggested by a cross-country analysis (see Graph 3.35). Analysis indicates that real house price developments adjusted in order to match housing demand and supply (see Box 3.4).

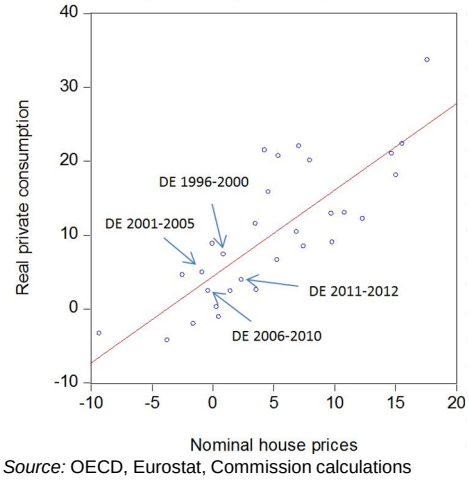
As of 2010, housing investment has been experiencing a rebound, underpinned also by the search for safe investments. The latest pick-up in housing investment, with German housing investment exceeding the euro area average, reflects the need for additional dwellings arising from stronger migration inflows as well as a robust labour market and more favourable financing conditions. This development is underpinned by subsidies on refurbishment aiming at CO2 abatement. Moreover, the search for safe investments seems to play a role since real estate can be considered as a comparatively safe and affordable investment type. This might in particular be the case in a situation of low expected return on many alternative assets, thereby supporting housing investment.

Graph 3.34: **Nominal house prices in selected countries (index, 1995=100)**



Source: OECD

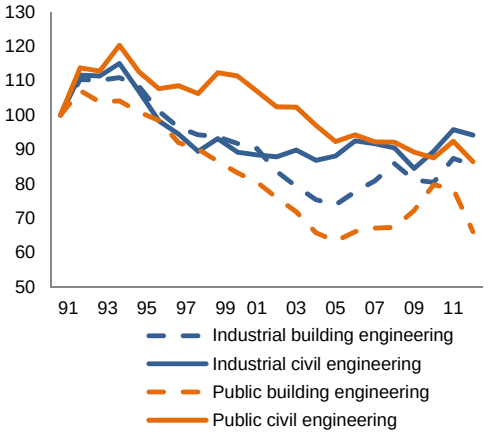
Graph 3.35: **House prices vs. private consumption**



Source: OECD, Eurostat, Commission calculations

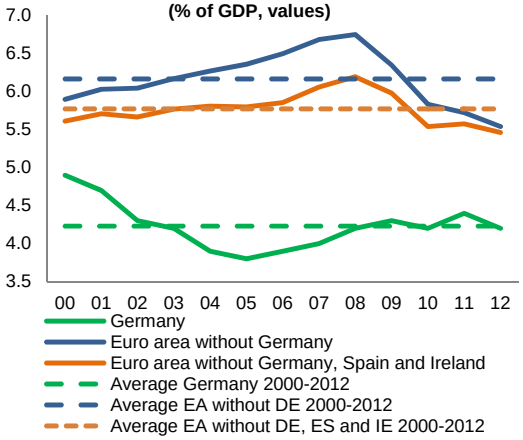
Real non-housing construction investment ([41]) has also been going through a long-lasting decline before stabilising in the mid-2000s. The weakness has been generalised, spanning over most private sectors and with the fall in investment in industrial and public buildings engineering being most pronounced. A certain part of the fall in non-housing construction investment can be explained by the preceding boom ([42]), e.g. the earlier hike in construction of infrastructure and buildings in East Germany, but unexplained investment weakness remains. Nonetheless, until the mid of the 2000s, practically all economic sectors contributed negatively to building investment and since then investment activity has remained stagnant in many sectors of the economy. Also in an international comparison non-housing construction investment has been extraordinarily weak. For total building investments, the German average investment ratio falls well short of the average of the euro area benchmark (excl. Spain and Ireland). Although the downward trend stabilised in the mid-2000s, the non-housing construction investment ratio remains very weak and the net stock has continued to decline as a share of GDP.

Graph 3.36: **Decomposition of non-housing construction investment (index 1991=100, volumes)**



Source: Destatis

Graph 3.37: **Non-housing construction investment (% of GDP, values)**



Source: Destatis, AMECO

The downward shift in actual and potential growth and concerns over future demand are likely to have reduced investment incentives. The subdued growth performance of the economy

([41]) Non-housing construction investment comprises all kinds of construction investment that do not refer to new dwellings or the renovation of existing dwellings. Roughly two third of non-housing investment accounts for building engineering while the remaining one third is civil engineering.

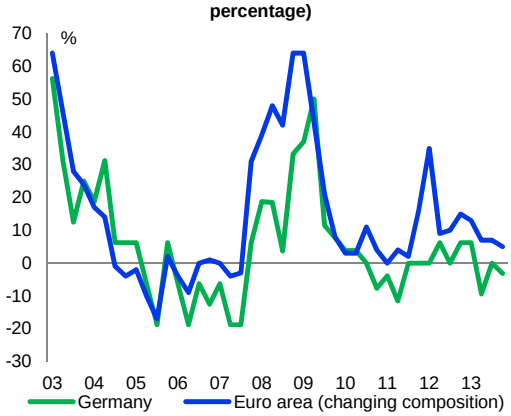
([42]) For more details on public non-housing investment see Section 3.2.3.2. With regard to possible over-capacities impacting private investment, see also Gluch (2005).

in the first half of the 2000s, driven by weak domestic demand, translated into capacity utilisation that was below the long-term average. This dampened investment incentives. Moreover, Germany's structural difficulties (see scene setter) reduced trend growth, which may have tempered businesses' expectations for future sales in the domestic market. A detrimental effect on investment of pessimism prevailing at the time about the viability of the German business model has been stressed, see Bornhorst and Mody (2012).

Other factors also reduced expected returns on domestic investment, which may have further dented investment. Following the bursting of the dot-com bubble at the beginning of the 2000s, a marked downward correction of expected returns in Germany took place, which took its toll on investment (Sachverständigenrat, 2002). ([43]) In addition, the dot-com bubble also entailed a significant increase in firms' indebtedness. This made access to external finance more difficult in the sense that higher returns on investment projects were required to obtain financing and pressure was exercised on many companies to deleverage (see section on corporate savings). On balance, this created an incentive to curb investment in an attempt at balance sheet repair. Moreover, regulatory changes from the phasing in of Basel II and Basel III may have reinforced the deleveraging trends. As balance sheet repair episodes are generally long-lasting (Ruscher and Wolff, 2013), the effect on investment could have been rather protracted.

Financing conditions, in particular in view of relative interest rate developments, may also have held back investment in the early 2000s. EMU brought about a convergence of nominal interest rates / sovereign bond yields, which also put a floor on relevant interest rates for firms. ([44]) Given remaining inflation rate differentials with lower relative inflation in Germany, this translated into real interest rate developments that implied a decrease in the optimal capital stock in Germany relative to most other euro area countries. Nominal interest rates on loans to corporations in Germany increased in the years to the early 2000s, which also tempered investment demand. ([45]) ([46]). Available indicators point to access to credit from banks - the predominant form of external financing in Germany - having been quite restrictive until the mid-2000s (see Graph 3.38). The share of firms reporting that access to credit was restrictive even exceeded the peak observed in the more recent crisis episode. In the most recent years, there is no evidence of supply side constraints (see Chapter 4).

Graph 3.38: **Change of banks' credit standards for loans to firms over previous 3 months (net percentage)**



Source: ECB lending survey

Globalisation is likely to also have played a role by heightening the required rate of return on domestic investment. Increasing integration of capital and other markets over the last decades has provided investors with opportunities to diversify beyond their home markets, including via investment decisions. Firm location decisions have also become subject to international competition. To the extent that it has made a wide range of profitable investment opportunities elsewhere

([43]) Judging by the performance of the equity segment *Neuer Markt*, exaggerations were especially pronounced in Germany, see fig. 1 in Appendix D of von Kalckreuth and Silbermann (2010).

([44]) Using micro data, Mojon et al. (2001) find for each of DE, FR, IT, ES that "a change in user cost of capital, which is in turn influenced by interest rates, has both statistically and economically significant effects on [firms'] investment".

([45]) ECB data for the big EA economies in 2003-2013 notably show that interest rates on 1-5 year bank loans to firms were noticeably higher in Germany than in Italy and Spain, though lower than in France in 2003-2006 before converging more closely. Up to 2009-10 rates among the four countries were the highest in Germany, but this has reversed since 2012.

([46]) A link between increasing rates and structural changes in the German banking sector has also been made (Broadbent et al., 2004), arguing that in addition to preparations for Basel II, the decreasing role of publically owned banks in Germany also in the context of the phasing out of the state guarantees for *Landesbanken* by 2005 translated into higher debt financing cost, also via a stricter commercial orientation of the German banking sector.

accessible, globalisation in a broad sense might have raised the required rate of return on investment.

A decreasing capital intensity of Germany's industrial sector, which is especially exposed to such global competition, bears some evidence in this direction ([47]).

There is, however, no indication that German foreign direct investment was conducted during the 2000s at the expense of domestic investment. Foreign direct investments (FDI) in Germany increased visibly in the 2000s compared to the preceding decade. In the same period, German outward direct investments rose slightly as a result of the increasing internationalisation of markets, but not to an extent that could explain the overall subdued investment activity in Germany, especially in a comparison with other countries subject to the same global trends. Even if FDI in some specific instances may have been a substitute for additional domestic investment, overall no crowding out of domestic investment by German outward FDI can be observed, which is supported by empirical analysis (see Deutsche Bundesbank, 2006). At the same time, firms' internationalisation strategies are likely to have played a larger role than reflected in FDI statistics. In particular, outsourcing and portfolio investment ([48]) are among additional options for internationalisation of supply chains (see also Chapter 5) that imply increased production capacities without domestic investment or recording in FDI statistics.

Changes in the tax system are likely to have had an overall supportive impact on firms' investment incentives. In international comparison, the German tax burden on investment has traditionally been very high. The tax reforms of 2001 and 2008 entailed a reduction in statutory and effective corporate income tax rates, reduced the trade tax rates ([49]) and broadened the tax base through modified depreciation rules. [50] Overall, these reforms led to a reduction in the tax burden on corporate investment, as measured by effective average and marginal tax rates at the corporate level. ([51]) Despite this, some features of the tax system still hamper investment, notably the tax burden on new investment financed with equity, which remained among the highest in the EU in 2012. ([52]) Also, at around 30% in 2013, the adjusted top statutory tax rate in Germany is still far above the EU (23.1%) and the euro area averages (25.9%). Finally, a relatively high administrative burden associated with the tax system may discourage investment. ([53]) Although the 2011 Tax Simplification Act brought about some improvements, small and medium-sized enterprises in particular would benefit from further simplification and reforms of tax administration.

Most of the key factors which have held back German investment are no longer in place and conditions are in principle there for a robust investment upswing. The economy is enjoying a gradual recovery, with short-term prospects for domestic demand being rather favourable on the back of the robust labour market. German firms benefit from sound fundamentals with healthy balance sheets and substantial profit margins. By the same token, financing conditions are favourable; they deteriorated less in Germany than in other euro area Member States in the financial crisis, reverted more quickly and appear rather accommodating in a historical comparison.

([47]) Deutsche Bundesbank (2007b), covering the period until 2005.

([48]) A percentage threshold for the acquisition of stakes in foreign firms is one of the elements distinguishing portfolio investment (below 10%) from FDI.

([49]) The corporate income tax rate was reduced in two steps on retained and distributed profits from 40% and 30%, respectively, to a uniform rate of 15%. The uniform base rate of the local trade tax (*Gewerbesteuer*) was reduced from 5% to 3.5%. For a description of main tax reforms in the area of business taxation since 1990, see Bach (2013).

([50]) The limits to the deductibility of interest expenditure ("Zinsschranke") introduced in 2008 might have had a dampening impact on investment via higher cost of debt financing, see Büttner et al. (2008).

([51]) See for example Becker et al. (2006) for an evaluation of the positive effects of a reduction of the effective tax burden on corporations on foreign direct investment based on the 2000 reform. A discussion of the effects of the 2008 reform on different types of companies can be found in Baretti et al. (2008).

([52]) See ZEW (2013).

([53]) According to a ranking of tax regimes across 189 economies in terms of the ease of paying taxes (PwC and World Bank/IFC, 2013), the time to comply with tax requirements for a medium-sized case study company in Germany amounted to 218 hours in 2012, against a EU & EFTA average of below 180 hours.

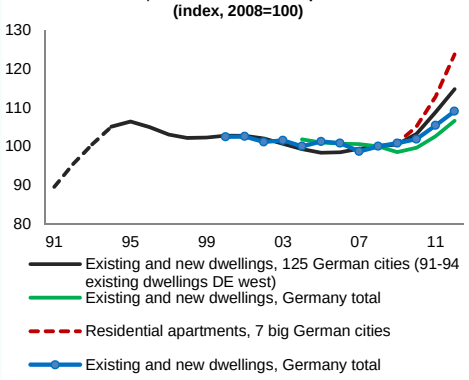
Box 3.4: **House prices in Germany**

House price dynamics have an important impact on economic activity, e.g. via housing investment as an important part of overall investment and on private consumption via the impact on savings and households' capital gains. In an international comparison house price developments in Germany are a clear outlier, having displayed dynamics that stand out as remarkably muted over a prolonged period of time. From the mid-1990's and up to recently, house prices declined in Germany in nominal as well as in real terms, while many other countries experienced prolonged hikes in property prices.

Opposing developments have continued in recent years, with house prices declining in the euro area and prices in Germany being on the rise. The negative price trend in Germany reversed in 2010. Recent increases in property prices are distributed heterogeneously across the country with upward dynamics being concentrated in large cities. In particular residential apartments in seven big cities show the steepest increase. Price indices that refer to Germany as a whole, hence comprising also rural areas, have started to climb later and much less dynamically.

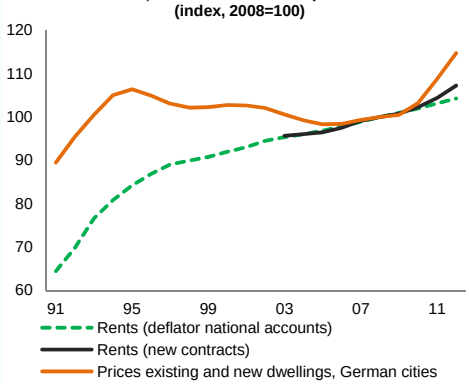
Changing property prices would usually be reflected in rental contracts and over time a co-movement should typically occur. In Germany, an anomaly has occurred until the late 2000s, as rents increased steadily while house prices dwindled. The dynamics in rents do not show an unusual pattern as rents were contained by legal limitations for existing contracts.

Graph 1a: **Nominal house prices (index, 2008=100)**



Source: Bundesbank, Destatis

Graph 1b: **Rents vs house prices (index, 2008=100)**



Source: Bundesbank, Destatis, vdp

Prices are expected to reconcile housing demand and supply, and understanding the determinants of housing demand and supply can help to identify the factors that have driven price developments. The literature usually lists household income, demographic variables and interest rates as key determinants of housing demand. Population and household formation directly affects the need for dwellings, while disposable incomes determine affordability and prosperity, for instance with respect to living space or quality of housing. With regard to housing supply, the existing stock of dwellings, housing investment, depreciation, and construction costs are crucial. Moreover, credit availability and financing terms, taxes, subsidies and other public policies can be decisive (for further details see European Central Bank, 2003).

To examine the drivers behind the price developments, the following model has been established, using the overall price index provided by Destatis and the house price index constructed by the Deutsche Bundesbank for existing and new dwellings in 125 German cities (hpi_DE and hpi_125).

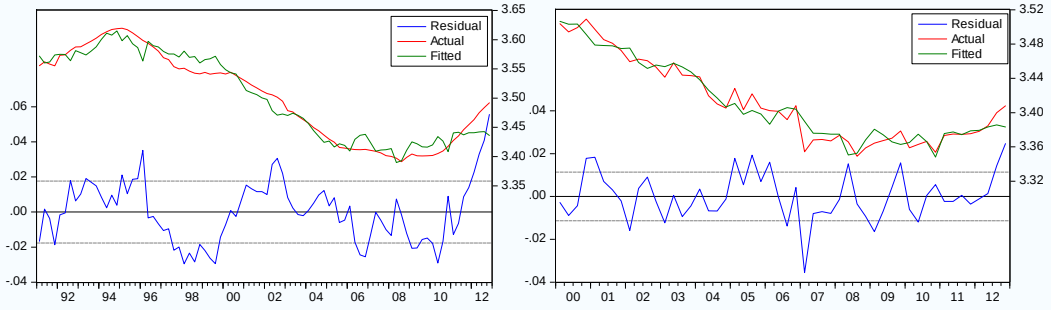
$$hpi_t = \alpha_0 c + \alpha_1 pop_t + \alpha_2 y_t + \alpha_3 inv_t + ec_t$$

(Continued on the next page)

Box (continued)

House prices are regressed on population (pop), real disposable income per capita (using the GDP deflator) (y) and real housing investments (inv). The residual is denoted by ec and the constant by c. ([1]))

		OLS						Cointegration-Test	
dependent	sample	c	pop_t	y_t	inv_t	adj. R^2	DW	Engle-Granger	Johansen Trace test
hpi_125_t	1991 q1 - 2012 q4	37.46	-3.00	-0.41	0.39	0.94	0.37	no	yes (5%)
	t-statistic	11.37	-9.93	-14.01	15.90				
hpi_DE_t	2000 q1 - 2012 q4	-8.26	1.08	-0.47	0.35	0.94	1.34	yes (5%)	yes (5%)
	t-statistic	-1.03	1.56	-11.93	14.66				



House price developments in Germany appear to have been determined to a large extent by real housing investments, population and real disposable income per capita in the long-run. The co-integration coefficients confirm a positive long-run co-movement between residential investment and real house prices. This result is quite similar to the co-integration analysis by Knetsch (2011). Hence, the long-lasting fall in house prices up until 2009 has been determined to a large part by households' subdued disposable income growth, reinforced by a significant drop in net migration and excess supply of housing following the 1990s construction boom. Second-round effects may have exacerbated the price dynamics via the negative impact on wealth from falling real house price, the relative drop in attractiveness of housing to other investment assets and the spill-over from declining prices to financing availability.

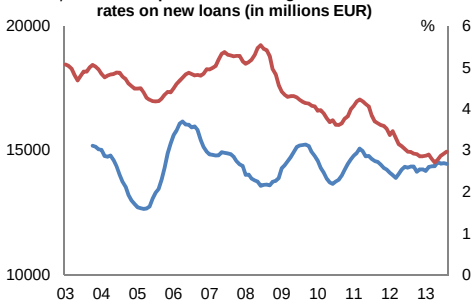
With respect to recent developments, it cannot be ruled out that property price increases are not entirely supported by fundamentals, in particular in big cities. Kajuth et al. (2013) conclude that for Germany as a whole apartment prices show a moderate overvaluation while this is not the case for single-family house prices. The Deutsche Bundesbank (2013b) quantifies a 5-10% overvaluation of dwellings in urban areas, in attractive big cities even up to 20%. Generally, however, there are currently no signs for worrisome developments and housing loans have also increased only moderately so far.

([1]) Nominal house prices: A) Seasonally adjusted house price index by Destatis (hpi_DE), period 2000q1–2012q4. B) House price index constructed by the Deutsche Bundesbank (hpi_125) on the basis of data provided by BulwienGesa AG (annual prices for existing and new dwellings in 125 cities, period 1995–2012 chained with West-German data for existing dwellings for the years 1991 – 1994. Quarterly data generated by interpolation matching the annual average. Price adjustment using the consumption deflator (National Accounts, August 2013 release).

(Continued on the next page)

Box (continued)

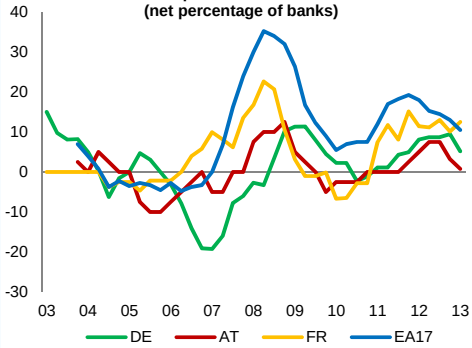
Graph 2a: **House purchase lending flows and interest rates on new loans (in millions EUR)**



Source: ECB, Eurostat

Note: Lending flows deflated using the HICP (2005=100)

Graph 2b: **Tightening of lending standards on house purchase loans (net percentage of banks)**



Source: ECB

Note: Net percentage of banks tightening (+)/loosening(-) their credit standards, 4-quarter trailing average

One additional reason for reduced housing demand over a prolonged period of time could be that financing terms were and remain comparatively restrictive in Germany (see Dreger and Kholodin, 2013). Self-financing is required to a larger extent than in other countries (a low mortgage rate) and the use of more flexible financing options is quite limited with fixed interest rates and long maturity being made us of most frequently. At the same time, the traditional caution in German mortgage lending has advantages from a financial stability point of view. The last years' increase in property prices and generally favourable financing conditions indicate that housing demand is not necessarily repressed by systemic features.

Yet, Germany recently recorded a 6-quarter stint of declining equipment investment and the overall investment gap to the euro area continues to accumulate, pointing to a risk that investment weaknesses have become entrenched. Machinery and equipment investment has unexpectedly been going through a soft patch, which only ended in the second quarter of 2013**.** Although housing investment is relatively vigorous, the non-housing investment share remains stubbornly low and also investment in other goods shows little sign of picking up. There is no single factor able to explain the continued subdued investment activity, which points to a real risk that the weakness has become entrenched. One factor most likely holding back a more vigorous and self-sustained pick-up in investment is the impact of uncertainty. Several recent studies have found a detrimental impact of economic policy uncertainty on investment. ([54]) European Commission (2013g) reviews empirical results and provides evidence for a significant negative effect of uncertainty on both investment and private consumption in the post-crisis period for nine euro area Member States. Uncertainty has indeed also been considered a key factor for the weak machinery and equipment investment activity in Germany in 2012. ([55]) Surveys show that uncertainty in relation to future domestic demand growth and domestic policy choices, e.g. regarding the cost of energy and the transformation of the energy sector (see Box 3.5), are factors weighing on business confidence. ([56]) The European debt crisis has also been an important source of uncertainty resulting in some loss of confidence. Policy action and policy clarity that would help dissipate uncertain, including in relation to completing the future design of EMU, could therefore be expected to impact positively on investment activity. Given that investment decisions also reflect firms' sales expectations, bringing an end to the protracted fall in import

([54]) Using micro data on manufacturing firms, a detrimental impact of uncertainty regarding *sales and cost* on investment by German firms had already been established for the period 1987-1997 by von Kalckreuth (2003).

([55]) See International Monetary Fund (2012). Bundesministerium für Wirtschaft und Technologie (2013a) finds a non-linear negative impact of policy uncertainty on investment good production in Germany in an econometric analysis. Sachverständigenrat (2013) identified a negative impact of uncertainty on equipment investment as of the year 2010.

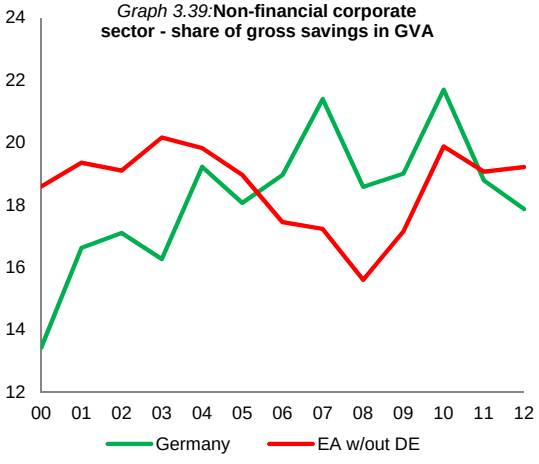
([56]) See e.g. Deutscher Industrie- und Handelskammertag (2014).

demand in many EU and euro area countries would also help further boost confidence among German firms.

3.4. A CLOSER LOOK AT CORPORATE SECTOR SAVINGS

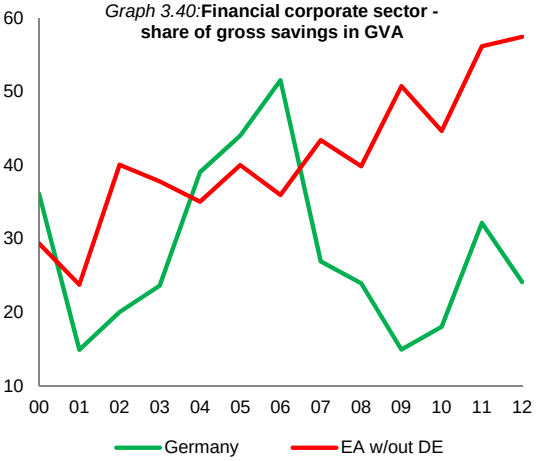
The rise in non-financial corporate (NFC) sector savings made the largest individual contribution to the build-up of the current account surplus before the crisis (5½ p.p. of GDP during 2000-2007). Although coming down slightly after the crisis, the level of corporate savings remains high and it is too early to confirm that a trend reversal has occurred. While the corporate sector's excess savings are partly due to the decrease in business investment, the increase in savings accounted for more than three quarters of the rise in the corporate net lending position and corporate savings accounted for around half of overall domestic savings until 2012. This warrants an investigation of possible reasons why companies continue to accumulate financial assets and deleverage, not least since investment activity has remained rather weak.

Graph 3.39: **Non-financial corporate sector - share of gross savings in GVA**



Source: Eurostat

Graph 3.40: **Financial corporate sector - share of gross savings in GVA**



Source: Eurostat

The trend increase in the German *non-financial* corporate saving rate contrasted with developments at the euro area level up until the crisis, while a certain co-movement has been observed afterwards. Amid pronounced fluctuations, the saving rate saw a clear trend increase throughout most of the 2000s and exceeded the euro area average in 2006-2010 (Graph 3.39). The German *financial corporate* sector's saving share has seen a much more uneven development. Savings sky-rocketed in the pre-crisis period to above 50% in 2006, but this was completely reversed in the following years (see Graph 3.40). Due to this absence of a clear trend and the financial sector's overall small economic weight (6.3% of corporate GVA in Germany in 2000-2012), its contribution to the increase in corporate saving was limited. The remainder of this section therefore focuses on developments in the non-financial corporate sector ([57]).

([57]) The markedly lower average savings share of the German financial corporate sector than that of its euro area peers reflects lower profitability of the German financial corporate sector, see chapter 4.

Box 3.5: **Energiewende**

In 2010, the German government adopted an Energy Concept, which outlined its long-term strategy towards a low carbon economy. The Fukushima nuclear disaster prompted the government to accelerate the planned phase out of nuclear power and to immediately shut down eight nuclear power plants. The resulting legislative package of 2011 laid the ground for Germany's *"Energiewende"*, which aims at phasing out nuclear energy by 2022, increasing the share of renewables in overall energy consumption from 17% to 35% in 2020, and reducing energy consumption by 10% by 2020.

The transformation of the energy system brings significant changes in energy supply and poses a major challenge in terms of minimising its overall economic costs. It will also require substantial investment mainly by the private sector in the production capacity of renewables, the expansion and upgrading of electricity grids, and energy-efficient building refurbishment. ([1])

Rapid deployment of renewable electricity capacity has been achieved mainly through feed-in tariffs, enshrined in the Renewable Energy Act (*Erneuerbare-Energien-Gesetz, EEG*). However, this has come at high costs and with long-lasting consequences, since feed-in tariffs are guaranteed usually over a 20-year period. Despite measures taken in the past – including controlling the costs of promoting solar energy – the surcharge paid by electricity consumers to cover the difference between wholesale prices and guaranteed feed-in tariffs received by renewables producers (*EEG-Umlage*) has increased from 2012 to 2013 by 47 % to 5.28 c€/kWh and by another 18% to 6.24 c€/kWh in 2014. Moreover, costs have been allocated unevenly among electricity consumers due to exemptions for energy-intensive industries. On average, the retail price for German households is 57% higher than for businesses, compared to 32% in the EU. ([2]) The new federal government recently adopted key issues for a reform of the *EEG* that aims at achieving a share of renewables electricity of 40 to 45% in 2025, while ensuring affordability and security of supply. The plans foresee a reduction of the average feed-in tariff from 17 to 12 c€/kWh, the introduction of call for tenders to determine the level of the feed-in tariffs as from 2017, technology-specific caps on maximum capacity expansion, obligatory direct marketing of renewable electricity for larger facilities, and a stricter limitation of exemptions from the *EEG-Umlage* to energy-intensive businesses facing international competition.

The significant increase of renewable production in particular in the North Sea and Baltic Sea areas and the reduced nuclear capacity in the more industrial southern *Länder* along with a slow pace of network expansion have led to capacity bottlenecks. ([3]) In view of this situation, a draft national demand plan (*Bundesbedarfsplan*) was adopted in 2012 following upon the ten-year network development plan (*Netzentwicklungsplan*) with a view to accelerating the approval and administrative procedures for a list of priority projects. Further, the regulator (*Bundesnetzagentur*) has been charged with planning and approval procedures for grids across *Länder* and cross-border grids, and a liability regime for offshore wind farm grid connection and an offshore grid development plan were adopted.

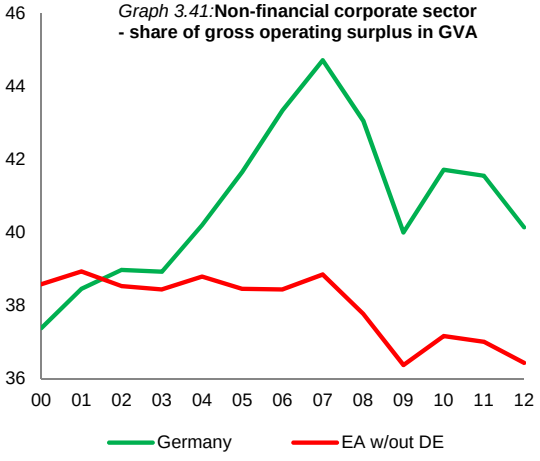
([1]) Blazejczak et al. (2013) estimate total annual investment of approximately 31 to 38 billion euros, of which 17 to 19 billion euros would be needed for the expansion of renewable electricity and heat generation, around 6 billion euros for power grids, between 6 and 13 billion euros for energy-efficient building refurbishment, and around 1 billion euros for the system integration of renewables, such as electricity storage systems. Similarly, ENTSO-E (2012) expects in its ten-year network development plan investment of 30 billion euros by German transmission system operators mainly in transmission network and cross-border interconnections.

([2]) This applies for median customers and does not include energy-intensive industries (European Commission, 2014a).

([3]) According to Bundesnetzagentur (2012), a majority of the 24 network expansion projects will start operations later than expected. For 15 out of the 24 projects the expected delay is between one and five years.

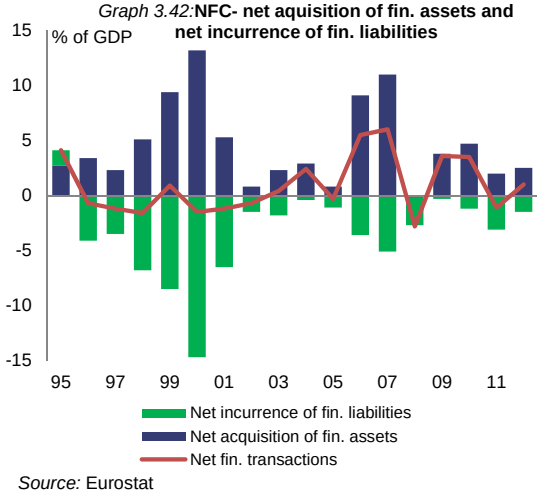
The increase in the share of operating profits was not matched by a corresponding rise in the share of profit taxes paid and dividend pay-outs were insufficient to contain the surge in corporate savings. A strong increase in operating profitability before the crisis (see Graph 3.41) was supported by wage restraint. As discussed (Section 3.2.2), corporate tax reforms have lowered marginal and effective tax rates for corporations, thereby supporting higher net profits. This appears to have especially boosted after-tax profits after the 2001 tax reform. Interestingly, the persistently high corporate profits have not been matched by increasing dividends, since distributed income paid rose only slightly until the mid-2000s and receded again in recent years. Net interest developments also contributed to the rise in non-financial corporate savings, reflecting higher interest income received.

Graph 3.41: **Non-financial corporate sector - share of gross operating surplus in GVA**



Source: Eurostat

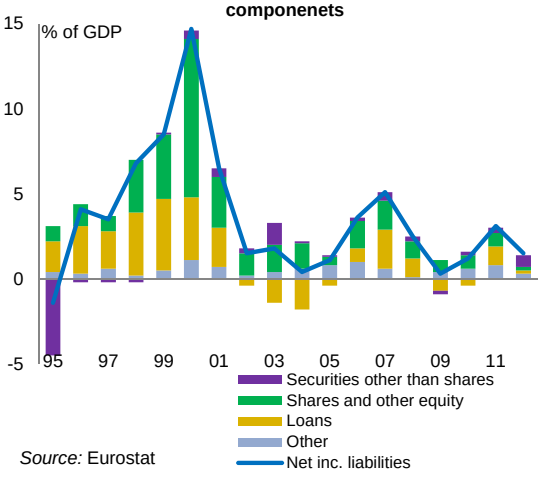
Graph 3.42: **NFC- net aquisition of fin. assets and net incurrence of fin. liabilities**



Source: Eurostat

Non-financial corporations used their excess savings to strengthen their balance sheets by acquiring financial assets and also by reducing their indebtedness. Following the dot-com boom and bust, i.e. after 2001, German non-financial corporates moved into a net lending position (Graph 3.42 **(**[58]**)**. Companies reduced their indebtedness (on a net basis) in 2002-2005 and again in 2009-2010 (Graph 3.43). Both deleveraging episodes appear to have been a reaction to a difficult economic situation, facilitated by the profit-generating capacity of companies facilitating a rapid adjustment. Quantitatively, however, corporates' net acquisition of financial assets was more important than their reduction in indebtedness. Notably, firms increased their net holdings of shares and other equity by on average 2% of GDP per year in 2001-2012 and at the same time raised currency and deposit holdings by more than ¾ % of GDP per year (Graph 3.44).

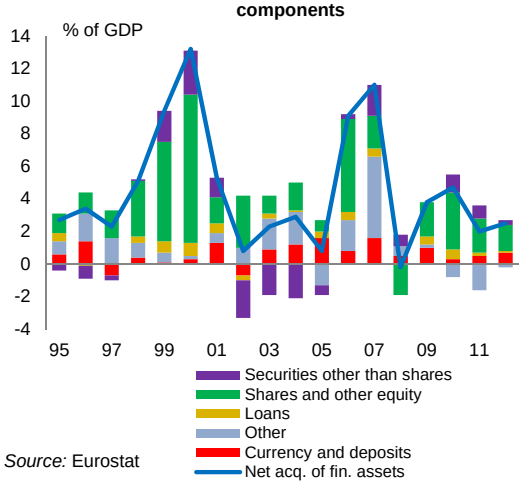
Graph 3.43: **NFC - net incurrence of fin. liabilities and componenets**



Source: Eurostat

([58]) Conceptually, the increase in net financial assets derived from financial accounts corresponds to the value of net lending from national accounts. However, there can be large discrepancies between the two in practice given that the statistical sources underlying both values differ.

Graph 3.44: **NFC - net aquisition of fin. assets and components**



Source: Eurostat

It remains puzzling that firms preferred moving into a net lending position instead of investing more or distributing more profits, which could be interpreted as a sign of inefficiencies. Typically non-financial firms are net borrowers, and although the move of Germany's NFCs into a net lending position is not outstanding internationally ([59]), the persistence is noteworthy with the sector recording a net lending position in most years since 2002. That the increase in savings does not appear to have been motivated by the desire to finance higher investment in physical assets makes it all the more difficult to understand why firms persistently chose to retain an important fraction of their increased earnings rather than distributing it to shareholders. ([60]) ([61])

Several changes to the corporate tax system had an important impact on the capital structure choice and pay-out policy of German non-financial corporates. The 2001 corporate tax reform reduced the tax benefit of debt finance from interest deductibility provisions (by lowering the corporate tax rate) and favoured the retention of profits in the corporate balance sheet by abolishing the earlier tax discrimination of retained profits (by setting a single tax rate of 25% instead of 40% on retained profits and 30% on distributed profits). ([62]) Regarding the taxation of dividends, the reform entailed a shift from an imputation system to a half income system at the household level. ([63]) Recent empirical evidence shows that the resulting double taxation of dividends led to a decrease in the propensity to pay dividends and in pay-out ratios. It also led to an increase in the preference for share repurchases ([64]) (Kaserer et al., 2012). The 2008 reform further reduced the tax benefit of debt finance by lowering the corporate tax rate to 15% and restricting the deductibility of interest payments ("Zinsschranke" applicable to large firms). The latter contributed to lowering the debt-to-assets ratio of German corporations (Buslei and Simmler, 2012, Dreßler and Scheuering, 2012 and Ruf and Schindler, 2012) and further strengthened the incentive to accumulate internal funds to the extent that they are cheaper. ([65]) The deleveraging episodes in 2002-05 and 2009-10 therefore appear to relate to the incentives stemming from the tax reforms in 2001 and 2008.

([59]) In the first half of the 2000s, the same was observed for the corporate sector in a number of advanced economies, see André et al. (2007) and International Monetary Fund (2006b).

([60]) The high savings appear puzzling also from a corporate governance point of view since in light of agency problems, shareholders should wish to constrain the free cash flow that managers could potentially waste (Jensen, 1986). This points to the importance of firm heterogeneity for corporate savings. For instance, motives for accumulating savings might vary with firm size, as e.g. reflected in FDI-related equity acquisition (likely more relevant for medium and large firms).

([61]) This might potentially also reflect the structure of the German non-financial corporate sector. Distributing earnings might have been less obvious for *Mittelstand* firms run by owner-managers than for firms owned by independent shareholders.

([62]) Based on data for the years 1973-2008, Hartmann-Wendels et al. (2012) provide evidence that interest deductibility provisions matter for the capital structure decisions of German non-financial corporations.

([63]) In 2009, this system was replaced by a withholding tax.

([64]) In some advanced economies the increase in corporate savings appears to have been reflecting the different treatment in national accounts of two ways of channelling earnings to investors, namely share repurchases (which are made out of recorded savings) and dividends (which are subtracted in the calculation leading to savings). In the US, for instance, share repurchases have gained significantly in importance, see International Monetary Fund (2006b). There is no evidence suggesting that they have played an important role in Germany. Jauch (2013) constructs adjusted non-financial corporate saving rates for G7 countries with data until 2008. Correcting for the impact of share repurchases significantly lowers saving rates notably for the UK and the US. For Germany, the pattern of a trend increase in corporate savings in the 2000s remains largely unchanged.

([65]) At the same time, taking into account tax changes also at the domestic investor level, notably the introduction of a withholding tax for interest and dividend income at personal level in 2009, the Sachverständigenrat (2007) points to an increase in the cost of capital for investment financed through retained earnings and external equity relative to debt. Deutsche Bundesbank (2012a) does not find any upward effect of these changes on corporate indebtedness, possibly due to being masked by cyclical movements.

The changes to the tax system appear to have simultaneously reduced the incentives for debt finance and for paying out dividends at the firm level, which could have contributed to the rise in earnings retention. ([66]) While corporate and household sector savings would theoretically be substitutes, they moved in parallel in Germany in the 2000s, giving an indication that households did not "pierce the corporate veil".

Firms' acquisition of equity might to some extent have reflected the increasing internationalisation of German non-financial corporates. As Graph 3.44 depicts *consolidated* non-financial corporate sector developments, the acquisition of shares and other equity took place vis-à-vis the German *financial* corporate sector and companies abroad. The latter is likely to have been the larger component. ([67]) To the extent that equity acquired abroad was made up of short-term financial investment, this might have reflected a lack of profitable investment opportunities in Germany raising the question if corporate governance inefficiencies allowed non-financial firms to undertake such investment activities falling outside their core business expertise, instead of letting owners receive and allocate the funds. At the same time equity could also have been acquired strategically in the context of firms' internationalisation strategy, e.g. through FDI ([68]). Taking into account also unpublished data, Deutsche Bundesbank (2012a) finds that the main recipients were German firms' foreign affiliates, which covered part of their funding needs using the equity capital provided by their parent companies. A large part of the equity acquisition could thus have been a reflection of the international supply chain integration of German firms, in particular with Central and Eastern Europe, where the build-up of the capital stock of foreign affiliates and the possibly higher financing costs in these foreign markets have motivated a growing importance of intra-group financing structures. At the same time, the German non-financial corporate sector does not appear to have been a particularly successful financial investor. In 1999-2011, the return on its financial assets was much lower than the one earned by its euro area peers, while returns paid on financial liabilities were broadly comparable (based on national accounts data). The pattern does not appear to have been driven by asset composition.

Precautionary motives could have motivated higher holdings of currency and deposits. An increase in non-financial corporate cash holdings has been observed in a number of advanced economies in the 2000s. ([69]) Across countries, this could have reflected higher and more liquid precautionary savings in the face of uncertainty, notably increased sales volatility, inter alia to ensure smooth dividend payments. Crisis-related uncertainty and the currently low opportunity cost of holding such assets could also have contributed to the accumulation of short-term assets. Furthermore, to the extent that firms' decisions are not fully optimisation-based, an increase in retained earnings combined with limited real investment opportunities might have mechanically translated into higher cash holdings. In a longer-term perspective, the increased cost of external funding due to a higher share of intangible assets in firms' balance sheets could also have stimulated cash holdings for internal financing. ([70])

Firms' wish to reduce their dependence on banks and tighter banking regulation appear to have played a role. Especially in the aftermath of the financial crisis, firms might have wished to reduce their dependence on external financing, notably from banks. ([71]) This could to some extent have reflected a voluntary diversification of financing sources, e.g. in response to the misfortunes of a large subset of German banks during the crisis or a reaction to the deleveraging pressure exercised on companies earlier in the 2000s after the bust of the dot-com bubble. For

([66]) See also Deutsche Bundesbank (2000) and (2007c).
([67]) Given that the amount of equity acquired by the non-financial corporate sector was high in comparison with or even exceeded the total amount of equity issued by German financial corporates (on a net basis).
([68]) The data presented do not allow distinguishing between the type of investment.
([69]) See for example International Monetary Fund (2006b).
([70]) Based on developments extrapolated from individual firms' balance sheets and financial statements, immaterial assets accounted for an average 1.5% of German firms' total assets in 1997-2000, compared to 2.0% in 2001-2009 (Deutsche Bundesbank, 2011a).
([71]) While German firms' financing has traditionally been characterised as bank-based, the importance of bank loans for external financing has decreased significantly over the last two decades. The share of bank loans in total external liabilities decreased from 32% to 18% in 1991-2010, while the share of loans from other creditors more than doubled from 6% to 14%. See Deutsche Bundesbank (2012a), pp. 20-23.

SMEs, the development can in part be seen as a catching-up process in capitalisation relative to European peers, as the existence of an equity gap in Germany had been widely discussed. ([72])Indeed, the 8½ p.p. average increase in the ratio of equity to total assets between 2000 and 2012, was particularly pronounced for small and medium-sized firms (+14½ pps. vs. +4 pps for large firms) ([73]). At the same time, the role of the run-up to Basel II and III has been stressed by Deutsche Bundesbank (2013c). Notably, banks and business associations appear to have raised firms' awareness at an early stage about the impact of weak equity capitalisation on financing cost in the context of regulatory tightening, thereby advocating firms' adjustment process. While the tightening in regulatory requirements was not specific to Germany, the relatively weak starting position regarding equity capitalisation of parts of the non-financial corporate sector in conjunction with favourable profitability developments might have accentuated the balance sheet adjustment in the German case. The historically close bank-to-company relationships in Germany may have strengthened banks' role in promoting this adjustment process.

Existing analyses do not provide a conclusive answer to what extent credit supply constraints lie behind the trend of excess corporate savings. The pace of German firms' balance sheet expansion has been much slower than at the euro area level. This might reflect differences in growth strategies, e.g. due to the dominance of family-owned *Mittelstand* firms, but could also suggest problems with access to bank and capital market financing. Some evidence suggests that indeed access to bank finance in Germany was affected by tighter lending standards than elsewhere, notably in the first part of the last decade, which may explain both the low growth in the corporate sector liabilities and the recourse to own financing and growing excess savings. Nehls and Schmidt (2003) find evidence of credit supply restrictions in Germany particularly in the beginning of the 2000s. Gern and Jannsen (2009) report that estimated demand for bank credit in Germany was higher than actual demand between 2000 and 2003 and a Eurobarometer survey conducted in 2005 ([74]) shows that more than 80% of German SMEs reported that they had found it difficult to obtain bank funding, which was a higher share than in other EU Member States. Puri et al. (2009) find that the German savings banks most exposed to 2007-8 losses in the US through their affiliated Landesbanken tightened their lending standards more than others. However, Deutsche Bundesbank (2009) finds that German credit developments were as high as macroeconomic fundamentals would suggest. In a cross-country analysis based on firm-level data on publically-traded industrial firms for Germany, France, Italy, Japan and the US, Brufman et al. (2013) provide some empirical evidence that the increase in corporate excess savings in 1997-2011 may also have been related to credit constraints, in addition to volatility of the operating environment and firms' growth opportunities. The signs of credit supply constraints in Germany have been more pronounced at times, notably up to the mid-2000s and broadly coincide in time with the evolution in non-financial firms' equity position, suggesting that at least part of this process can be explained by banks advocating corporate deleveraging and in that light at the same time restricted access to credit.

Some of the factors favouring excess non-financial corporate savings appear to be of a structural nature. The international integration of the German non-financial corporate sector is unlikely to be facing a reversal, implying that firms would continue to accumulate savings to invest in and provide funding to foreign affiliates. To the extent that a desire to reduce the dependence on bank financing and various forms of credit constraints may have motivated the non-financial corporates to strengthen their balance sheets, it would require structural changes in financial intermediation in order to reduce companies' excess savings. Moreover, the tax system is an important element of the framework conditions and changes that affect firms' choice of financing sources and impact on the propensity to pay out dividends are in this sense structural in nature. At the same time, some factors could be expected to attenuate the excess corporate savings, e.g. firms' profitability might have been boosted by exceptional business cycle developments just

([72]) See e.g. the discussion in Bannier and Grote (2008).
([73]) See Deutsche Bundesbank (2013c).
([74]) Eurobarometer No. 174 and 184 on access to finance.

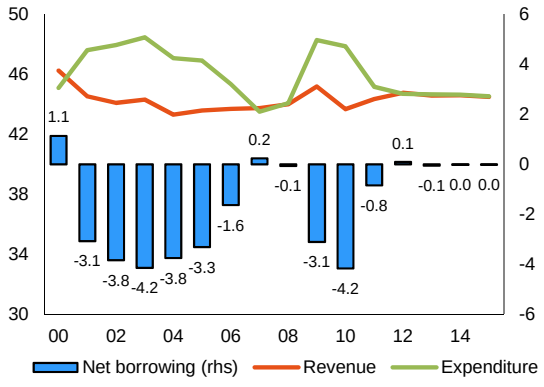
before the crisis and has declined in the aftermath of the crisis. Precautionary motives would also be expected to diminish as the uncertainty entailed by the current crisis fades away.

3.5. A CLOSER LOOK AT THE FISCAL STANCE AND PUBLIC INVESTMENT

Public finances influence the current account directly through the government sector's saving and investment balance, which requires an analysis of the appropriateness of Germany's fiscal stance and the developments in public investment. As discussed in previous chapters, tax policies also indirectly impact on the current account balance through influencing private agents' saving and investment decisions.

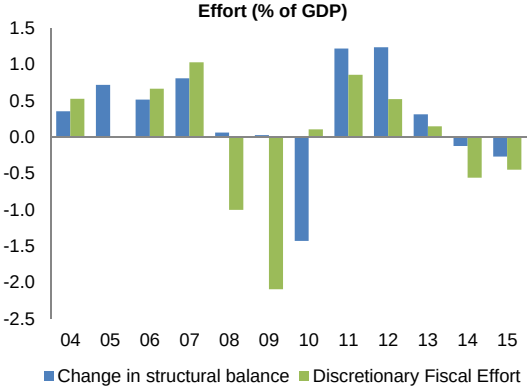
Germany's budgetary position since the beginning of the millennium has mirrored both cyclical and more structural developments. Weak growth and adverse labour market developments in the first half of the last decade and the global financial and economic crisis in the second half resulted in general government deficits above the 3%-of-GDP threshold over the period 2001-05 and again in 2009 and 2010, followed by consolidation and balanced budgets once economic growth accelerated (Graph 3.45). Moreover, pension, labour market and tax reforms have structurally influenced fiscal outcomes, e.g. by containing pension expenditure growth and by contributing to Germany's favourable employment growth.

Graph 3.45: **Total revenue, total expenditure and net borrowing (% of GDP)**



Source: AMECO (Commission 2014 winter forecast), Bundesministerium der Finanzen (2013a)

Graph 3.46: **Fiscal Stance according to the structural balance and Discretionary Fiscal Effort (% of GDP)**



Source: AMECO (Commission 2014 winter forecast), Commission services calculations

Cyclical patterns and structural shifts have been present in both expenditure and revenue items. A declining trend in social transfers other than in kind reflects structural changes in the labour market and restrained growth of pension expenditure. Direct tax revenues have been on an upward trend since 2005, supported by the gradually more favourable labour market and wage developments. In contrast, social contributions have declined markedly by nearly 2% of GDP between 2000 and 2012, partly due to a reduction of contribution rates. Against the background of subdued household consumption growth, indirect tax revenue has been more stable. Overall, growth in Germany appears to have been rather tax-poor over the last decade. ([75])

Germany's fiscal stance was not overly restrictive during the period when the current account surplus built up. Fiscal policy was geared to curbing excessive deficits in the first half of the 2000s, and to countering the negative impact of the economic crisis and reducing the high debt-ratio in the second half of the 2000s. The change in the structural balance suggests that efforts were made to structurally reduce the deficit, which had reached a peak of -4.2% of GDP in 2003 (Graph 3.46). ([76]) This consolidation episode ended in 2007, and in response to the crisis fiscal

([75]) European Commission (2013a) estimates an average tax elasticity of less than one for Germany over 2001-12, both in gross terms and net of discretionary tax measures, which may reflect relatively more dynamic exports that are typically tax-poor compared to more tax-rich domestic demand.

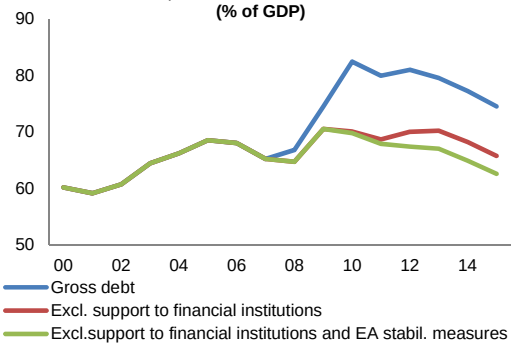
([76]) For a more detailed description of consolidation efforts during this period see Devries et al. (2011).

policy was overall expansionary over 2008-10. A significant temporary fiscal stimulus of estimated 1½ of GDP in 2009-10 was provided to attenuate the impact of the recession. ([77]) Moreover, stabilisation measures in support of German financial institutions added 1.3% of GDP to the deficit in 2010. The fiscal stance tightened again in 2011-12, with a change in the structural balance of 2½% of GDP. The Discretionary Fiscal Effort (DFE), an alternative indicator of the fiscal stance, suggests a somewhat smaller tightening ([78]) and that about one third of the deficit reduction in 2011-12 can be ascribed to active policy measures, including the phasing out of the fiscal stimulus. This suggests that automatic stabilisers played a significant role in the deficit reduction. In fact, rising employment, falling unemployment and significant wage increases led to buoyant tax revenues and moderate expenditure growth. The fading out of the one-off impact of financial sector measures also contributed to the swift deficit reduction.

Germany achieved a balanced budget and its medium-term budgetary objective already in 2012, well ahead of the planned adjustment path. Germany achieved a balanced budget and a slight structural surplus in 2012, well ahead of the adjustment path towards its medium-term budgetary objective that was planned in earlier Stability Programmes. The constitutional balanced budget rule limiting the structural deficit at 0.35% of GDP for the federal budget as from 2016 was also complied with already in 2012. ([79]) This frontloaded adjustment has provided space for a less restrictive fiscal policy, and the latest budgetary projections foresee that Germany's fiscal stance turns slightly expansionary in 2014-15. ([80])

Public debt increased markedly during the crisis, which makes it necessary to bring the high debt ratio on a downward path. Gross debt surged from 65% of GDP in 2007 to more than 82% of GDP in 2010 (Graph 3.47), with support to ailing financial institutions accounting for most of the increase. The swift deficit reduction and the denominator effect of GDP growth have resulted in a reversal of the trend since 2011, and a gradual reduction in the debt-to-GDP ratio is expected in the years to come.

Graph 3.47: **Debt-to-GDP ratio (% of GDP)**



Source: Commission services (Commission 2014 winter forecast), Bundesministerium der Finanzen (2013a), Deutscher Bundestag (2013), Drucksache 17/14397
Note: Projections for 2013-2015 do not consider possible debt reductions from the winding up of 'bad banks'.

Public sector fixed capital formation has been falling for a long time in Germany and net investment has in the last decade been negative in most years. A trend decrease in the share of German *public* sector investment in GDP has been observed since the 1990s. Gross fixed capital formation of general government steadily declined from 2.6% of GDP in 1992 to a low of 1.4% of GDP in 2005 and has stabilised thereafter, also due to the impact of the stimulus package (Graph 3.48). ([81]) Public investment - whether measured in

([77]) In view of the strong recession, the German federal government adopted three consecutive policy packages in 2008-09 aimed at promoting growth, which included a wide range of revenue and expenditure measures such as an infrastructure investment programme, a car scrapping scheme and a promotion of short-time work arrangements.

([78]) The DFE aims to combine top-down and bottom-up approaches for measuring the fiscal stance with a view to addressing that changes in structural balances can be driven by economic developments and not by government action. The DFE combines a bottom-up approach by adding up the budgetary effect of revenue side measures with a top-down approach on the expenditure side, which measures the fiscal effort as the gap between spending and potential growth (see European Commission, 2013a).

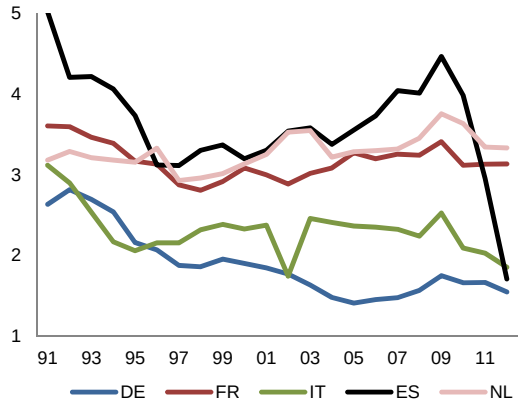
([79]) The constitutional structural deficit ceiling for the federal budget of 0.35% of GDP is being phased in until 2016. Accordingly, the deficit recorded in 2010 needs to be reduced in equal steps until 2016. The constitutional requirement of (structurally) balanced *Länder* budgets takes effect in 2020.

([80]) Commission 2014 winter forecast (European Commission, 2014b).

([81]) An investment programme of around €14 billion over the period 2009-11 (*'Zukunftsinvestitionsprogramm'*) was set up by the federal government as part of the stimulus packages. Thereof, about 4 bn euros were planned for federal investment and the remaining 10 bn euros to co-finance investment undertaken by the *Länder* and municipalities, such as in educational infrastructure, hospitals, urban development, and information technology, with an emphasis on energy-saving investment. Additional

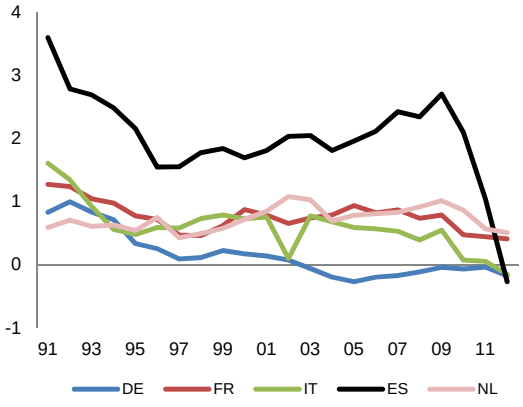
gross or net terms - has been low not only in comparison with countries still in need of upgrading their infrastructure, but also with countries with well-developed infrastructure like France and the Netherlands. German public net investment has even turned slightly negative in most years since 2003, meaning that gross investment has fallen below depreciation (Graph 3.49).

Graph 3.48: **Gross fixed capital formation of general government (% of GDP)**



Source: AMECO

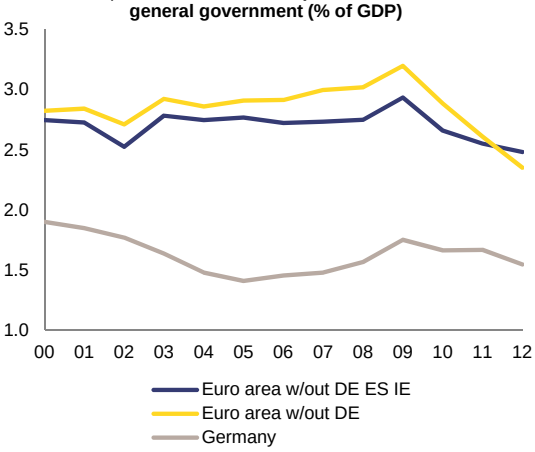
Graph 3.49: **Net fixed capital formation of general government (% of GDP)**



Source: AMECO

The low public sector investment over a prolonged period of time implies that a sizeable investment differential to the euro area as a whole has been cumulating. The average annual investment differential to the euro area excluding Germany, Spain and Ireland over the period 2000-12 amounts to 1.1% of GDP in gross terms (Graph 3.50). This is a stark difference given the small overall weight of public investment in GDP and implies that the public sector represents more than half of the total investment gap that has cumulated vis-à-vis the euro area ([82]). The public investment gap peaked at 1.4% of GDP in 2005 and stood at 0.9% of GDP in 2012. Although the difference has been somewhat smaller for net than for gross fixed capital formation, it still amounted to an average of 0.7% of GDP during 2000-12. At the same time, it should be recalled that the difference to other countries can partly be explained by lower relative price increases for investment in Germany, construction booms in other countries and the catching-up process in East Germany ([83])**.**

Graph 3.50: **Gross fixed capital formation of general government (% of GDP)**



Source: Eurostat

funds of 1 bn euros annually were provided in 2009 and 2010 to improve transport infrastructure. This has been followed in 2012 by an accelerated infrastructure investment programme providing additional funds of in total 1.75 bn euros.

([82]) A cross-country sectorial comparison is difficult also due to statistical effects, such as differences in the public versus private provision of certain goods and services.

([83]) See Ifo Institut (2013) and Sachverständigenrat (2013).

Box 3.6: **Quantifying the infrastructure investment gap in Germany**

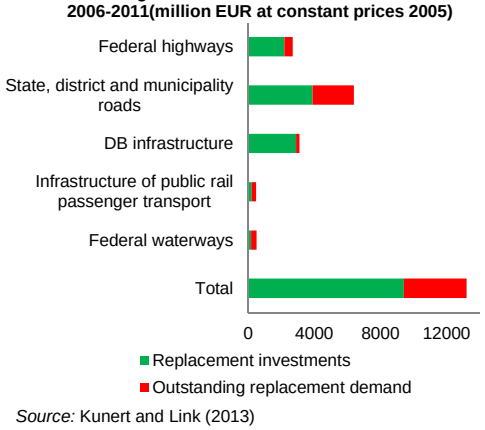
Reidenbach et al. (2008) assessed the investment backlog as well as extension and replacement needs of municipalities for the period 2006-2020, including their special purpose associations and corporations, with respect to drinking water infrastructure, wastewater systems, schools, administration buildings, hospitals, sports facilities, roads, public transport, urban construction and acquisition of real estate. The municipal investment backlog accumulated in 2005 is estimated at 70 bn euros, which is proposed to be gradually reduced until 2020. Over this period, most investment is needed in municipal roads, schools and wastewater systems.

A recent survey among municipalities (KfW, 2013b) identifies a perceived investment backlog of 128 bn euros, of which 33 bn euros in transport infrastructure, which also reflects that new political priorities are expected to require additional investment such as in childcare facilities and energy-saving building refurbishment. On the other hand, more municipalities expect a reduction rather than a further increase of the investment backlog in the coming years.

A commission set up by the federal and *Länder* governments to draw up proposals for the future funding of transport infrastructure at federal, *Länder* and municipality level identified a permanent underinvestment of at least 7.2 bn euros annually (Bundesrat, 2012). Thereof, 4.7 bn euros more would need to be spent on roads, including municipal roads, 2.0 bn euros on railway infrastructure and 0.5 bn euros on waterways to avoid further asset erosion.

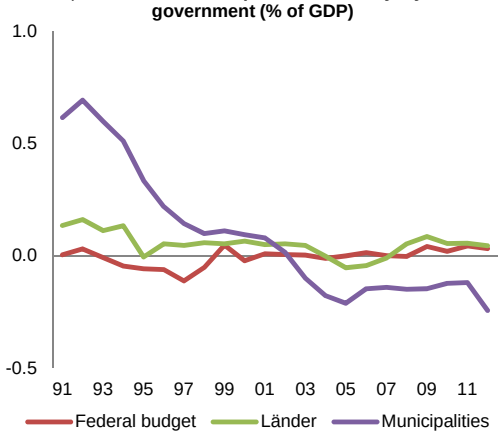
Similarly, based on an assessment of fixed assets, asset disposals and depreciation of transport infrastructure, Kunert and Link (2013) calculate a funding gap of 3.8 bn euros annually (replacement needs not met by investment), of which almost 40% concerns *Länder*, county and municipal roads. The reduction in the accumulated investment backlog would require additional funding for transport infrastructure of at least 6.5 bn euros annually. This would need to be further increased for investment in public transport vehicles and targeted network and capacity extensions.

Graph 1a: **Annual infrastracture replacement demand according to DIW's fixed assets calculations for 2006-2011(million EUR at constant prices 2005)**



Source: Kunert and Link (2013)

Graph 3.51: **Net fixed capital formation by layer of government (% of GDP)**



Source: Destatis, Commission services calculations

The fall in gross fixed capital formation of the public sector has taken place almost entirely at the level of municipalities, partly due to decreasing investment needs in East Germany. Municipalities by far invest most in public infrastructure. However, in net terms their investment has been on a downward trend for long and has been negative since 2003 (Graph 3.51). The decrease in municipal investment can partly be ascribed to strong infrastructure investment in East Germany in the 1990s, which have been levelling off over time ([84]). Allocation of construction and operation of infrastructure to the private sector, including through public private partnerships (PPP), has also contributed to the recorded fall in municipal investment. ([85])

The trend decline in municipal investment also points to underinvestment resulting from a limited funding of municipalities. In particular, strongly increasing statutory social expenditure and weak revenue growth in the first half of the 2000s reduced the scope for municipalities to invest adequately in infrastructure. This also makes municipal investment to a significant extent dependent on investment-related allocations from *Länder* and federal budgets, ([86]) which provided funding for about 30% of municipalities' gross fixed capital formation between 2000 and 2010. Earmarking of transfers to new construction and non-eligibility of replacement work may also have added to a transport infrastructure maintenance backlog at the municipal level. ([87]) On the other hand, strong disparities in the level of municipal investment across West German *Länder* suggest that the degree of underinvestment differs across Germany, reflecting different budgetary situations of municipalities. ([88]) Existing investment planning and financing mechanisms do not seem to have been able to remedy these differences.

Moreover, evidence suggests that investment has been insufficient to maintain the quality of Germany's transport infrastructure in particular. While the country has well-developed transport infrastructure, ([89]) gross fixed capital formation in real terms in roads and bridges has been on a downward trend in recent years and has been rather stable or slightly increasing in railway infrastructure and waterways. Decreasing real investment was observed notably with respect to *Länder*, county and municipal roads and local public transport. ([90]) Around a quarter of the investment ratio differential between Germany and the euro area (excluding Germany, Ireland and Spain) over the period 2000-2011 can be attributed to the transport and energy sectors. ([91]) Moreover, the age structure of overall transport infrastructure

([84]) Decreasing investment needs are not inconsistent with the widely reported investment backlog in transport in East-German municipalities, since strong infrastructure investment in the past has reduced the need for new infrastructure construction, but is likely to have resulted in increasing maintenance costs.

([85]) Reidenbach et al. (2008) estimate that in 2005 investment carried out by communal corporations outside municipal budgets accounted for about 49% of total investment at the municipal level, and about one fifth of the reduction in municipalities' investment activity since 1992 could be explained by privatisation.

([86]) In a linear regression analysis, Reidenbach et al. (2008) identify investment-related allocations from *Länder* and federal budgets as the most important determinant of municipal construction investment per inhabitant.

([87]) KfW (2013a).

([88]) The average construction investment per inhabitant of municipalities between 2000 and 2010 reached from 131 euros in Saarland and 137 euros in North Rhine-Westphalia to 249 euros in Baden-Wuerttemberg and 287 euros in Bavaria (Commission services calculations based on Destatis data).

([89]) The overall infrastructure index of the World Economic Forum's Global Competitiveness Report 2013–2014 ranks Germany third worldwide behind Hong Kong and Singapore. In particular, it ranks among the top eleven nations worldwide in the assessment of all categories of transport infrastructure (World Economic Forum, 2013). On the other hand, Hartwig et al. (2007) assess the performance of German road infrastructure as rather average compared to other selected European countries, while railway infrastructure ranks higher.

([90]) Kunert and Link (2013).

([91]) Estimate based on Eurostat data on gross fixed capital formation in Sections D, F and H of the NACE rev.2 nomenclature (from Section F only the energy and transport-related subsections are included).

as well as the state of federal roads, federal road bridges and rail bridges has worsened. ([92])

Studies suggest that additional ½ to 1% of GDP would need to be invested annually over the coming years to maintain and modernise Germany's public infrastructure and remove specific bottlenecks. A range of studies and surveys have quantified the investment backlog of municipalities and in transport infrastructure (see Box 3.6). The results suggest that additional spending of at least 7 bn euros annually would be needed to overcome the investment backlog in Germany's transport infrastructure. The municipal investment backlog beyond transport infrastructure has been estimated at up to 95 bn euros. For example, reducing this backlog until 2020 would require additional annual expenditure of 14 bn euros. The results also suggest that priority should be given to maintenance and replacement investment. At the same time, an expansion of the overall well-developed transport infrastructure should focus on bottlenecks. In addition, adjusting infrastructure to an ageing and shrinking population as well as regional migration is also likely to gain relevance. ([93])

Education spending in Germany is rather low in international comparison, in particular regarding primary and lower secondary education. Public and private expenditure on educational institutions increased moderately over the 2000s, but remains well below the OECD average of 6.2% of GDP. ([94]) The gap in public expenditure on educational institutions in particular is high, amounting to close to 1% of GDP in 2009 (4.5% of GDP in Germany vs. OECD average of 5.4% of GDP and a euro area average excluding Germany of 5.5% ([95]). The difference is somewhat smaller for expenditure per student by educational institutions relative to GDP per capita (27% vs. 29% in the OECD), and the comparatively low expenditure on education likely also reflects in part the lower share of the age group below thirty in the German population. ([96]) The expenditure per student is below-average in primary and lower secondary education and above-average in upper secondary and tertiary education At the same time, while the skills of German primary school students are above-average in international comparison, they remain well behind the best performers. ([97]) Contrary to education, expenditure on R&D, which is mainly provided by the private sector, has increased to 2.9% of GDP in 2011, which is well above the EU-28 and OECD averages (1.9% and 2.4% of GDP respectively in 2011). ([98])

Germany has increased expenditure on infrastructure and education in recent years and plans to reinforce it further. Investment in public infrastructure and human capital has been strengthened by the 2009 stimulus package, additional funding for federal transport infrastructure, extra funds for extending childcare facilities and increased spending on education and research. ([99]) The new federal government plans additional funds to be provided over the next four years for investment in childcare facilities (in total 6 bn euros), transport infrastructure (5 bn euros), research (3 bn euros) and urban development (0.6 bn euros), and additional 5 bn euros annually to partly compensate municipalities for social expenditure, which should increase their fiscal space for investment. The planned reform of fiscal relations could contribute to a sustainable funding of public infrastructure at the level of municipalities. The target of federal and *Länder* governments to increase public and private spending on education and research to 10% of GDP by 2015 has almost been achieved with 9.5% of GDP in 2010. ([100]) With a view to ensuring

([92]) Bundesministerium für Verkehr, Bau und Stadtentwicklung (2012), Bundesrat (2012).
([93]) KfW (2013b) estimates that over the next 5 years about 5 bn euros will need to be invested in the demolition and 20 bn euros in the modification of public infrastructure, of which 40% in transport infrastructure.
([94]) OECD (2012b).
([95]) No data available for EL, LU, LV, MT and CY.
([96]) Education expenditure is largely determined by the age group below thirty, which in 2009 made up on average 39% of the total population in the OECD but only 31% in Germany (Statistisches Bundesamt, 2012b).
([97]) See Bos et al. (2012).
([98]) OECD (2013c).
([99]) Additional 12 bn euros were spent at the federal level on education and research between 2010 and 2013; earmarked transfers of 2 bn euros have been provided to the *Länder* as from 2008 to support the extension of childcare facilities; and 65% of the funds provided under the investment programme adopted as part of the 2009 stimulus package were earmarked for educational infrastructure (Statistisches Bundesamt, 2012b).
([100]) The 9.5 % share of GDP was made up of 7 % on education (total public and private expenditure according to national definition) and 2.8 % on research and development, less the amount spent on research and development at universities,

Germany's innovative potential and catching up with the most innovative economies, ambitious follow-up targets have been recommended. ([101]) In particular, targeted investment to improve the quality of early childhood education and all-day schools as well as to facilitate the access of educationally disadvantaged groups to higher education would contribute to a better use of human capital, not least in view of the expected decline in labour force potential and skill shortages. ([102])

3.6. INTERLINKAGES WITH OTHER EURO AREA MEMBER STATES AND POTENTIAL SPILLOVERS

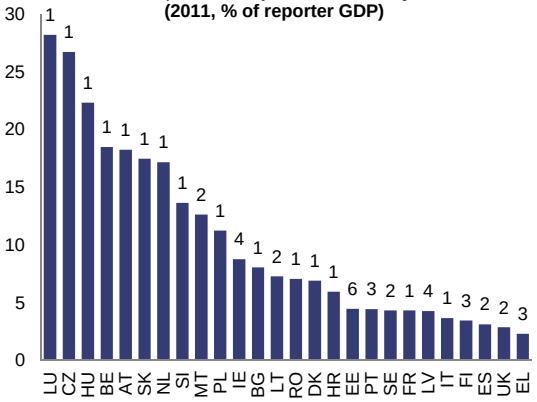
This section examines the interlinkages between the German economy and the euro area and how they can affect their recovery and growth prospects. After a protracted period of slow growth, as a result of the financial crisis, the euro area is only now beginning to see the first signs of recovery. This recovery remains however, fragile and uncertain. The objective of national policies is to promote stability and growth domestically. At the same time, ways that help promote growth in each country individually can also help promote adjustment, growth and stability in the whole of the euro area.

3.6.1 Trade and financial linkages between Germany and the rest of the euro area

Germany is the most important trading partner for most EU countries exports. For most countries in the EU, Germany is the number one destination for their exports (see Graph 3.52). For the small bordering countries, exports to Germany also represent a substantial proportion of their GDP, up to 25 % for the Czech Republic and over 15 % for Austria.

A very similar picture emerges when looking at the origin of countries' imports. Germany remains the number one originator for many countries, and is at the 'top-3' position for all countries in the EU (except IE for which it is number 4, See Graph 3.53). So, while it is true that from the perspective of Germany, trade with the rest of the world has been of increasing relevance, for most European countries Germany remains a very important trading partner.

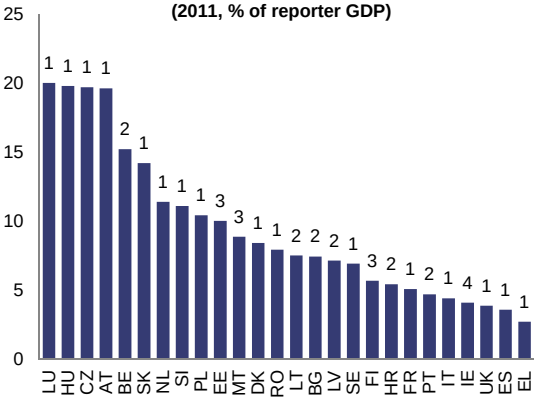
Graph 3.52: **Exports to Germany (2011, % of reporter GDP)**



Source: UN

Note: Number above each bar indicates rank of DE in total exports (imports) of each reporter, as % of GDP.

Graph 3.53: **Imports from Germany (2011, % of reporter GDP)**



Source: UN

Note: Number above each bar indicates rank of DE in total exports (imports) of each reporter, as % of GDP.

Germany has also strong financial linkages with the EU. Graph 3.54 shows how countries' financial sector is exposed to Germany. It shows that since the start of the crisis most countries' financial exposures to Germany have increased consistent

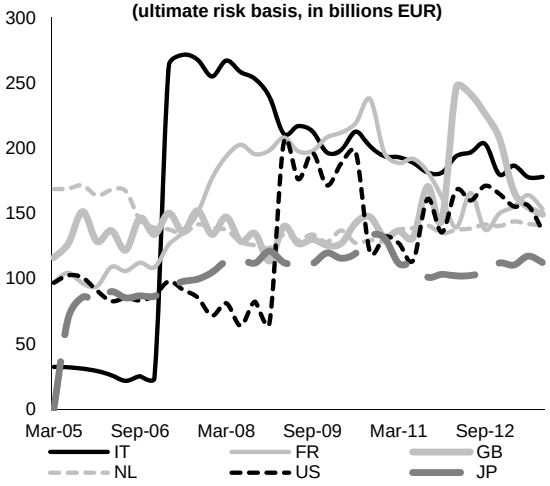
which is included in education expenditure (Statistisches Bundesamt, 2012b).

([101]) The expert commission on research and innovation appointed by the federal government recommends increasing the expenditure targets to 8 % of GDP for education and 3.5 % for research and development by 2020 (Expertenkommission Forschung und Innovation, 2013).

([102]) Spieß (2013).

with Germany being considered a safe-haven. ([103]) More specifically, at the middle of 2013 these exposures were primarily to the German non-bank private sector, followed by the government sector and only last German banks themselves.

Graph 3.54: **Countries' financial exposure to DE (ultimate risk basis, in billions EUR)**



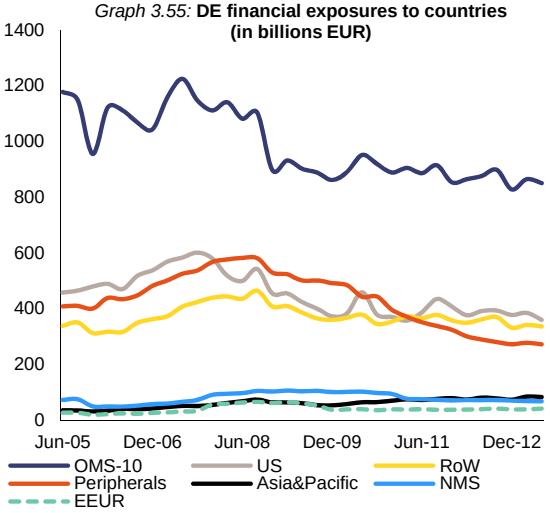
Source: BIS, Com. serv. calculations

Graph 3.55 shows in turn German banks exposures. German banks are primarily exposed to the old member states (OMS-10). Beyond that, German bank exposures are distributed equally between the peripheral countries, the US and the Rest of the World. One important issue is that the amounts by which all these exposures have declined since 2007-2008, have become claims to the Bundesbank (and Target 2 as discussed in Section 3.3) instead.

Germany plays also an important role in terms of employment creation in the EU. Germany plays an important role in both creating as well as receiving jobs, generated as a result of trade activities with extra-EU countries. In 2009, for any 100 jobs created as a result of EU-27's trade with extra-EU countries, 24 were generated by Germany's trade. On the receiving end, for 100 jobs created by extra-EU trade by the rest of the EU, Germany received 17 jobs, the UK 13, Poland 10, Italy and France 7 jobs each and the Netherlands 6. Overall, in 2009 Germany generated 1,052 thousands jobs in the rest of EU-27 and "received" 741 thousand employees. ([104])

([103]) The jump in the Italian exposure reflects the takeover of HypoVereinsbank by UniCredit.
([104]) Arto and Amores (2013).

Graph 3.55: **DE financial exposures to countries (in billions EUR)**



Source: BIS, Com. serv. calculations

3.6.2 Exchange rate sensitivity analysis: Germany versus Italy

The possibility of an exchange rate appreciation could add an extra layer of complexity in the medium term. The direction of exchange rate changes in the presence of a surplus is not a priori clear. At first instance the existence of weak aggregate demand implying accommodative monetary policy stance should be associated with a depreciation of the euro. However, there are reasons why the currency may move in the opposite direction, in particular in the medium-run.. A high trade surplus implies an increase in the demand for, and therefore possibly also value of, the euro. Second, a growing current account surplus would also improve the net foreign asset position of the EA and reduce risk premia, which by itself may put upward pressure on the exchange rate. Nevertheless, it is not obvious that that these pressures will materialise.

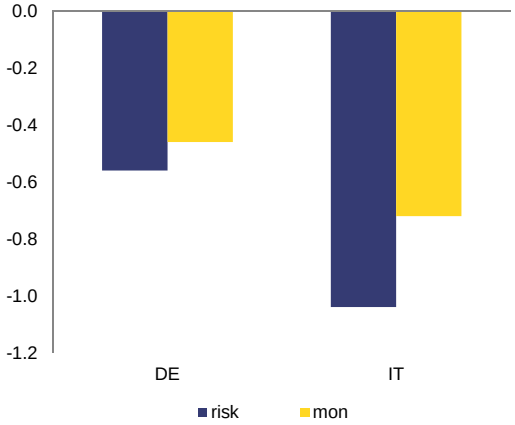
Countries are different in the way the demand for their exports is affected by changes in relative prices. In this respect the analysis shows that German exports are less sensitive than other euro area countries', and are therefore better equipped to maintain their market shares as the currency appreciates. By means of an example, using the Commission's QUEST model the analysis shows how a real-effective appreciation of

the euro has a more detrimental effect on Italy than Germany.

The impact of a real-effective appreciation of the euro on the real economy depends on the origin of the exchange rate change. It matters therefore whether the appreciation observed is the result of, for example, a monetary relaxation in the US and Japan, or of a reduction in the euro area level of perceived risk. By simulating enough of a change in these two ways to generate in both cases a 5% appreciation of the euro (in real effective terms), the analysis illustrates how differently they can affect countries in the euro area.

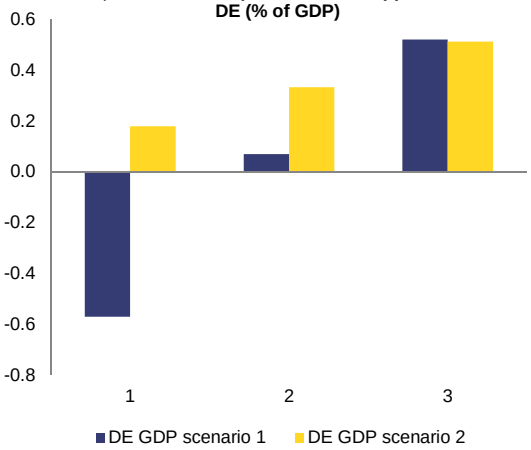
In both cases, there is an increase in the demand for euro area assets. Capital flows in, which in itself causes the euro to appreciate. However, these effects transmit to the economy at different speeds and with different second round effects. A key driver of this difference is the way that euro area exports are affected. In the case when the risk premium in the euro area decreases, the currency appreciation reduces euro area competitiveness and therefore the demand for their exports while domestic demand is boosted by lower risk premia. In the other example, a reduction of US and Japanese interest rates increases their own countries domestic demand and, it the first instance, the demand for euro area exports. Eventually as the euro appreciates the demand for euro area exports diminishes. However, the overall drop of euro area exports is smaller, which will also cause a smaller reduction in GDP, (and even an increase in GDP in some cases), Graphs 3.56 and 3.57.

Graph 3.56: **First year impact of 5% real appreciation on exports (% of GDP)**



Source: Commission services calculations

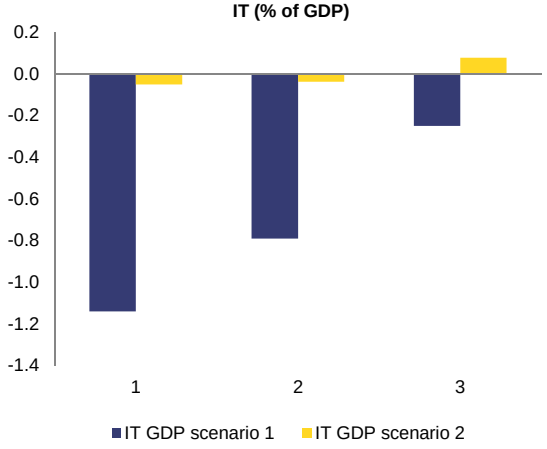
Graph 3.57: **GDP impact of 5% real appreciation DE (% of GDP)**



Source: Commission services calculations

It is then natural that countries for which their exports are more inelastic witness smaller drops in both the demand of their exports and eventually their GDP. Estimates from trade equations indicate that the price elasticity of Germany's exports is indeed smaller than that of other large Member States. This is captured in these experiments, and the impact on exports is larger in Italy than in Germany in both cases. The overall effect on GDP differs even more, and in the case of a US and Japanese monetary policy easing, the GDP effects for Germany are even positive. In Italy the effects of growth are negative, in particularly early on.

Graph 3.58: **GDP impact of 5% real appreciation IT (% of GDP)**



Source: Com. serv. calculations